

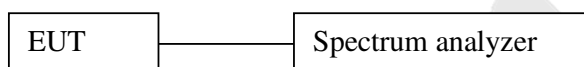
6. 20DB BANDWIDTH TEST

6.1 Measurement 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.

6.2 Test SET-UP



6.3 Test Equipment

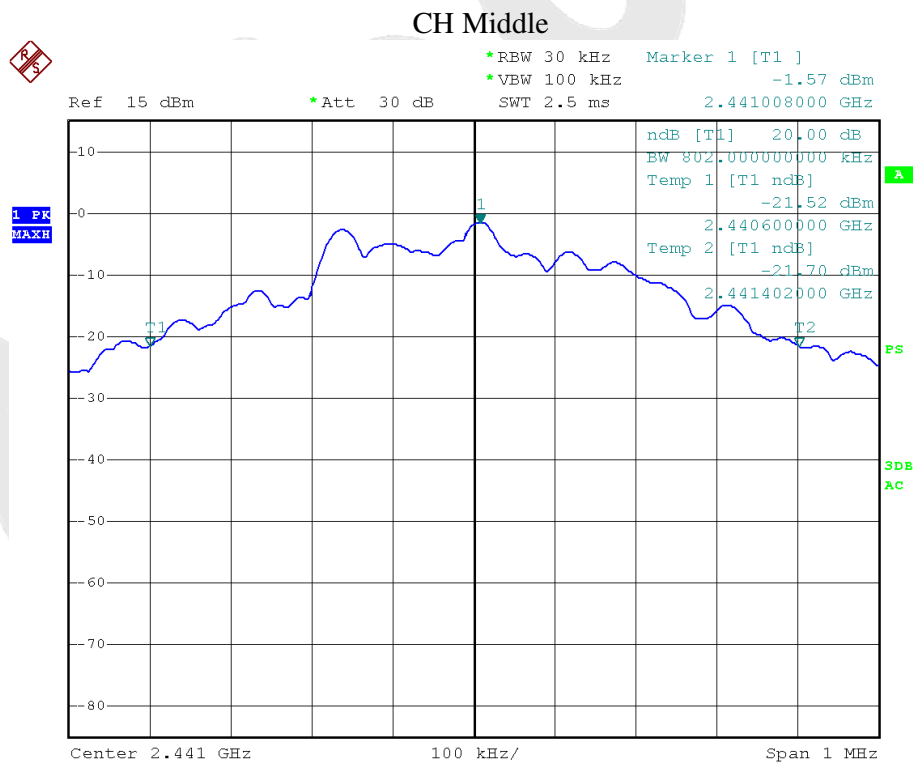
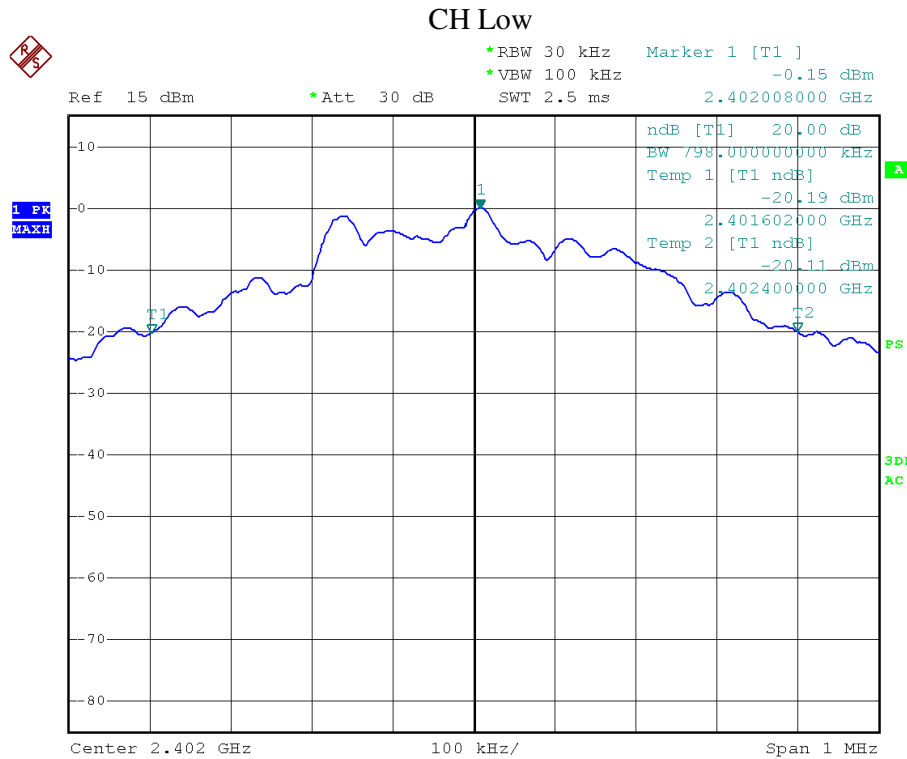
Same as the equipment listed in 5.3.

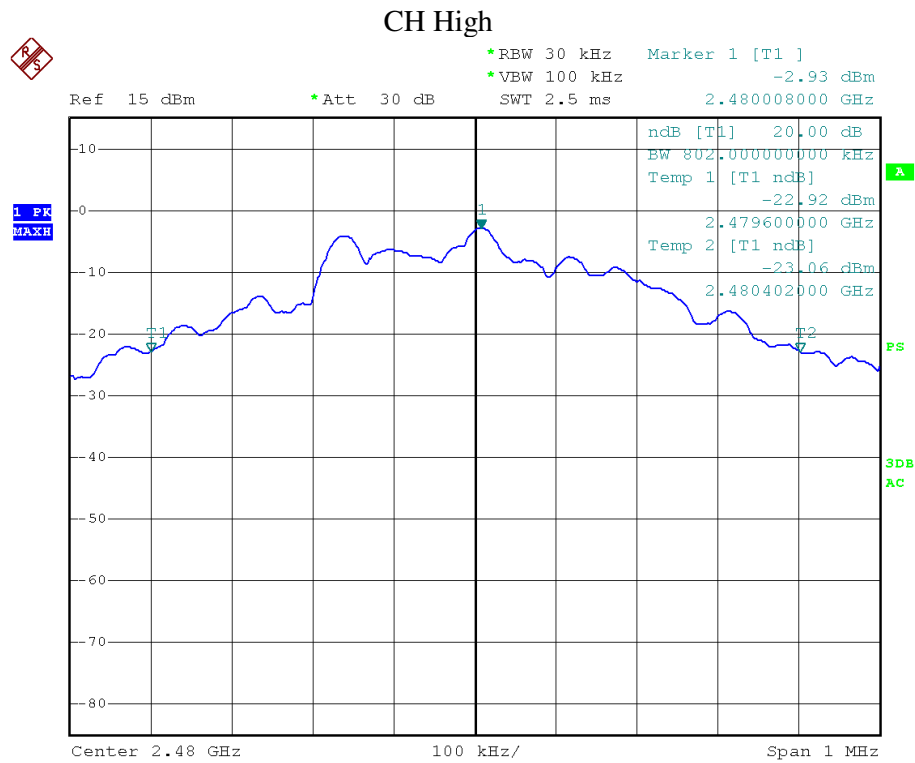
6.4 Test Results

Test Item	: 20dB BW	Test Mode	: CH Low ~ CH High
Test Voltage	: DC 3.7V	Temperature	: 24°C
Test Result	: PASS	Humidity	: 55%RH

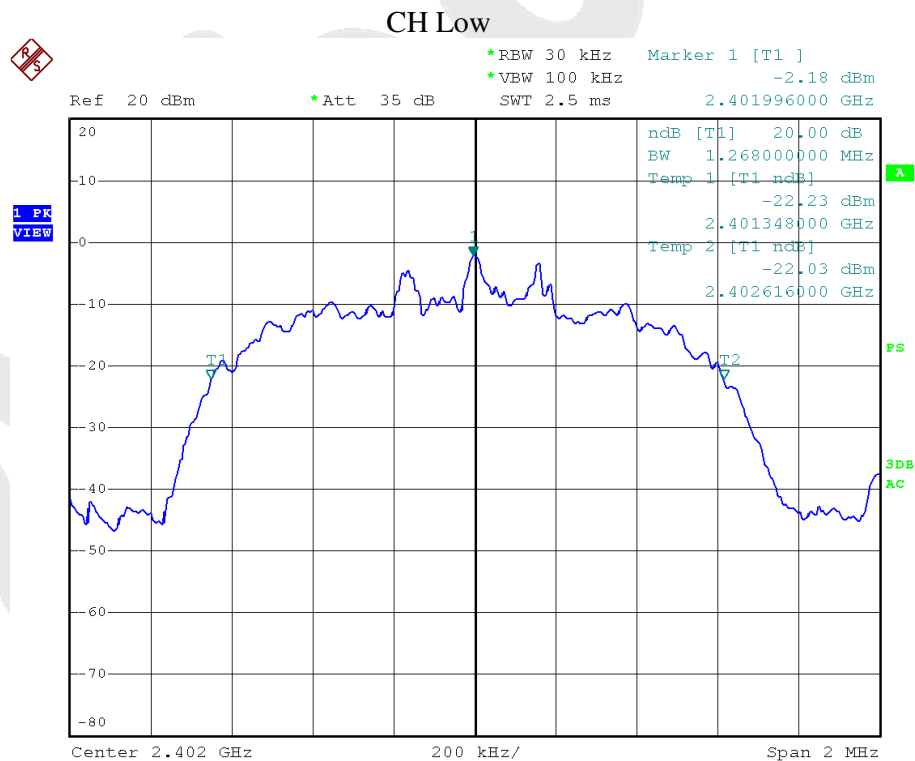
Channel	Frequency (MHz)	20dB Down BW(kHz)	Mode
Low	2401	798	BDR
Mid	2441	802	BDR
High	2480	802	BDR
Low	2401	1268	EDR
Mid	2441	1268	EDR
High	2480	1264	EDR

Mode: BDR

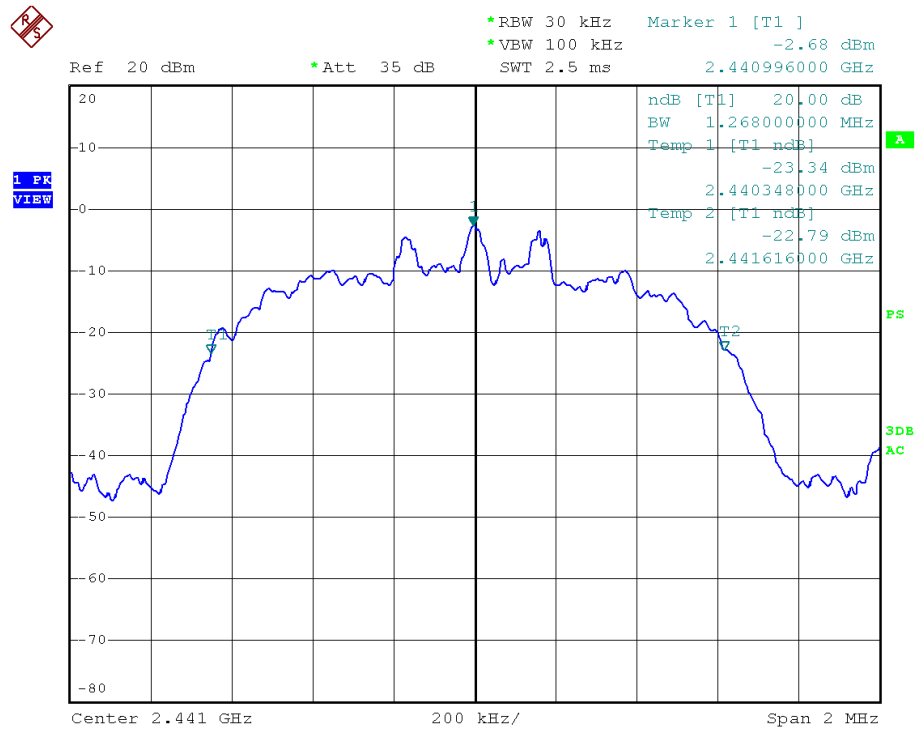




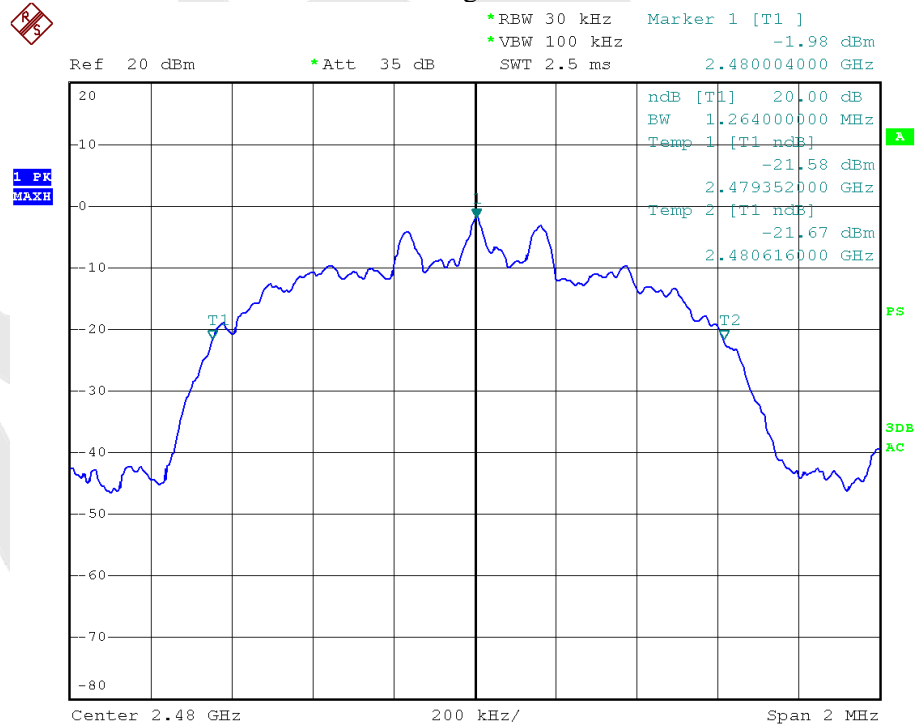
Mode: EDR



CH Middle



CH High



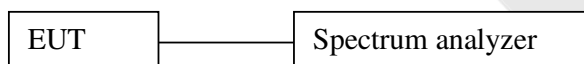
7. QUANTITY OF HOPPING CHANNEL TEST

7.1 Measurement 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 = 1 MHz.
3. Set the VBW = 1 MHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

7.2 Test SET-UP



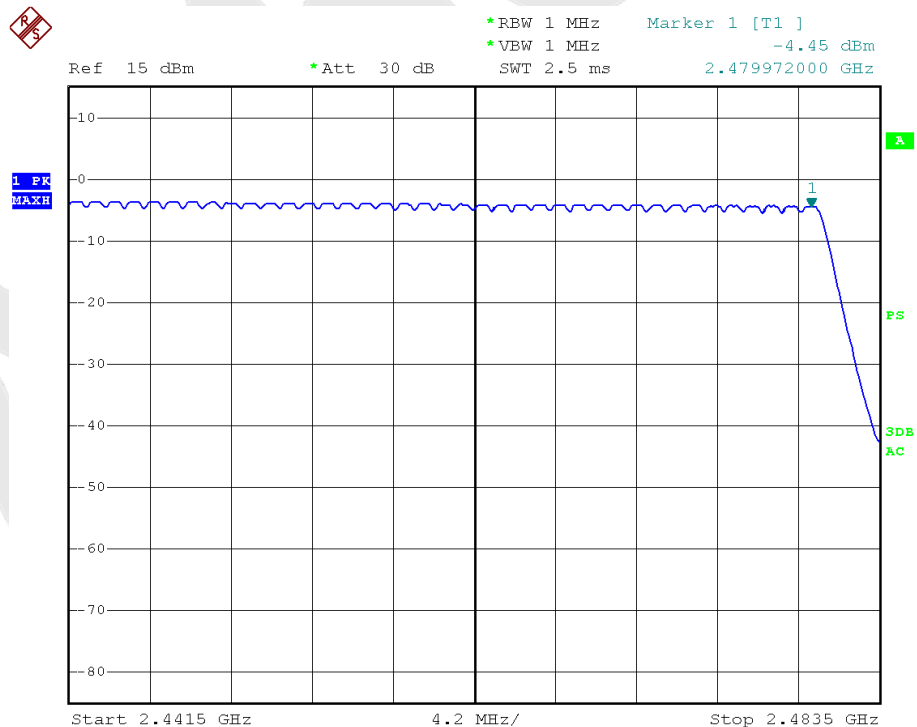
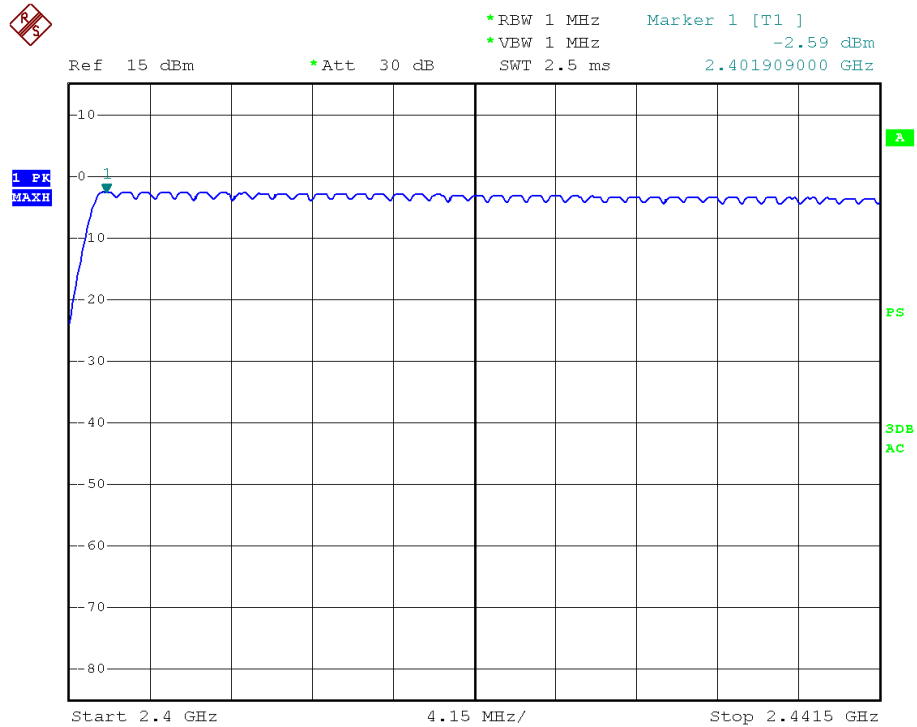
7.3 Test Equipment

Same as the equipment listed in 5.3.

7.4 Test Results

Test Item	: Number of Hopping Frequency	Test Mode	: CH Low ~ CH High
Test Voltage	: DC 3.7V	Temperature	: 24°C
Test Result	: PASS	Humidity	: 55%RH

Hopping Channel Frequency Range	Quantity of Hopping Channel	Quantity of Hopping Channel
2402-2480	79	> 15



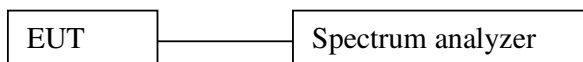
8. DWELL TIME TEST

8.1 Measurement 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 = 1 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.

8.2 Test SET-UP



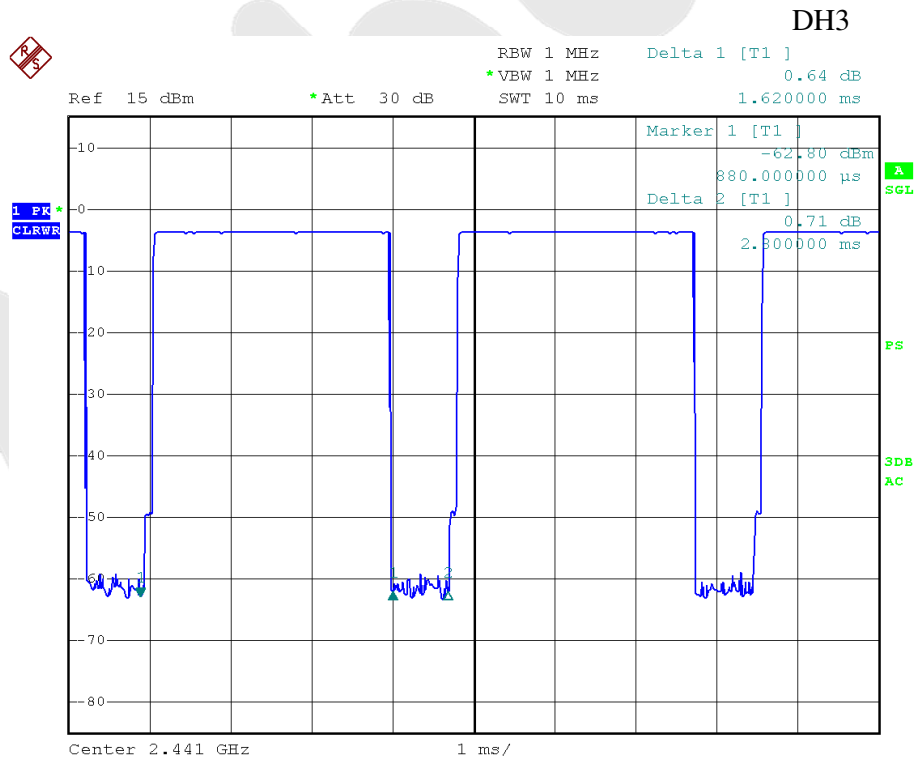
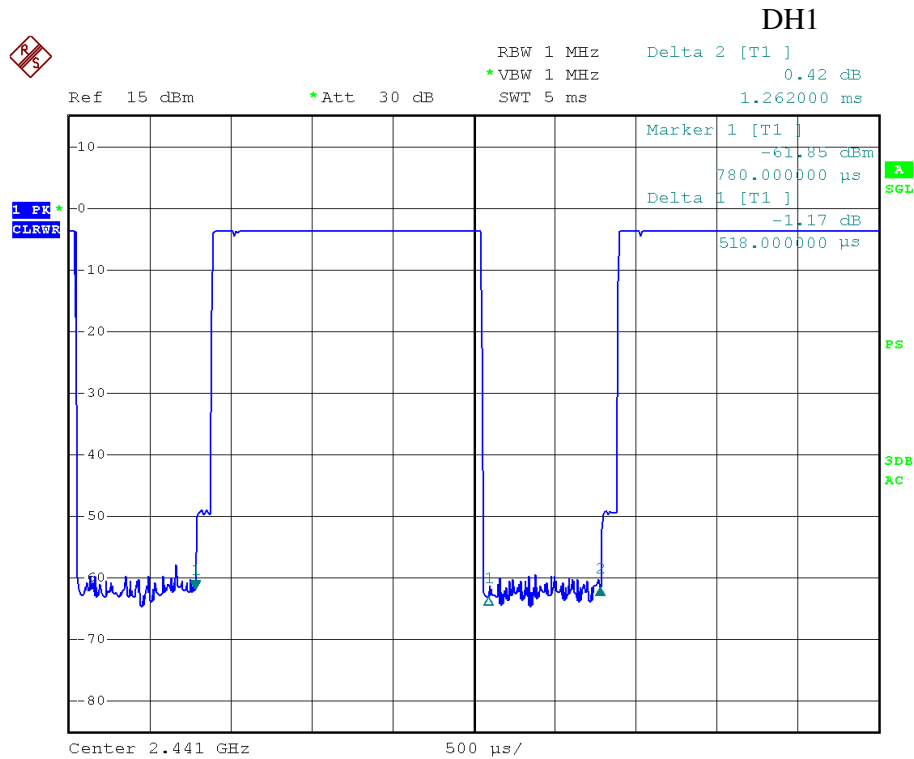
8.3 Test Equipment

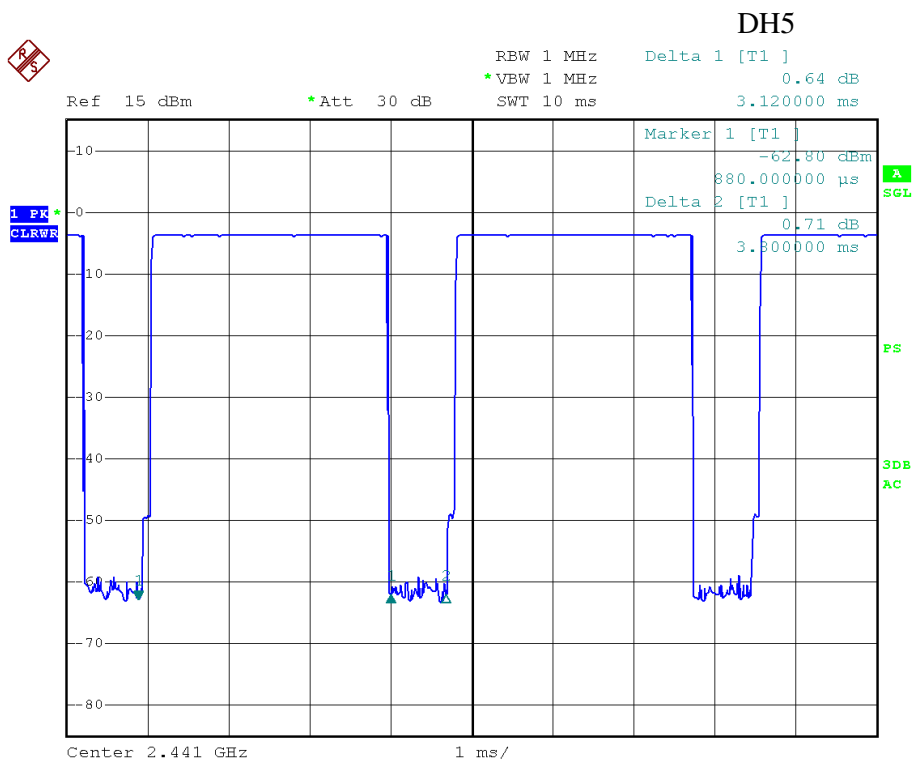
Same as the equipment listed in 5.3.

8.4 Test Results

Test Item	: Time of Occupancy	Test Mode	: CH Low ~ CH High
Test Voltage	: DC 3.7V	Temperature	: 24°C
Test Result	: PASS	Humidity	: 55%RH

Package Type	Pulse width (ms)	Time slot length(ms)	Dwell time (ms)	Limit (s)
DH1	0.518	time slot length *1600/2 /79 * 31.6	165.76	0.4
DH3	1.620	time slot length *1600/4 /79 * 31.6	259.20	0.4
DH5	3.120	time slot length *1600/6 /79 * 31.6	332.80	0.4





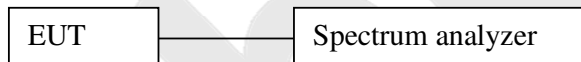
9. MAXIMUM PEAK OUTPUT POWER TEST

9.1 Measurement Procedure

- a. Check the calibration of the measuring instrument(SA) using either an internal calibrator or a known signal from an external generator.
 - b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
 - c. The center frequency of the spectrum analyzer is set to the fundamental frequency and using proper RBW and VBW setting.
 - d. Measure the captured power within the band and recording the plot.
 - e. Repeat above procedures until all frequencies required were complete.
- Using the following spectrum analyzer settings:

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

9.2 Test SET-UP



9.3 Test Equipment

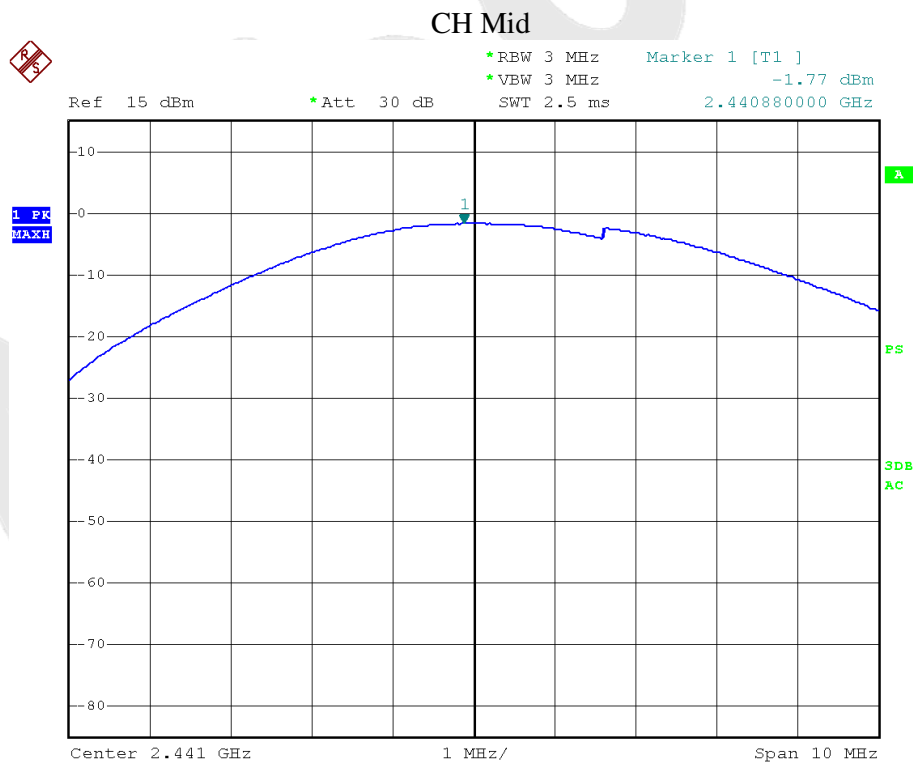
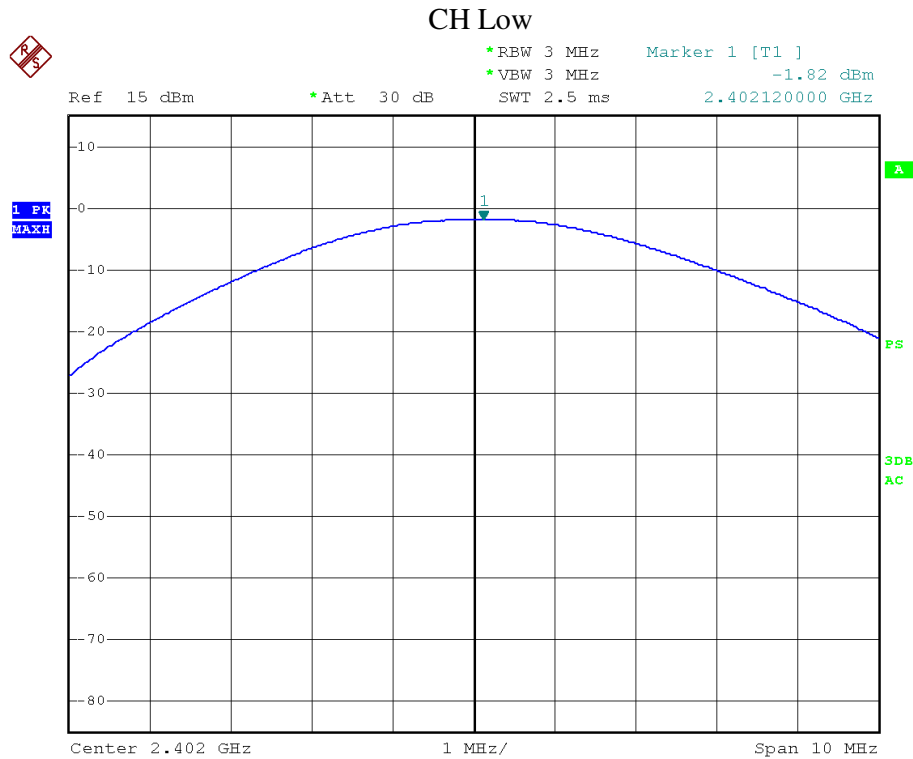
Same as the equipment listed in 5.3.

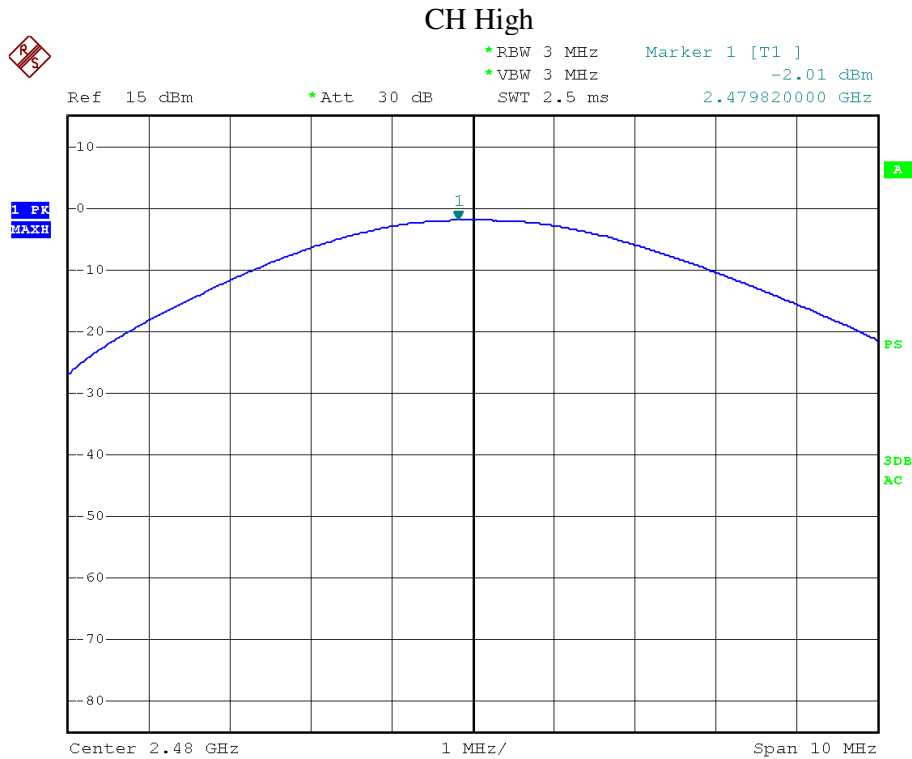
9.4 Test Results

Test Item : Max. peak output power Test Mode : CH Low ~ CH High
Test Voltage : DC 3.7V Temperature : 24°C
Test Result : PASS Humidity : 55%RH

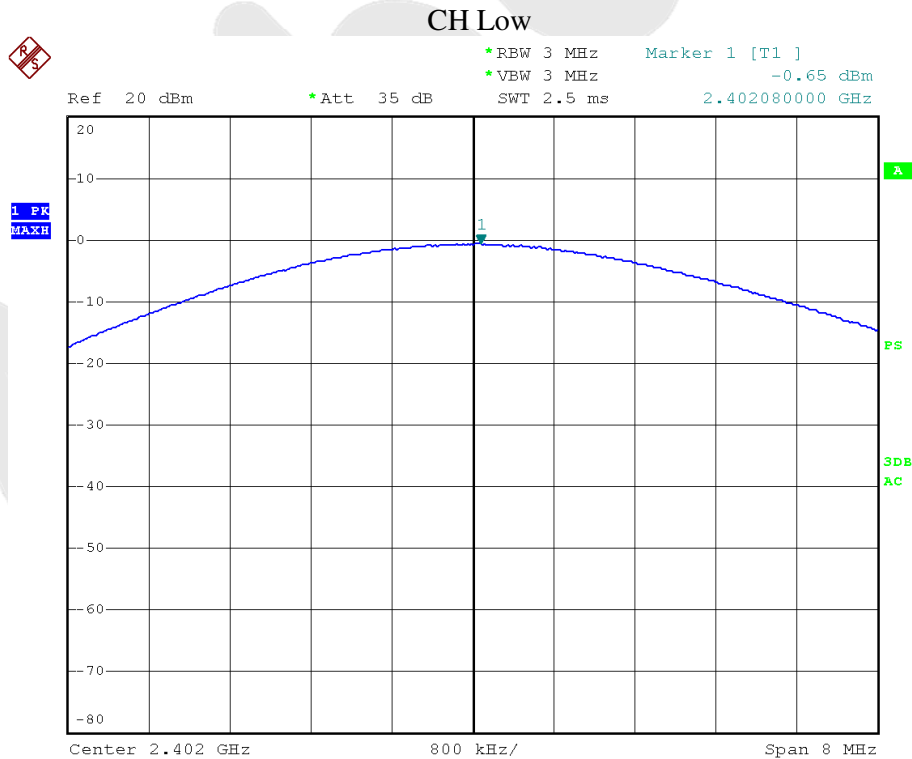
Channel Frequency (MHz)	Peak Power output(mW)	Peak Power output(dBm)	Peak Power Limit(mW)	Results	Mode
2402	0.66	-1.82	1000	PASS	BDR
2441	0.67	-1.77	1000	PASS	BDR
2480	0.63	-2.01	1000	PASS	BDR
2402	0.86	-0.65	125	PASS	EDR
2441	0.85	-0.70	125	PASS	EDR
2480	0.90	-0.46	125	PASS	EDR

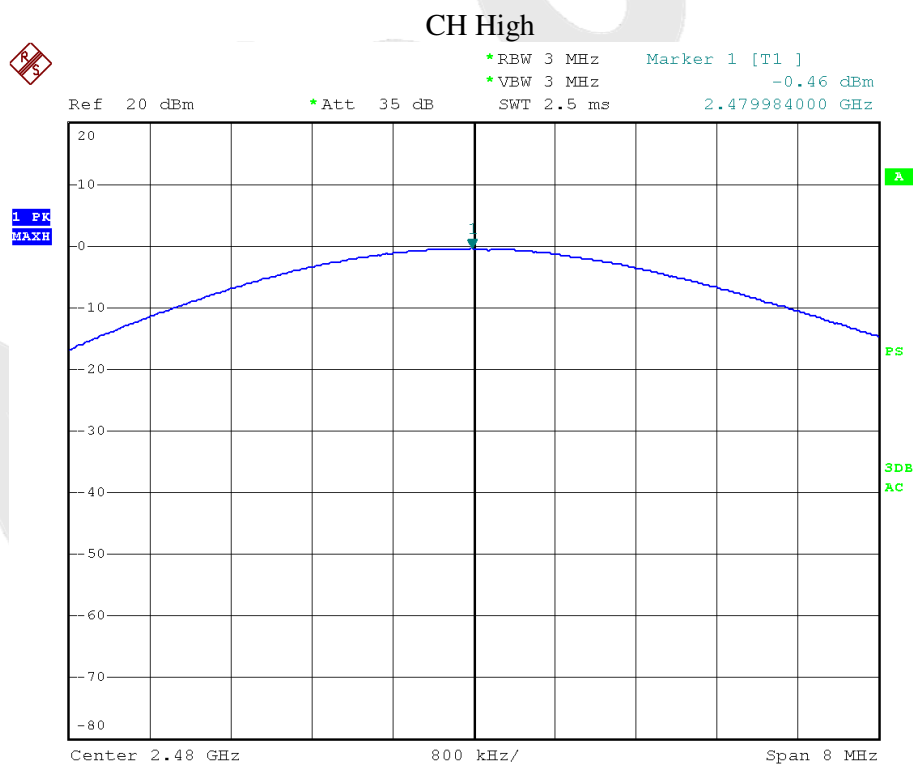
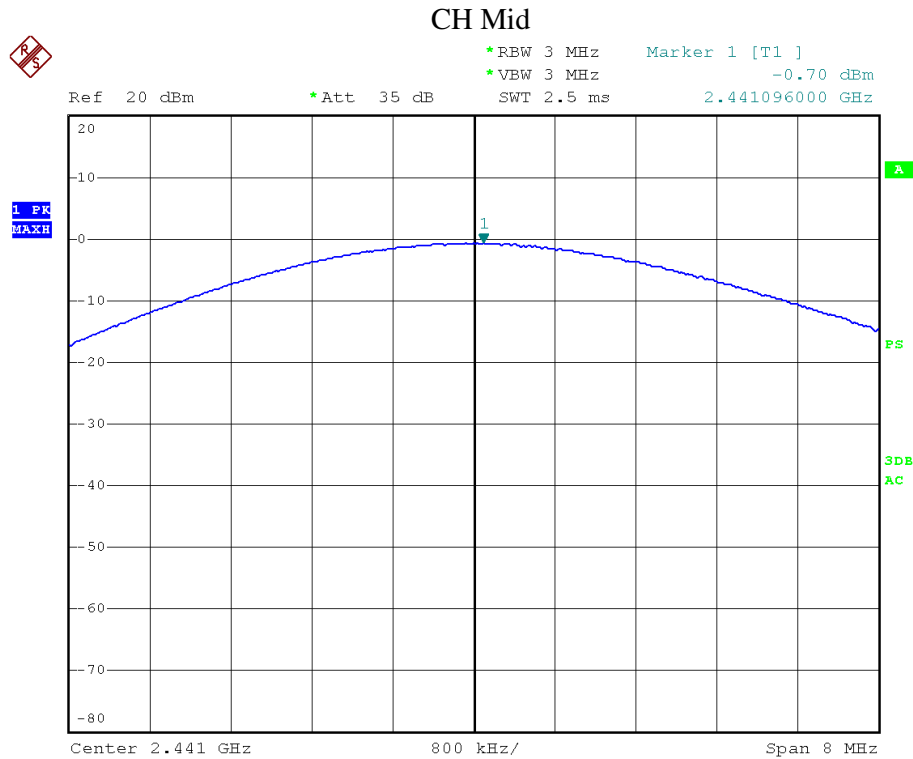
Mode: BDR





Mode: EDR



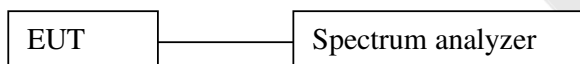


10. BAND EDGE TEST

10.1 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Put it on the Rotated table and turn on the EUT and make it operate in transmitting mode. Then set it to low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100kHz with a convenient frequency span including 100kHz bandwidth from band edge, for Radiated emissions restricted band RBW= 1 MHz, VBW= 3 MHz.
4. Measurement the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Report above procedures until all measured frequencies were complete.

10.2 Test SET-UP



10.3 Test Equipment

Same as the equipment listed in 5.3.

10.4 Test Results

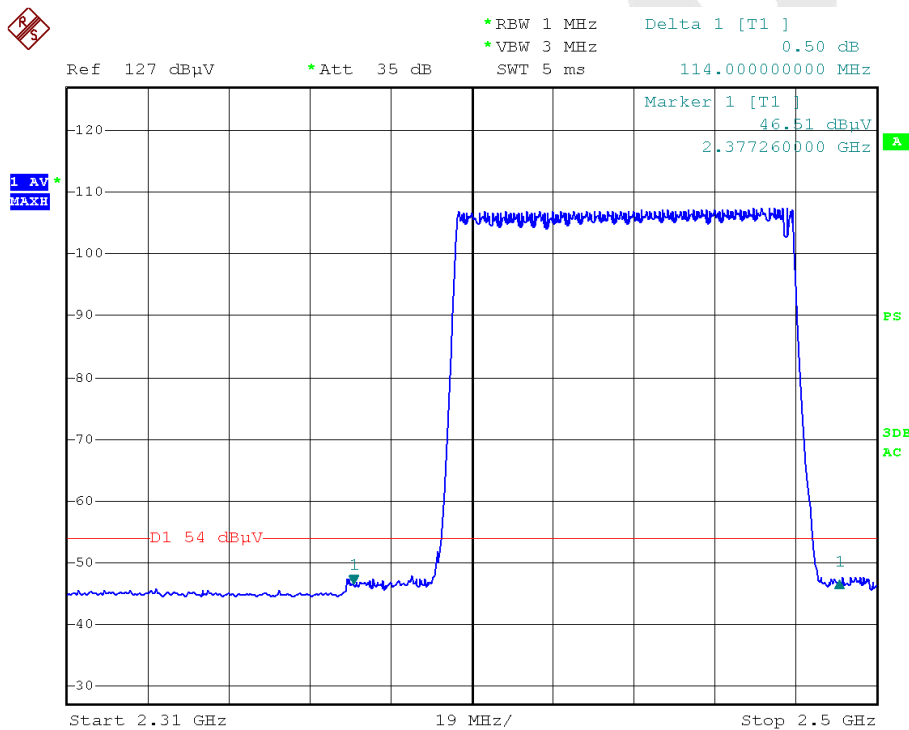
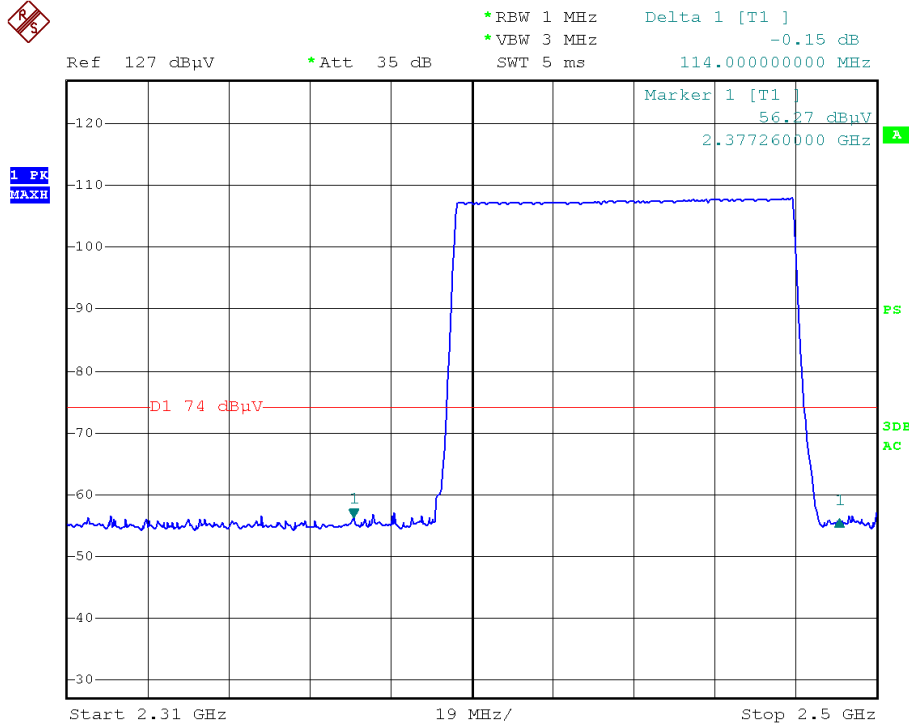
Pass.

Please refer the following data.

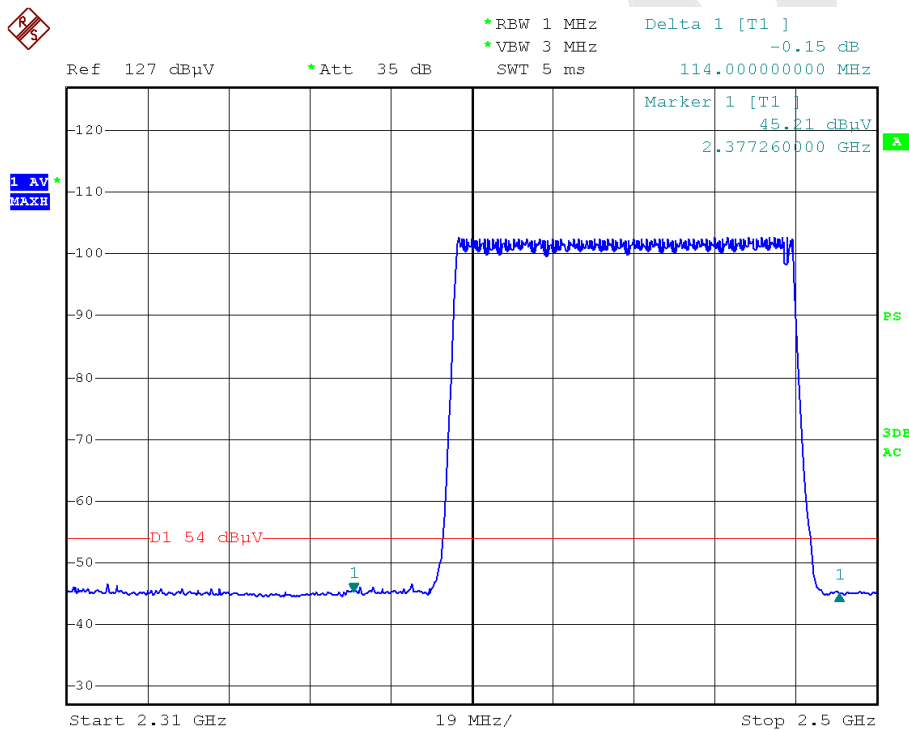
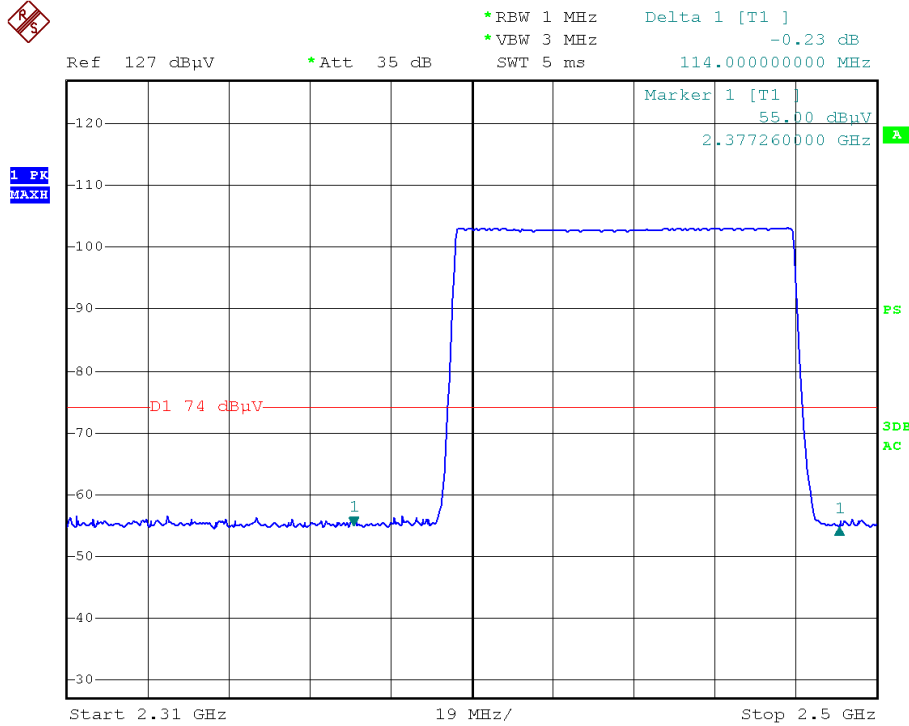
Test Item	: Band eadge	Test Mode	: CH Low ~ CH High
Test Voltage	: DC 3.7V	Temperature	: 24℃
Test Result	: PASS	Humidity	: 55%RH

For Hopping Mode:

Mode: BDR



Mode: EDR



Test Item	: Band eadge	Test Mode	: CH Low ~ CH High
Test Voltage	: DC 3.7V	Temperature	: 24℃
Test Result	: PASS	Humidity	: 55%RH

For Non-Hopping Mode:

1. Conducted Test

Frequency (MHz)	Peak Power Output(dBm)	Emission read Value(dBm)	Result of Band edge(dBc)	Band edge Limit(dBc)	Mode
<2400	-1.29	-52.71	51.42	>20dBc	BDR
	0.21	-50.23	50.44	>20dBc	EDR
>2483.5	-3.91	-49.07	45.16	>20dBc	BDR
	0.94	-36.29	37.23	>20dBc	EDR

2. Radiated emission Test

Frequency (MHz)	Antenna polarization (H/V)	Emission (dBuV/m)		Band edge Limit (dBuV/m)		Mode
		PK	AV	PK	AV	
<2400	V	58.45	34.35	74.00	54.00	BDR
	V	54.21	36.84	74.00	54.00	EDR
>2483.5	V	53.69	37.55	74.00	54.00	BDR
	V	51.47	37.02	74.00	54.00	EDR