



427 West 12800 South  
Draper, UT 84020

## Test Report Attachment

<b>FCC ID</b>	SWX-UMRID
<b>ISED ID</b>	6545A-UMRID
<b>Equipment Under Test</b>	UMR-Industrial
<b>Test Report Serial Number</b>	TR-8690_01
<b>Date of Test</b>	20 December 2023
<b>Report Issue Date</b>	11 January 2024

### Test Personnel

<b>Testing performed by</b>	Evan Hartzell
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### Test Location

Testing was performed at the Unified Compliance Laboratory located at 427 West 12800 South, Draper, UT 84020. Unified Compliance Laboratory is accredited by National Voluntary Laboratory Accreditation Program (NVLAP); NVLAP Code 600241-0 which is effective until 30 June 2024. This site has also been registered with Innovations, Science and Economic Development (ISED) department as was accepted under Appendix B, Phase 1 procedures of the APEC Tel MRA for Canadian recognition. ISED No.: 25346, effective until 30 June 2024. Unified Compliance Laboratory has been assigned Conformity Assessment Number US0223 by ISED and MRA US5037.



# 1 WiFi

## 1.1 Summary

Test	Frequency (MHz)	Nominal Power (dBm)	Nominal Bandwidth (MHz)	Result
RF output power	2412.000	24.0	20.000000	PASS
Minimum Emission Bandwidth 6 dB	2412.000	24.0	20.000000	PASS
Power Spectral Density	2412.000	24.0	20.000000	PASS
Occupied Channel Bandwidth 99%	2412.000	24.0	20.000000	PASS
Tx Spurious Emission	2412.000	24.0	20.000000	PASS
Power Spectral Density	2417.000	24.0	20.000000	PASS
Power Spectral Density	2422.000	24.0	20.000000	PASS
Power Spectral Density	2427.000	24.0	20.000000	PASS
Power Spectral Density	2432.000	24.0	20.000000	PASS
Minimum Emission Bandwidth 6 dB	2437.000	24.0	20.000000	PASS
Power Spectral Density	2437.000	24.0	20.000000	PASS
Occupied Channel Bandwidth 99%	2437.000	24.0	20.000000	PASS
Tx Spurious Emission	2437.000	24.0	20.000000	PASS
Power Spectral Density	2442.000	24.0	20.000000	PASS
Power Spectral Density	2447.000	24.0	20.000000	PASS
Power Spectral Density	2452.000	24.0	20.000000	PASS
Power Spectral Density	2457.000	24.0	20.000000	PASS
Minimum Emission Bandwidth 6 dB	2462.000	24.0	20.000000	PASS
Power Spectral Density	2462.000	24.0	20.000000	PASS
Occupied Channel Bandwidth 99%	2462.000	24.0	20.000000	PASS
Tx Spurious Emission	2462.000	24.0	20.000000	PASS
Minimum Emission Bandwidth 6 dB	2422.000	24.0	40.000000	PASS
Power Spectral Density	2422.000	24.0	40.000000	PASS
Occupied Channel Bandwidth 99%	2422.000	24.0	40.000000	PASS
Tx Spurious Emission	2422.000	24.0	40.000000	PASS
Minimum Emission Bandwidth 6 dB	2437.000	24.0	40.000000	PASS
Power Spectral Density	2437.000	24.0	40.000000	PASS
Occupied Channel Bandwidth 99%	2437.000	24.0	40.000000	PASS
Tx Spurious Emission	2437.000	24.0	40.000000	PASS
Minimum Emission Bandwidth 6 dB	2452.000	24.0	40.000000	PASS
Power Spectral Density	2452.000	24.0	40.000000	PASS
Occupied Channel Bandwidth 99%	2452.000	24.0	40.000000	PASS
Tx Spurious Emission	2452.000	24.0	40.000000	PASS

## RF output power (2412 MHz; 24.000 dBm; 20 MHz)

### Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2412.000000	22.2	30.0	22.2	100.000	PASS

### OSP PowerMeter settings

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 $\mu$ s	1.000 $\mu$ s

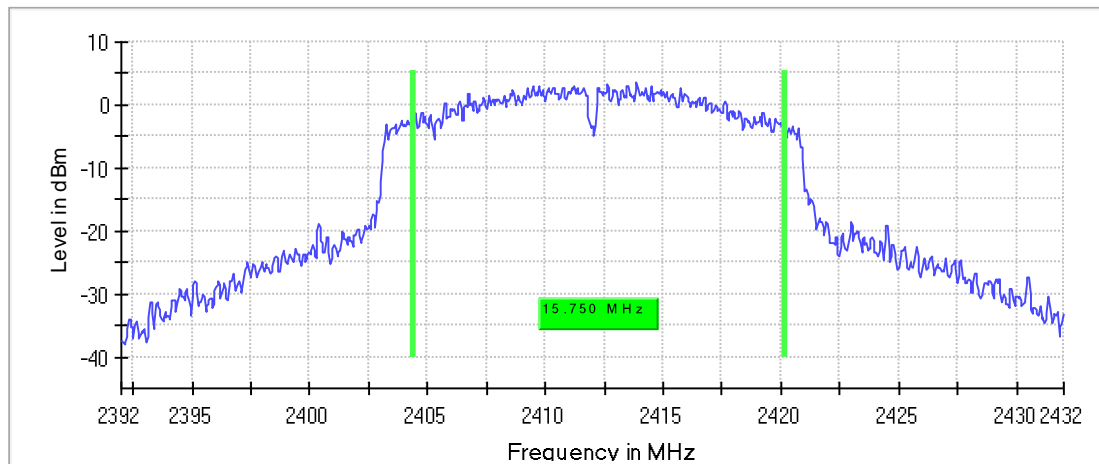
## Minimum Emission Bandwidth 6 dB (2412 MHz; 24.000 dBm; 20 MHz)

### 6 dB Bandwidth

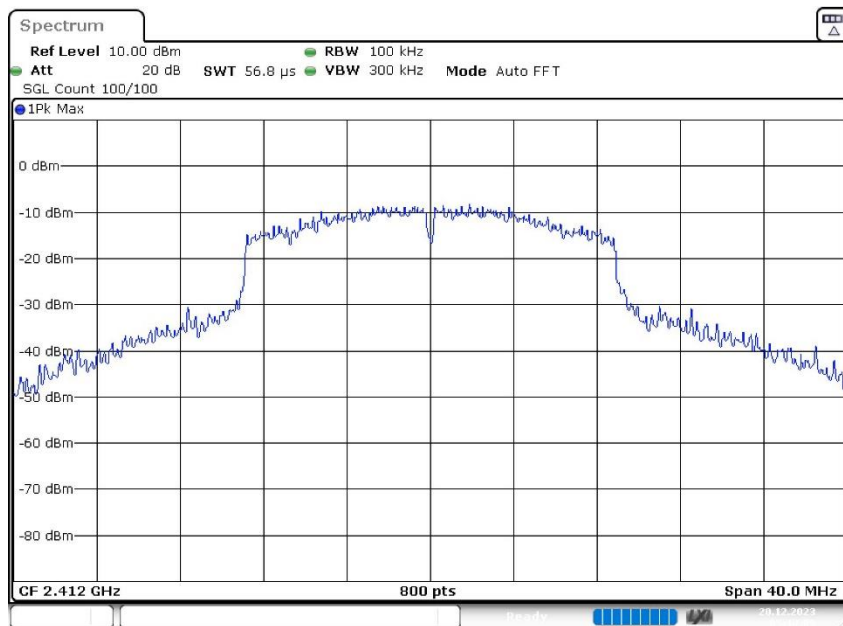
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2412.000000	15.750000	0.500000	---	2404.425000	2420.175000

DUT Frequency (MHz)	Max Level (dBm)	Result
2412.000000	3.5	PASS

6 dB Bandwidth



Bandwidth



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## Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.39200 GHz	2.39200 GHz
Stop Frequency	2.43200 GHz	2.43200 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	800	~ 800
Sweeptime	56.836 μs	AUTO
Reference Level	10.000 dBm	AUTO
Attenuation	20.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off

## Power Spectral Density (2412 MHz; 24.000 dBm; 20 MHz)

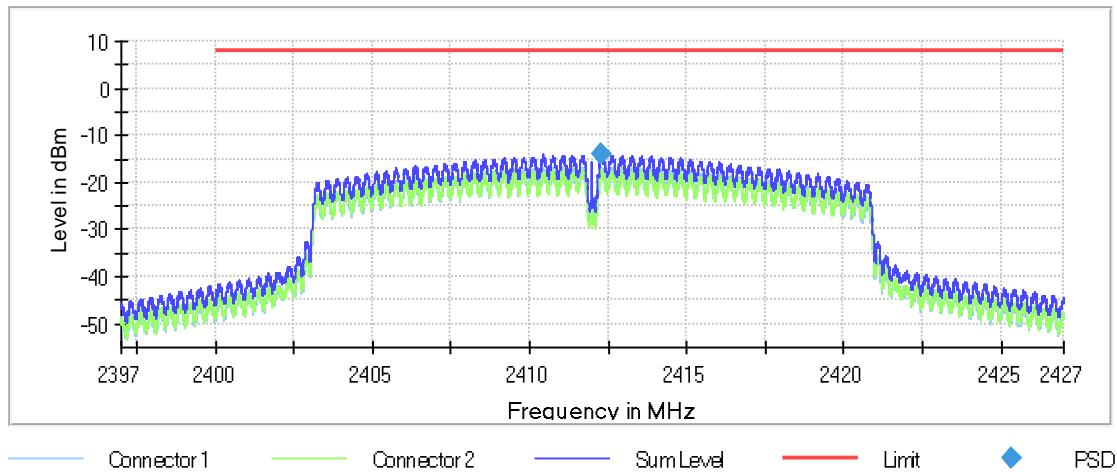
### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2412.000000	2412.285750	-14.022	8.0	PASS

### Ports

Port	State
1	used
2	used

Power Spectral Density



**Measurement**

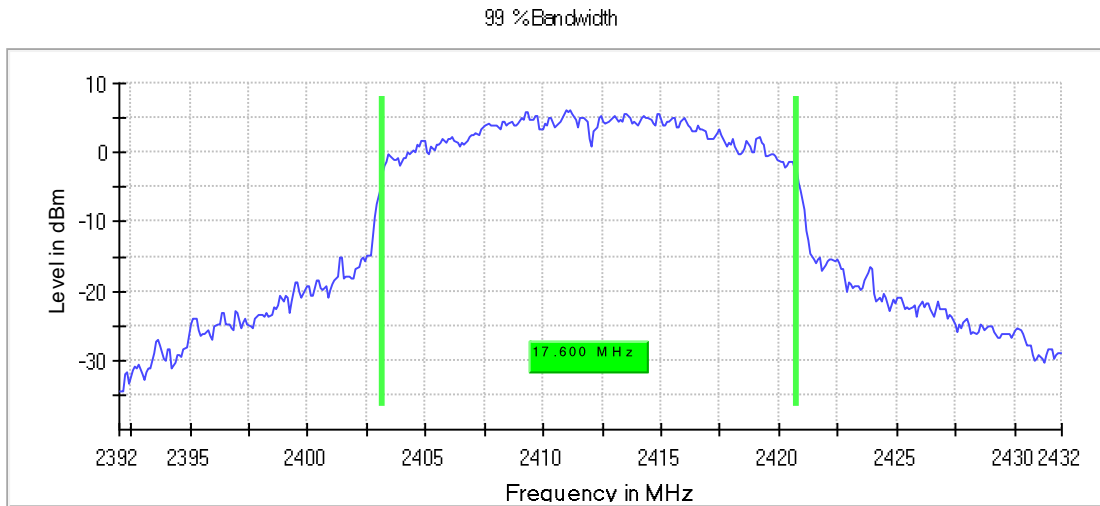
Setting	Instrument Value	Target Value
Start Frequency	2.39700 GHz	2.39700 GHz
Stop Frequency	2.42700 GHz	2.42700 GHz
Span	30.000 MHz	30.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	20000	~ 20000
Sweeptime	4.424 ms	AUTO
Reference Level	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	AUTO
Detector	RMS	RMS
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Average Power	Average Power
Sweeptype	FFT	AUTO
Preamp	off	off

**Occupied Channel Bandwidth 99% (2412 MHz; 24.000 dBm; 20 MHz)**

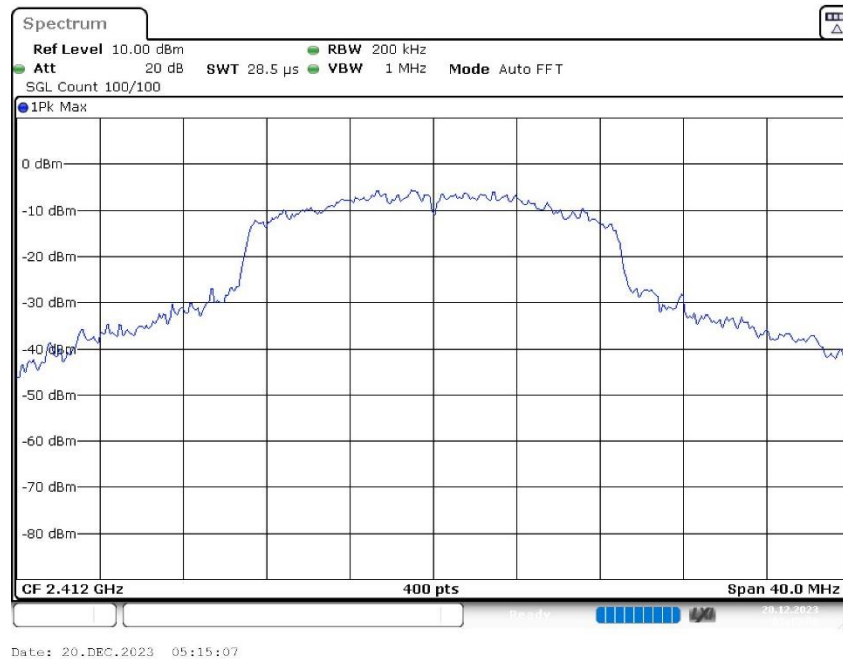
**99 % Bandwidth**

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2412.000000	17.600000	---	---	2403.150000	2420.750000

DUT Frequency (MHz)	Result
2412.000000	PASS



Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.39200 GHz	2.39200 GHz
Stop Frequency	2.43200 GHz	2.43200 GHz
Span	40.000 MHz	40.000 MHz
RBW	200.000 kHz	$\geq$ 200.000 kHz
VBW	1.000 MHz	$\geq$ 600.000 kHz
SweepPoints	400	$\sim$ 400

SweepTime	28.477 $\mu$ s	AUTO
Reference Level	10.000 dBm	AUTO
Attenuation	20.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off

## Tx Spurious Emission (2412 MHz; 24.000 dBm; 20 MHz)

### Result

DUT Frequency (MHz)	Result
2412.000000	PASS

### Final measurements

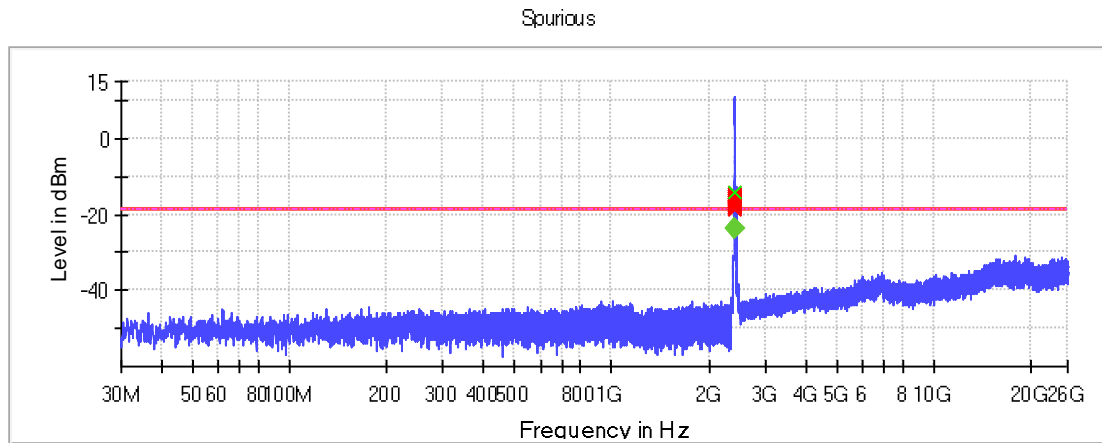
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2399.773628	-15.7	-23.7	-18.9	4.7	PASS

### Pre Measurements

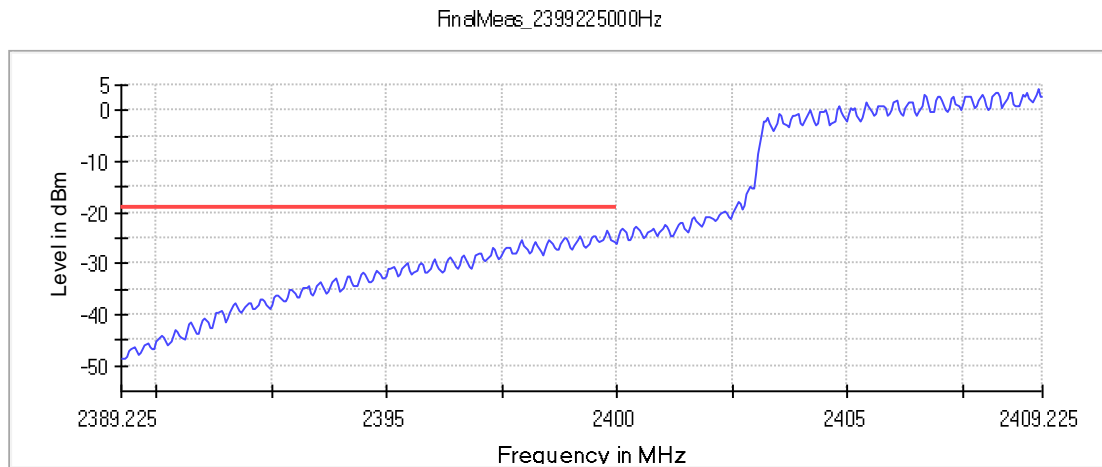
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2399.225000	-14.3	-4.6	-18.9
2399.475000	-14.5	-4.4	-18.9
2399.275000	-14.5	-4.4	-18.9
2398.525000	-14.6	-4.3	-18.9
2399.525000	-14.6	-4.3	-18.9
2398.575000	-15.0	-3.9	-18.9
2398.275000	-15.0	-3.9	-18.9
2399.825000	-15.1	-3.8	-18.9
2398.225000	-15.1	-3.8	-18.9
2398.875000	-15.3	-3.7	-18.9
2398.475000	-15.3	-3.6	-18.9
2399.175000	-15.3	-3.6	-18.9
2399.875000	-15.4	-3.5	-18.9
2398.975000	-15.6	-3.3	-18.9
2399.425000	-15.6	-3.3	-18.9

### Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2350.000000	1	1
2350.000000	2483.500000	2	1
2483.500000	26000.000000	1	1



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



— Sum Level     
 — Limit

### Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	32001	~ 46400
SweepTime	32.100 ms	AUTO
Reference Level	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off



## Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	2670	~ 2670
SweepTime	151.563 $\mu$ s	AUTO
Reference Level	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	300	300
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off

## Final Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	401	~ 401
SweepTime	37.907 $\mu$ s	AUTO
Reference Level	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB
Detector	Sample	Sample
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Average Linear	Average Linear
SweepType	FFT	AUTO
Preamp	off	off

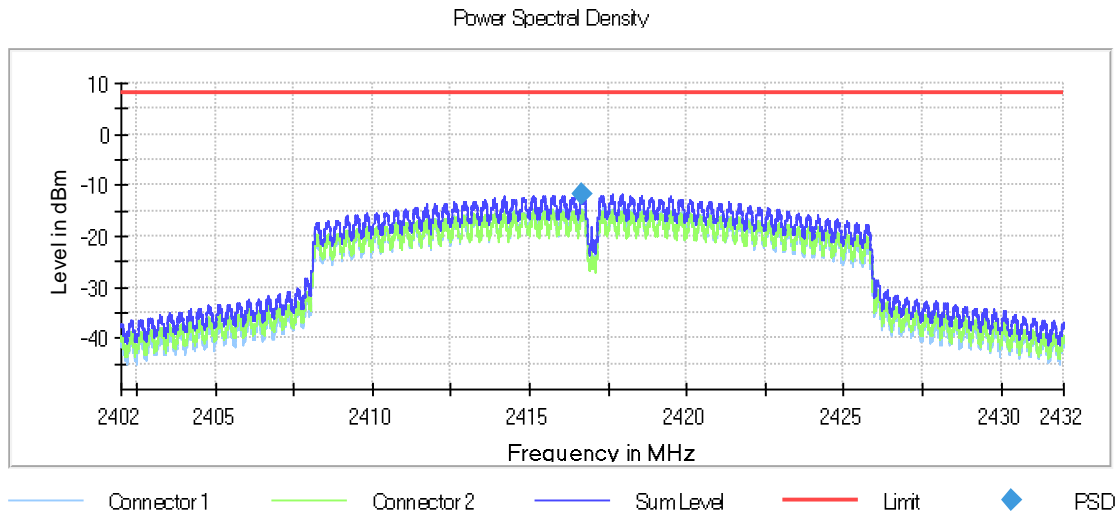
## Power Spectral Density (2417 MHz; 24.000 dBm; 20 MHz)

### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2417.000000	2416.676750	-11.746	8.0	PASS

### Ports

Port	State
1	used
2	used



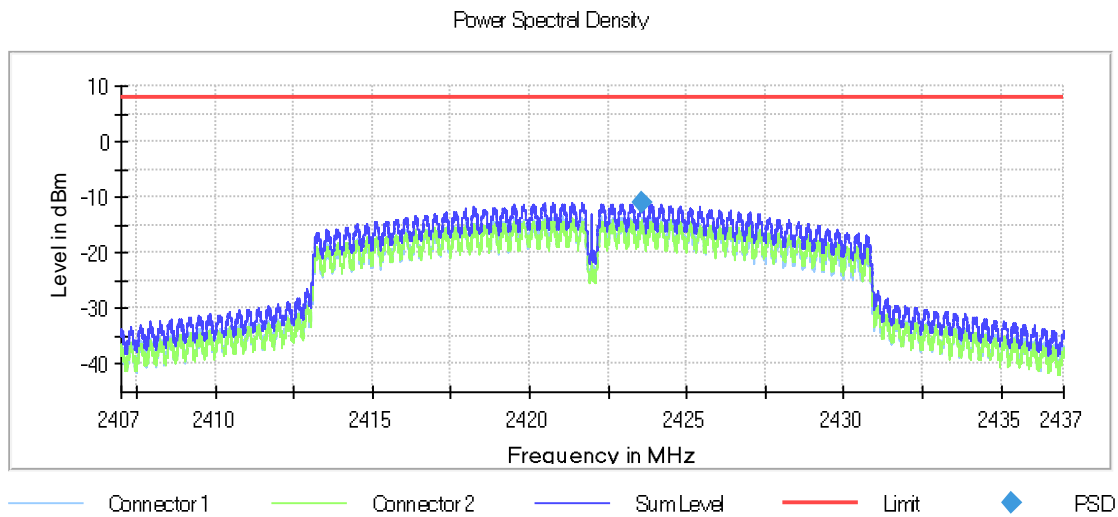
### Power Spectral Density (2422 MHz; 24.000 dBm; 20 MHz)

#### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2422.000000	2423.575750	-11.053	8.0	PASS

#### Ports

Port	State
1	used
2	used



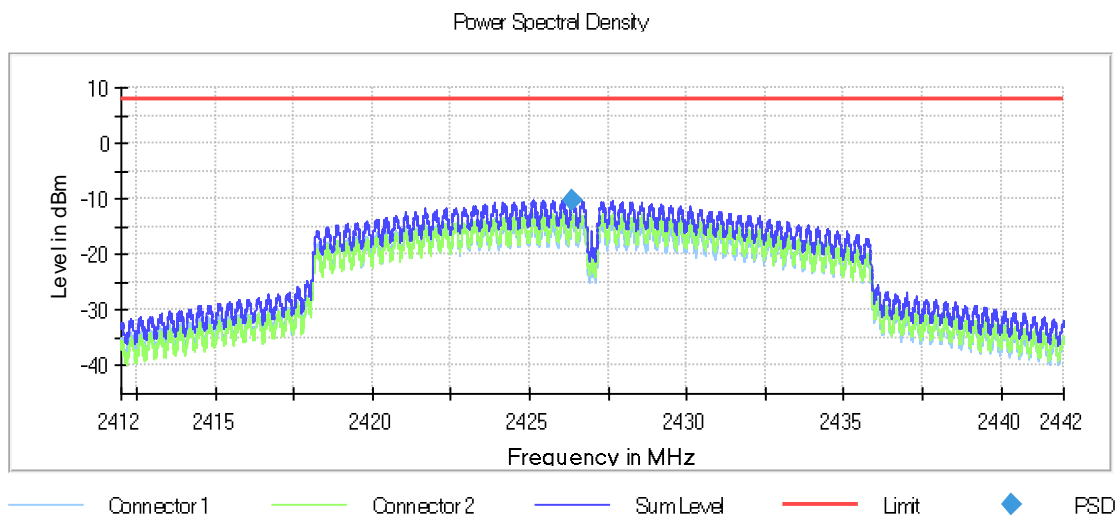
## Power Spectral Density (2427 MHz; 24.000 dBm; 20 MHz)

### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2427.000000	2426.367750	-10.185	8.0	PASS

### Ports

Port	State
1	used
2	used



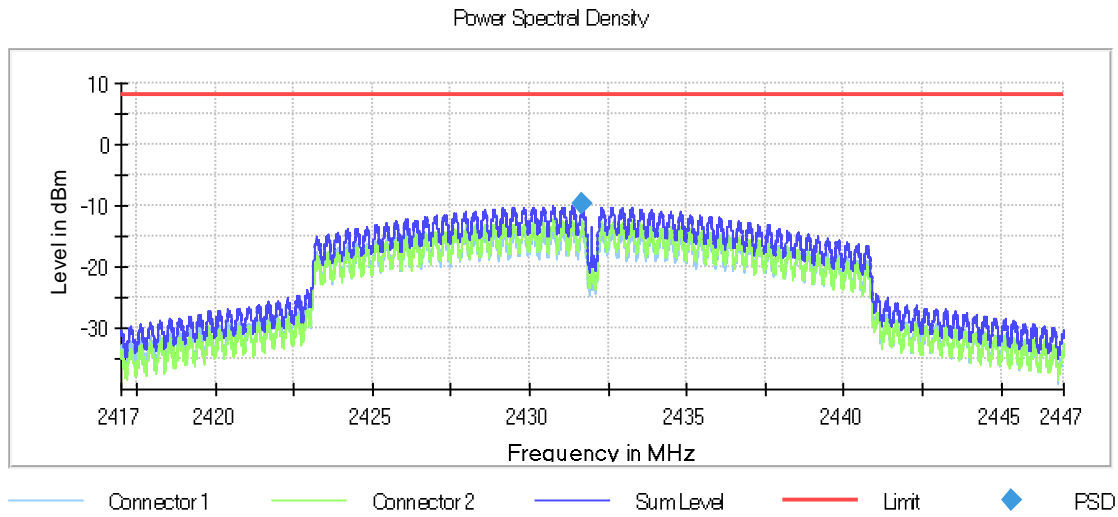
## Power Spectral Density (2432 MHz; 24.000 dBm; 20 MHz)

### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2432.000000	2431.666250	-9.818	8.0	PASS

### Ports

Port	State
1	used
2	used



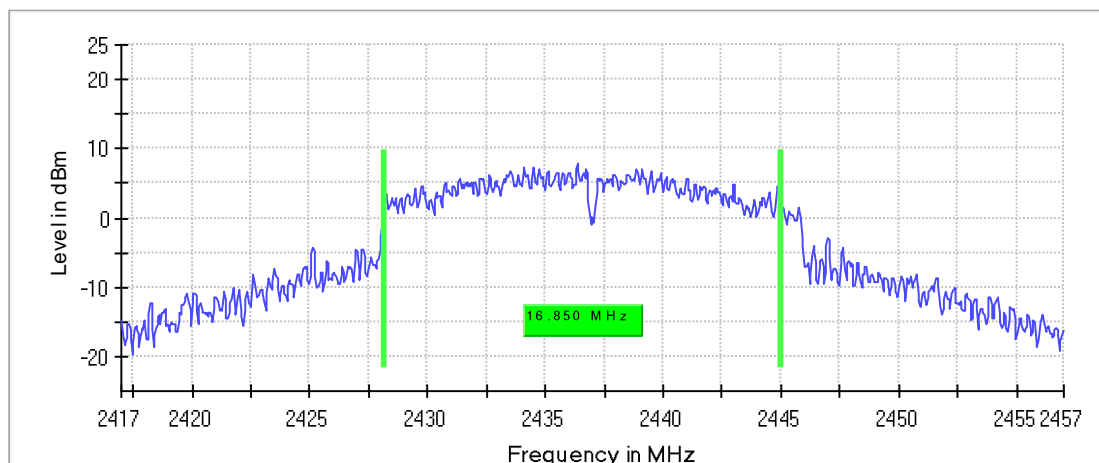
**Minimum Emission Bandwidth 6 dB (2437 MHz; 24.000 dBm; 20 MHz)**

**6 dB Bandwidth**

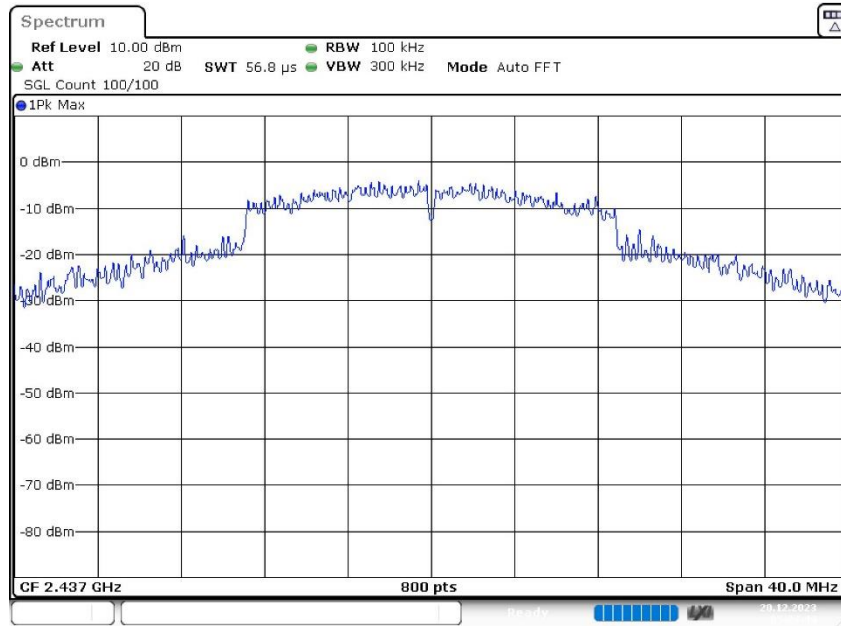
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2437.000000	16.850000	0.500000	---	2428.175000	2445.025000

DUT Frequency (MHz)	Max Level (dBm)	Result
2437.000000	7.8	PASS

6 dB Bandwidth



Bandwidth



Date: 20.DEC.2023 05:24:44

## Power Spectral Density (2437 MHz; 24.000 dBm; 20 MHz)

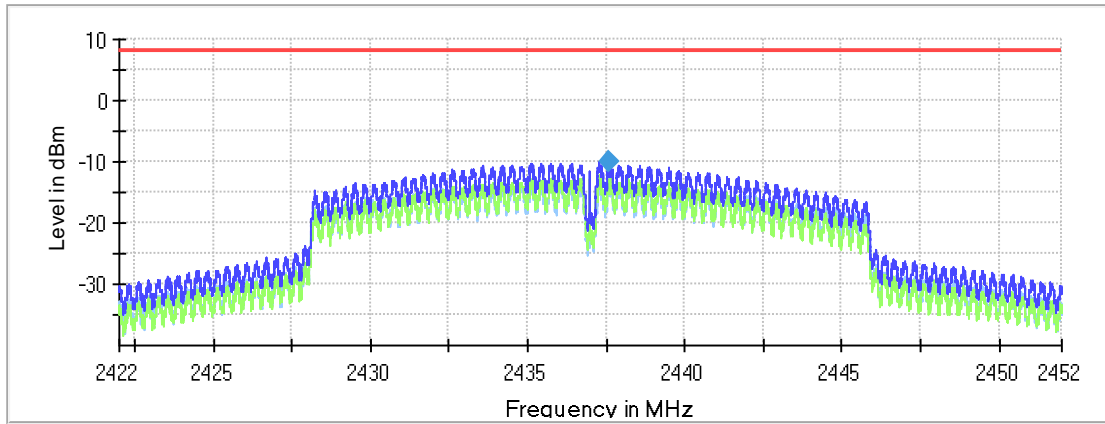
### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2437.615750	-10.043	8.0	PASS

### Ports

Port	State
1	used
2	used

Power Spectral Density



Connector 1 Connector 2 SumLevel Limit PSD

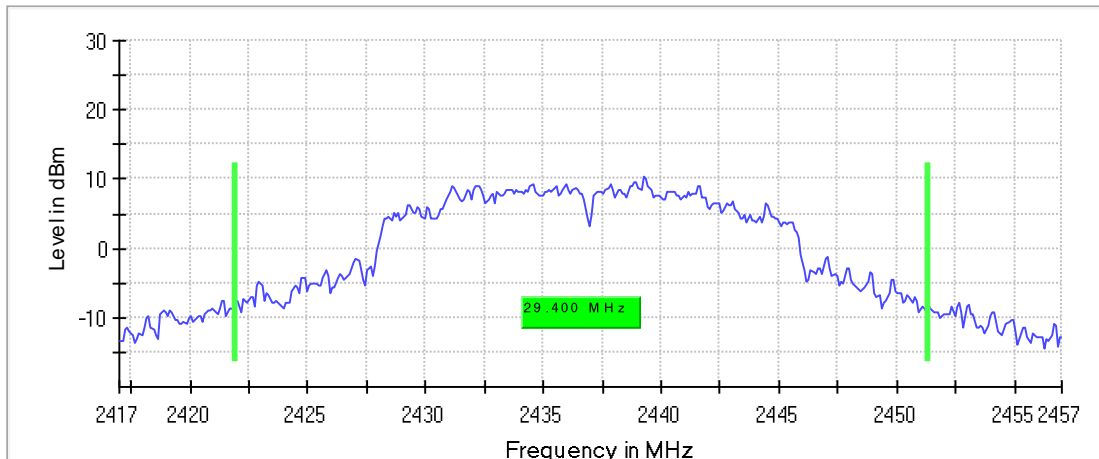
**Occupied Channel Bandwidth 99% (2437 MHz; 24.000 dBm; 20 MHz)**

**99 % Bandwidth**

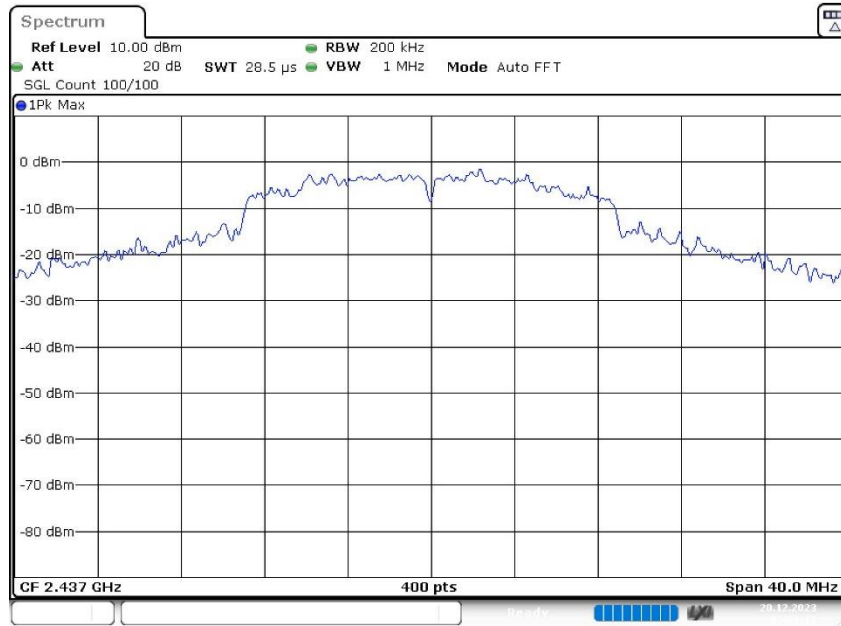
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2437.000000	29.400000	---	---	2421.950000	2451.350000

DUT Frequency (MHz)	Result
2437.000000	PASS

99 % Bandwidth



Bandwidth



Date: 20.DEC.2023 05:26:12

### Tx Spurious Emission (2437 MHz; 24.000 dBm; 20 MHz)

#### Result

DUT Frequency (MHz)	Result
2437.000000	PASS

#### Final measurements

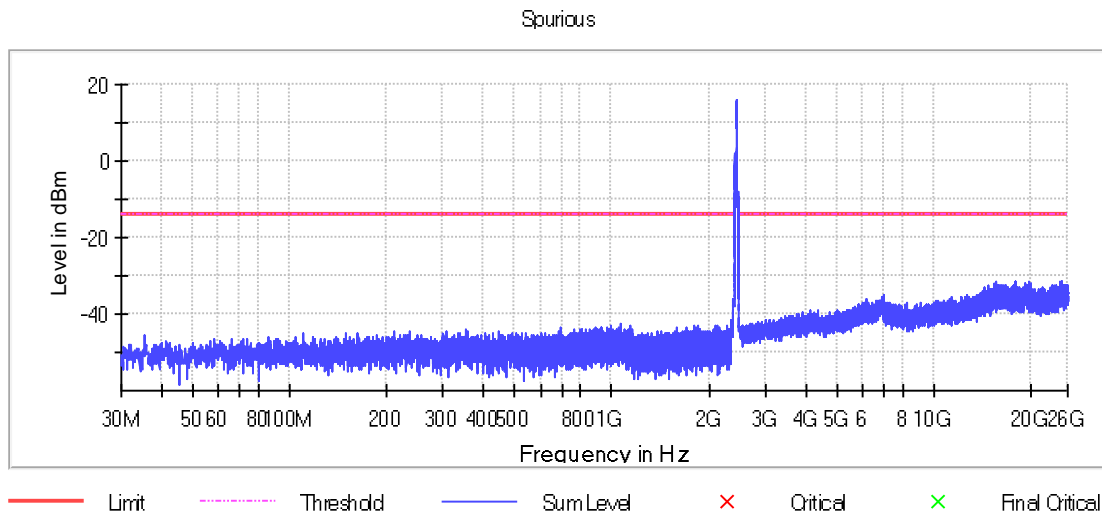
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

#### Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2399.225000	-26.3	12.3	-14.1
2399.475000	-26.5	12.4	-14.1
2398.875000	-26.6	12.5	-14.1
2399.175000	-26.6	12.5	-14.1
2399.275000	-26.6	12.6	-14.1
2399.525000	-26.8	12.7	-14.1
2398.925000	-26.8	12.7	-14.1
2399.825000	-26.8	12.7	-14.1
2398.275000	-26.9	12.8	-14.1
2398.225000	-27.1	13.0	-14.1
2399.775000	-27.2	13.1	-14.1
2399.575000	-27.3	13.2	-14.1
2399.625000	-27.4	13.3	-14.1
2399.875000	-27.5	13.4	-14.1
2399.125000	-27.5	13.5	-14.1

### Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2350.000000	1	1
2350.000000	2483.500000	2	1
2483.500000	26000.000000	1	1



### Power Spectral Density (2442 MHz; 24.000 dBm; 20 MHz)

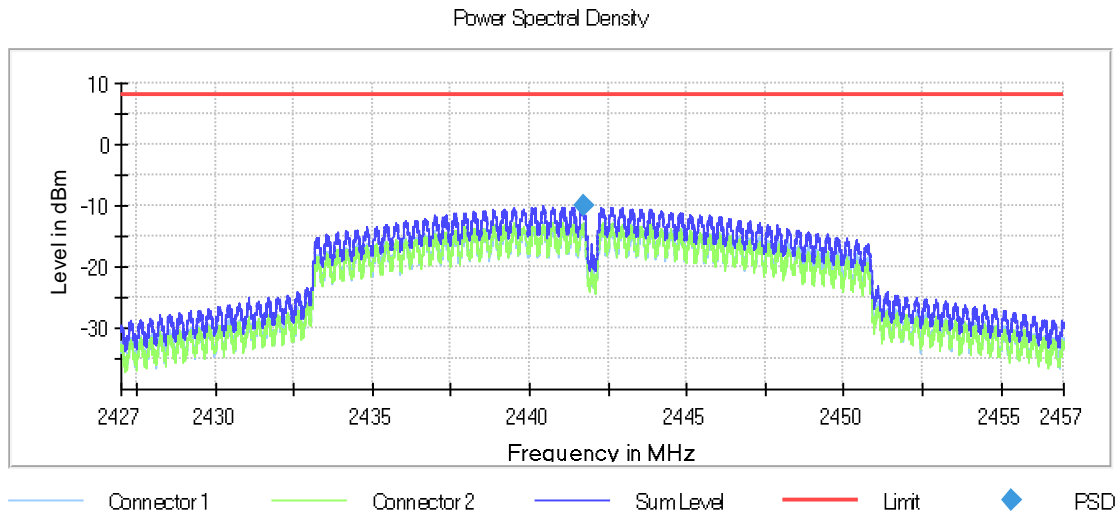
#### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2442.000000	2441.693250	-9.927	8.0	PASS

#### Ports

Port	State
1	used
2	used





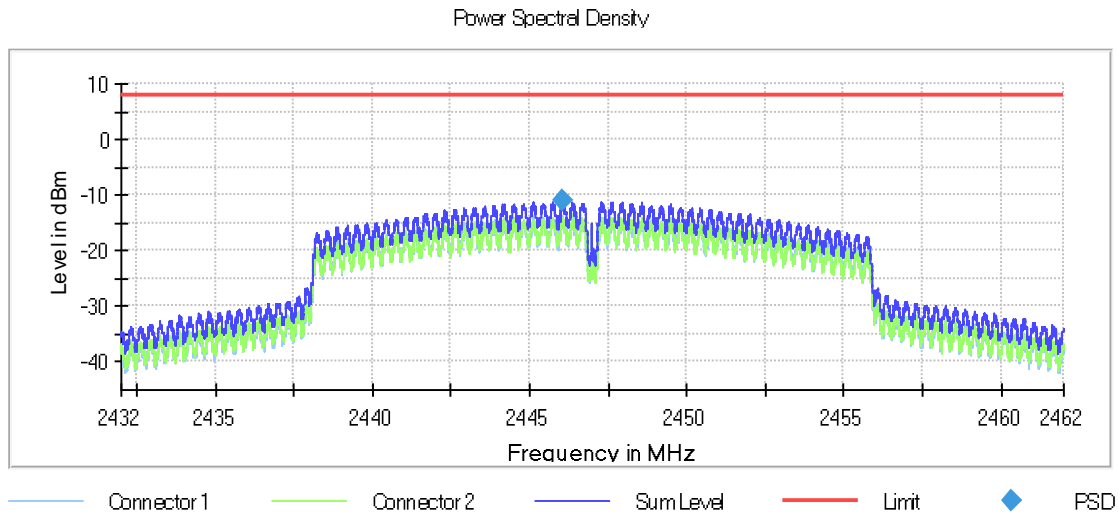
**Power Spectral Density (2447 MHz; 24.000 dBm; 20 MHz)**

**Result**

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2447.000000	2446.045250	-10.910	8.0	PASS

**Ports**

Port	State
1	used
2	used



## Power Spectral Density (2452 MHz; 24.000 dBm; 20 MHz)

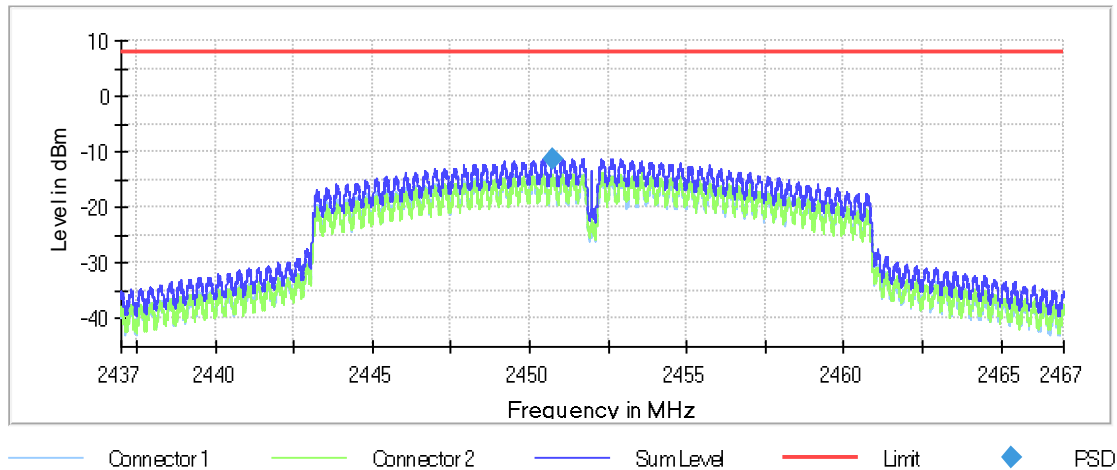
### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2452.000000	2450.727250	-11.181	8.0	PASS

### Ports

Port	State
1	used
2	used

Power Spectral Density



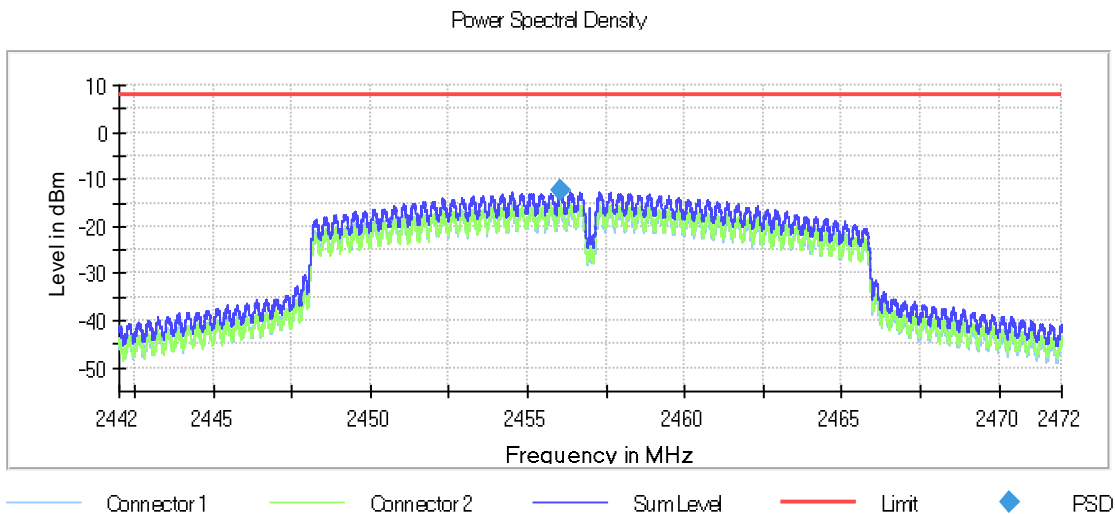
## Power Spectral Density (2457 MHz; 24.000 dBm; 20 MHz)

### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2457.000000	2456.070750	-12.521	8.0	PASS

### Ports

Port	State
1	used
2	used



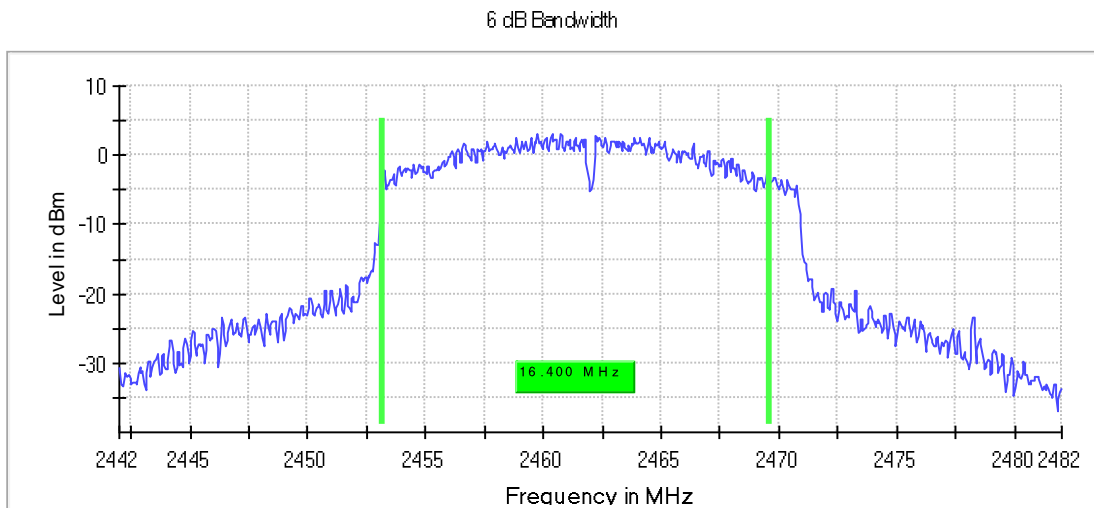
### Minimum Emission Bandwidth 6 dB (2462 MHz; 24.000 dBm; 20 MHz)

#### 6 dB Bandwidth

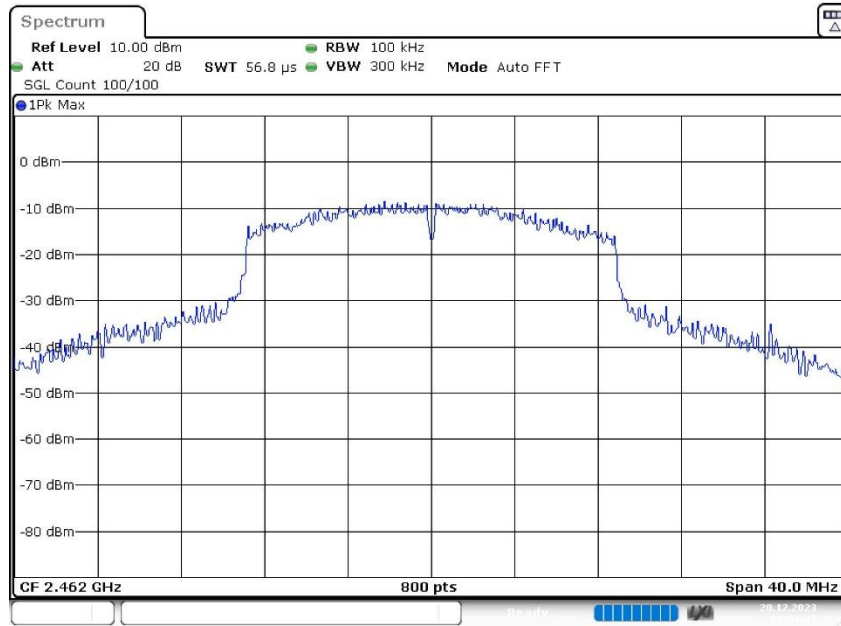
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2462.000000	16.400000	0.500000	---	2453.175000	2469.575000

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2462.000000	3.2	PASS



Bandwidth



Date: 20. DEC. 2023 05:34:49

## Power Spectral Density (2462 MHz; 24.000 dBm; 20 MHz)

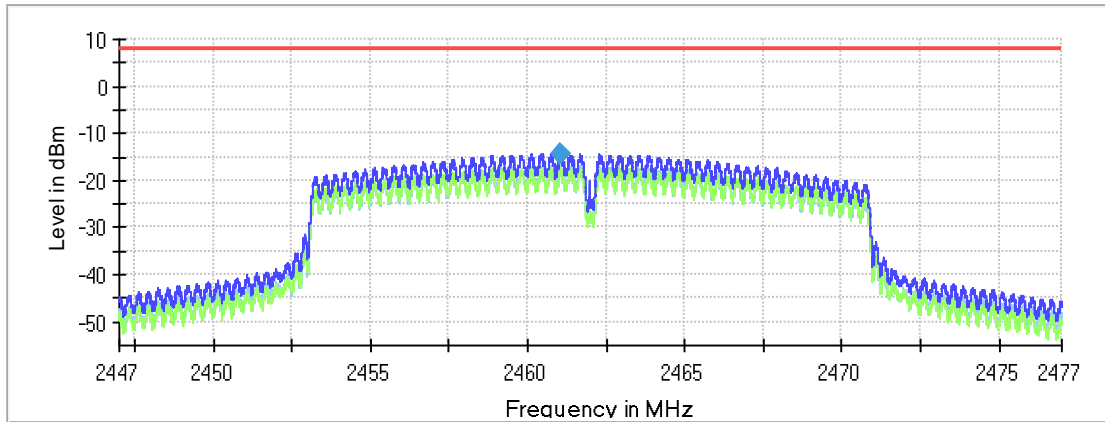
### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2462.000000	2461.046750	-14.208	8.0	PASS

### Ports

Port	State
1	used
2	used

Power Spectral Density



Connector 1 Connector 2 SumLevel Limit PSD

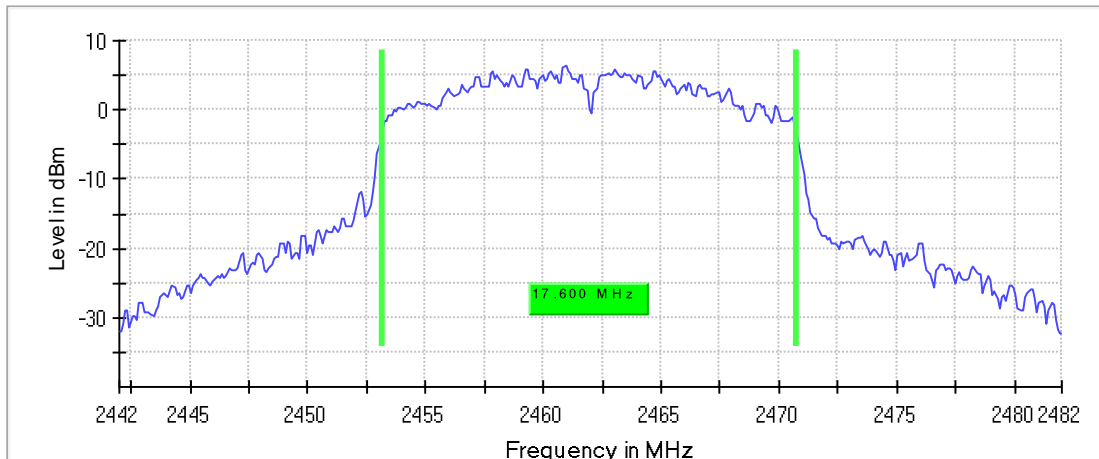
**Occupied Channel Bandwidth 99% (2462 MHz; 24.000 dBm; 20 MHz)**

**99 % Bandwidth**

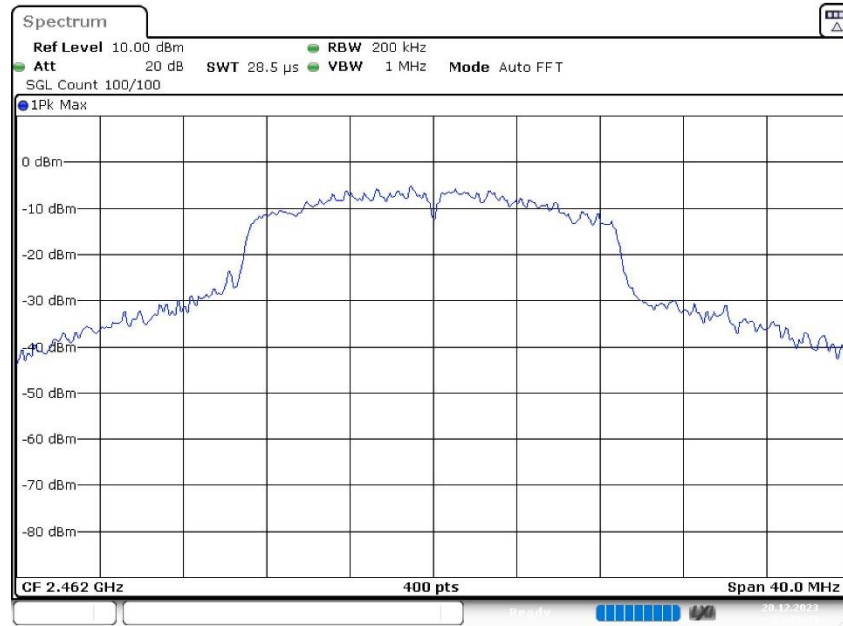
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2462.000000	17.600000	---	---	2453.150000	2470.750000

DUT Frequency (MHz)	Result
2462.000000	PASS

99 % Bandwidth



Bandwidth



Date: 20. DEC. 2023 05:35:49

### Tx Spurious Emission (2462 MHz; 24.000 dBm; 20 MHz)

#### Result

DUT Frequency (MHz)	Result
2462.000000	PASS

#### Final measurements

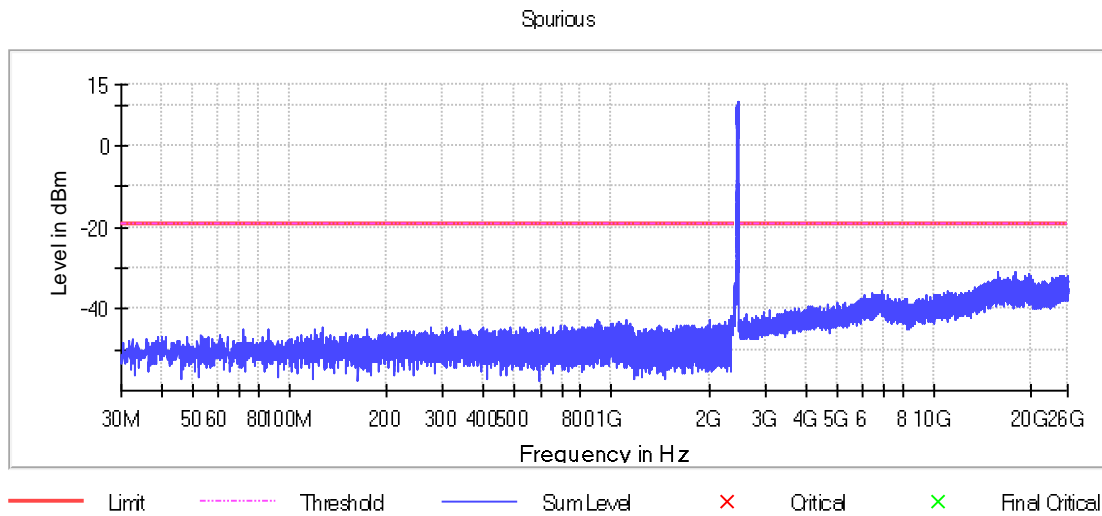
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

#### Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
15837.147691	-30.9	11.7	-19.1
17834.517992	-30.9	11.8	-19.1
17798.509476	-31.1	12.0	-19.1
19790.735704	-31.3	12.2	-19.1
17786.016726	-31.6	12.5	-19.1
15759.986586	-31.6	12.5	-19.1
25063.411167	-31.8	12.6	-19.1
15772.479337	-31.8	12.7	-19.1
24779.017382	-31.8	12.7	-19.1
24984.780327	-31.8	12.7	-19.1
15704.871512	-31.8	12.7	-19.1
19817.190939	-31.8	12.7	-19.1
19830.418557	-31.8	12.7	-19.1
17819.820638	-31.8	12.7	-19.1
17819.085771	-31.9	12.8	-19.1

### Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2350.000000	1	1
2350.000000	2483.500000	2	1
2483.500000	26000.000000	1	1

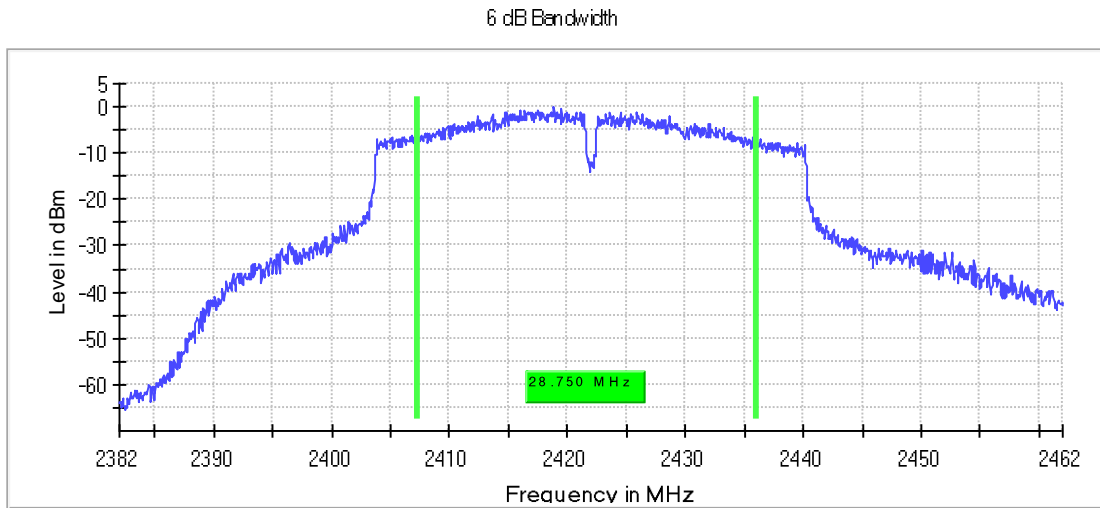


### Minimum Emission Bandwidth 6 dB (2422 MHz; 24.000 dBm; 40 MHz)

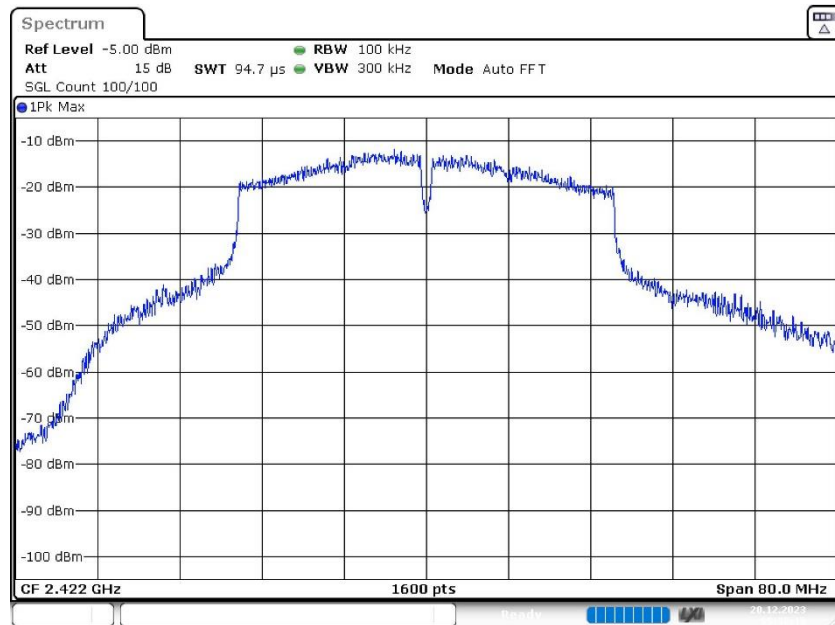
#### 6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2422.000000	28.750000	0.500000	---	2407.275000	2436.025000

DUT Frequency (MHz)	Max Level (dBm)	Result
2422.000000	0.0	PASS



Bandwidth



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**Power Spectral Density (2422 MHz; 24.000 dBm; 40 MHz)**

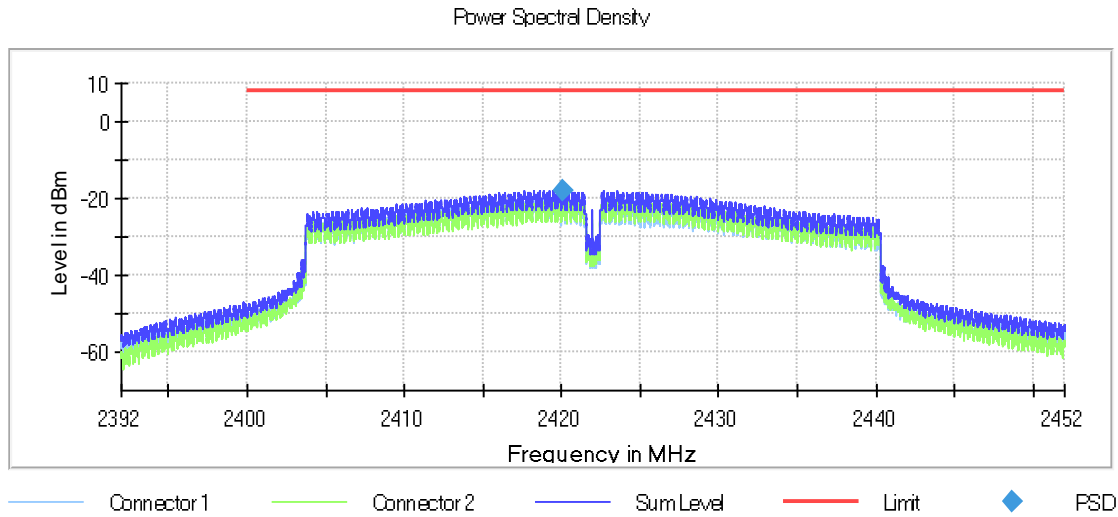
**Result**

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2422.000000	2420.140058	-18.044	8.0	PASS



**Ports**

Port	State
1	used
2	used

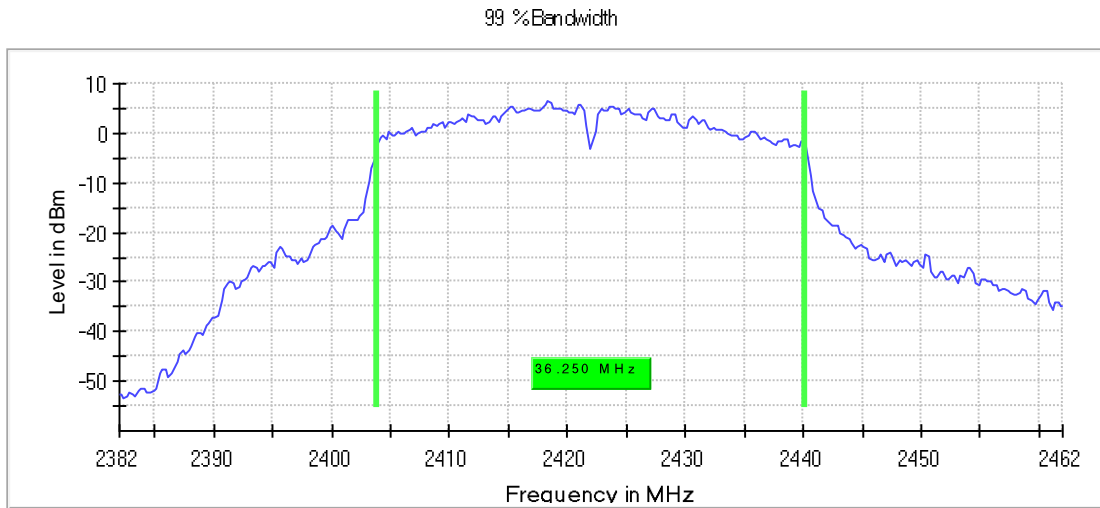


**Occupied Channel Bandwidth 99% (2422 MHz; 24.000 dBm; 40 MHz)**

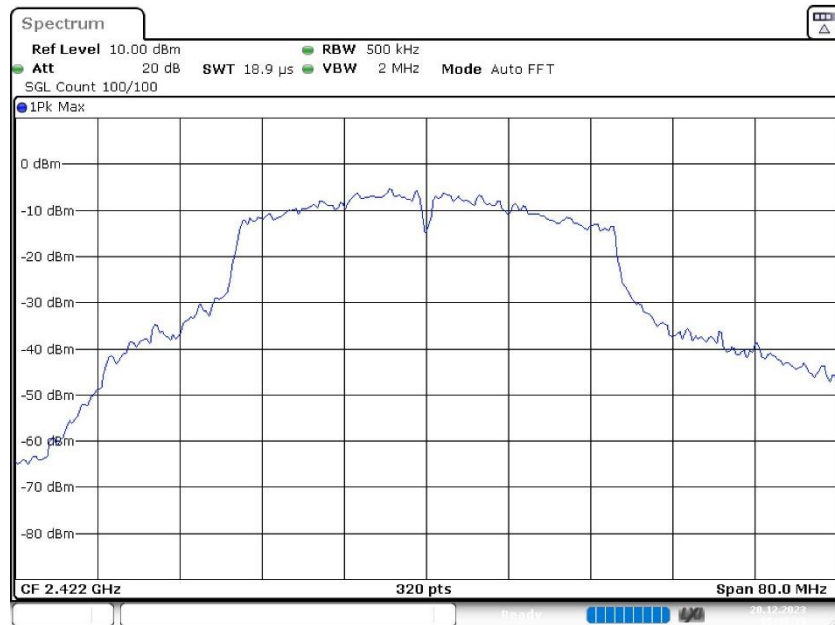
**99 % Bandwidth**

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2422.000000	36.250000	---	---	2403.875000	2440.125000

DUT Frequency (MHz)	Result
2422.000000	PASS



**Bandwidth**



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**Tx Spurious Emission (2422 MHz; 24.000 dBm; 40 MHz)**

**Result**

DUT Frequency (MHz)	Result
2422.000000	PASS

**Final measurements**

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2399.823379	-21.1	-29.1	-22.5	6.5	PASS

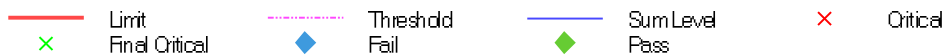
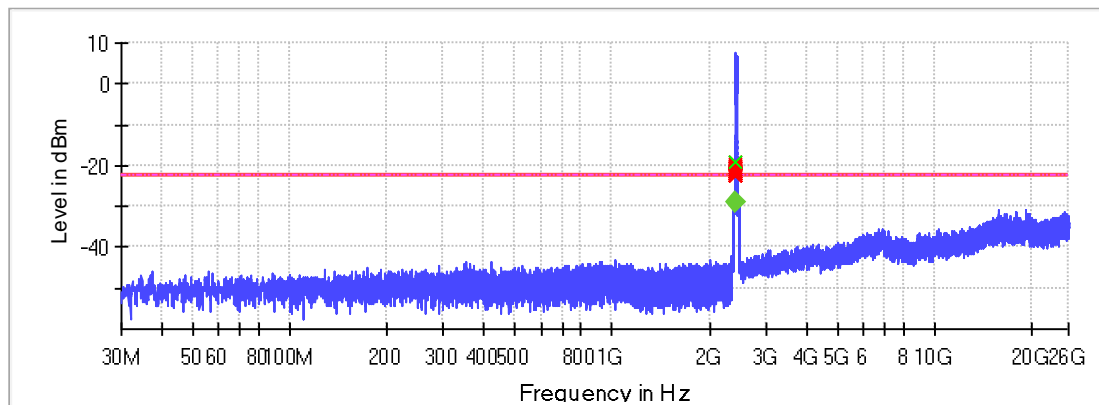
### Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2399.175000	-19.3	-3.2	-22.5
2399.225000	-19.8	-2.7	-22.5
2399.125000	-20.3	-2.2	-22.5
2398.925000	-20.3	-2.2	-22.5
2399.275000	-20.5	-2.0	-22.5
2399.475000	-20.6	-1.9	-22.5
2399.425000	-20.7	-1.9	-22.5
2398.875000	-20.7	-1.8	-22.5
2399.775000	-20.8	-1.8	-22.5
2399.525000	-21.0	-1.5	-22.5
2398.975000	-21.1	-1.4	-22.5
2399.825000	-21.1	-1.4	-22.5
2398.525000	-21.3	-1.2	-22.5
2398.625000	-21.4	-1.2	-22.5
2398.825000	-21.5	-1.1	-22.5

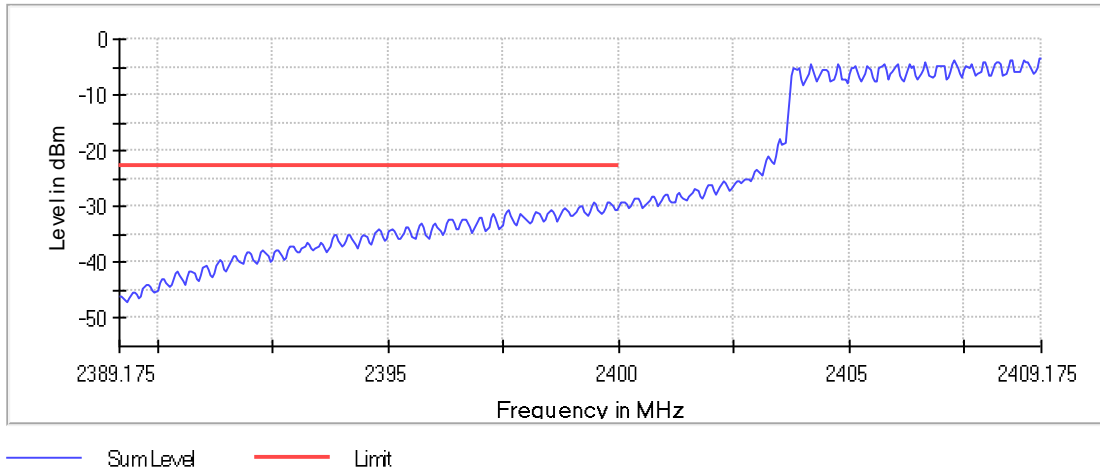
### Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2350.000000	1	1
2350.000000	2483.500000	2	1
2483.500000	26000.000000	1	1

Spurious



FinalMeas\_2399175000Hz



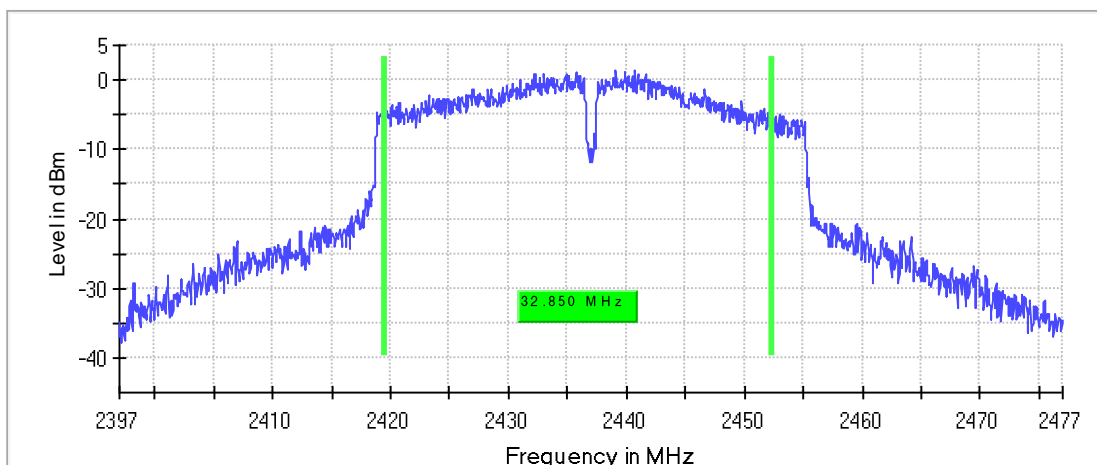
**Minimum Emission Bandwidth 6 dB (2437 MHz; 24.000 dBm; 40 MHz)**

**6 dB Bandwidth**

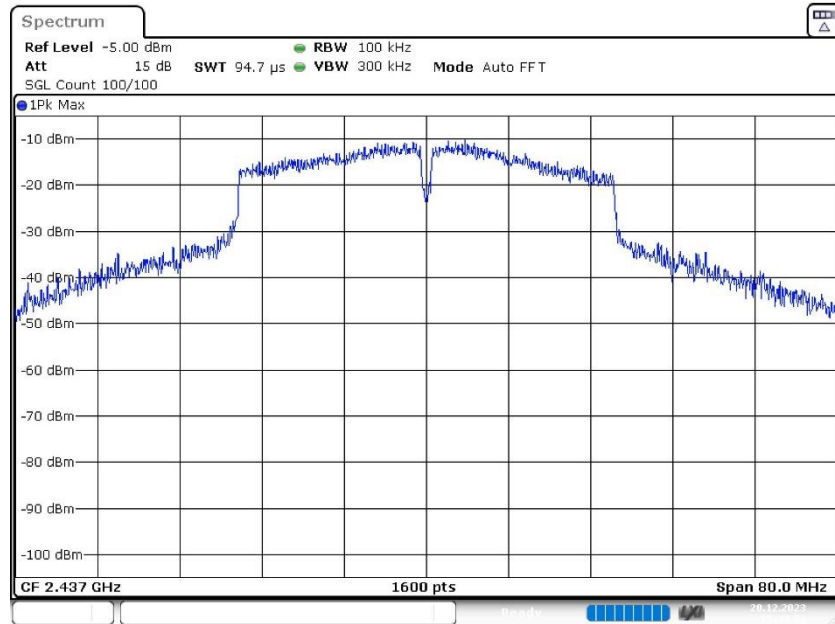
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2437.000000	32.850000	0.500000	---	2419.475000	2452.325000

DUT Frequency (MHz)	Max Level (dBm)	Result
2437.000000	1.5	PASS

6 dB Bandwidth



Bandwidth



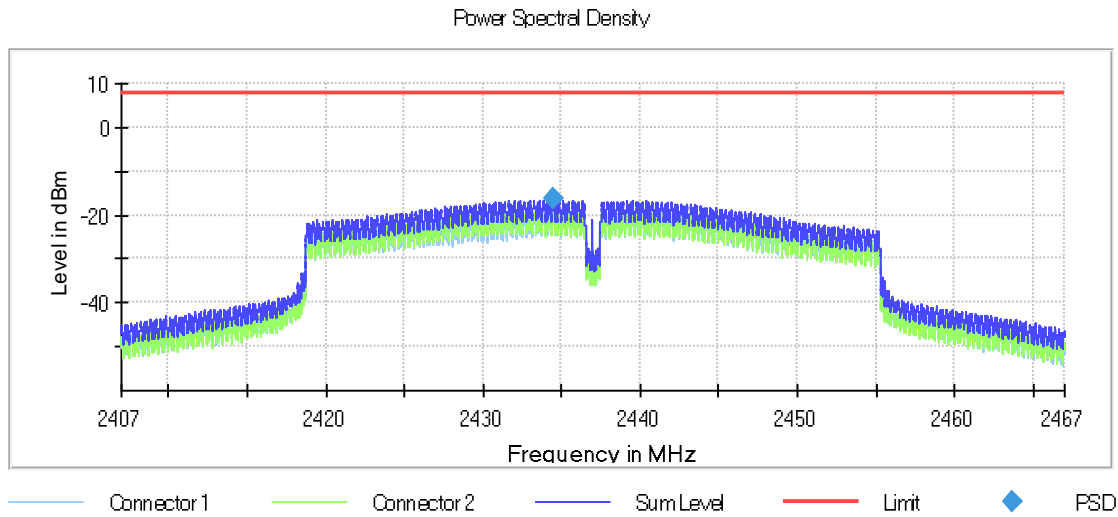
## Power Spectral Density (2437 MHz; 24.000 dBm; 40 MHz)

### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2434.495078	-16.398	8.0	PASS

### Ports

Port	State
1	used
2	used

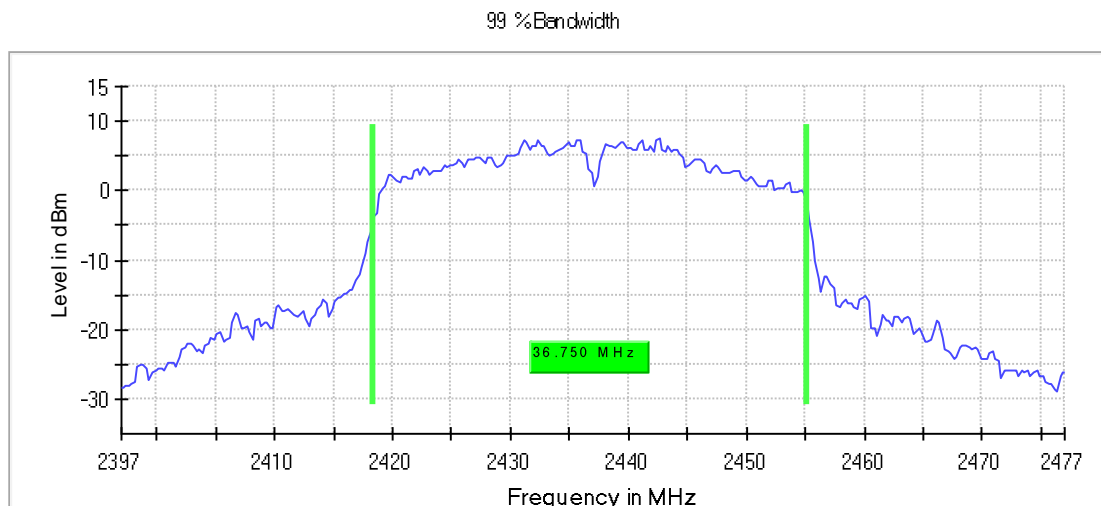


**Occupied Channel Bandwidth 99% (2437 MHz; 24.000 dBm; 40 MHz)**

**99 % Bandwidth**

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2437.000000	36.750000	---	---	2418.375000	2455.125000

DUT Frequency (MHz)	Result
2437.000000	PASS



Bandwidth



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### Tx Spurious Emission (2437 MHz; 24.000 dBm; 40 MHz)

#### Result

DUT Frequency (MHz)	Result
2437.000000	PASS

#### Final measurements

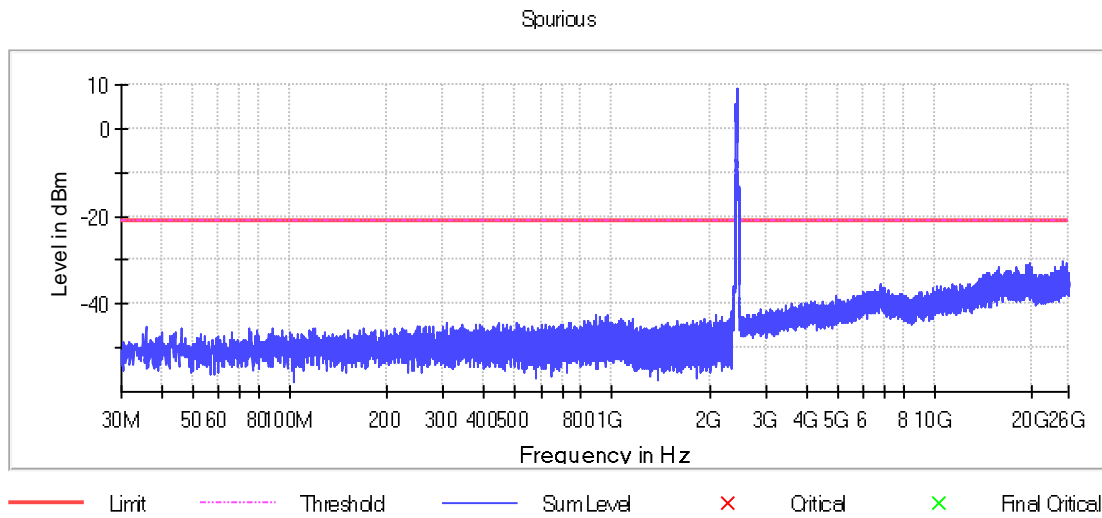
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

#### Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2399.475000	-22.3	1.4	-21.0
2399.525000	-22.5	1.5	-21.0
2399.125000	-24.4	3.4	-21.0
2398.625000	-24.4	3.4	-21.0
2399.825000	-24.4	3.4	-21.0
2399.425000	-24.4	3.4	-21.0
2399.175000	-24.5	3.5	-21.0
2399.775000	-24.5	3.5	-21.0
2398.575000	-24.6	3.6	-21.0
2399.575000	-24.7	3.8	-21.0
2397.625000	-24.7	3.8	-21.0
2399.725000	-24.9	3.9	-21.0
2398.875000	-24.9	3.9	-21.0
2399.875000	-24.9	3.9	-21.0
2399.225000	-25.0	4.1	-21.0

### Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2350.000000	1	1
2350.000000	2483.500000	2	1
2483.500000	26000.000000	1	1



### Minimum Emission Bandwidth 6 dB (2452 MHz; 24.000 dBm; 40 MHz)

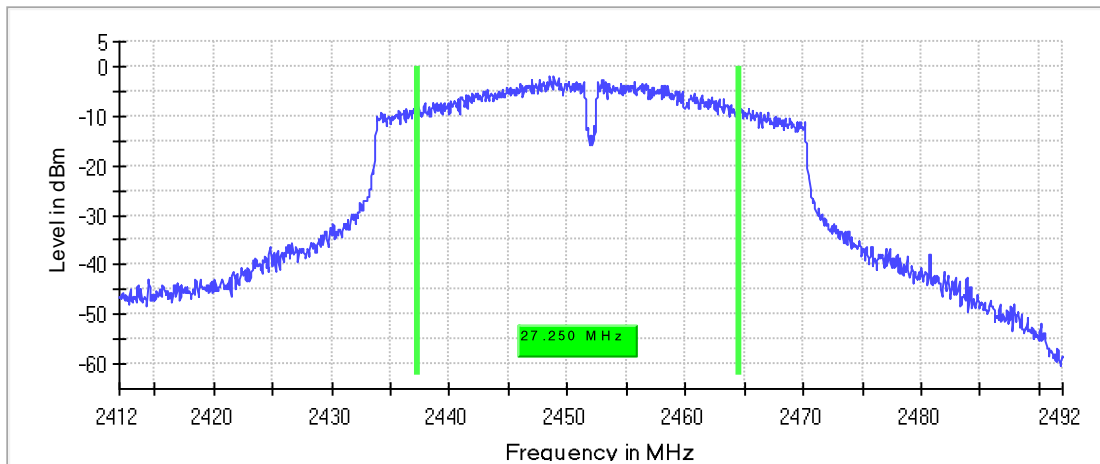
#### 6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2452.000000	27.250000	0.500000	---	2437.325000	2464.575000

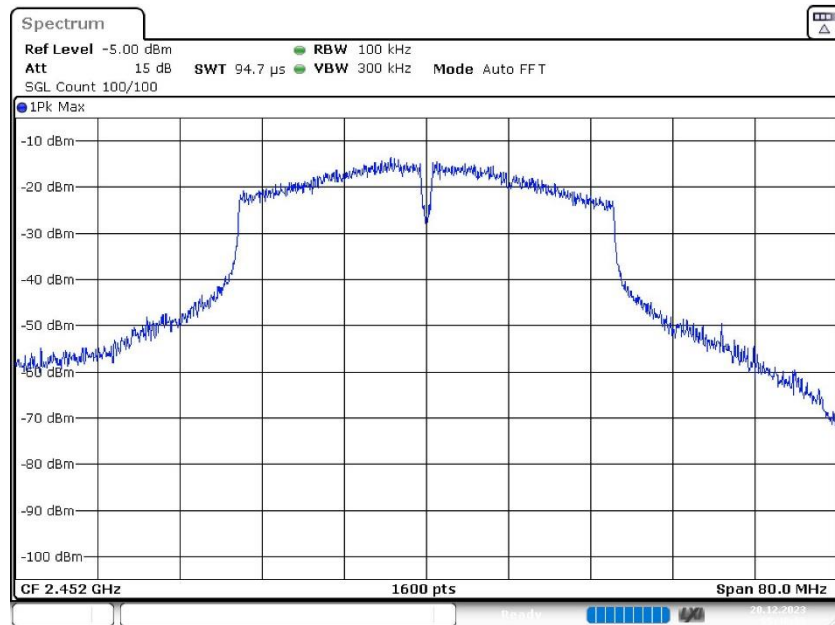
DUT Frequency (MHz)	Max Level (dBm)	Result
2452.000000	-1.9	PASS



6 dB Bandwidth



Bandwidth



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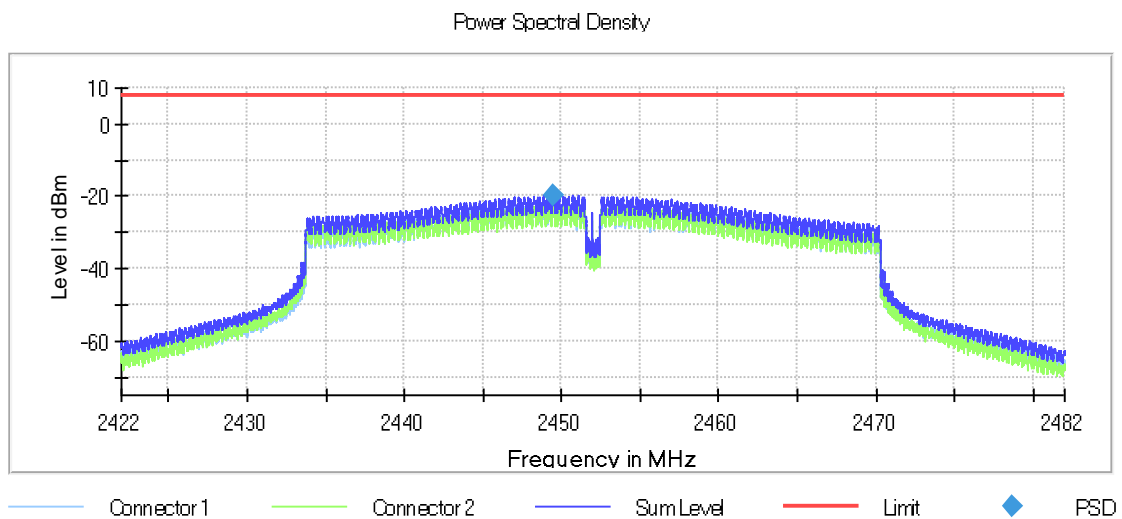
## Power Spectral Density (2452 MHz; 24.000 dBm; 40 MHz)

### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2452.000000	2449.487579	-19.599	8.0	PASS

### Ports

Port	State
1	used
2	used

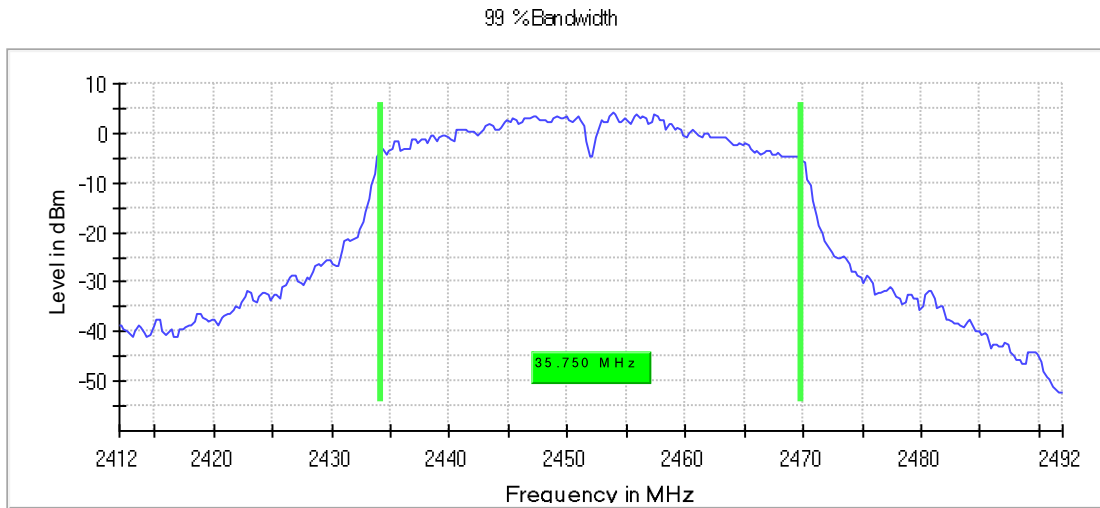


## Occupied Channel Bandwidth 99% (2452 MHz; 24.000 dBm; 40 MHz)

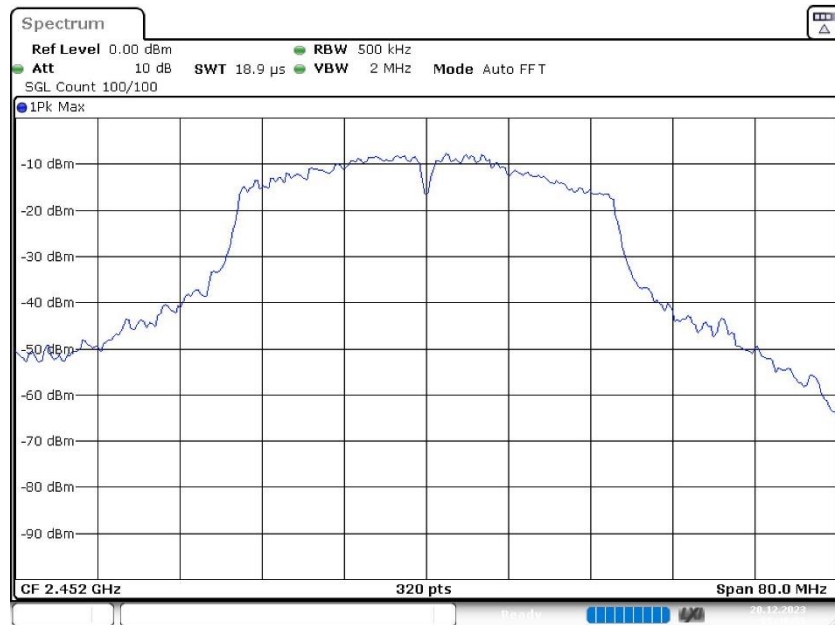
### 99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2452.000000	35.750000	---	---	2434.125000	2469.875000

DUT Frequency (MHz)	Result
2452.000000	PASS



**Bandwidth**



**Tx Spurious Emission (2452 MHz; 24.000 dBm; 40 MHz)**

**Result**

DUT Frequency (MHz)	Result
2452.000000	PASS

**Final measurements**

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

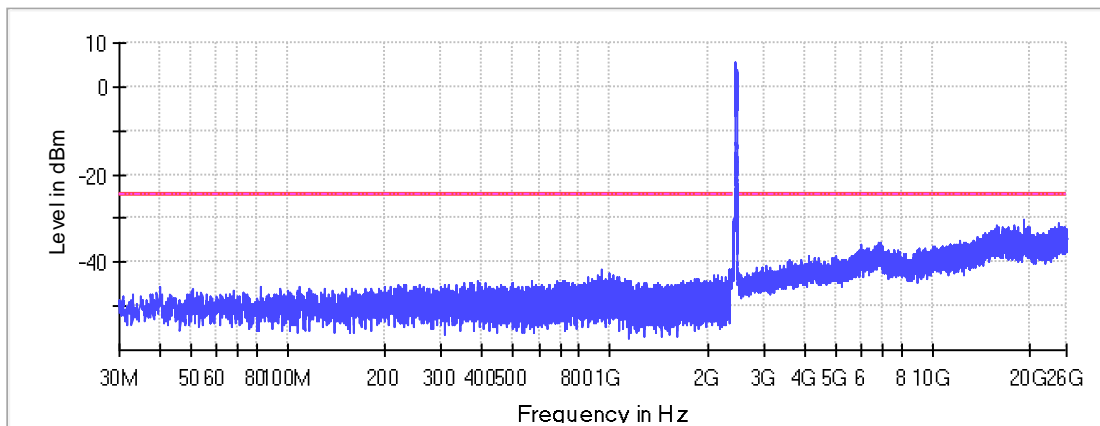
### Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
19122.741000	-30.4	6.1	-24.4
24720.962837	-30.9	6.6	-24.4
19177.856075	-31.1	6.8	-24.4
24759.175955	-31.2	6.8	-24.4
15818.041132	-31.7	7.3	-24.4
17858.033757	-31.7	7.3	-24.4
17816.881168	-31.8	7.5	-24.4
19829.683690	-31.8	7.5	-24.4
25505.801498	-31.9	7.5	-24.4
25110.442697	-31.9	7.5	-24.4
15778.358278	-31.9	7.5	-24.4
17802.918682	-31.9	7.6	-24.4
24721.697705	-32.0	7.6	-24.4
19831.153425	-32.0	7.6	-24.4
19835.562631	-32.0	7.6	-24.4

### Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2350.000000	1	1
2350.000000	2483.500000	2	1
2483.500000	26000.000000	1	1

Spurious



— Limit    - - - - - Threshold    — SumLevel    × Critical    × Final Critical

**-- End of Report --**