

# FCC Part 47 §15.247 2400-2483.5 MHz

## Hardware Setup: WMS Measurements\TS8997

Spectrum Analyzer: SA FSV3044 (SA FSV3044) @ VISA (ADR  
TCPIP::192.168.48.148::inst0::instr), SN 1330.5000K43/101255, FW  
1.60SP1

OSP: OSP-B157W8PLUS (OSP-B157W8PLUS) @ VISA (ADR  
TCPIP::192.168.48.157::inst0::instr), SN 1527.1144.05 / 100850, FW  
2.10.0.23

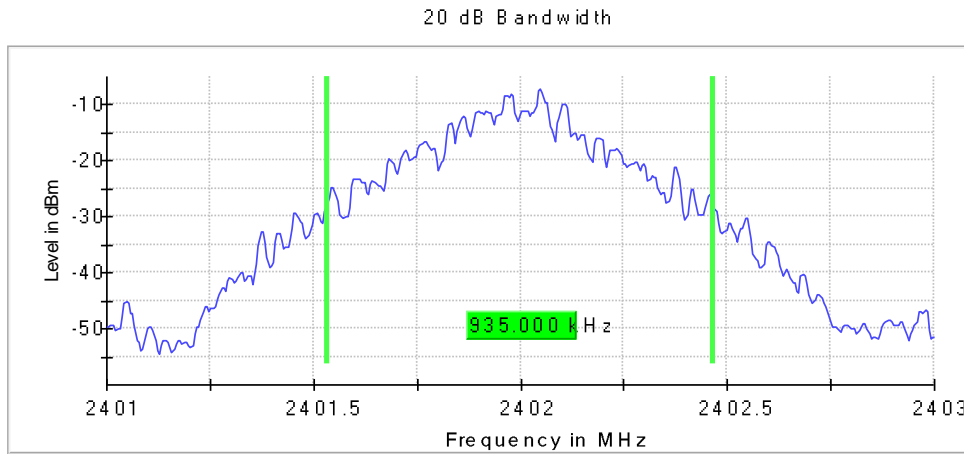
### Emission Bandwidth 20 dB (2402 MHz; 1DH5 )

#### 20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.935000	---	---	2401.532500	2402.467500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	-7.1	PASS



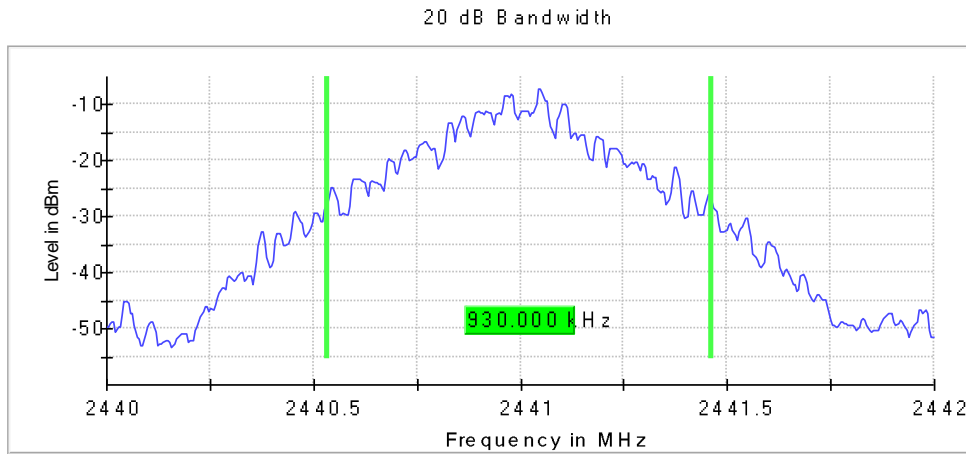
## Emission Bandwidth 20 dB (2441 MHz; 1DH5 )

### 20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	0.930000	---	---	2440.532500	2441.462500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2441.000000	-7.1	PASS



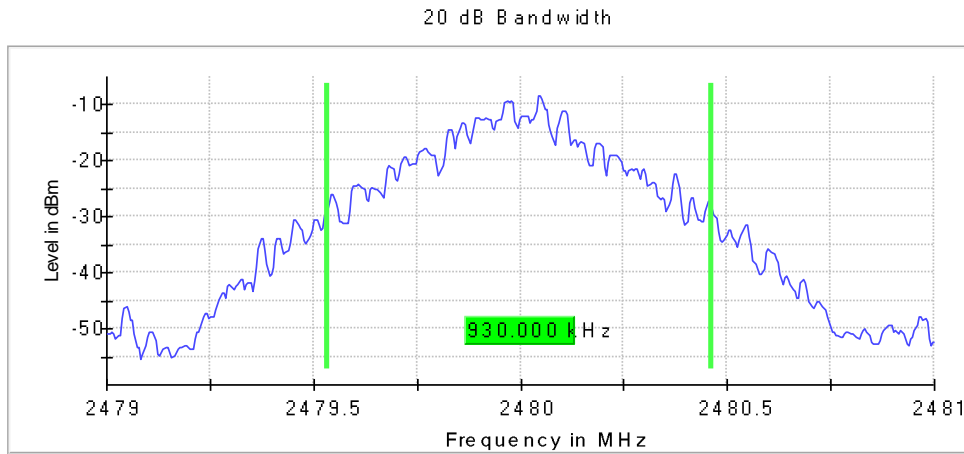
## Emission Bandwidth 20 dB (2480 MHz; 1DH5 )

### 20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.930000	---	---	2479.532500	2480.462500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	-8.2	PASS



## Emission Bandwidth 20 dB (2402 MHz; 3DH5 )

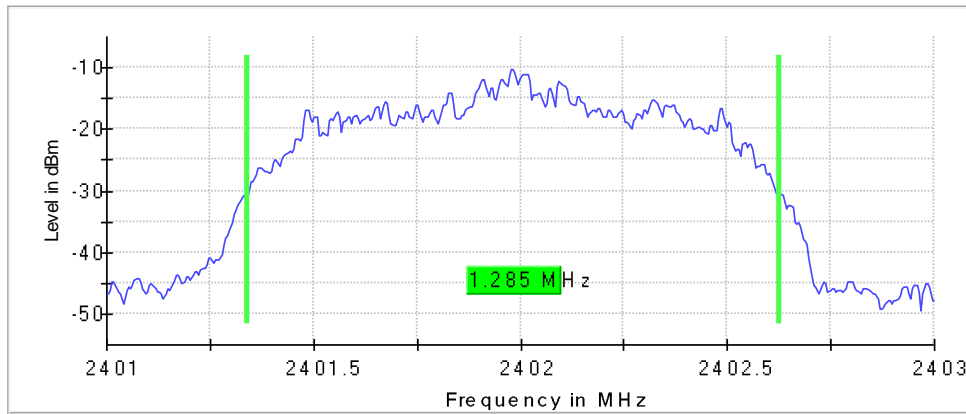
### 20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.285000	---	---	2401.342500	2402.627500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	-10.1	PASS

20 dB B andwidth



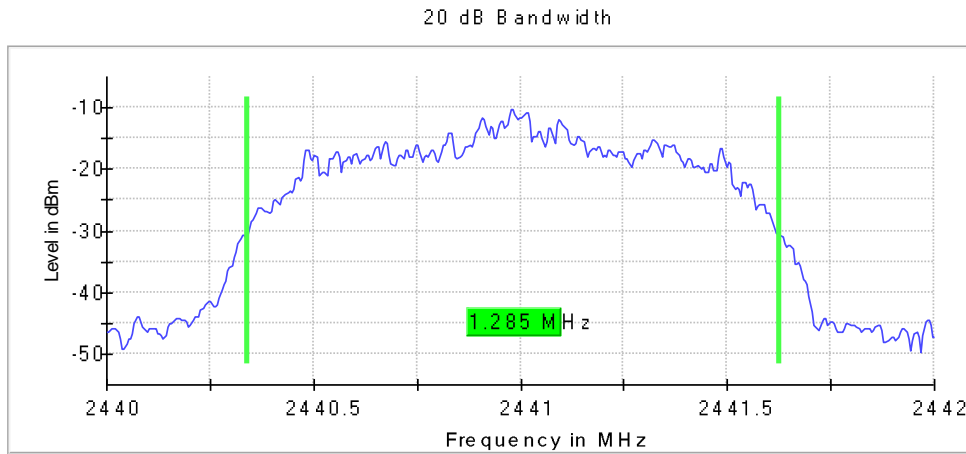
## Emission Bandwidth 20 dB (2441 MHz; 3DH5 )

### 20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	1.285000	---	---	2440.342500	2441.627500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2441.000000	-10.2	PASS



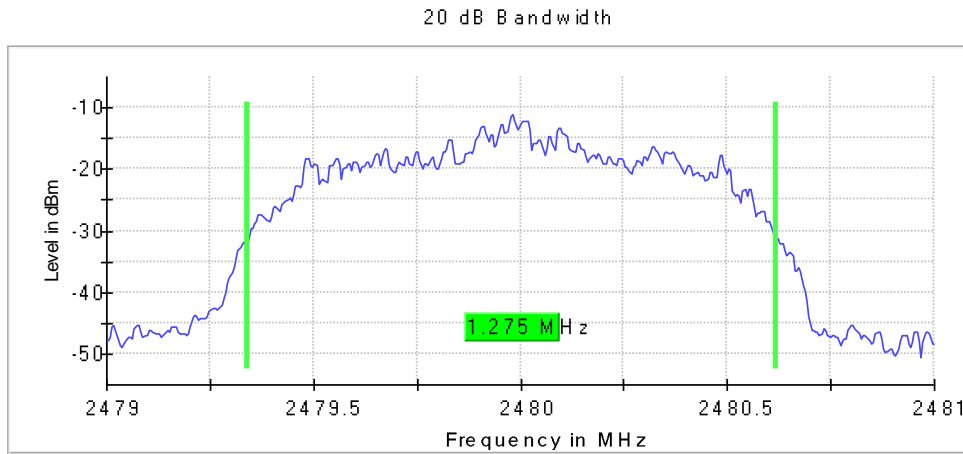
## Emission Bandwidth 20 dB (2480 MHz; 3DH5 )

### 20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.275000	---	---	2479.342500	2480.617500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	-11.2	PASS



## Carrier Frequency Separation (2402 MHz; 1DH5 (1 MHz))

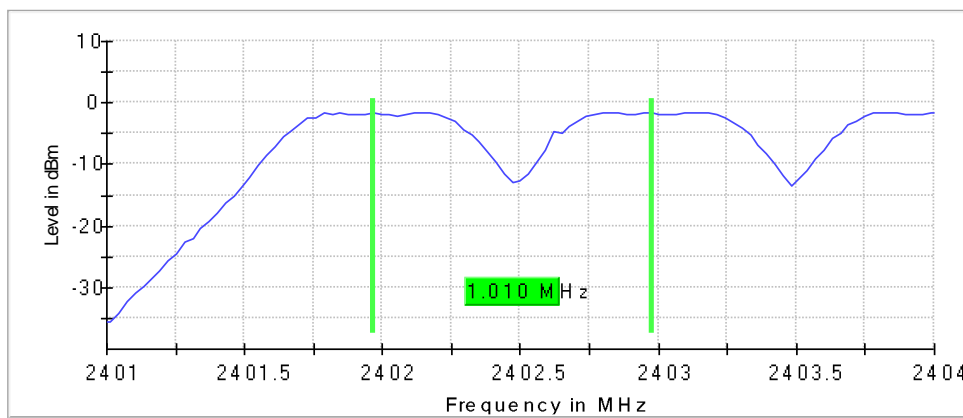
### Result

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2402.000000	1.009901	0.666667	---	2401.965347	2402.975248

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS

CFS





## Carrier Frequency Separation (2441 MHz; 1DH5 (1 MHz))

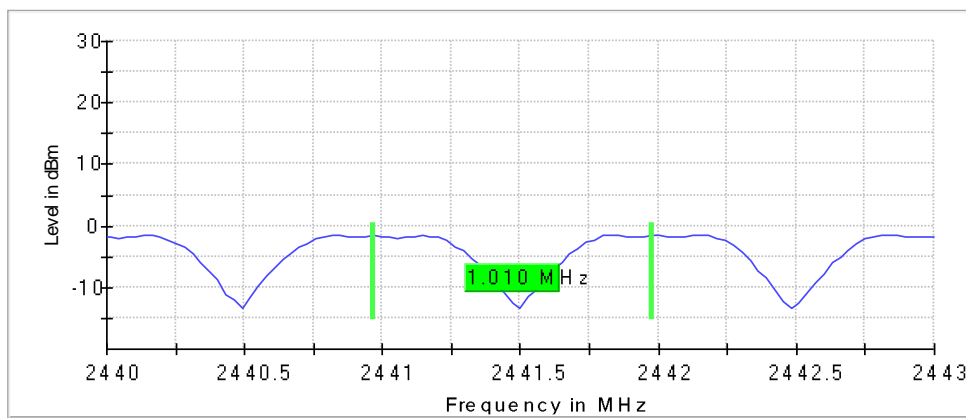
### Result

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2441.000000	1.009901	0.666667	---	2440.965347	2441.975248

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS

CFS



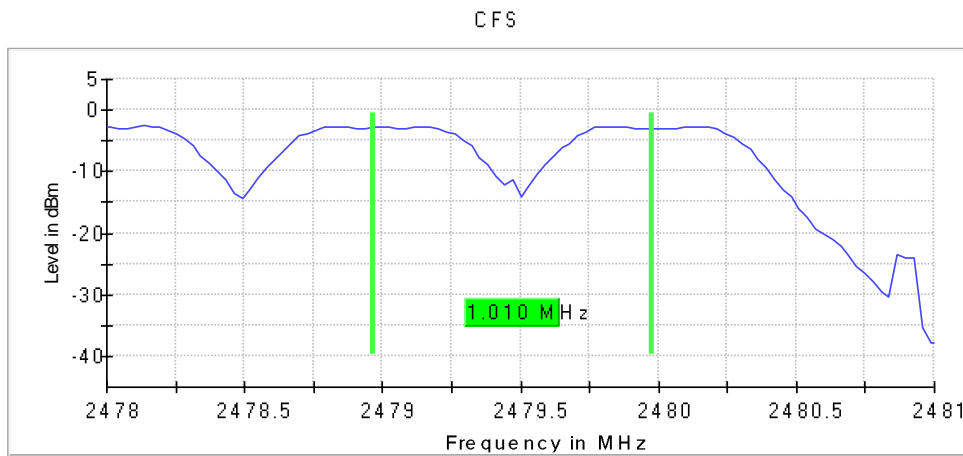
## Carrier Frequency Separation (2480 MHz; 1DH5 (1 MHz))

### Result

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2480.000000	1.009901	0.666667	---	2478.965347	2479.975248

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS



## Carrier Frequency Separation (2402 MHz; 3DH5 (1 MHz))

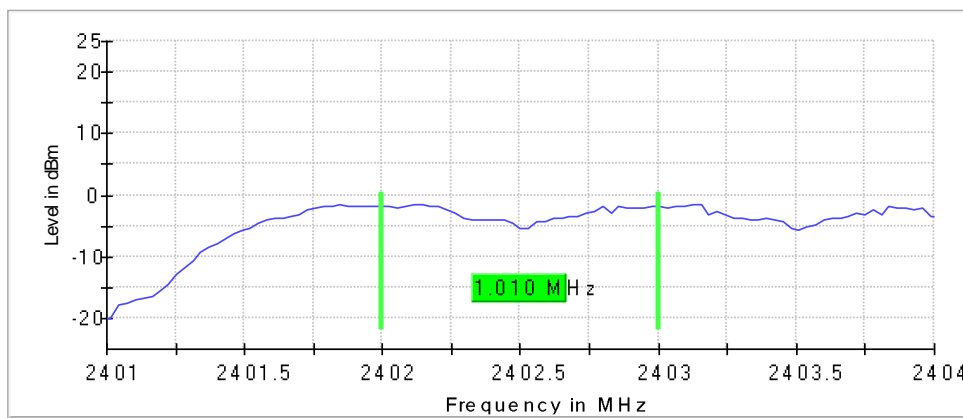
### Result

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2402.000000	1.009900	0.666667	---	2401.995050	2403.004950

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS

CFS



## Carrier Frequency Separation (2441 MHz; 3DH5 (1 MHz))

Customized settings.

Difference between maximum and minimum level below 10.0 dB. Difference: 4.4 dB Min:-5.9 dBm  
 Max:-1.4 dBm

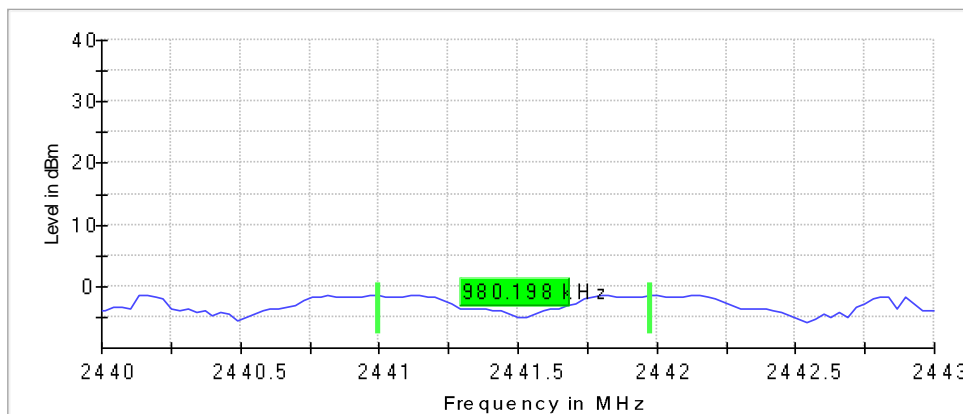
### Result

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2441.000000	0.980198	0.666667	---	2440.995050	2441.975248

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS

CFS



## Carrier Frequency Separation (2480 MHz; 3DH5 (1 MHz))

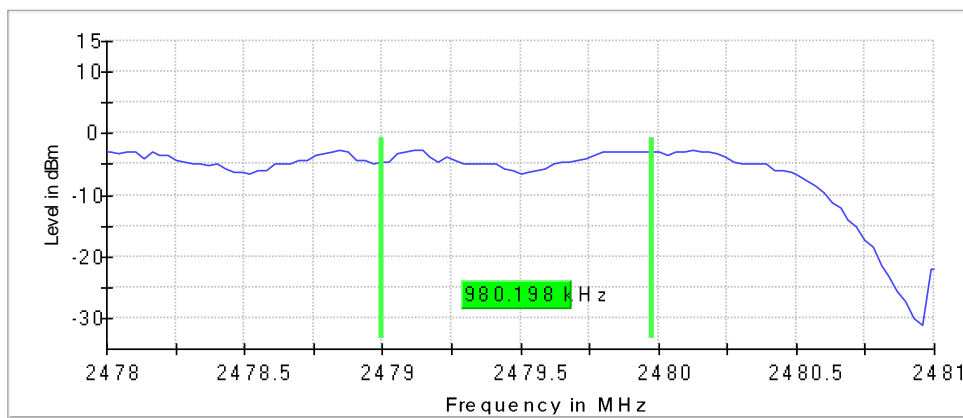
### Result

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2480.000000	0.980198	0.666667	---	2478.995050	2479.975248

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

CFS

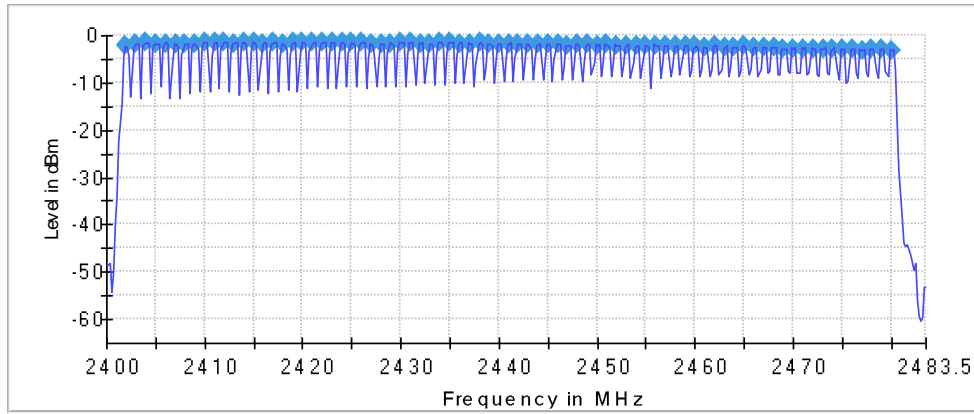


## Hopping Frequencies (frequency independent; 1DH5 (1 MHz))

### Channels

Channels	Limit Min	Limit Max	Result
79	15	--	PASS

Sequence

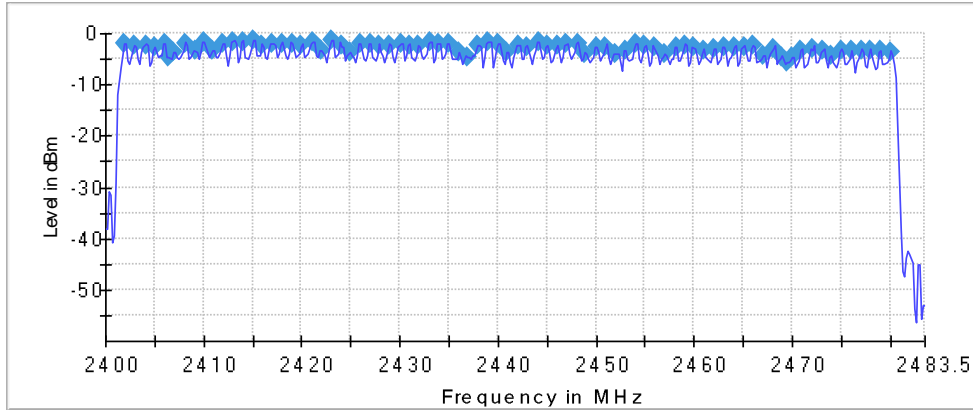


### Hopping Frequencies (frequency independent; 3DH5 (1 MHz))

#### Channels

Channels	Limit Min	Limit Max	Result
79	15	--	PASS

Sequence



## Tx Spurious Emission (2402 MHz; 1DH5 )

Customized settings.

### Result

DUT Frequency (MHz)	Result
2402.000000	PASS

### Final measurements

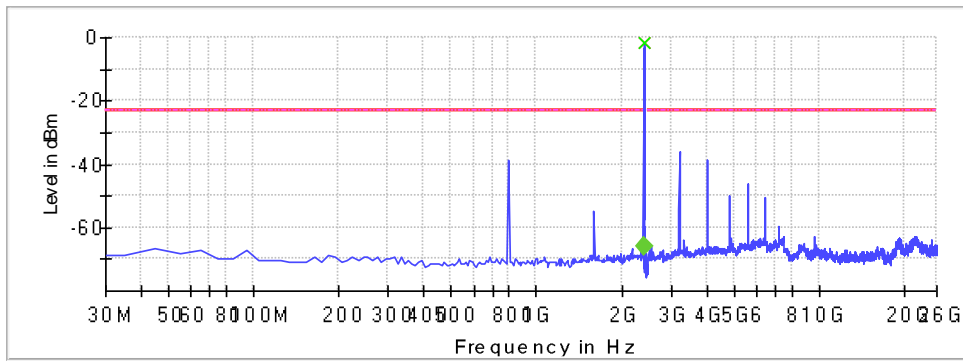
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2399.759163	-3.3	-66.0	-23.4	42.6	PASS

### Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2395.021008	-1.4	-22.0	-23.4
3198.089779	-36.2	12.8	-23.4
791.785714	-38.8	15.4	-23.4
4007.625053	-38.9	15.5	-23.4
5606.707076	-46.0	22.6	-23.4
4807.166065	-50.2	26.8	-23.4
6406.248088	-50.5	27.1	-23.4
3188.095516	-54.4	31.0	-23.4
1598.382353	-54.8	31.4	-23.4
7205.789099	-59.4	36.0	-23.4
9604.412133	-62.8	39.4	-23.4
22047.269125	-62.8	39.4	-23.4
7495.622716	-62.9	39.5	-23.4
21627.510093	-62.9	39.5	-23.4
2385.063025	-62.9	39.5	-23.4

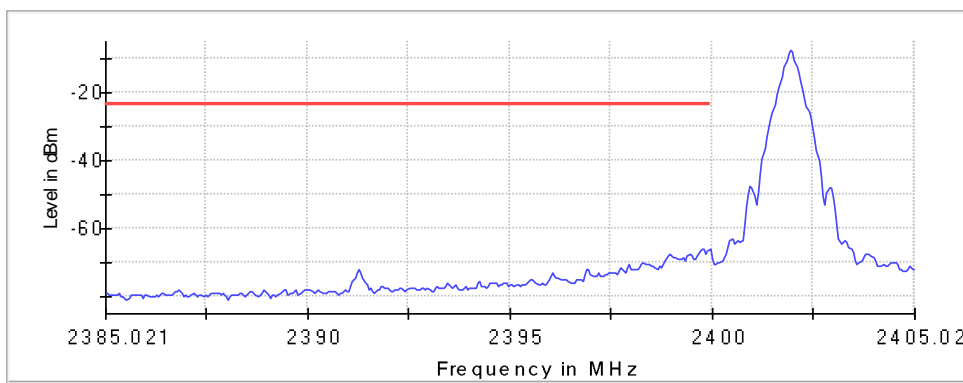


Spurious



— Limit  
— Sum Level  
— Threshold  
x Critical  
◆ Final Critical  
◆ Fail  
◆ Pass

Final Meas\_2395021008Hz



— Sum Level  
— Limit

## Tx Spurious Emission (2441 MHz; 1DH5 )

Customized settings.

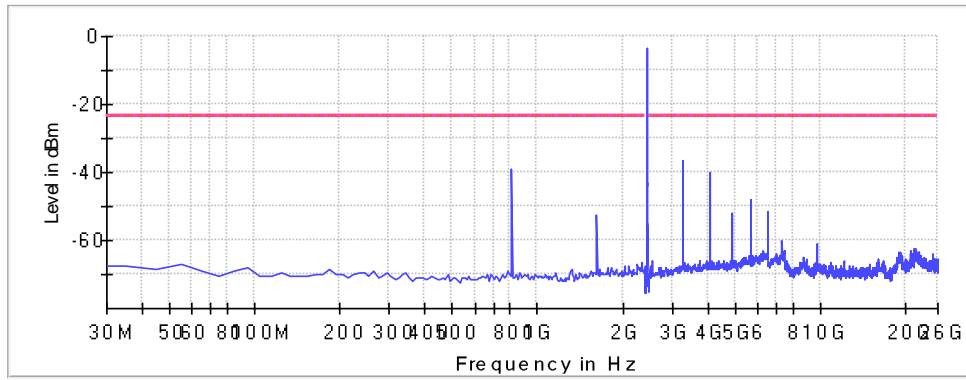
### Result

DUT Frequency (MHz)	Result
2441.000000	PASS

### Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
3258.055355	-36.6	13.1	-23.5
811.701681	-38.8	15.4	-23.5
4067.590629	-39.8	16.4	-23.5
5696.655440	-48.1	24.6	-23.5
6506.190714	-51.7	28.2	-23.5
4877.125903	-52.2	28.8	-23.5
1618.298319	-52.7	29.3	-23.5
4887.120166	-52.8	29.3	-23.5
7325.720251	-59.9	36.5	-23.5
9764.320336	-60.9	37.5	-23.5
21637.504356	-62.5	39.1	-23.5
21547.555992	-62.6	39.2	-23.5
6296.311198	-63.1	39.6	-23.5
7475.634190	-63.1	39.6	-23.5
21387.647790	-63.1	39.7	-23.5

Spurious



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

## Tx Spurious Emission (2480 MHz; 1DH5 )

Customized settings.

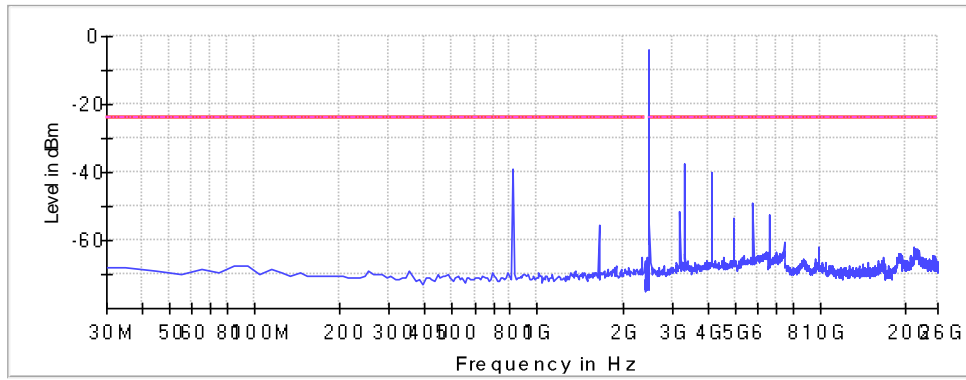
### Result

DUT Frequency (MHz)	Result
2480.000000	PASS

### Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
3308.026668	-37.7	13.6	-24.0
821.659664	-39.2	15.2	-24.0
4137.550467	-39.9	15.9	-24.0
5786.603804	-49.1	25.1	-24.0
3188.095516	-51.7	27.7	-24.0
6616.127603	-52.7	28.7	-24.0
4957.080004	-53.3	29.3	-24.0
2488.497131	-54.7	30.6	-24.0
1648.172269	-55.6	31.5	-24.0
3298.032405	-59.9	35.9	-24.0
7435.657140	-60.6	36.6	-24.0
9924.228538	-62.1	38.1	-24.0
21517.573204	-62.2	38.2	-24.0
21667.487144	-62.3	38.3	-24.0
21657.492881	-62.5	38.5	-24.0

Spurious



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

## Tx Spurious Emission (2402 MHz; 3DH5 )

Customized settings.

### Result

DUT Frequency (MHz)	Result
2402.000000	PASS

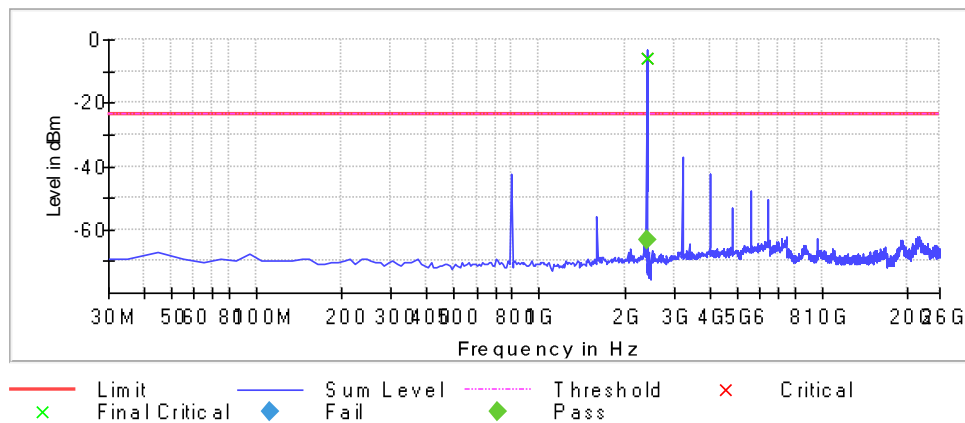
### Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2399.509786	-7.5	-63.3	-23.4	39.9	PASS

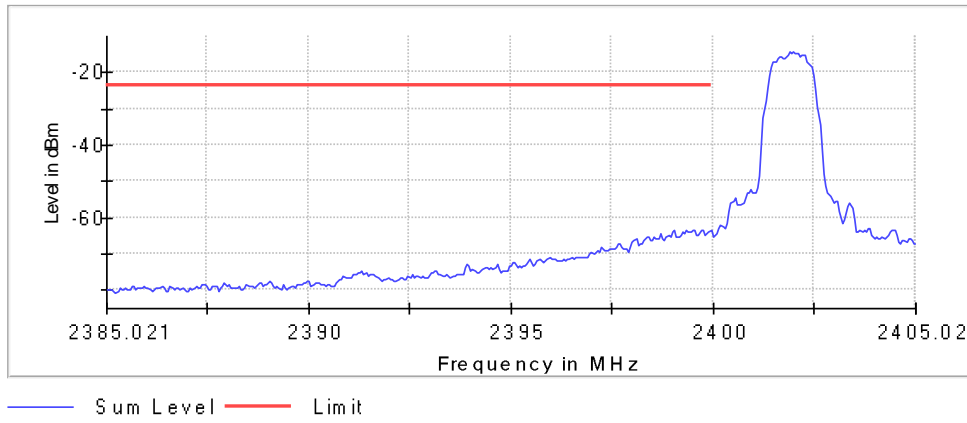
### Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2395.021008	-5.7	-17.7	-23.4
3198.089779	-37.1	13.7	-23.4
4007.625053	-42.3	18.9	-23.4
791.785714	-42.3	18.9	-23.4
5606.707076	-47.9	24.5	-23.4
6406.248088	-50.5	27.1	-23.4
4807.166065	-53.0	29.6	-23.4
1598.382353	-55.8	32.4	-23.4
3208.084042	-57.5	34.0	-23.4
21657.492881	-62.2	38.8	-23.4
22027.280599	-62.2	38.8	-23.4
7475.634190	-62.5	39.1	-23.4
7495.622716	-62.6	39.2	-23.4
7205.789099	-62.8	39.4	-23.4
2385.063025	-62.8	39.4	-23.4

Spurious



Final Meas\_2395021008Hz



## Tx Spurious Emission (2441 MHz; 3DH5 )

Customized settings.

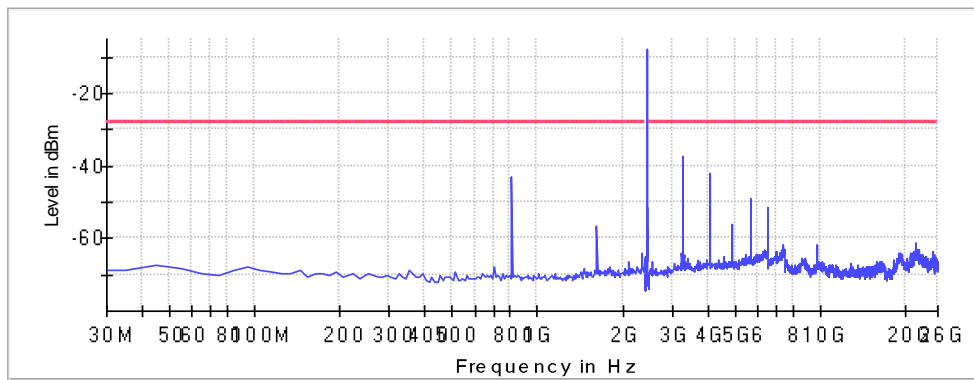
### Result

DUT Frequency (MHz)	Result
2441.000000	PASS

### Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
3258.055355	-37.2	9.4	-27.8
4067.590629	-42.2	14.4	-27.8
811.701681	-42.8	15.0	-27.8
5696.655440	-49.3	21.5	-27.8
6506.190714	-51.6	23.8	-27.8
4887.120166	-56.1	28.3	-27.8
4877.125903	-56.1	28.4	-27.8
1618.298319	-56.6	28.9	-27.8
21627.510093	-61.5	33.7	-27.8
9764.320336	-61.5	33.7	-27.8
7395.680089	-61.9	34.2	-27.8
7365.697301	-62.8	35.0	-27.8
21617.515831	-63.0	35.2	-27.8
21707.464195	-63.0	35.2	-27.8
22017.286337	-63.0	35.3	-27.8

Spurious



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



## Tx Spurious Emission (2480 MHz; 3DH5 )

Customized settings.

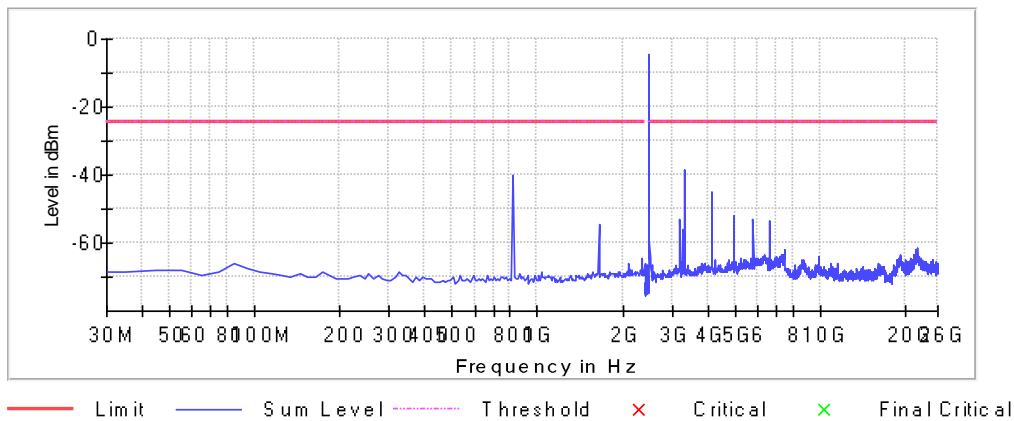
### Result

DUT Frequency (MHz)	Result
2480.000000	PASS

### Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
3308.026668	-38.3	13.6	-24.7
821.659664	-39.8	15.1	-24.7
4137.550467	-44.8	20.1	-24.7
4957.080004	-51.8	27.1	-24.7
5786.603804	-53.0	28.3	-24.7
3188.095516	-53.2	28.5	-24.7
6616.127603	-53.5	28.8	-24.7
1648.172269	-54.7	30.0	-24.7
3258.055355	-56.1	31.4	-24.7
2488.497131	-59.1	34.4	-24.7
22077.251912	-61.3	36.6	-24.7
22067.257650	-61.6	36.9	-24.7
21647.498619	-61.9	37.2	-24.7
7495.622716	-62.1	37.4	-24.7
22017.286337	-62.9	38.2	-24.7

Spurious



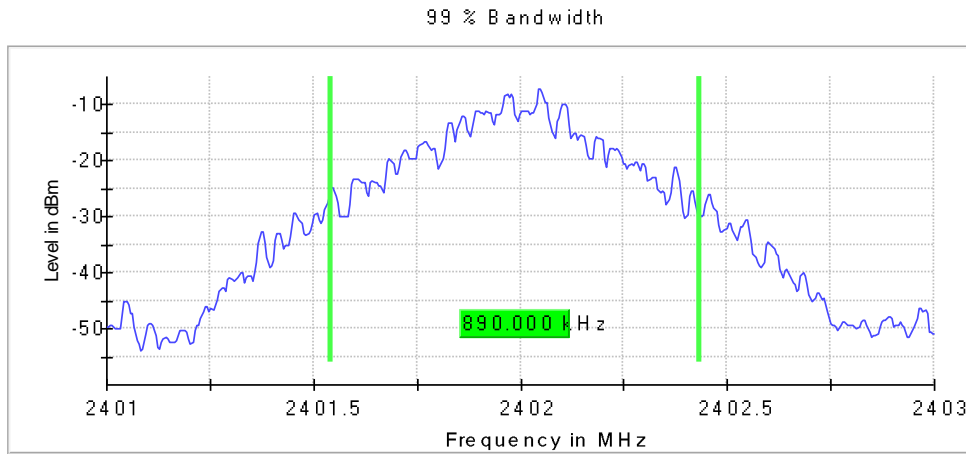
## Occupied Channel Bandwidth 99% (2402 MHz; 1DH5 )

### 99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.890000	---	---	2401.542500	2402.432500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS



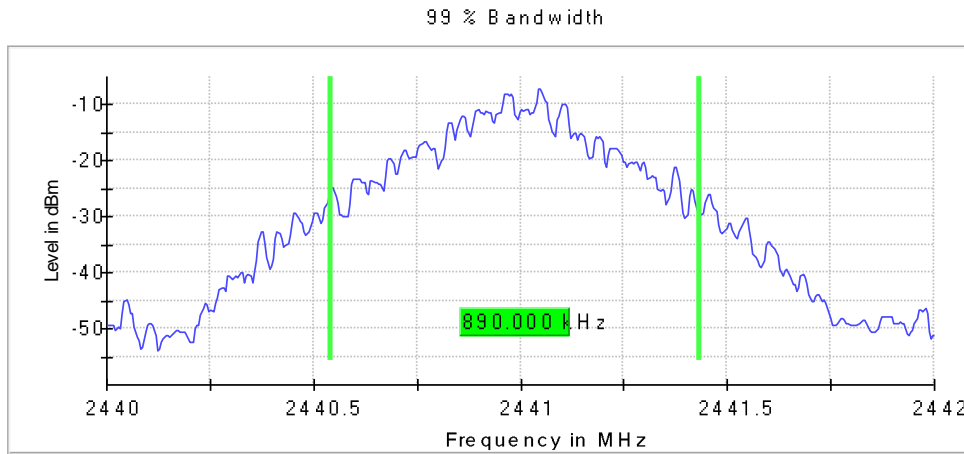
## Occupied Channel Bandwidth 99% (2441 MHz; 1DH5)

### 99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	0.890000	---	---	2440.542500	2441.432500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS



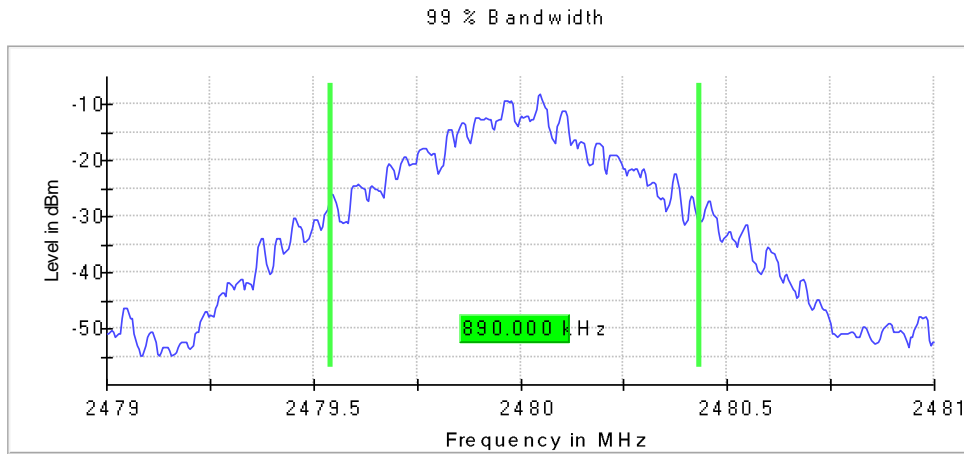
## Occupied Channel Bandwidth 99% (2480 MHz; 1DH5 )

### 99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.890000	---	---	2479.542500	2480.432500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS



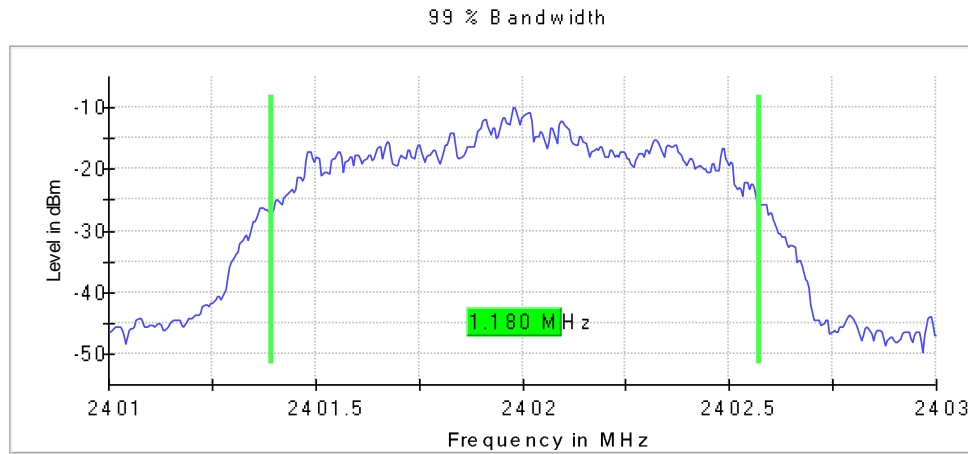
## Occupied Channel Bandwidth 99% (2402 MHz; 3DH5 )

### 99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.180000	---	---	2401.392500	2402.572500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS



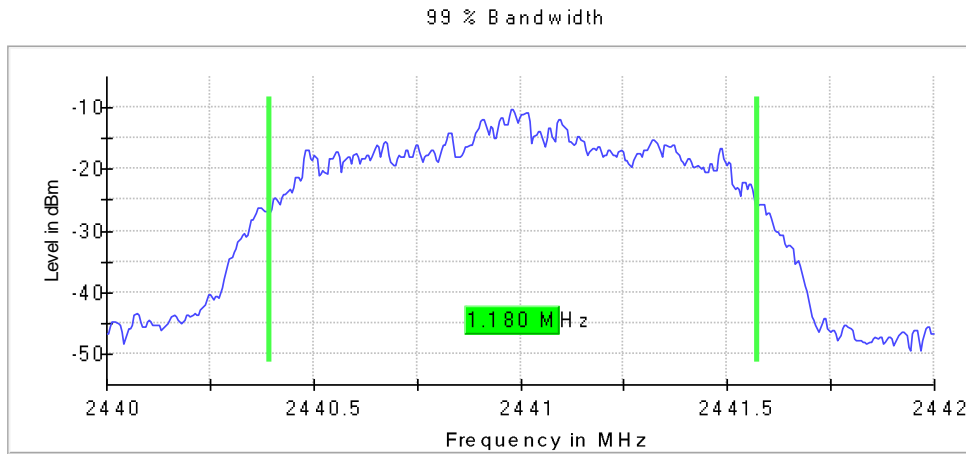
## Occupied Channel Bandwidth 99% (2441 MHz; 3DH5 )

### 99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	1.180000	---	---	2440.392500	2441.572500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS



## Occupied Channel Bandwidth 99% (2480 MHz; 3DH5 )

### 99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.180000	---	---	2479.392500	2480.572500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

