FCC Part 47 §15.247 2400-2483.5 MHz 2015

DUT Information

Frequencies

BT CH 0 (2402 MHz)	BT CH 1 (2403 MHz)	BT CH 2 (2404 MHz)
BT CH 3 (2405 MHz)	BT CH 4 (2406 MHz)	BT CH 5 (2407 MHz)
BT CH 6 (2408 MHz)	BT CH 7 (2409 MHz)	BT CH 8 (2410 MHz)
BT CH 9 (2411 MHz)	BT CH 10 (2412 MHz)	BT CH 11 (2413 MHz)
BT CH 12 (2414 MHz)	BT CH 13 (2415 MHz)	BT CH 14 (2416 MHz)
BT CH 15 (2417 MHz)	BT CH 16 (2418 MHz)	BT CH 17 (2419 MHz)
BT CH 18 (2420 MHz)	BT CH 19 (2421 MHz)	BT CH 20 (2422 MHz)
BT CH 21 (2423 MHz)	BT CH 22 (2424 MHz)	BT CH 23 (2425 MHz)
BT CH 24 (2426 MHz)	BT CH 25 (2427 MHz)	BT CH 26 (2428 MHz)
BT CH 27 (2429 MHz)	BT CH 28 (2430 MHz)	BT CH 29 (2431 MHz)
BT CH 30 (2432 MHz)	BT CH 31 (2433 MHz)	BT CH 32 (2434 MHz)
BT CH 33 (2435 MHz)	BT CH 34 (2436 MHz)	BT CH 35 (2437 MHz)
BT CH 36 (2438 MHz)	BT CH 37 (2439 MHz)	BT CH 38 (2440 MHz)
BT CH 39 (2441 MHz)	BT CH 40 (2442 MHz)	BT CH 41 (2443 MHz)
BT CH 42 (2444 MHz)	BT CH 43 (2445 MHz)	BT CH 44 (2446 MHz)
BT CH 45 (2447 MHz)	BT CH 46 (2448 MHz)	BT CH 47 (2449 MHz)
BT CH 48 (2450 MHz)	BT CH 49 (2451 MHz)	BT CH 50 (2452 MHz)
BT CH 51 (2453 MHz)	BT CH 52 (2454 MHz)	BT CH 53 (2455 MHz)
BT CH 54 (2456 MHz)	BT CH 55 (2457 MHz)	BT CH 56 (2458 MHz)
BT CH 57 (2459 MHz)	BT CH 58 (2460 MHz)	BT CH 59 (2461 MHz)
BT CH 60 (2462 MHz)	BT CH 61 (2463 MHz)	BT CH 62 (2464 MHz)
BT CH 63 (2465 MHz)	BT CH 64 (2466 MHz)	BT CH 65 (2467 MHz)
BT CH 66 (2468 MHz)	BT CH 67 (2469 MHz)	BT CH 68 (2470 MHz)
BT CH 69 (2471 MHz)	BT CH 70 (2472 MHz)	BT CH 71 (2473 MHz)
BT CH 72 (2474 MHz)	BT CH 73 (2475 MHz)	BT CH 74 (2476 MHz)
BT CH 75 (2477 MHz)	BT CH 76 (2478 MHz)	BT CH 77 (2479 MHz)
BT CH 78 (2480 MHz)		

Bandwidths

1 MHz (1 MHz)	2 MHz (2 MHz)	3 MHz (3 MHz)

Power

0.000 dBm (0 dBm)

Beamforming Gain

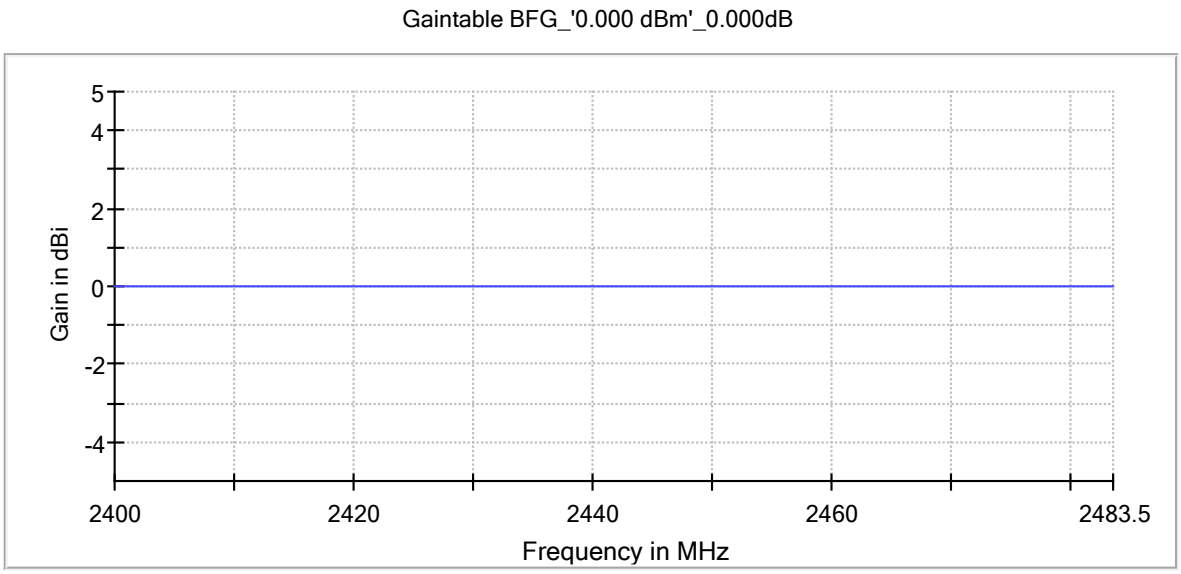
Powerstep name (value)	Beamforming gain table names
0.000 dBm (0 dBm)	BFG_'0.000 dBm'_0.000dB;

Gain Tables

Powerstep name (value)	Gain table names
0.000 dBm (0 dBm)	Port 1: ---;

DUT Settings

No. of transmission chains	1
Equipment Type	Other
Digital Modulation	Yes
Frequency Hopping	No



Hardware Setup: WMS Measurements\TS8997

Spectrum Analyzer:	SA FSV 40 (SA FSV 40) @ VISA (ADR TCPIP::192.168.48.111::INST0::INSTR), SN 1307.9002K40/101076, FW 3.40
Vector Generator:	VG SMBV100B (VG SMBV100B) @ VISA (ADR TCPIP::192.168.48.29::INST0::INSTR), SN 101685, FW 4.70.006.33
Generator:	SMB100Aa (SMB100A) @ VISA (ADR TCPIP::192.168.48.28::INST0::INSTR), SN 113690, FW / Drv:Rev 2.21.0, 07/2016, CVI 2015
OSP:	OSP-B157W (OSP-B157W) @ VISA (ADR TCPIP::192.168.48.157::INST0::INSTR), SN 1527.1144. /, FW 1.27.0.0

Summary

Test	Frequency (MHz)	Nominal Power (dBm)	Nominal Bandwidth (MHz)	Result
Minimum Emission Bandwidth 6 dB	2402.000	0.0	1.000000	PASS
Emission Bandwidth 20 dB	2402.000	0.0	1.000000	PASS
RF output power	2402.000	0.0	1.000000	PASS
Peak Power Spectral Density	2402.000	0.0	1.000000	PASS
Band Edge low	2402.000	0.0	1.000000	PASS
Tx Spurious Emission	2402.000	0.0	1.000000	PASS
Minimum Emission Bandwidth 6 dB	2440.000	0.0	1.000000	PASS
RF output power	2440.000	0.0	1.000000	PASS
Emission Bandwidth 20 dB	2440.000	0.0	1.000000	PASS
Peak Power Spectral Density	2440.000	0.0	1.000000	PASS
Tx Spurious Emission	2440.000	0.0	1.000000	PASS
Minimum Emission Bandwidth 6 dB	2480.000	0.0	1.000000	PASS
RF output power	2480.000	0.0	1.000000	PASS
Emission Bandwidth 20 dB	2480.000	0.0	1.000000	PASS
Peak Power Spectral Density	2480.000	0.0	1.000000	PASS
Band Edge high	2480.000	0.0	1.000000	PASS
Tx Spurious Emission	2480.000	0.0	1.000000	PASS

Minimum Emission Bandwidth 6 dB (2402 MHz; 0.000 dBm; 1 MHz)

Customized settings.

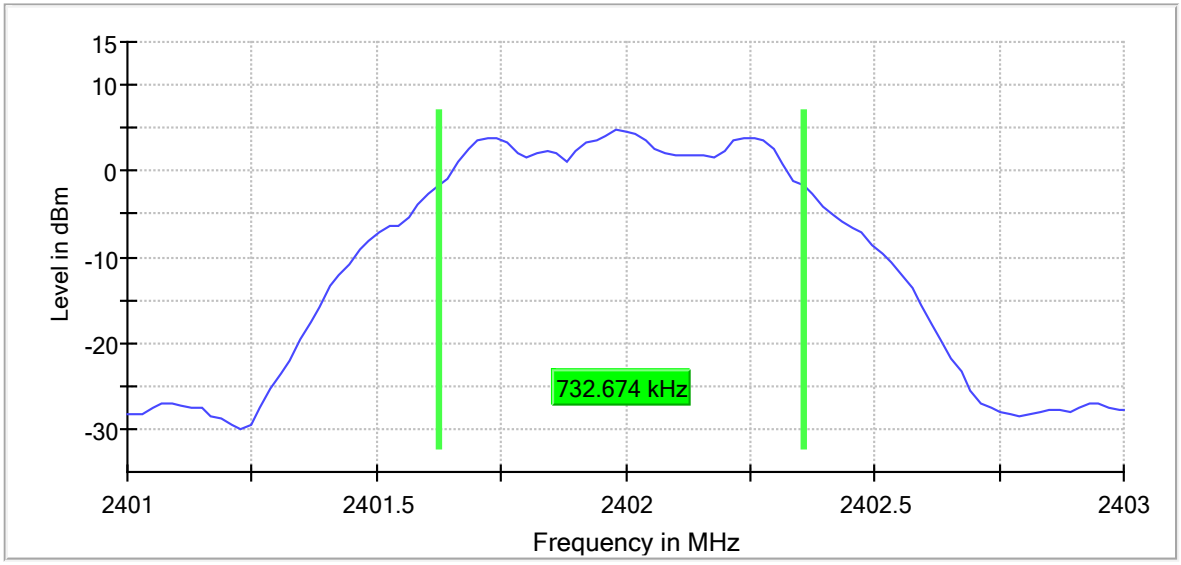
6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.732674	0.500000	---	2401.623762	2402.356436

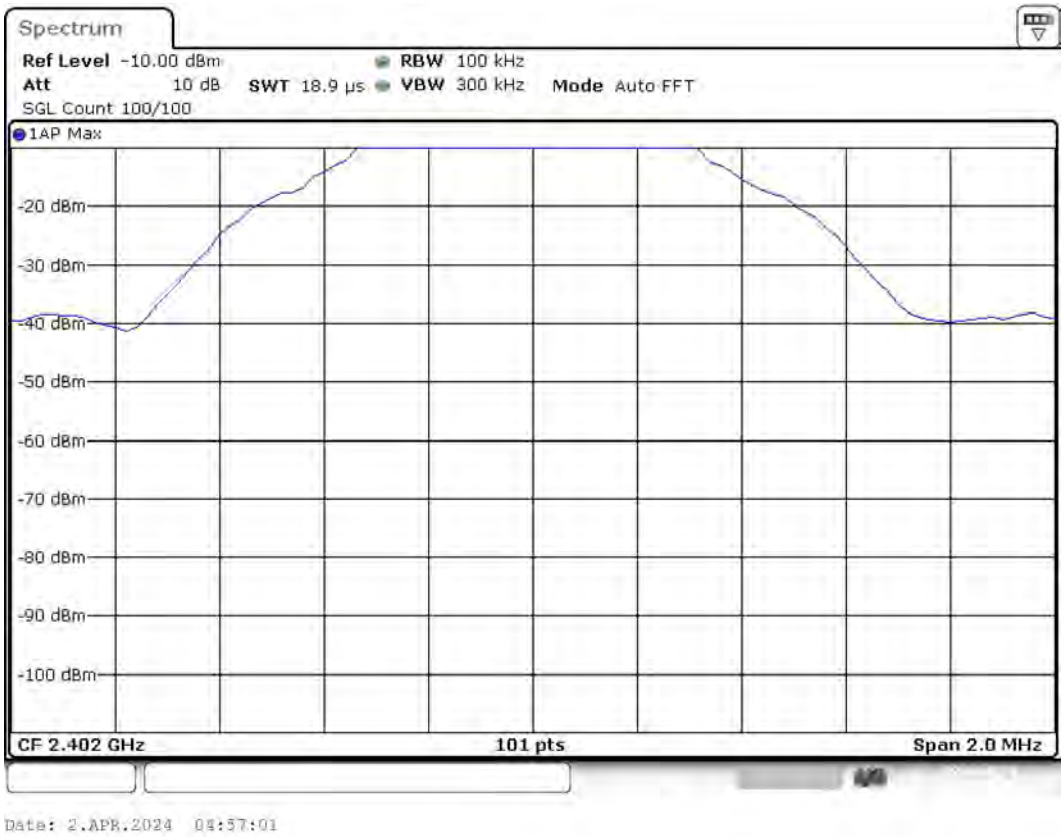
(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	4.7	PASS

6 dB Bandwidth



Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
Sweeptime	18.938 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	Peak	Peak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

Emission Bandwidth 20 dB (2402 MHz; 0.000 dBm; 1 MHz)

Customized settings.

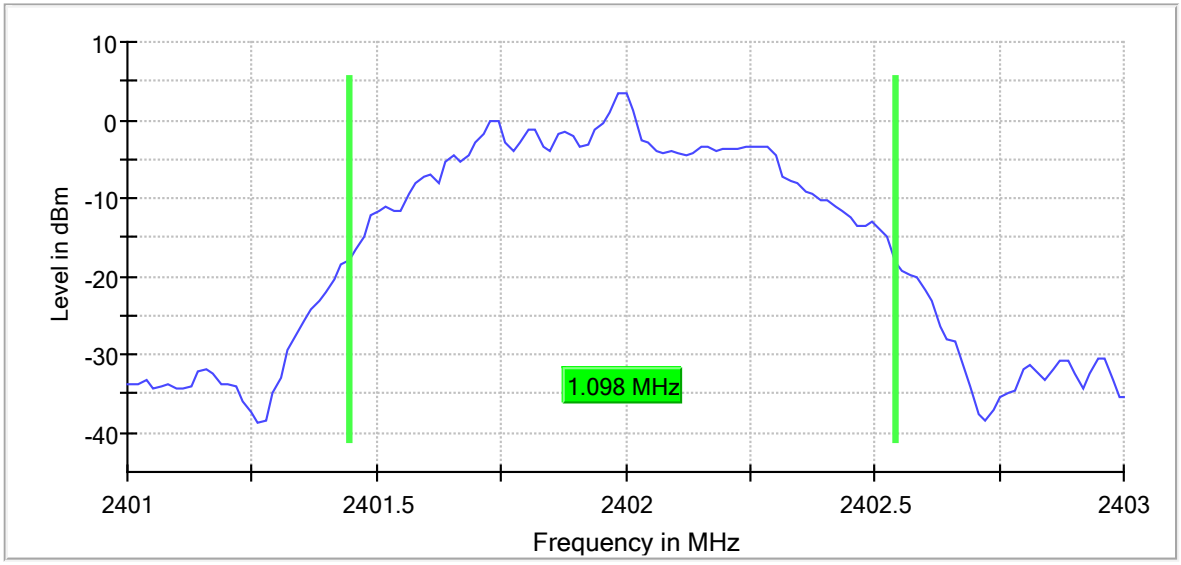
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.097744	---	---	2401.443609	2402.541353

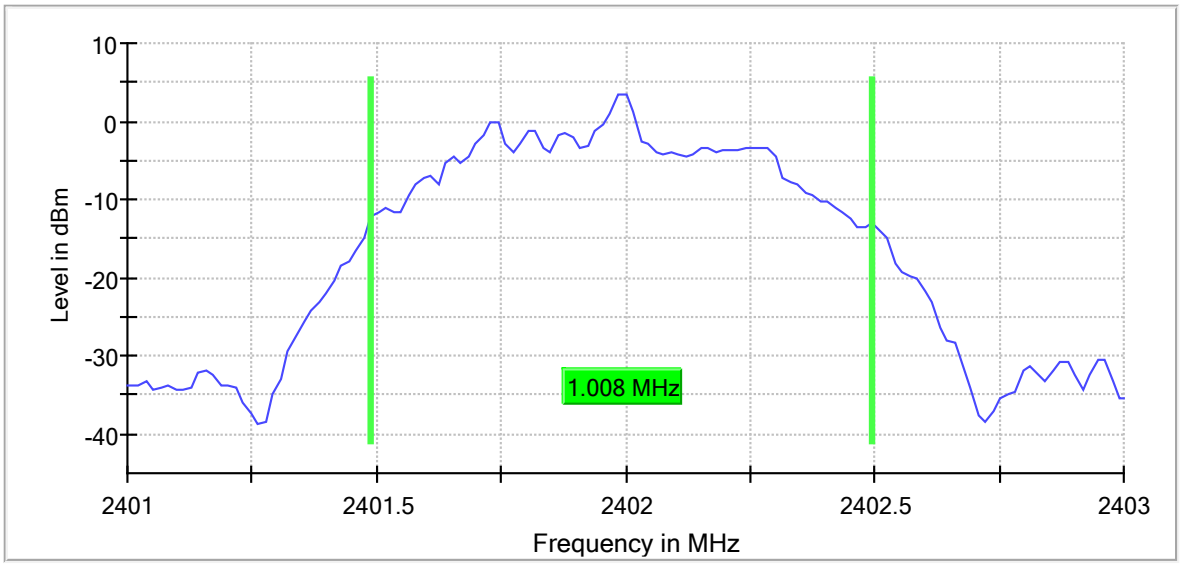
(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	3.4	PASS

20 dB Bandwidth



99 % Bandwidth



Bandwidth

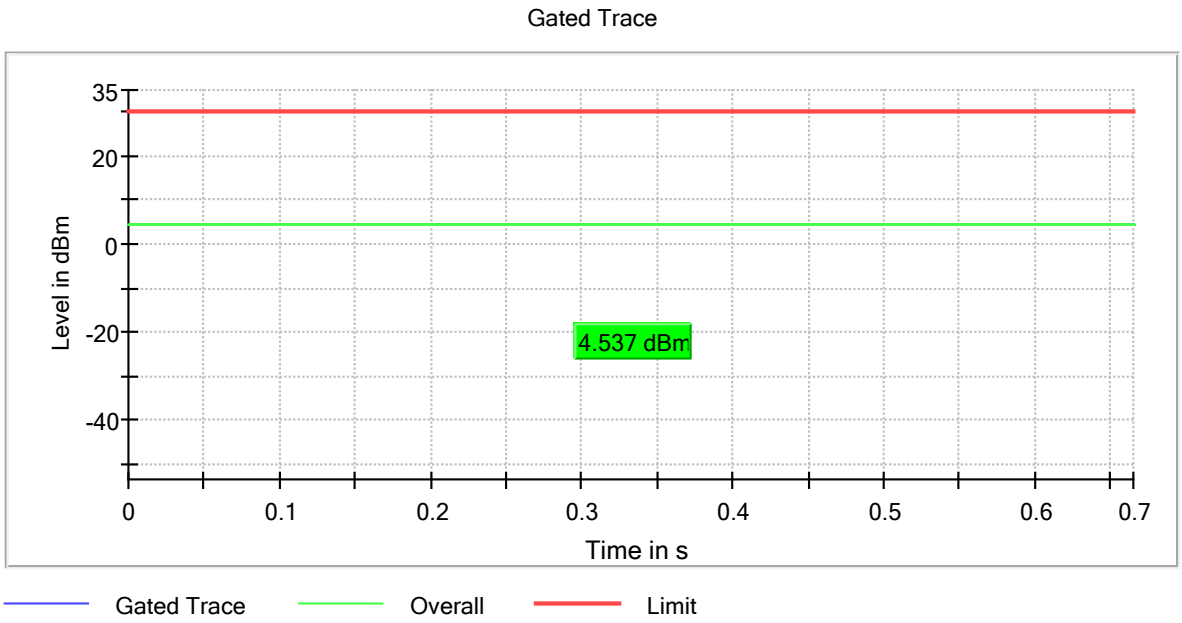
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	30.000 kHz	>= 30.000 kHz
VBW	100.000 kHz	>= 90.000 kHz
SweepPoints	133	~ 133
Sweeptime	63.123 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	Peak	Peak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

RF output power (2402 MHz; 0.000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2402.000000	4.5	30.0	4.5	66.748	PASS



OSP PowerMeter settings

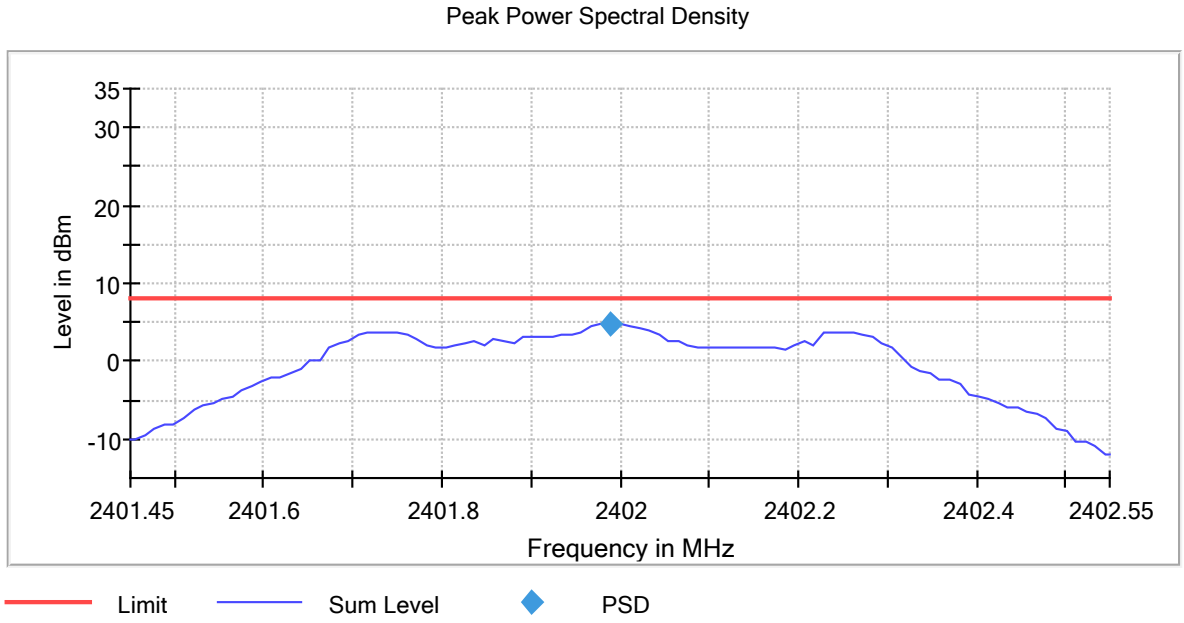
Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 µs	1.000 µs

Peak Power Spectral Density (2402 MHz; 0.000 dBm; 1 MHz)

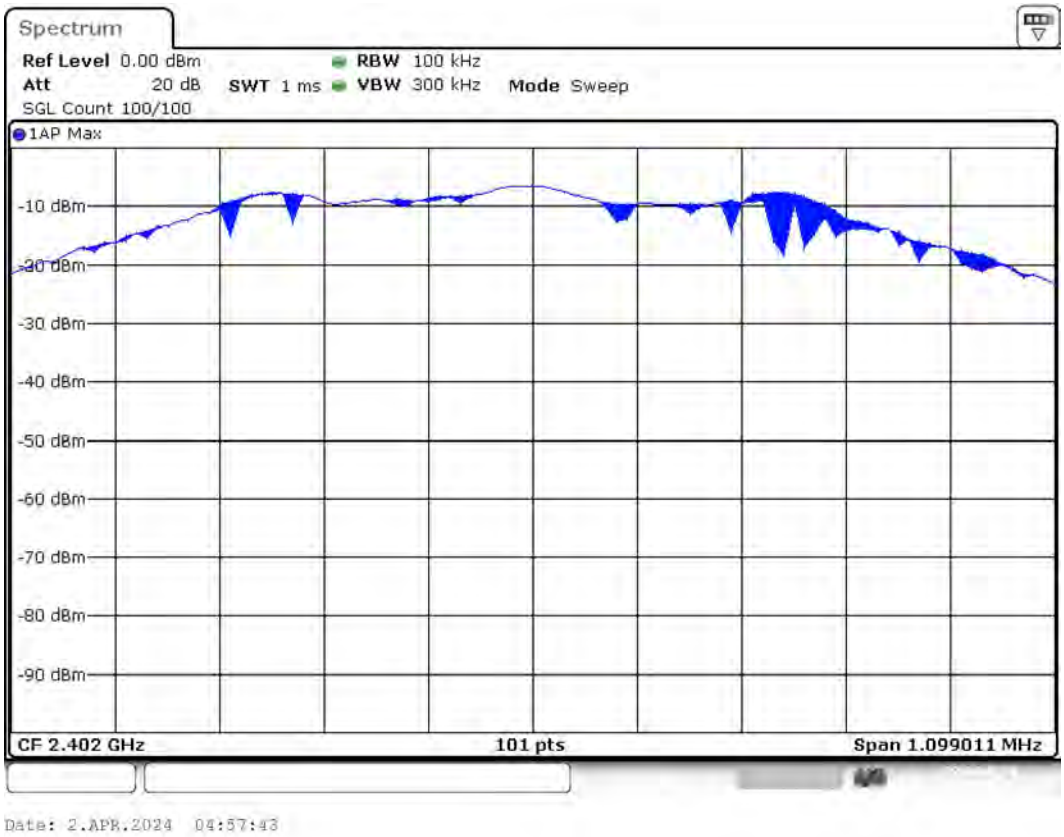
Customized settings.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2401.989119	4.845	8.0	PASS



PSD Connector 1



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40145 GHz	2.40145 GHz
Stop Frequency	2.40255 GHz	2.40255 GHz
Span	1.099 MHz	1.099 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 22
Sweeptime	1.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	Peak	Peak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

Band Edge low (2402 MHz; 0.000 dBm; 1 MHz)

Result

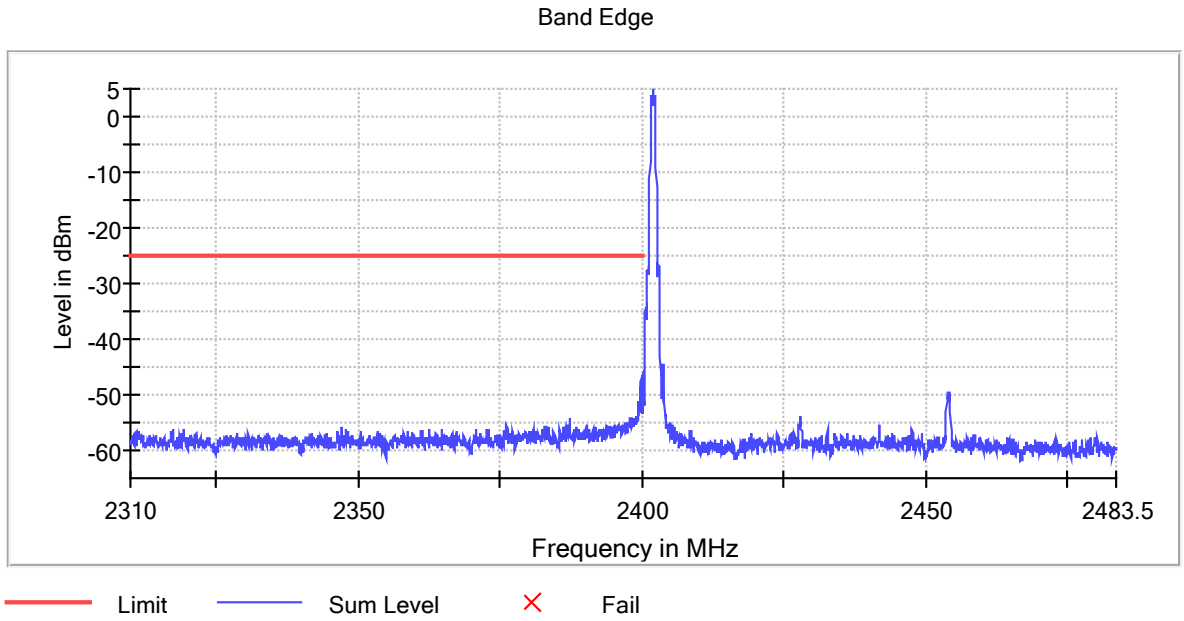
DUT Frequency (MHz)	Result
2402.000000	PASS

Inband Peak

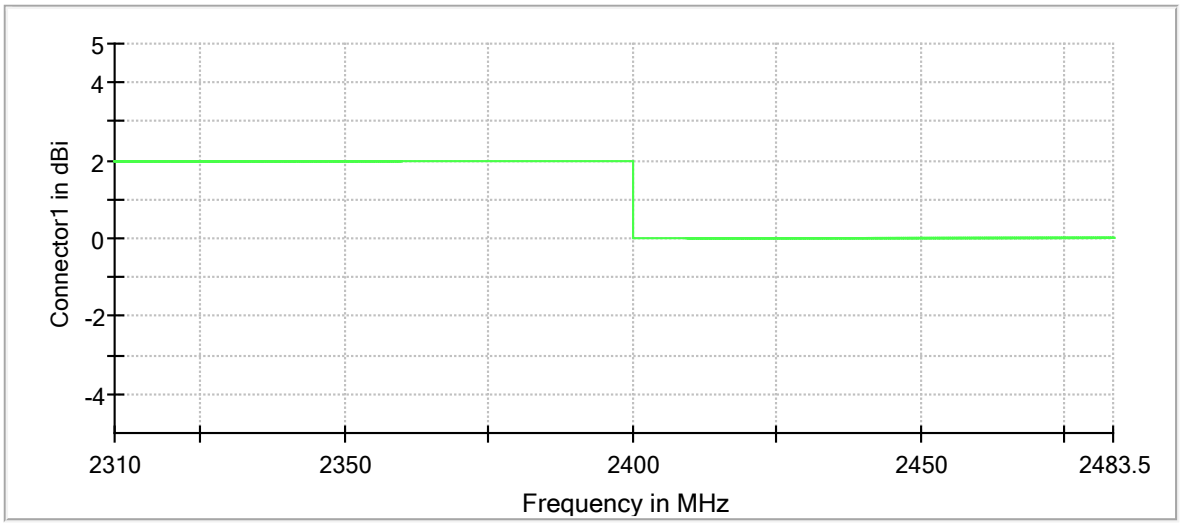
Frequency (MHz)	Level (dBm)
2401.975000	4.9

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975000	-46.7	21.5	-25.1	PASS
2399.925000	-47.6	22.4	-25.1	PASS
2399.725000	-48.5	23.4	-25.1	PASS
2399.775000	-48.5	23.4	-25.1	PASS
2399.675000	-49.4	24.2	-25.1	PASS
2399.825000	-50.4	25.2	-25.1	PASS
2399.325000	-51.0	25.8	-25.1	PASS
2399.875000	-51.2	26.0	-25.1	PASS
2399.275000	-51.6	26.5	-25.1	PASS
2399.375000	-51.7	26.6	-25.1	PASS
2399.625000	-51.8	26.7	-25.1	PASS
2399.575000	-53.1	27.9	-25.1	PASS
2399.525000	-53.1	27.9	-25.1	PASS
2399.475000	-53.5	28.4	-25.1	PASS
2398.925000	-53.7	28.6	-25.1	PASS

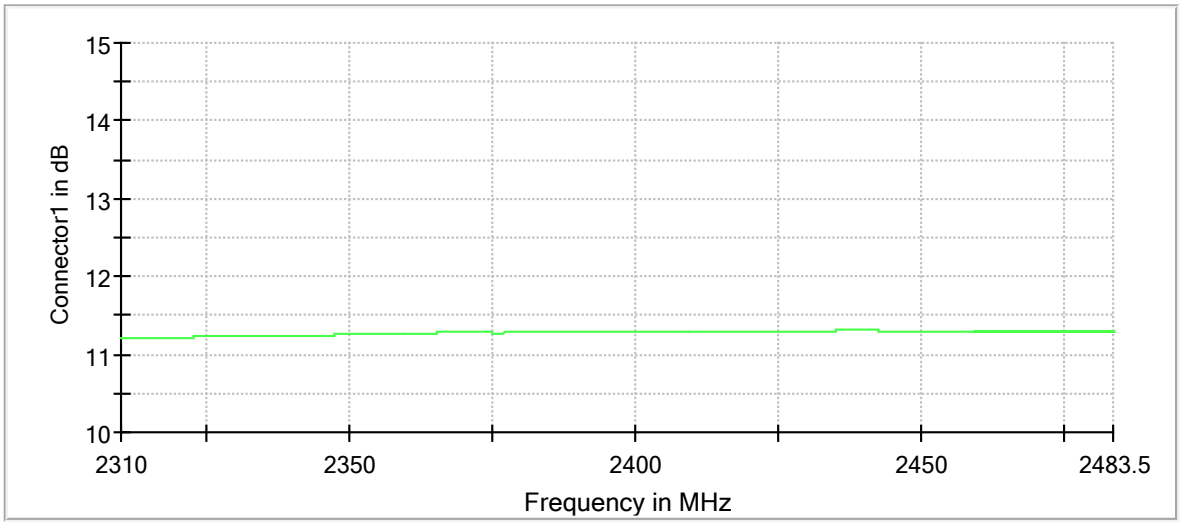


Gain



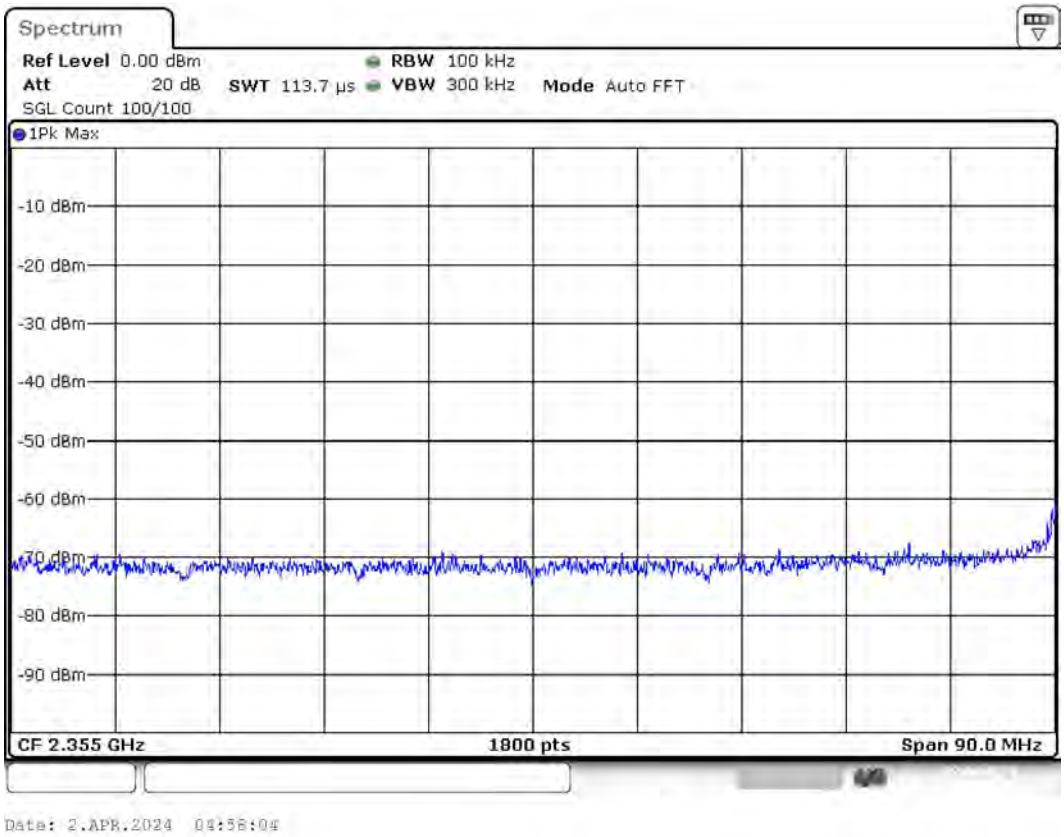
Connector1

Attenuation

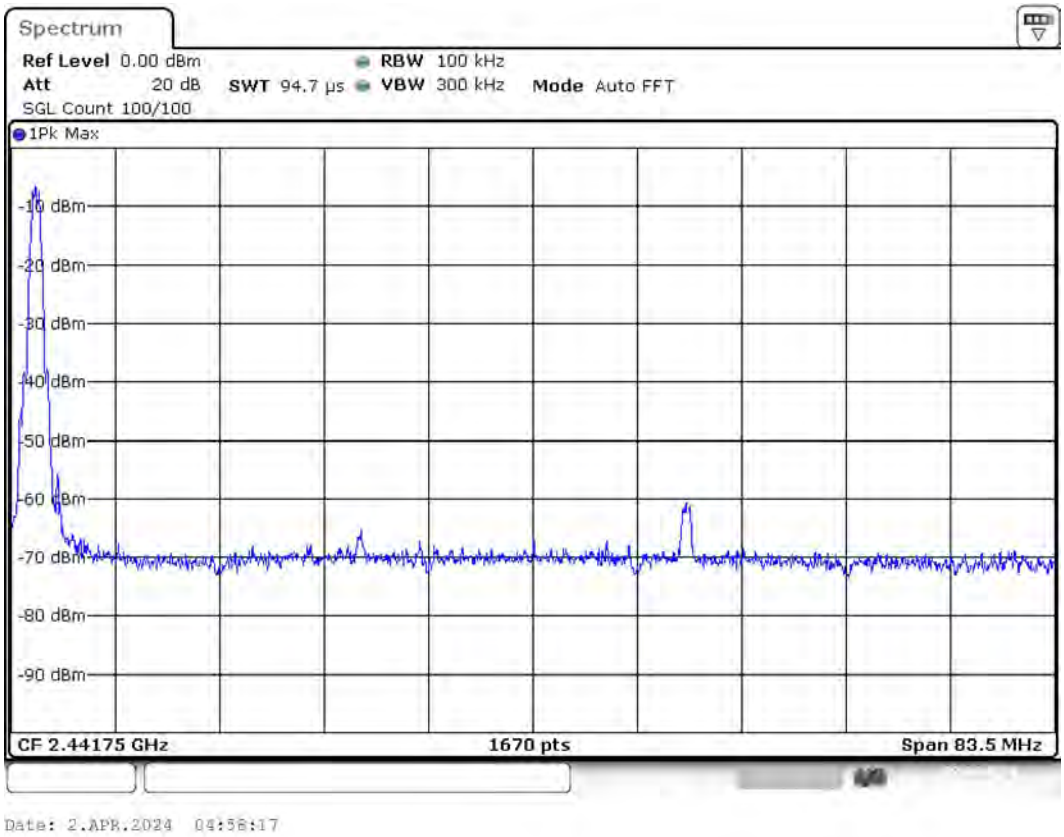


Connector1

Band Edge Connector 1_0



Band Edge Connector 1_1



Measurement 1

Setting	Instrument Value	Target Value
Start Frequency	2.31000 GHz	2.31000 GHz
Stop Frequency	2.40000 GHz	2.40000 GHz
Span	90.000 MHz	90.000 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1800	~ 1800
Sweeptime	113.672 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	7 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Measurement 2

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz

SweepPoints	**1670**	**~ 1670**
Sweeptime	**94.727 µs**	**AUTO**
Reference Level	**0.000 dBm**	**0.000 dBm**
Attenuation	**20.000 dB**	**AUTO**
Detector	**MaxPeak**	**MaxPeak**
SweepCount	**100**	**100**
Filter	**3 dB**	**3 dB**
Trace Mode	**Max Hold**	**Max Hold**
Sweeptype	**FFT**	**AUTO**
Preamp	**off**	**off**
Stablemode	**Trace**	**Trace**
Stablevalue	**0.50 dB**	**0.50 dB**
Run	**4 / max. 150**	**max. 150**
Stable	**3 / 3**	**3**
Max Stable Difference	**0.27 dB**	**0.50 dB**

Tx Spurious Emission (2402 MHz; 0.000 dBm; 1 MHz)

Customized settings.

Result

DUT Frequency (MHz)	Result
2402.000000	PASS

Final measurements

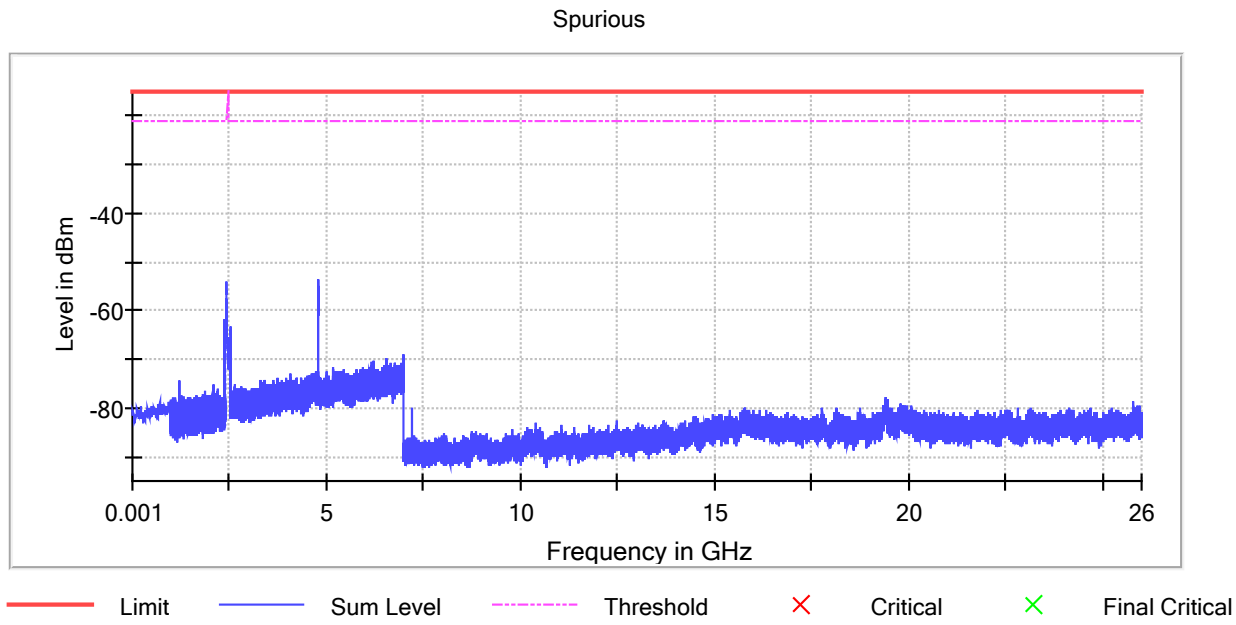
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

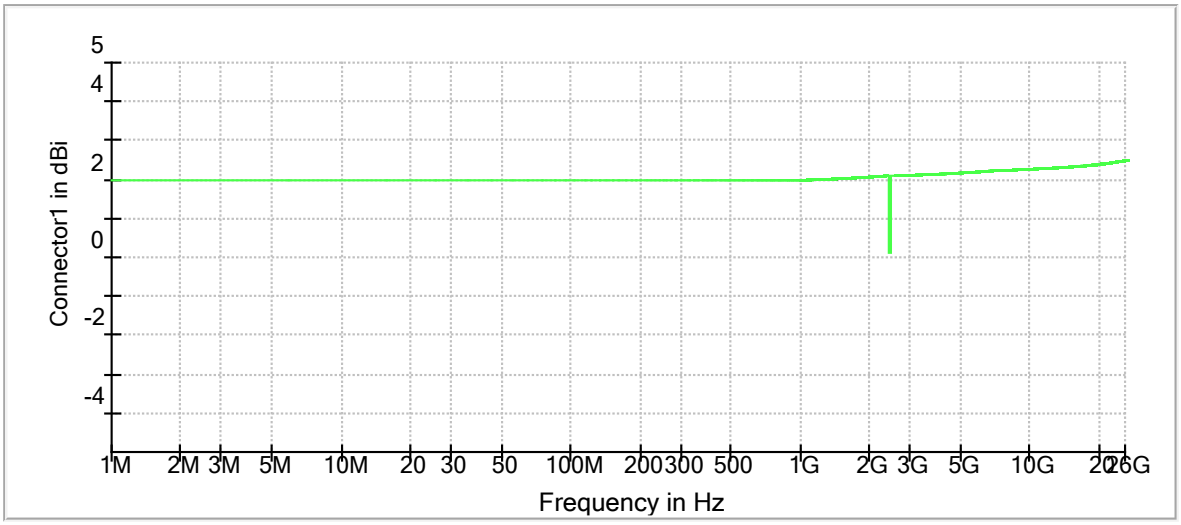
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4803.567662	-53.8	38.6	-15.2
4803.991071	-53.8	38.7	-15.2
2399.975000	-54.3	39.2	-15.2
4803.426526	-54.4	39.2	-15.2
2399.925000	-54.7	39.6	-15.2
4804.555615	-55.0	39.8	-15.2
2399.775000	-55.8	40.6	-15.2
2399.825000	-55.9	40.8	-15.2
4804.414479	-56.0	40.8	-15.2
2399.725000	-56.3	41.1	-15.2
2400.000000	-56.3	41.2	-15.2
2399.625000	-56.4	41.2	-15.2
2399.875000	-56.6	41.4	-15.2
2399.675000	-56.8	41.7	-15.2
2399.575000	-57.6	42.4	-15.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
1.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2

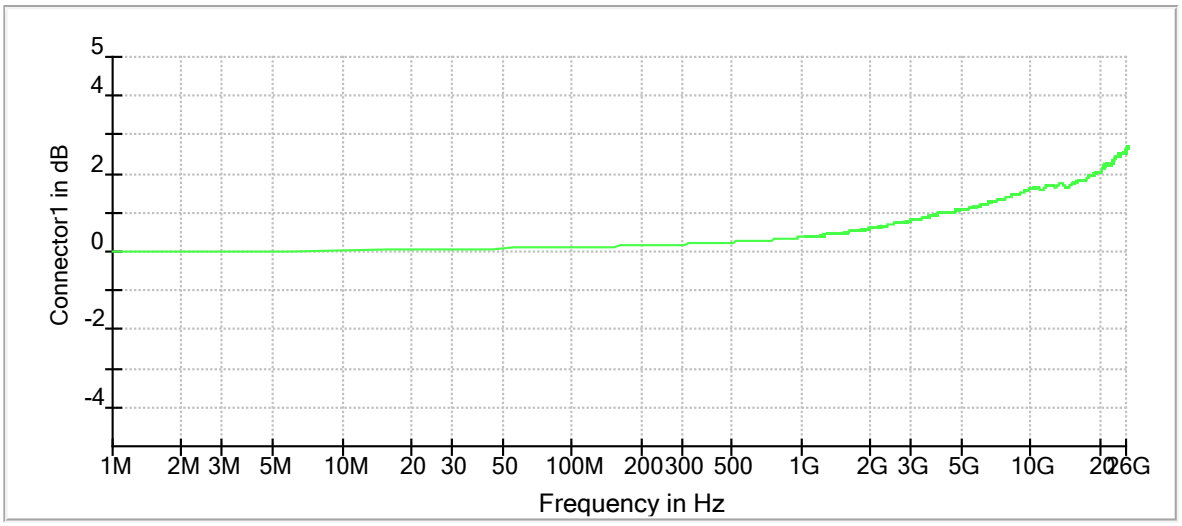

Spurious
Level in dBm
-40
-60
-80
0.001
5
10
15
20
26
Frequency in GHz
Limit
Sum Level
Threshold
Critical
Final Critical

Gain



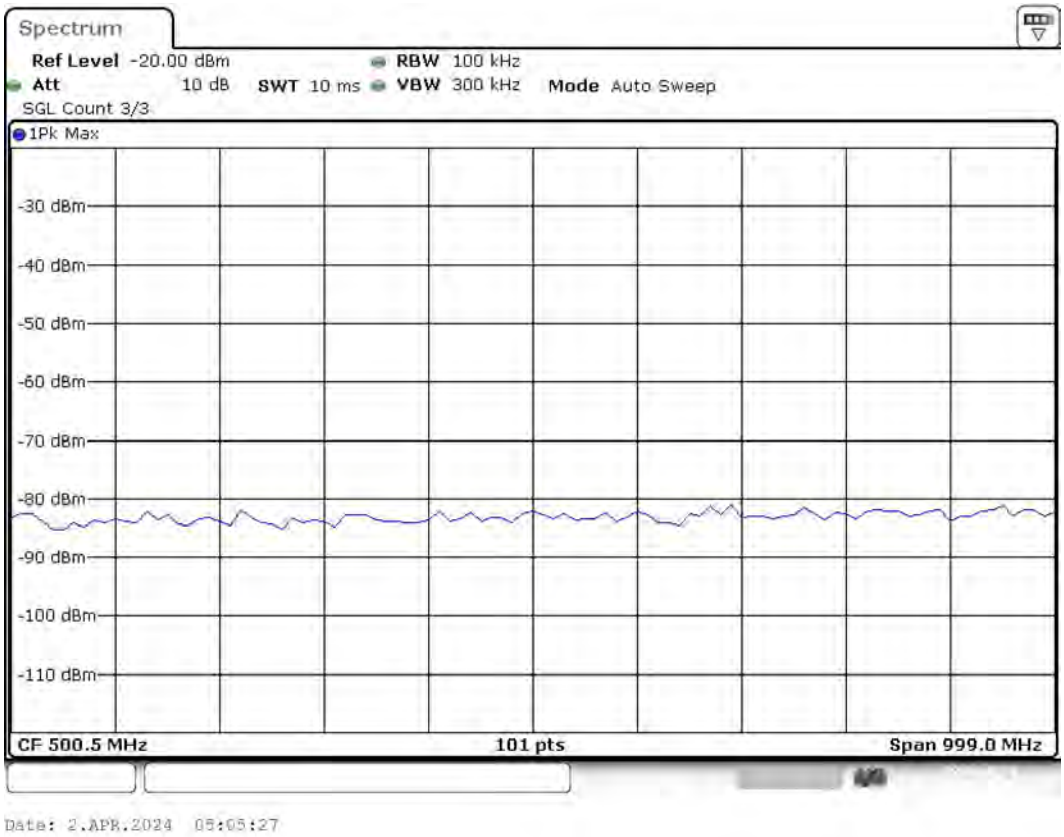
Connector1

Attenuation

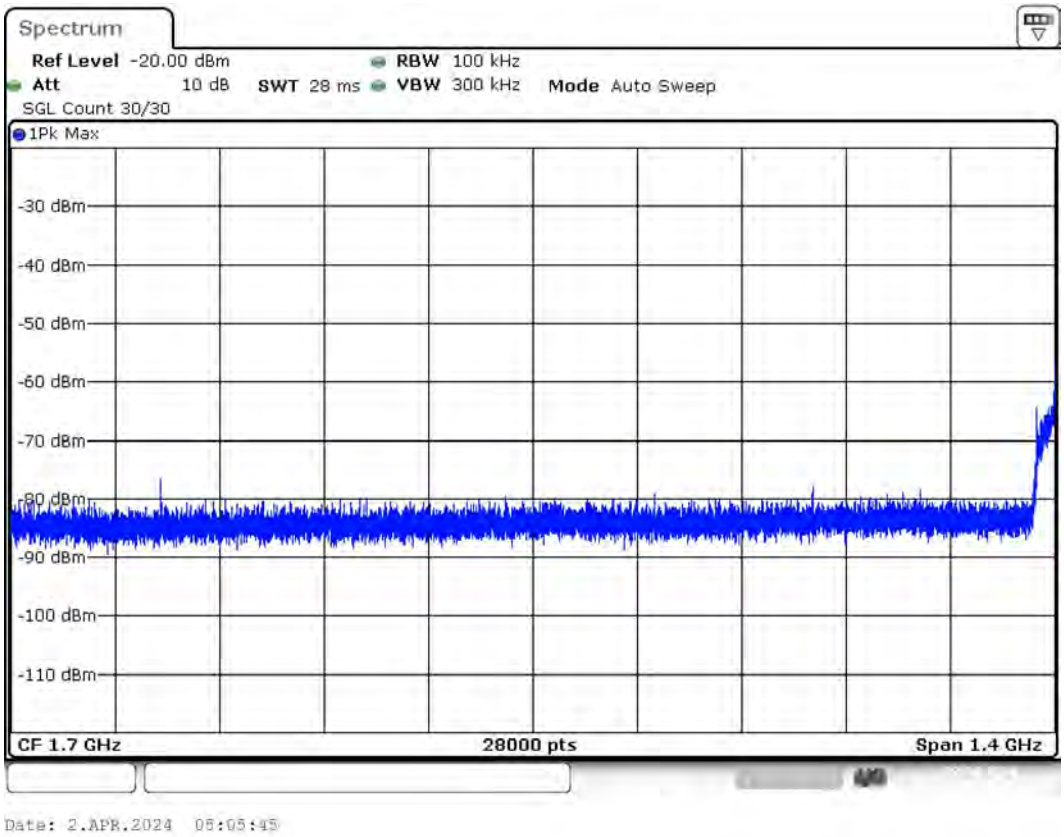


Connector1

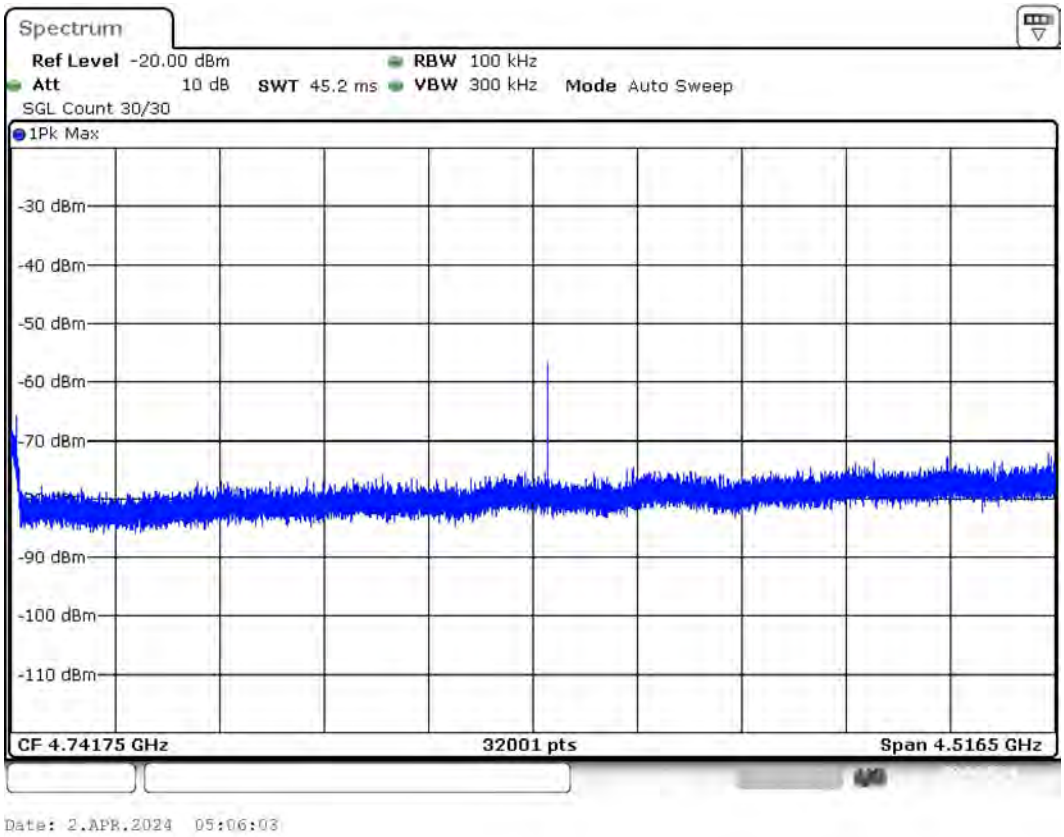
Spurious Connector 1_0



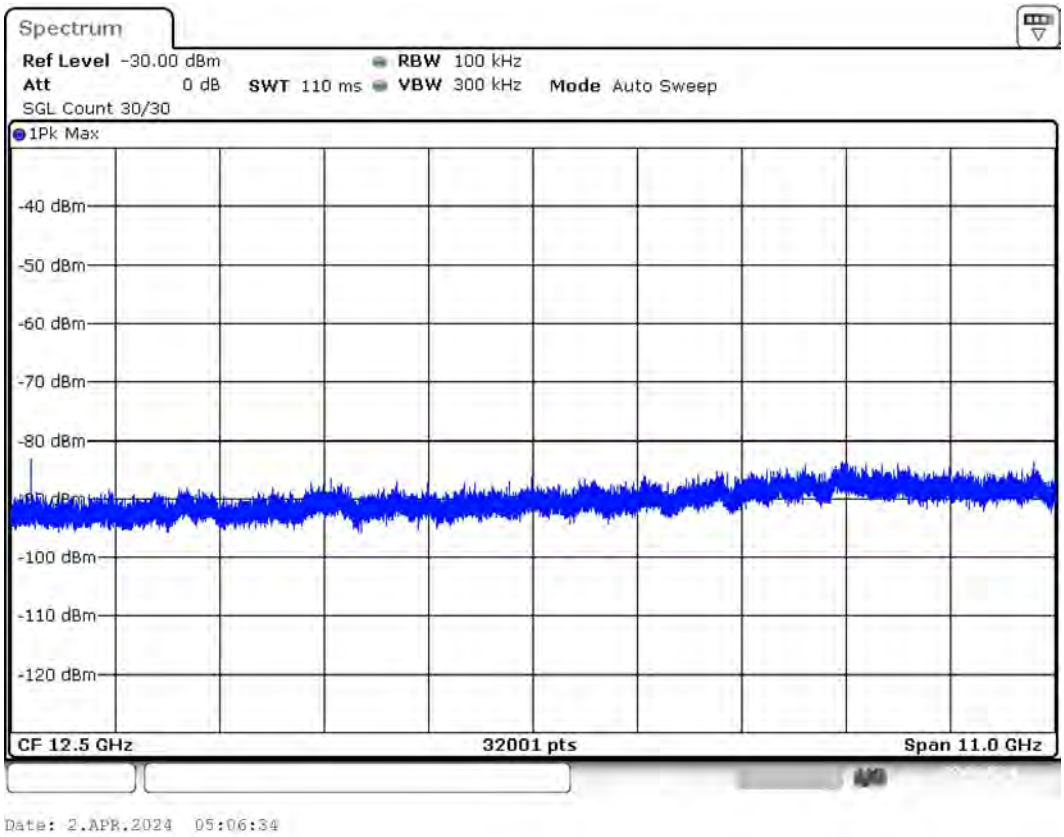
Spurious Connector 1_1



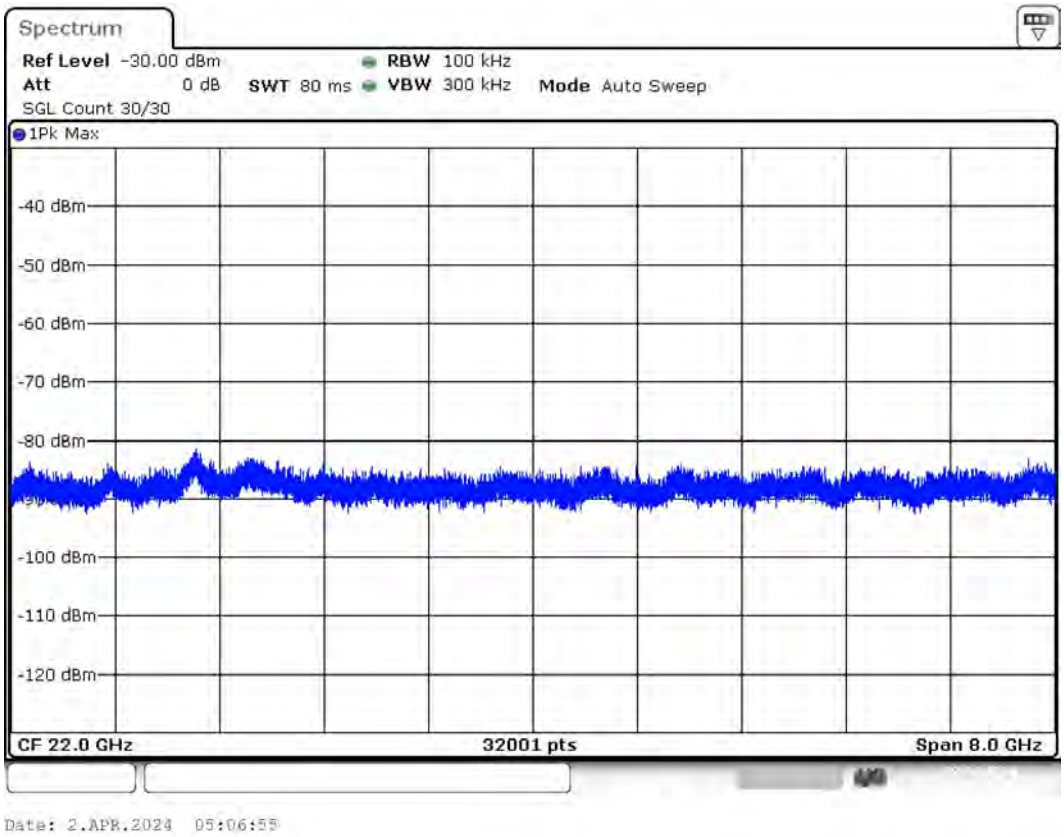
Spurious Connector 1_2



Spurious Connector 1_3



Spurious Connector 1_4



Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 101
Sweeptime	9.990 ms	AUTO
Reference Level	-20.000 dBm	-30.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	28000	~ 28000
Sweeptime	28.000 ms	AUTO
Reference Level	-20.000 dBm	-30.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30

Filter	**3 dB**	**3 dB**
Trace Mode	**Max Hold**	**Max Hold**
Sweeptype	**Sweep**	**AUTO**
Preamp	**off**	**off**
Stablemode	**Trace**	**Trace**
Stablevalue	**1.00 dB**	**1.00 dB**
Run	**1 / max. 1**	**max. 1**
Stable	**0 / 3**	**3**
Max Stable Difference	**0.00 dB**	**1.00 dB**

Minimum Emission Bandwidth 6 dB (2440 MHz; 0.000 dBm; 1 MHz)

Customized settings.

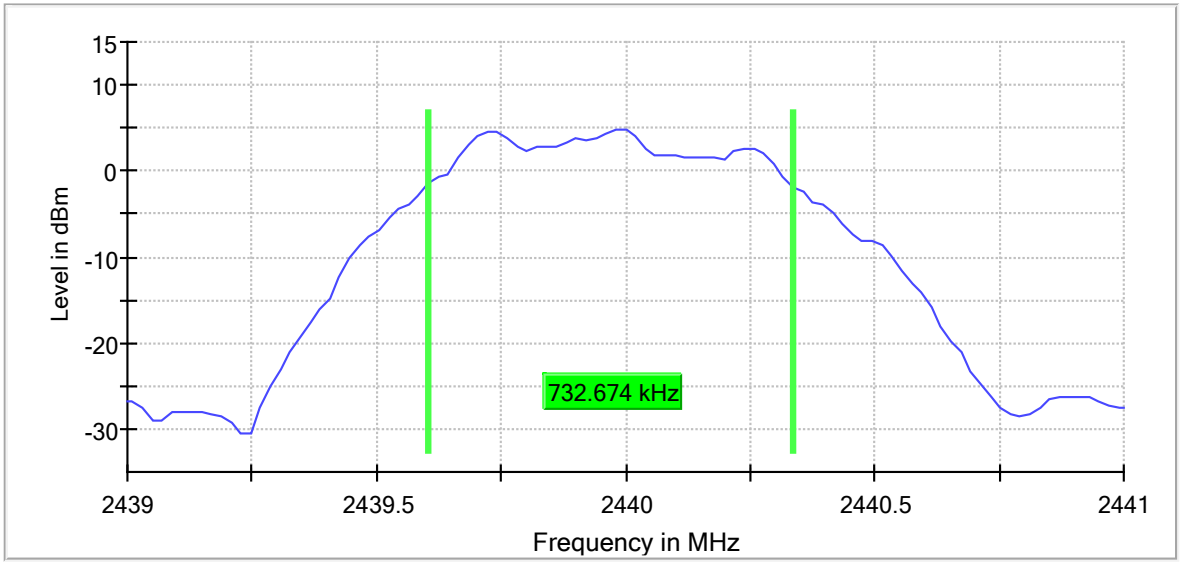
6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2440.000000	0.732674	0.500000	---	2439.603960	2440.336634

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2440.000000	4.9	PASS

6 dB Bandwidth



Bandwidth

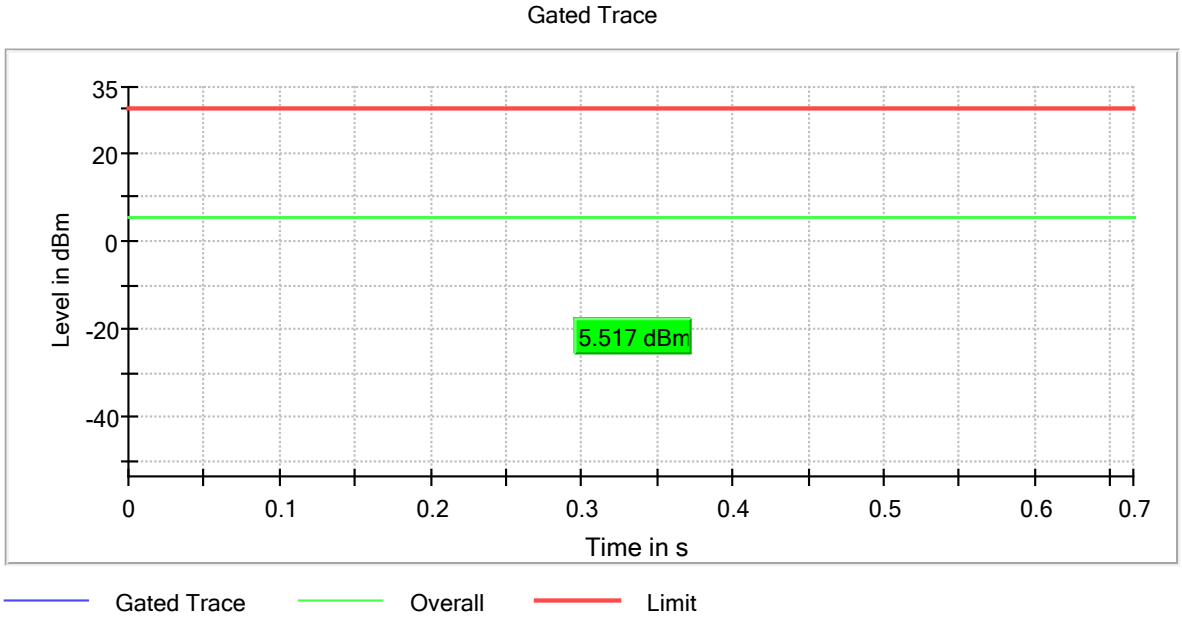
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43900 GHz	2.43900 GHz
Stop Frequency	2.44100 GHz	2.44100 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
Sweeptime	18.938 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	Peak	Peak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

RF output power (2440 MHz; 0.000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2440.000000	5.5	30.0	5.5	66.737	PASS



OSP PowerMeter settings

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 µs	1.000 µs

Emission Bandwidth 20 dB (2440 MHz; 0.000 dBm; 1 MHz)

Customized settings.

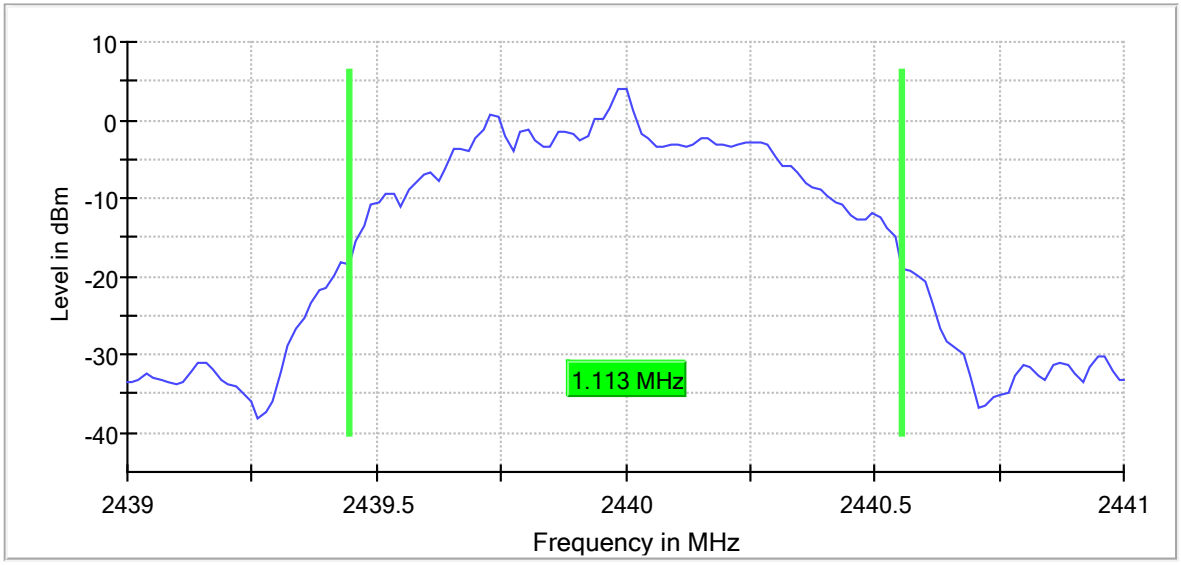
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2440.000000	1.112782	---	---	2439.443609	2440.556391

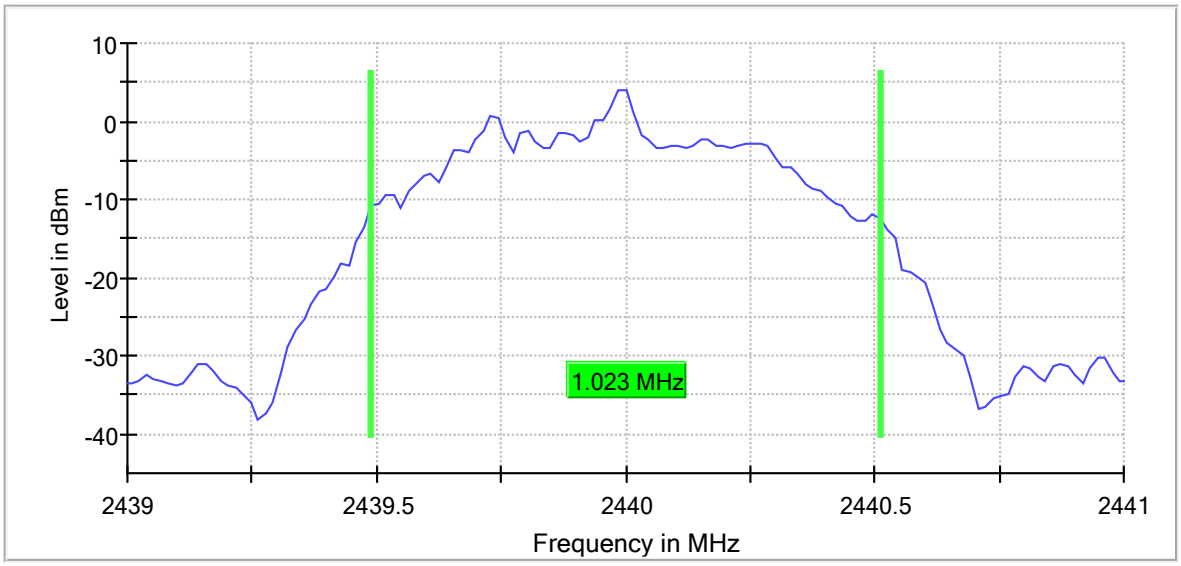
(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2440.000000	4.1	PASS

20 dB Bandwidth



99 % Bandwidth



Bandwidth

Measurement

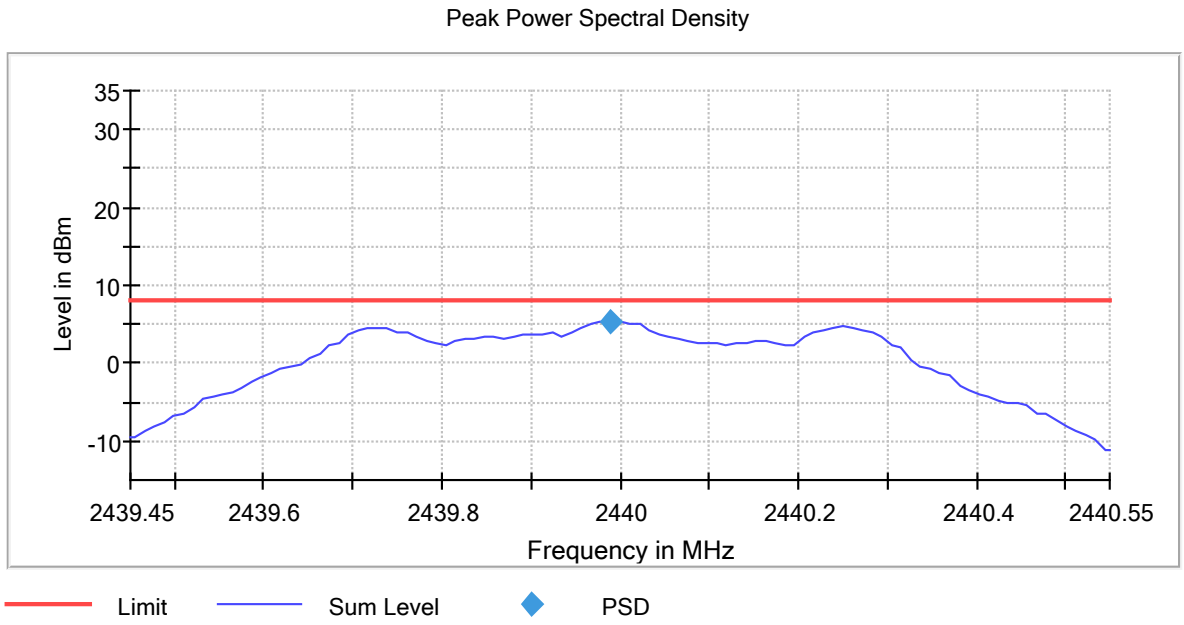
Setting	Instrument Value	Target Value
Start Frequency	2.43900 GHz	2.43900 GHz
Stop Frequency	2.44100 GHz	2.44100 GHz
Span	2.000 MHz	2.000 MHz
RBW	30.000 kHz	>= 30.000 kHz
VBW	100.000 kHz	>= 90.000 kHz
SweepPoints	133	~ 133
Sweeptime	63.123 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	Peak	Peak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

Peak Power Spectral Density (2440 MHz; 0.000 dBm; 1 MHz)

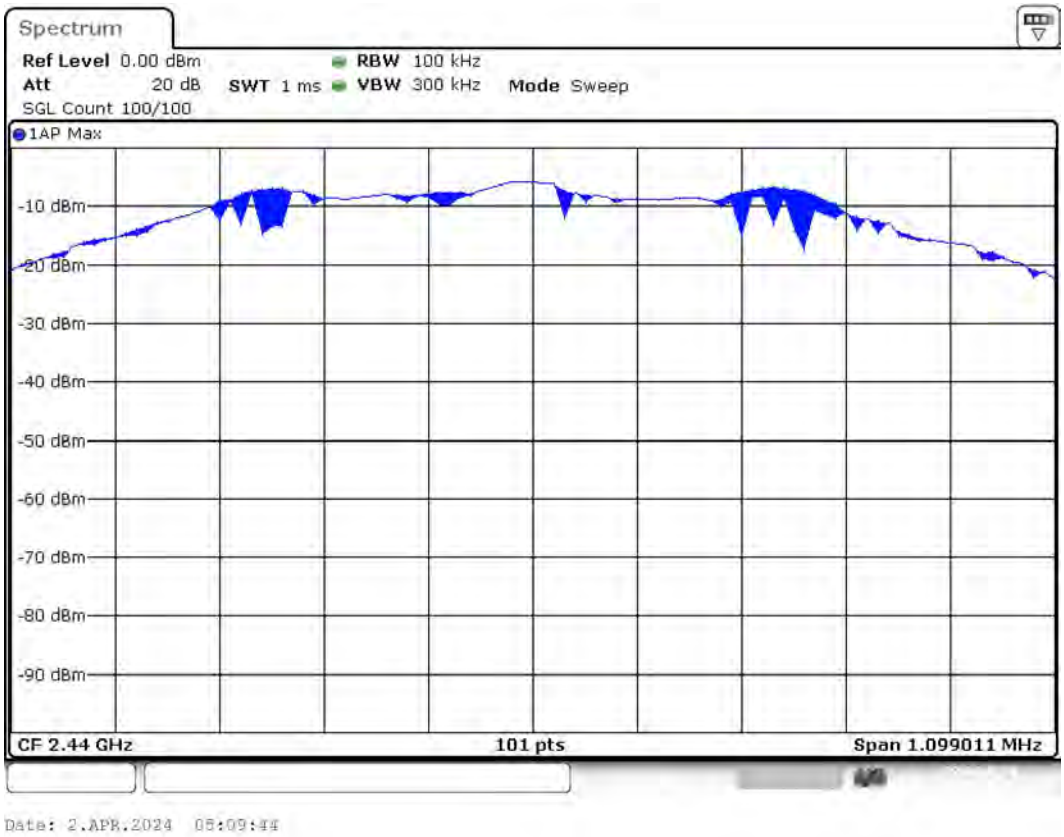
Customized settings.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2440.000000	2439.989119	5.444	8.0	PASS



PSD Connector 1



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43945 GHz	2.43945 GHz
Stop Frequency	2.44055 GHz	2.44055 GHz
Span	1.099 MHz	1.099 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 22
Sweeptime	1.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	Peak	Peak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

Tx Spurious Emission (2440 MHz; 0.000 dBm; 1 MHz)

Customized settings.

Result

DUT Frequency (MHz)	Result
2440.000000	PASS

Final measurements

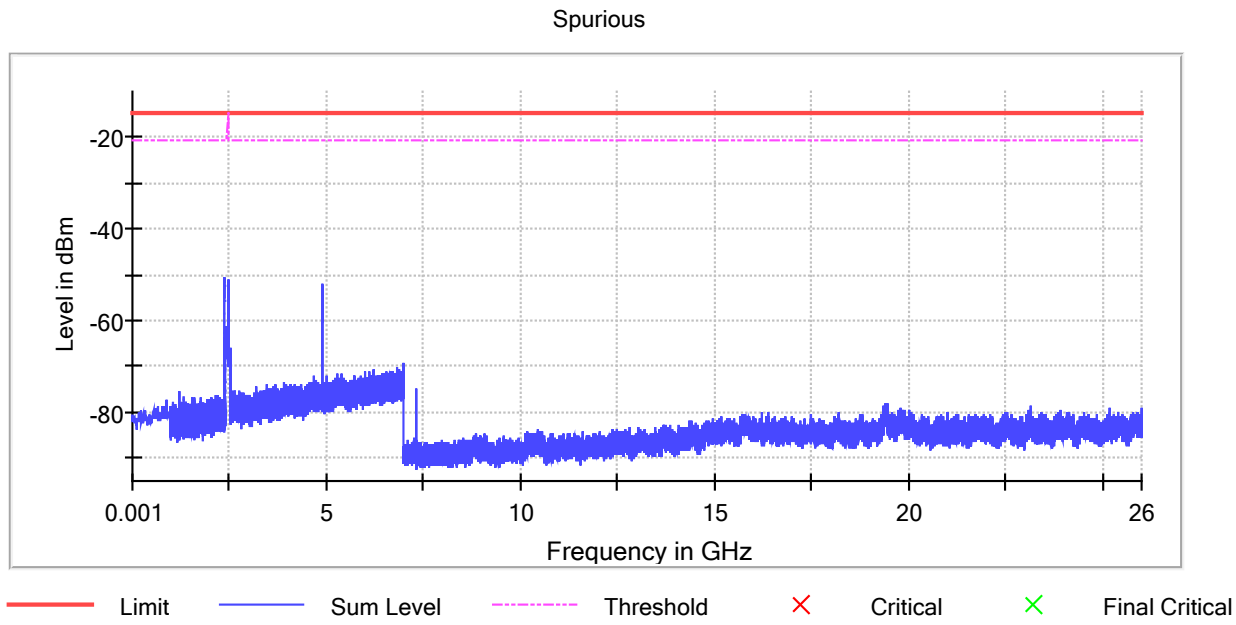
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

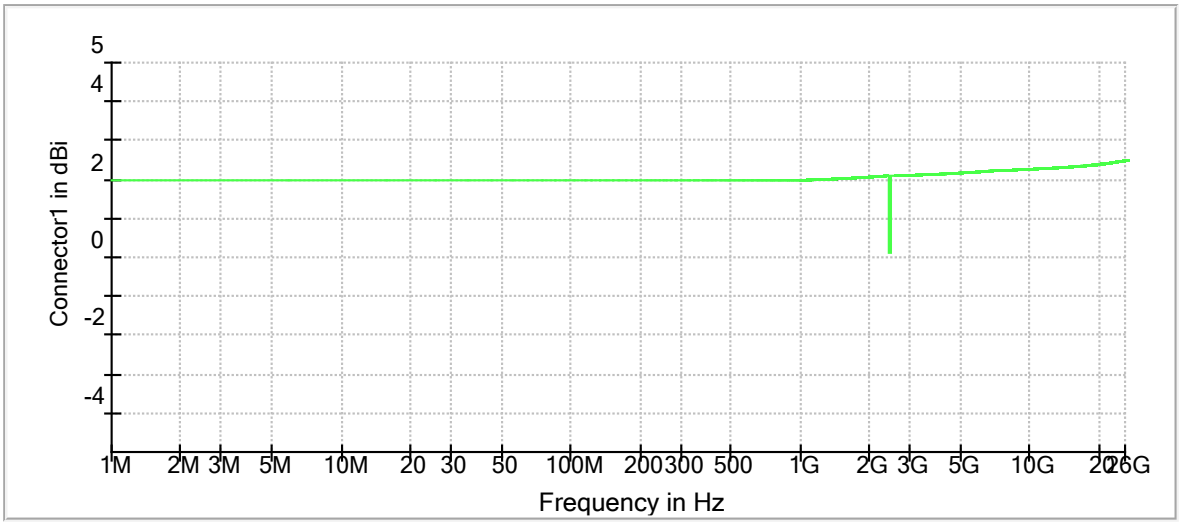
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2388.275000	-50.8	36.3	-14.6
2387.975000	-50.9	36.3	-14.6
2388.025000	-50.9	36.3	-14.6
2491.897605	-51.0	36.4	-14.6
2388.225000	-51.2	36.7	-14.6
2492.038741	-51.3	36.7	-14.6
2491.756469	-51.4	36.9	-14.6
2387.925000	-51.6	37.0	-14.6
2387.875000	-51.7	37.2	-14.6
4880.063490	-51.8	37.3	-14.6
4879.922354	-52.0	37.5	-14.6
2492.321013	-52.1	37.6	-14.6
2387.775000	-52.3	37.8	-14.6
2492.179877	-52.3	37.8	-14.6
4879.498945	-52.5	38.0	-14.6

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
1.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2

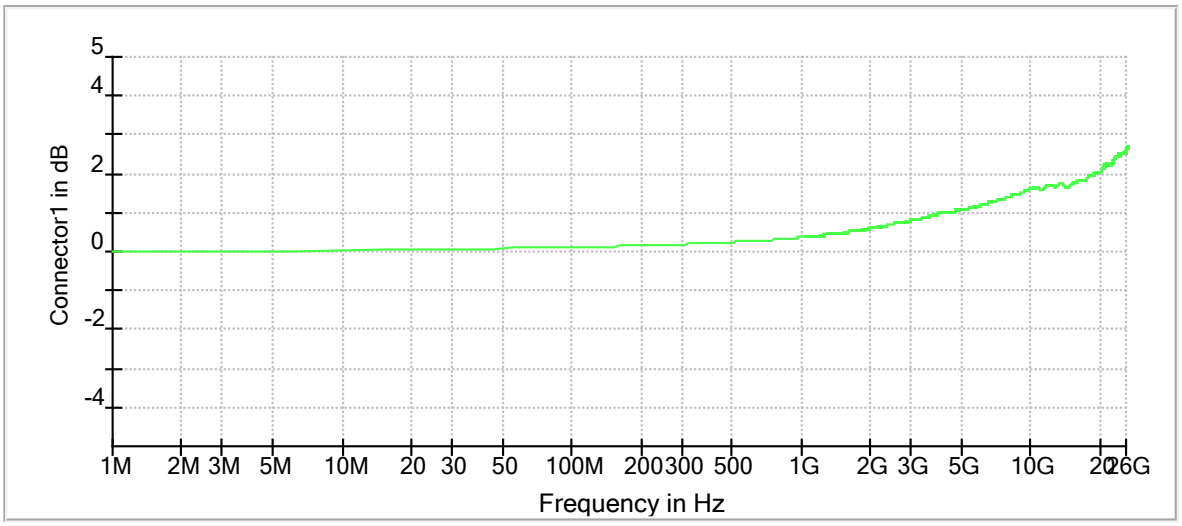

Spurious
-20
-40
-60
-80
Level in dBm
0.001
5
10
15
20
26
Frequency in GHz
Limit
Sum Level
Threshold
Critical
Final Critical

Gain



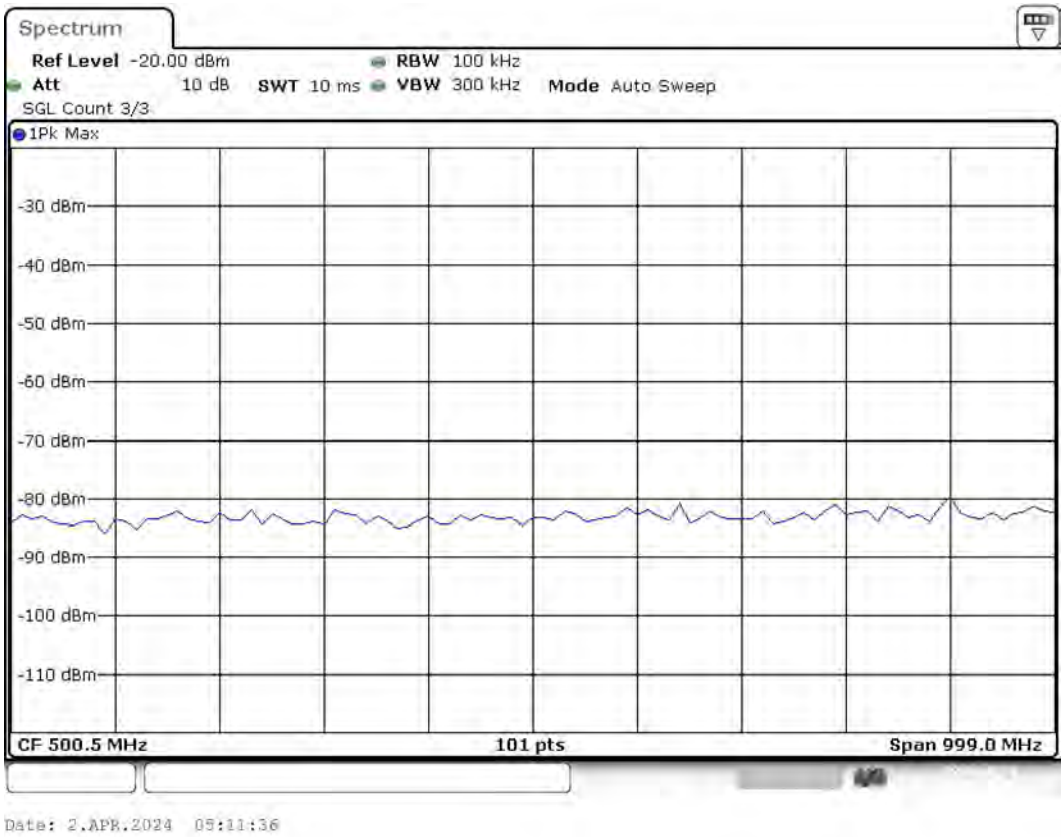
Connector1

Attenuation

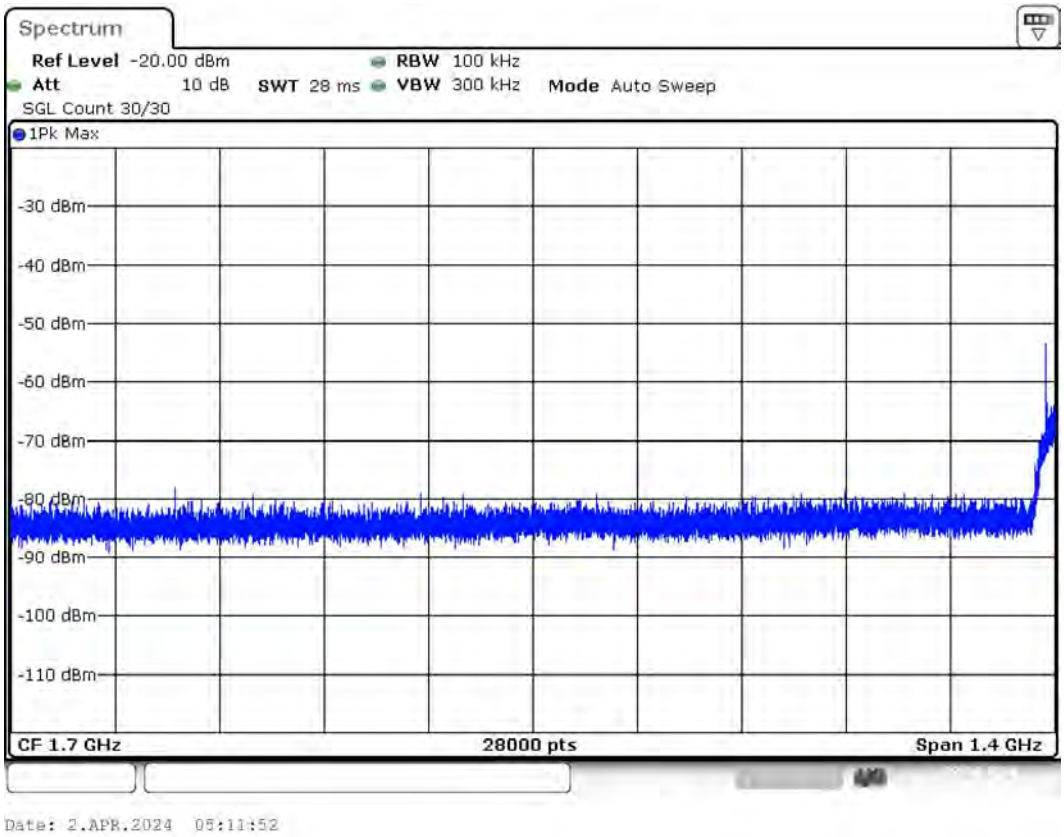


Connector1

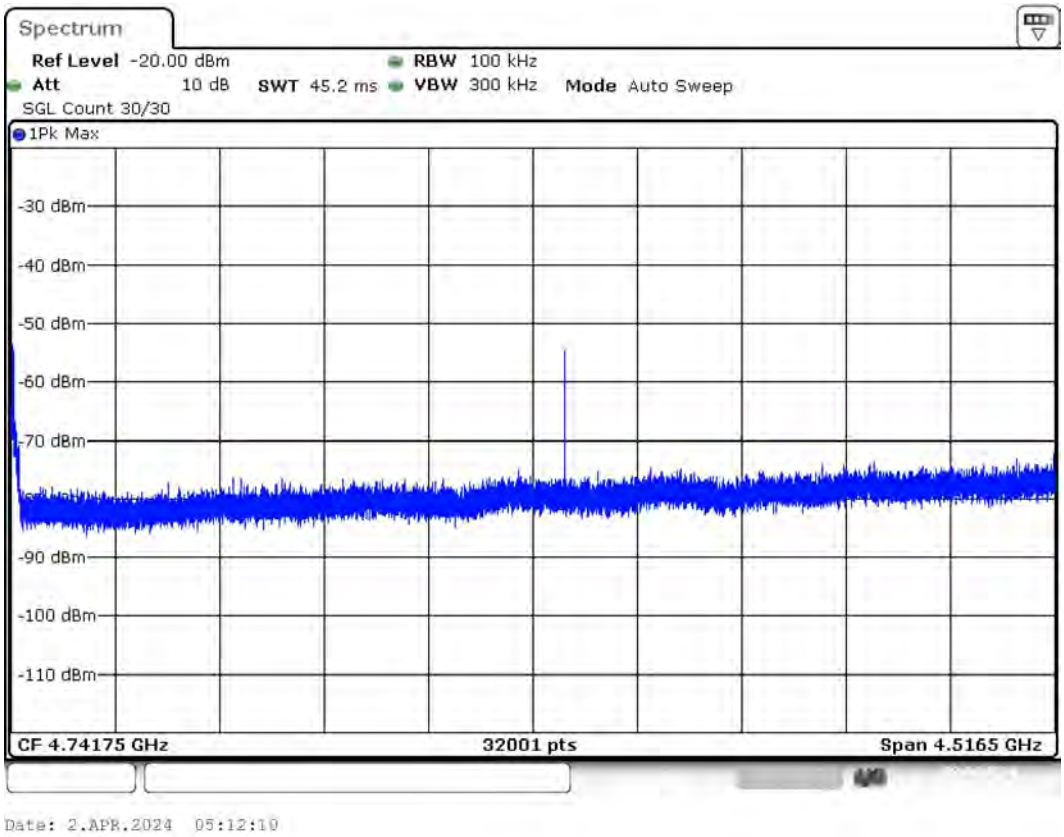
Spurious Connector 1_0



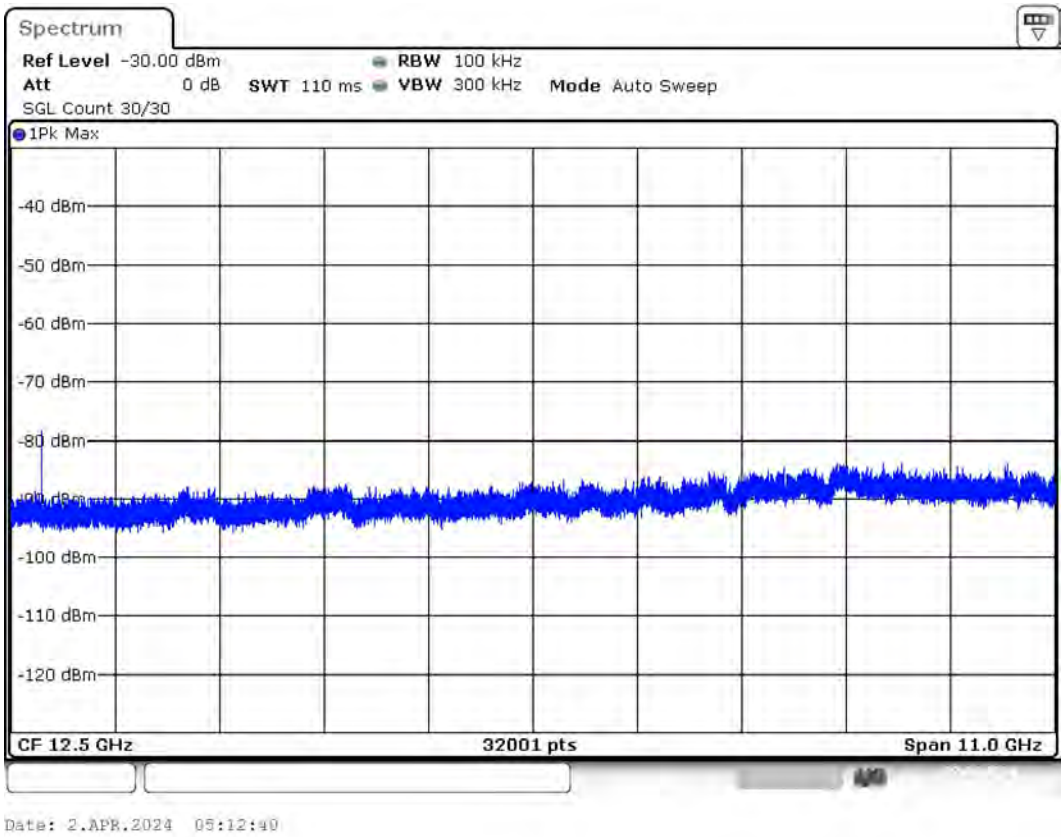
Spurious Connector 1_1



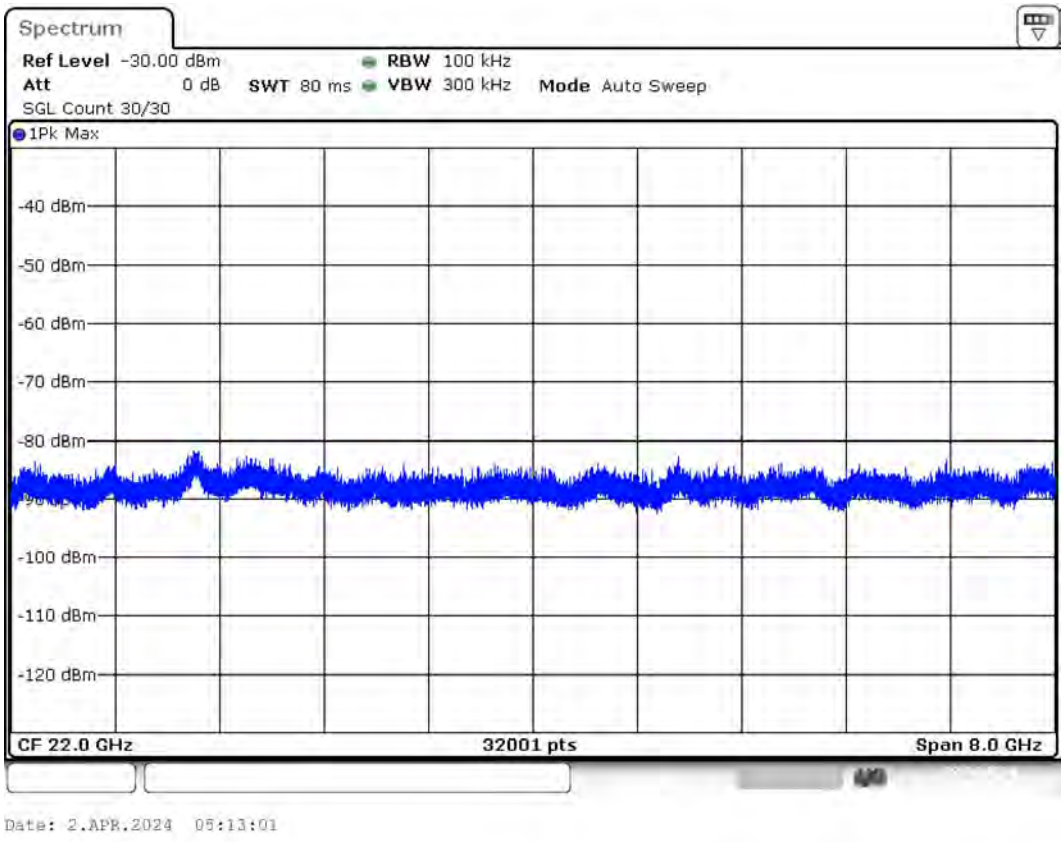
Spurious Connector 1_2



Spurious Connector 1_3



Spurious Connector 1_4



Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 101
Sweeptime	9.990 ms	AUTO
Reference Level	-20.000 dBm	-30.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	28000	~ 28000
Sweeptime	28.000 ms	AUTO
Reference Level	-20.000 dBm	-30.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30

Filter	**3 dB**	**3 dB**
Trace Mode	**Max Hold**	**Max Hold**
Sweeptype	**Sweep**	**AUTO**
Preamp	**off**	**off**
Stablemode	**Trace**	**Trace**
Stablevalue	**1.00 dB**	**1.00 dB**
Run	**1 / max. 1**	**max. 1**
Stable	**0 / 3**	**3**
Max Stable Difference	**0.00 dB**	**1.00 dB**

Minimum Emission Bandwidth 6 dB (2480 MHz; 0.000 dBm; 1 MHz)

Customized settings.

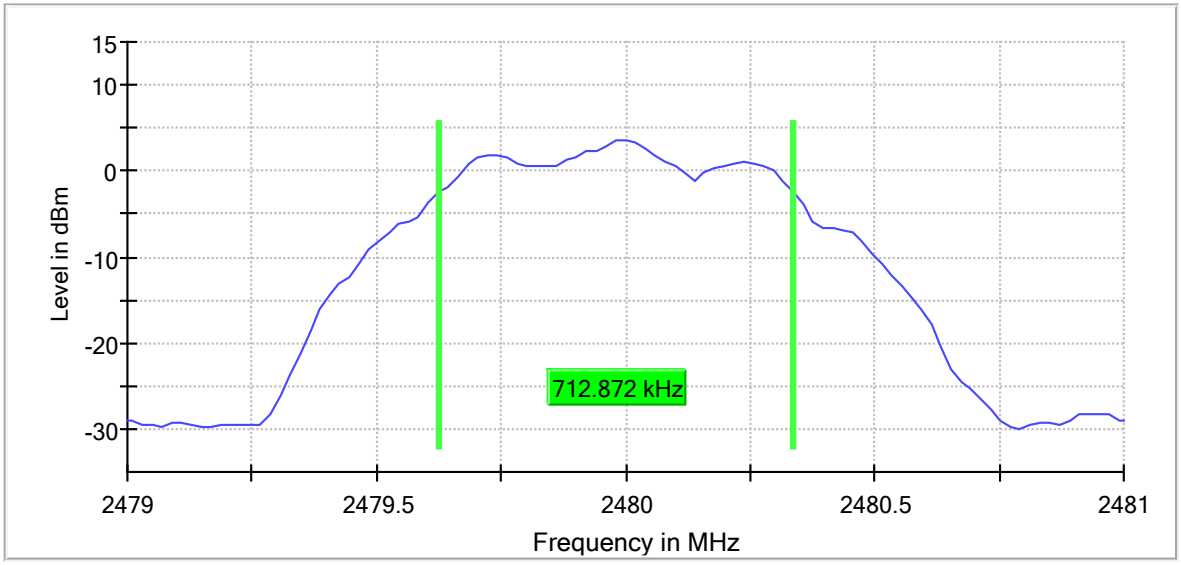
6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.712872	0.500000	---	2479.623762	2480.336634

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	3.6	PASS

6 dB Bandwidth



Bandwidth

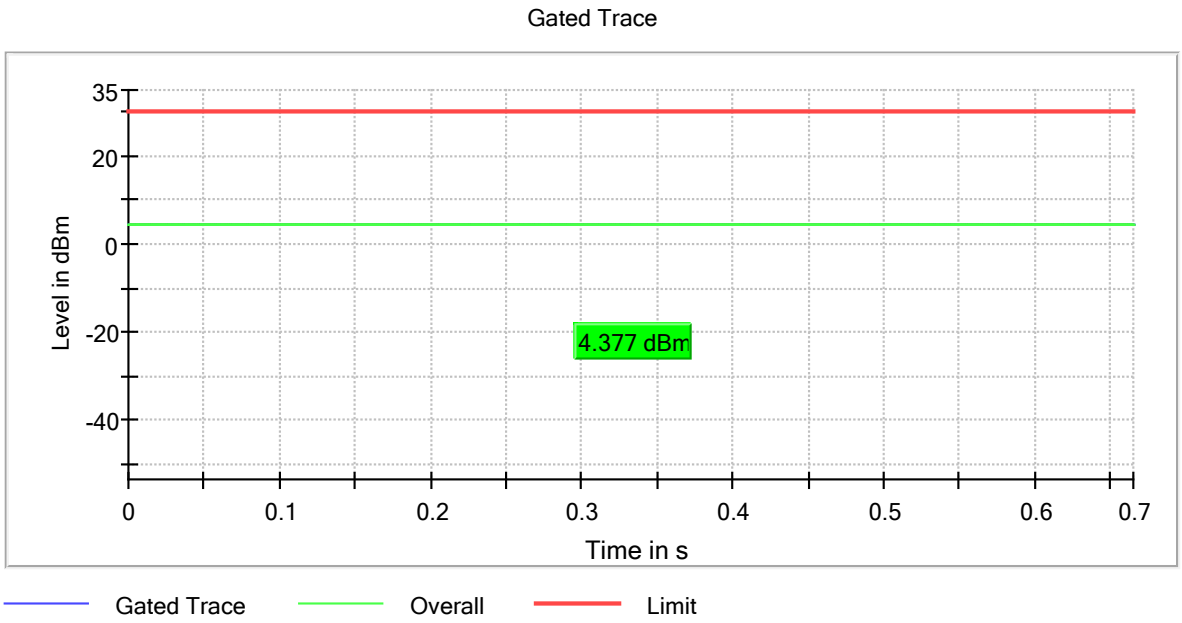
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
Sweeptime	18.938 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	Peak	Peak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

RF output power (2480 MHz; 0.000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2480.000000	4.4	30.0	4.4	66.725	PASS



OSP PowerMeter settings

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 µs	1.000 µs

Emission Bandwidth 20 dB (2480 MHz; 0.000 dBm; 1 MHz)

Customized settings.

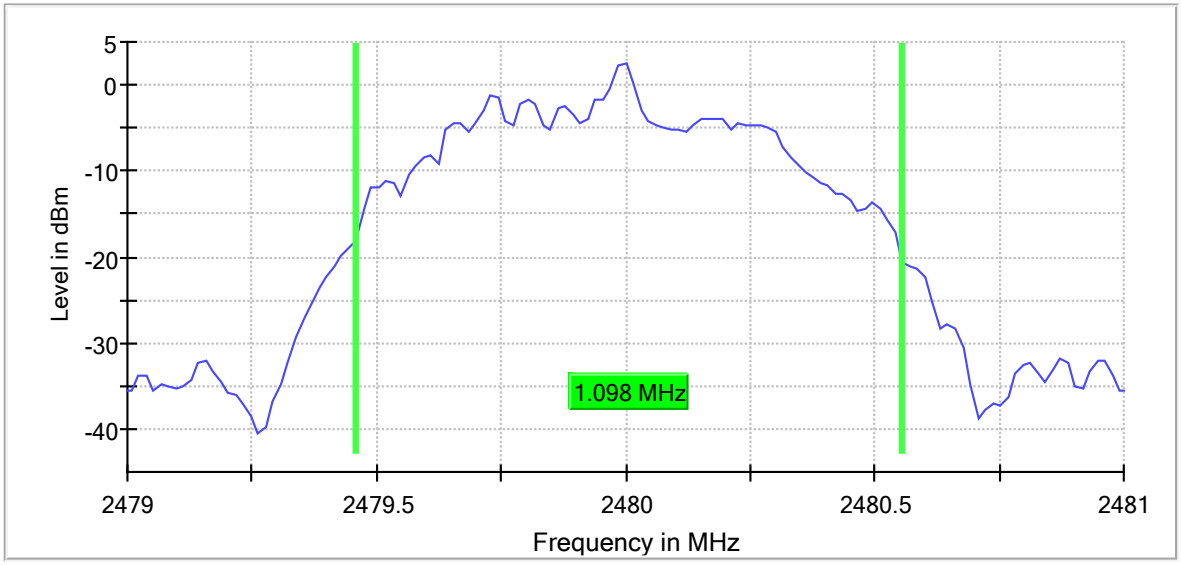
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.097744	---	---	2479.458647	2480.556391

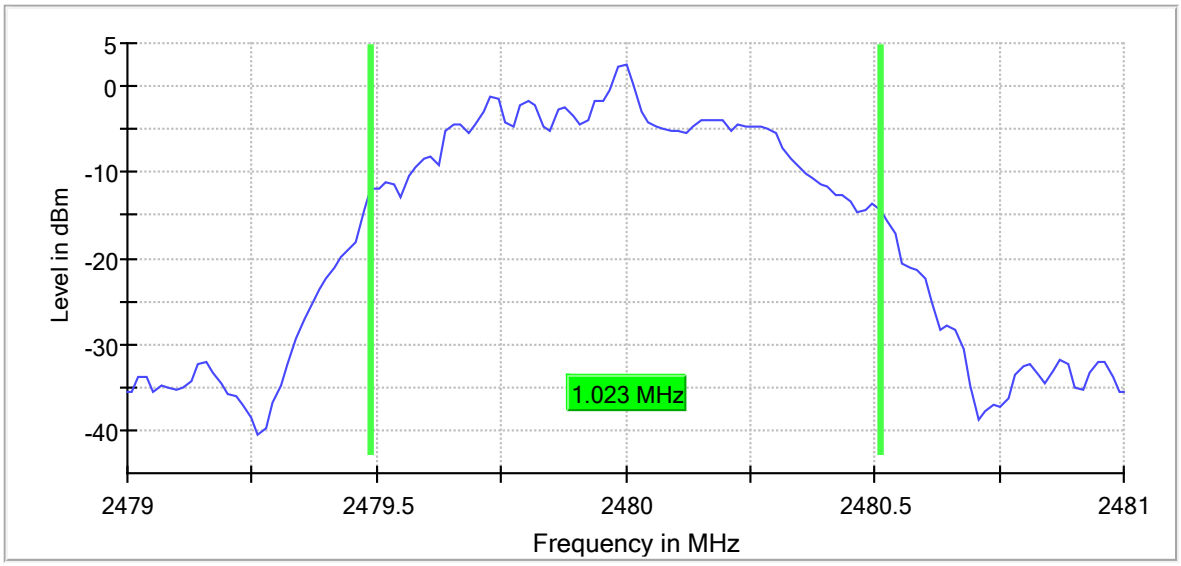
(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	2.4	PASS

20 dB Bandwidth



99 % Bandwidth



Bandwidth

Measurement

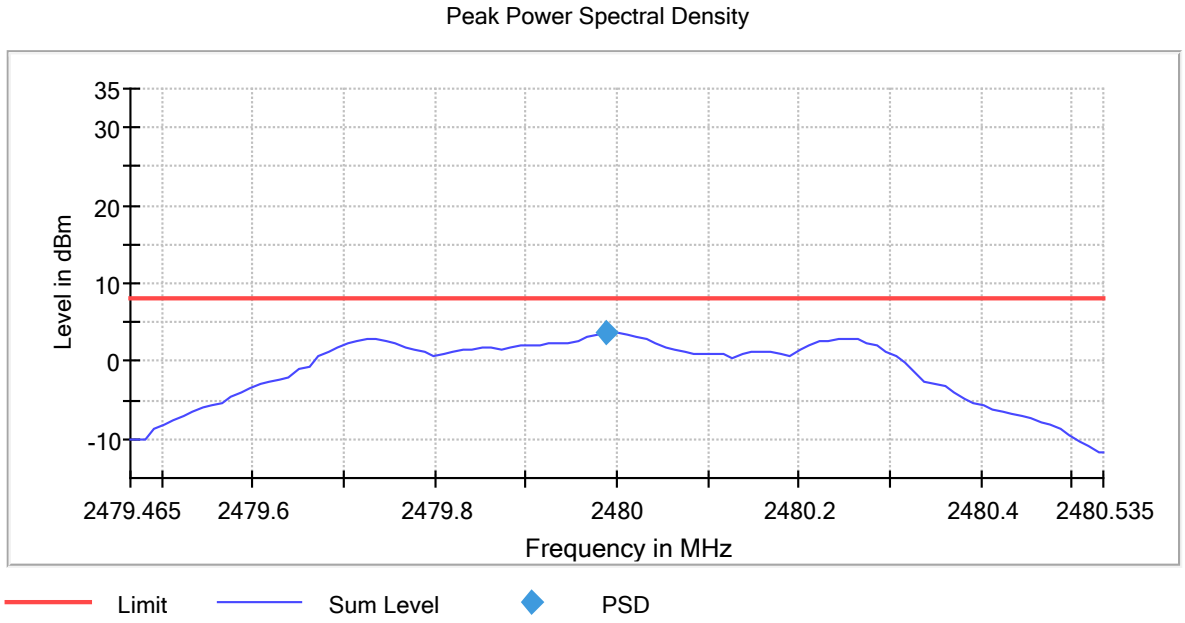
Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	30.000 kHz	>= 30.000 kHz
VBW	100.000 kHz	>= 90.000 kHz
SweepPoints	133	~ 133
Sweeptime	63.123 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	Peak	Peak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

Peak Power Spectral Density (2480 MHz; 0.000 dBm; 1 MHz)

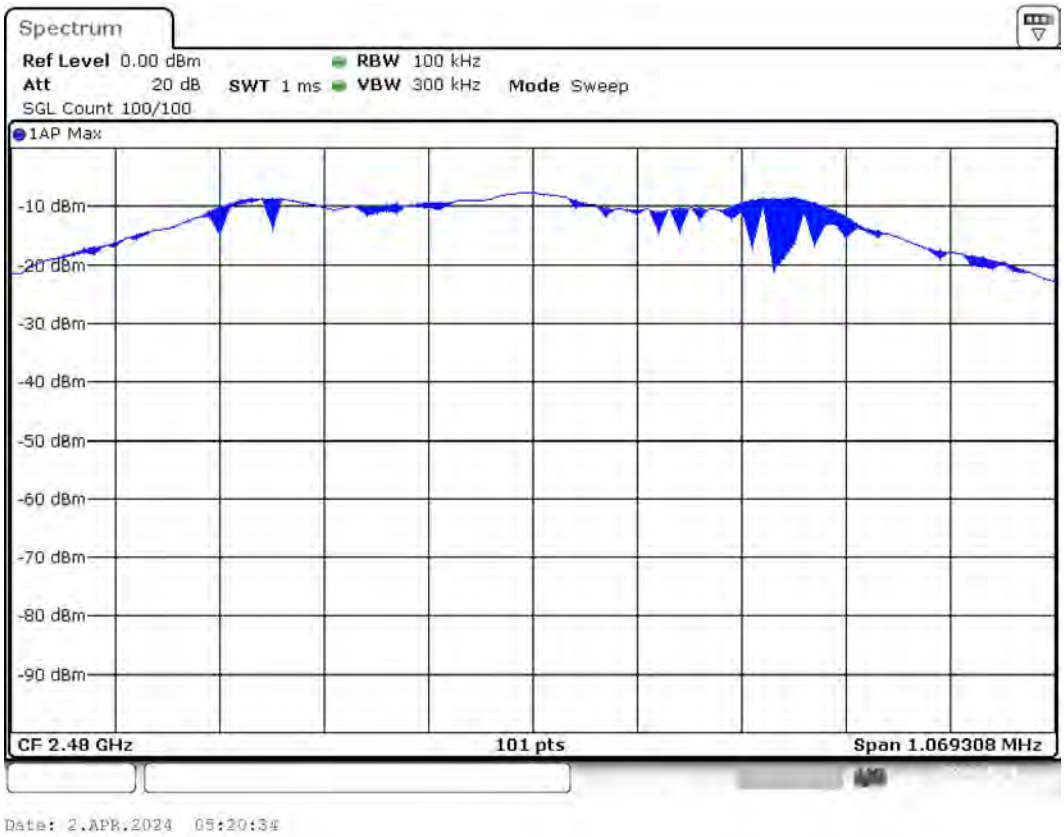
Customized settings.

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2480.000000	2479.989413	3.631	8.0	PASS



PSD Connector 1



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47947 GHz	2.47947 GHz
Stop Frequency	2.48053 GHz	2.48053 GHz
Span	1.069 MHz	1.069 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 21
Sweeptime	1.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	Peak	Peak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

Band Edge high (2480 MHz; 0.000 dBm; 1 MHz)

Result

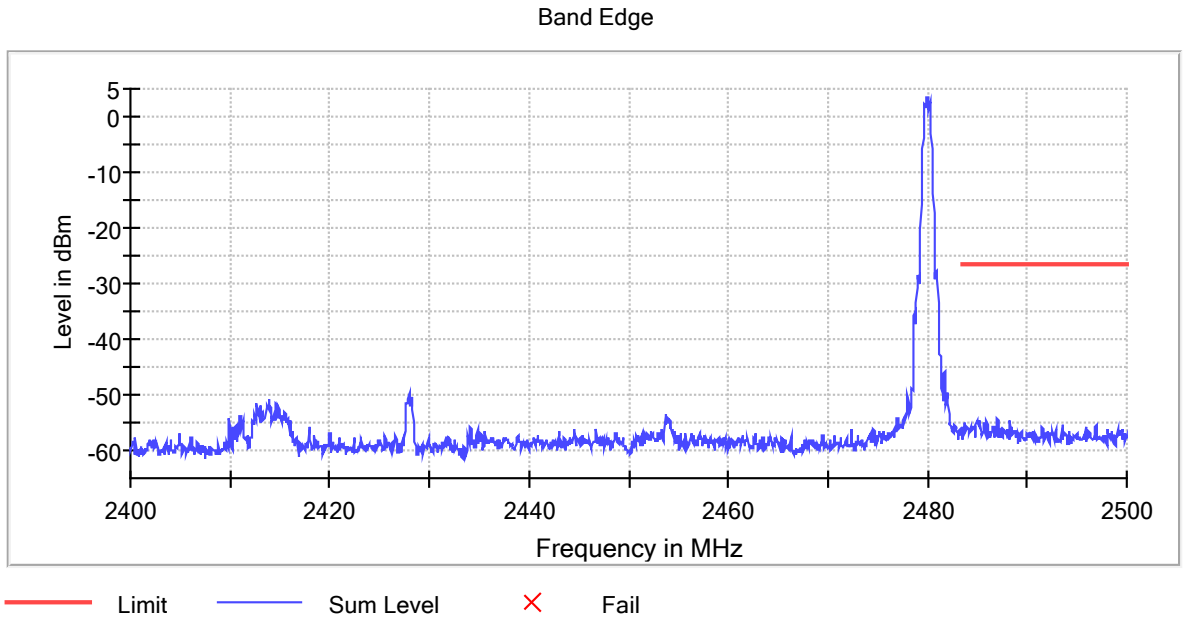
DUT Frequency (MHz)	Result
2480.000000	PASS

Inband Peak

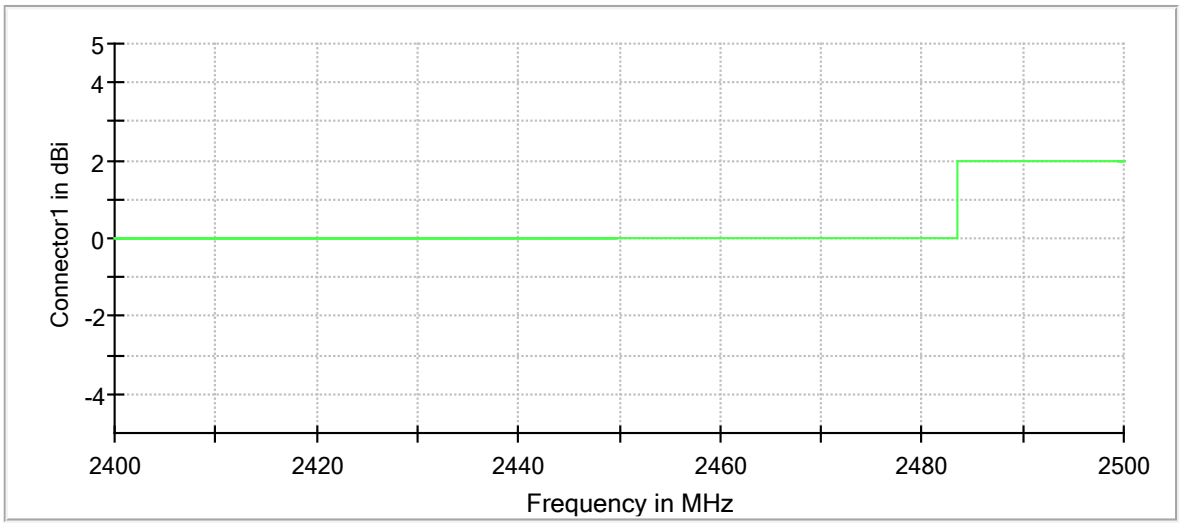
Frequency (MHz)	Level (dBm)
2479.975000	3.6

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2487.025000	-54.4	28.0	-26.4	PASS
2488.275000	-54.5	28.1	-26.4	PASS
2485.275000	-54.5	28.1	-26.4	PASS
2484.925000	-54.6	28.2	-26.4	PASS
2488.325000	-54.6	28.2	-26.4	PASS
2485.025000	-54.7	28.2	-26.4	PASS
2484.975000	-54.7	28.3	-26.4	PASS
2487.075000	-54.7	28.3	-26.4	PASS
2485.925000	-54.8	28.4	-26.4	PASS
2485.075000	-54.8	28.4	-26.4	PASS
2485.625000	-54.9	28.5	-26.4	PASS
2485.225000	-54.9	28.5	-26.4	PASS
2485.675000	-55.0	28.6	-26.4	PASS
2483.675000	-55.1	28.7	-26.4	PASS
2485.325000	-55.2	28.7	-26.4	PASS

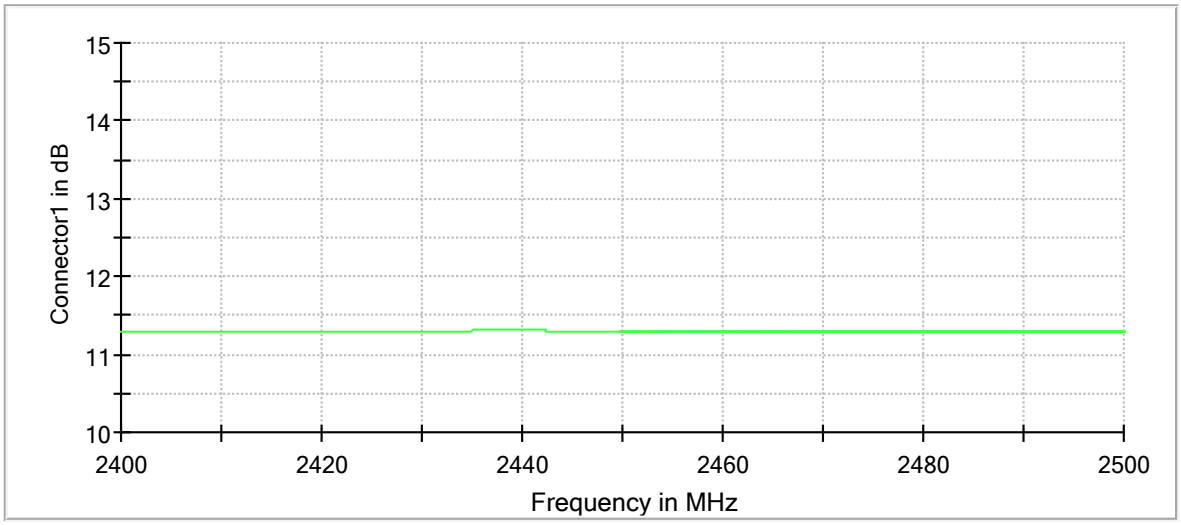


Gain



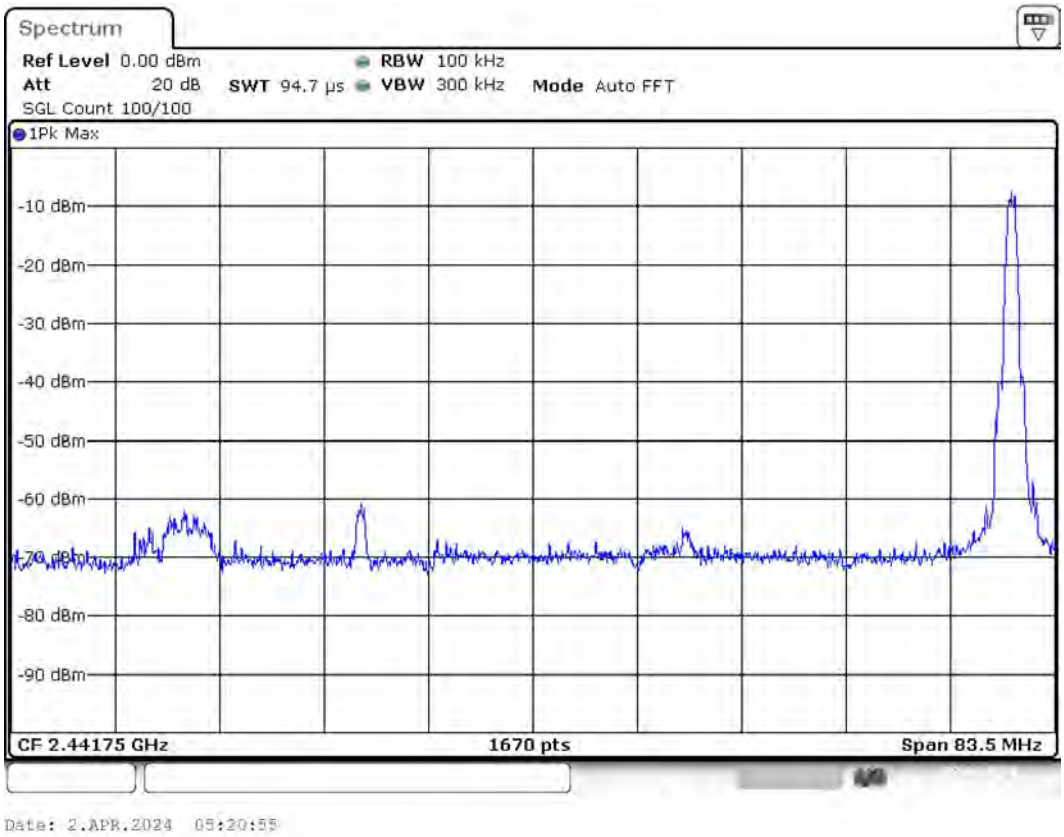
Connector1

Attenuation

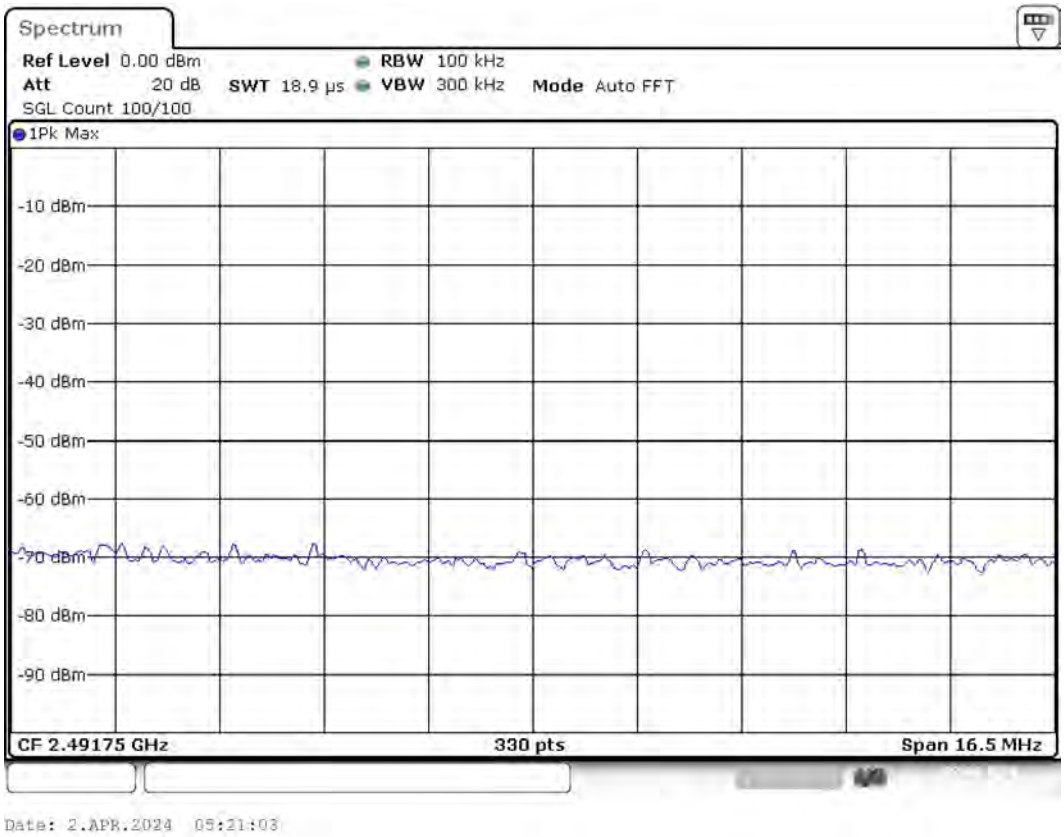


Connector1

Band Edge Connector 1_0



Band Edge Connector 1_1



Measurement 1

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
Sweeptime	94.727 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	7 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.10 dB	0.50 dB

Measurement 2

Setting	Instrument Value	Target Value
Start Frequency	2.48350 GHz	2.48350 GHz
Stop Frequency	2.50000 GHz	2.50000 GHz
Span	16.500 MHz	16.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz

SweepPoints	**330**	**~ 330**
Sweeptime	**18.945 µs**	**AUTO**
Reference Level	**0.000 dBm**	**0.000 dBm**
Attenuation	**20.000 dB**	**AUTO**
Detector	**MaxPeak**	**MaxPeak**
SweepCount	**100**	**100**
Filter	**3 dB**	**3 dB**
Trace Mode	**Max Hold**	**Max Hold**
Sweeptype	**FFT**	**AUTO**
Preamp	**off**	**off**
Stablemode	**Trace**	**Trace**
Stablevalue	**0.50 dB**	**0.50 dB**
Run	**4 / max. 150**	**max. 150**
Stable	**3 / 3**	**3**
Max Stable Difference	**0.00 dB**	**0.50 dB**

Tx Spurious Emission (2480 MHz; 0.000 dBm; 1 MHz)

Customized settings.

Result

DUT Frequency (MHz)	Result
2480.000000	PASS

Final measurements

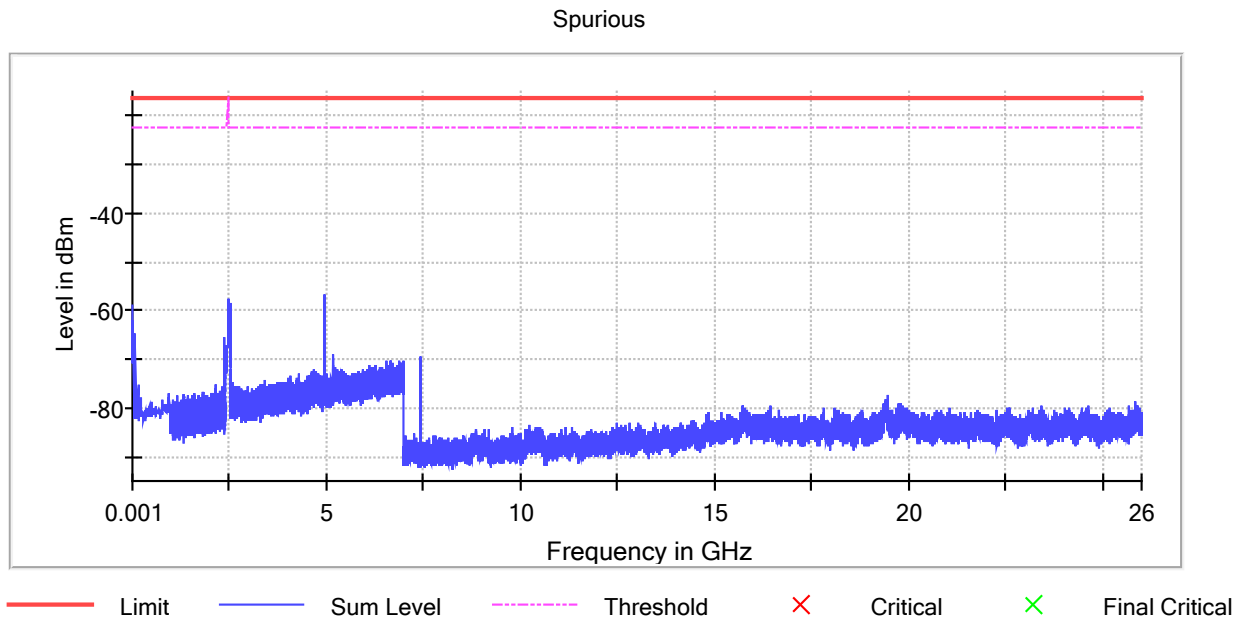
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

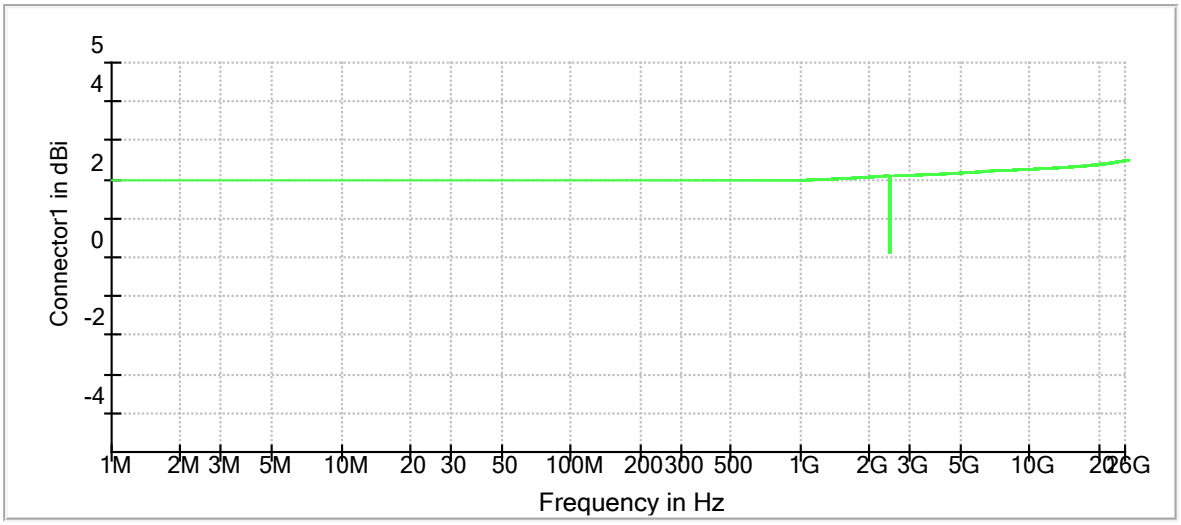
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4959.523179	-56.9	40.5	-16.4
4960.511132	-57.8	41.4	-16.4
2483.570568	-57.8	41.5	-16.4
4959.382043	-58.4	42.0	-16.4
2506.011226	-58.6	42.3	-16.4
4960.087724	-58.9	42.5	-16.4
2484.558522	-59.0	42.6	-16.4
4959.946588	-59.0	42.7	-16.4
5.945545	-59.1	42.7	-16.4
2483.993977	-59.1	42.7	-16.4
1.000000	-59.1	42.7	-16.4
2484.417385	-59.5	43.1	-16.4
2484.135113	-59.6	43.2	-16.4
2505.870090	-59.7	43.3	-16.4
2486.393292	-59.8	43.4	-16.4

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
1.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2

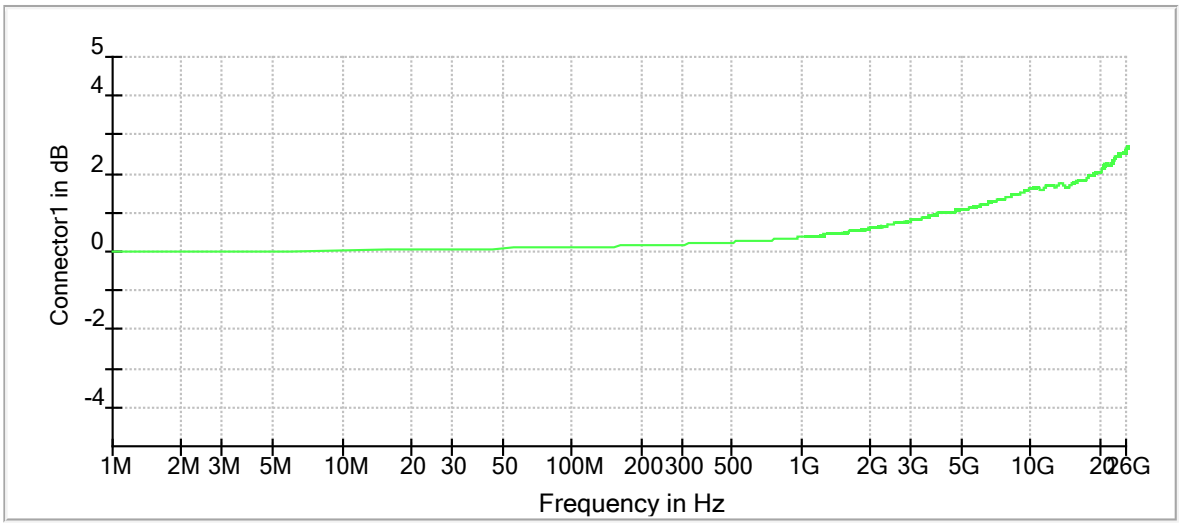

Spurious
Level in dBm
-40
-60
-80
0.001
5
10
15
20
26
Frequency in GHz
Limit
Sum Level
Threshold
Critical
Final Critical

Gain



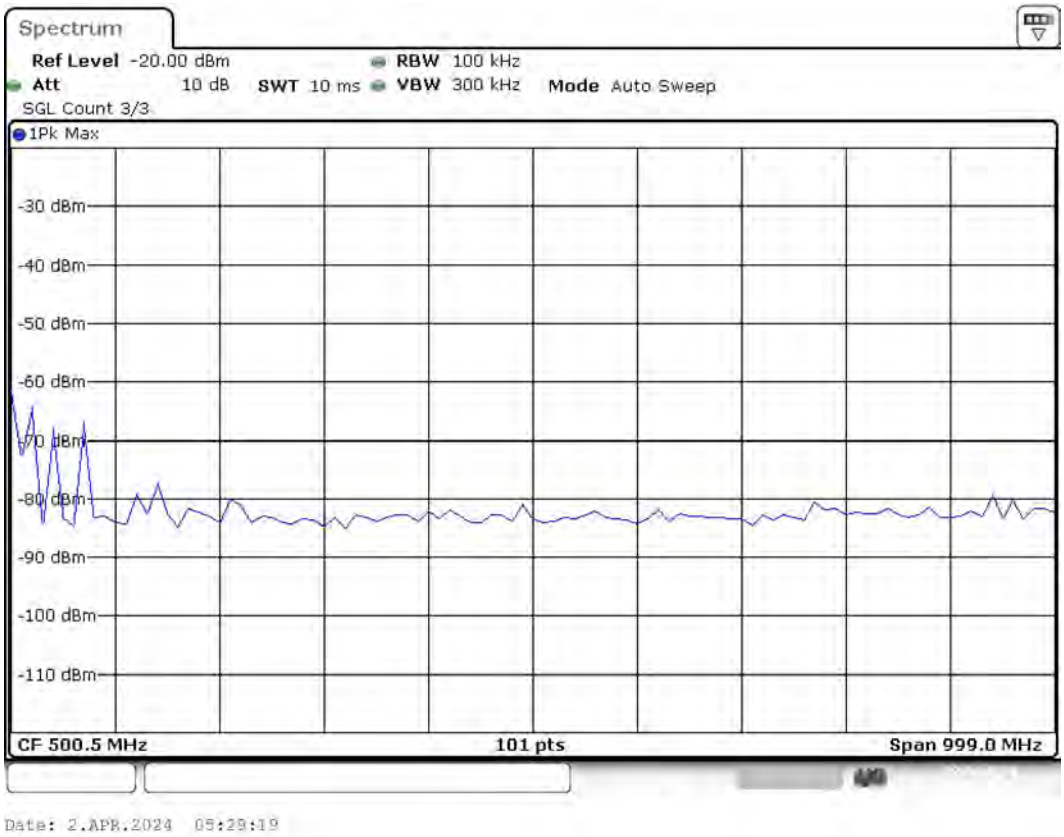
Connector1

Attenuation

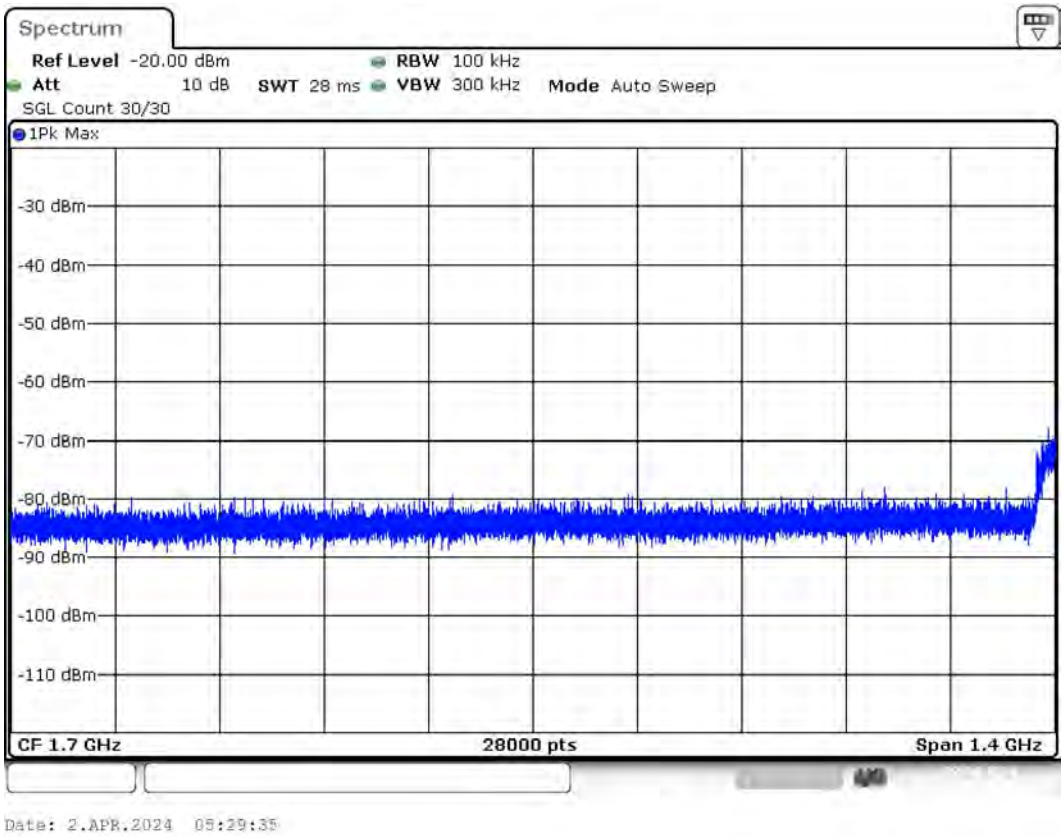


Connector1

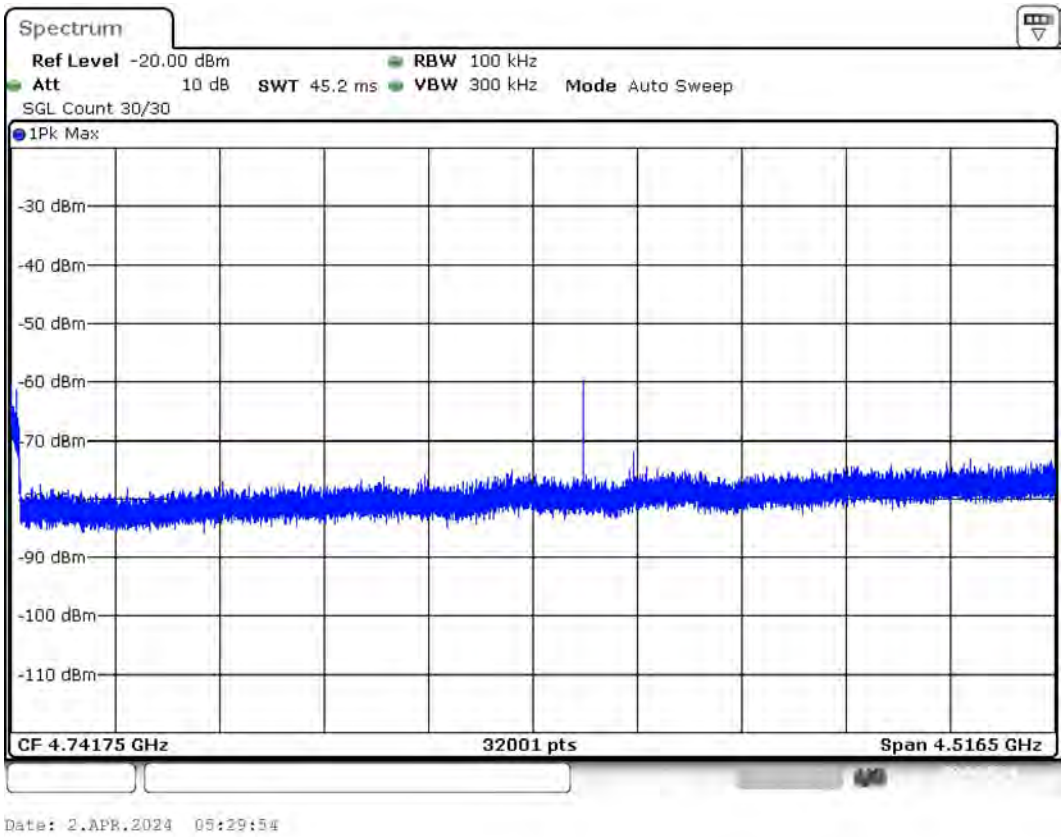
Spurious Connector 1_0



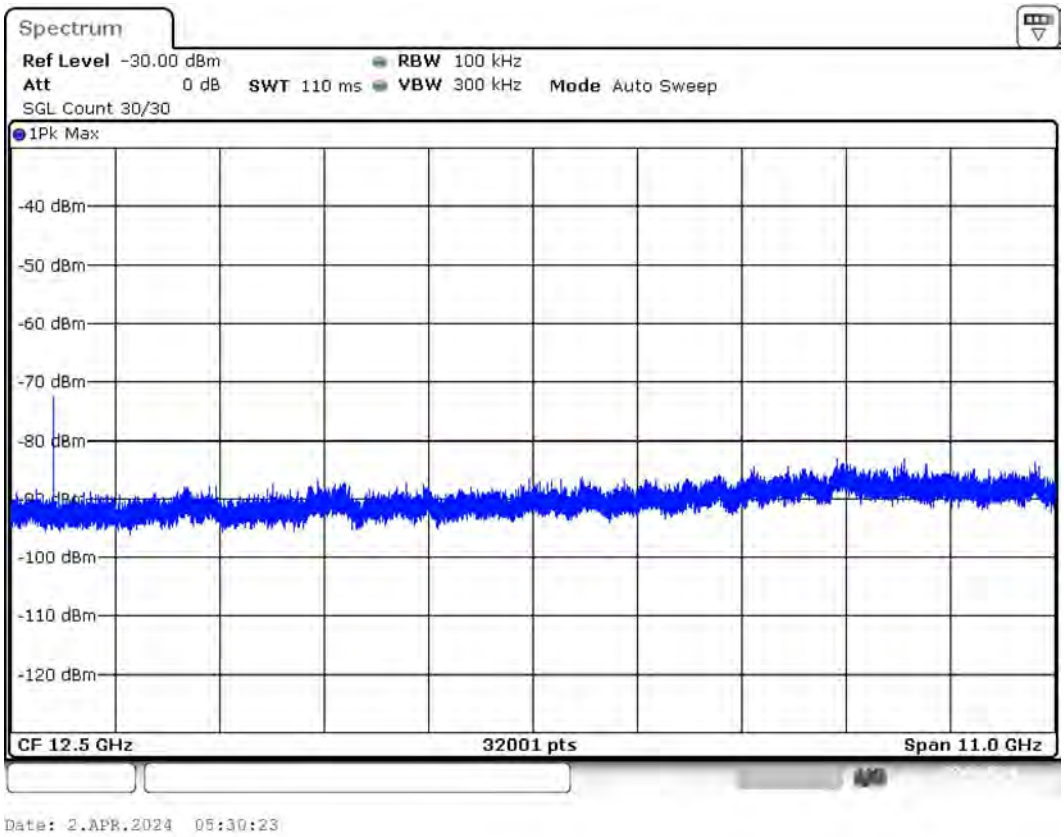
Spurious Connector 1_1



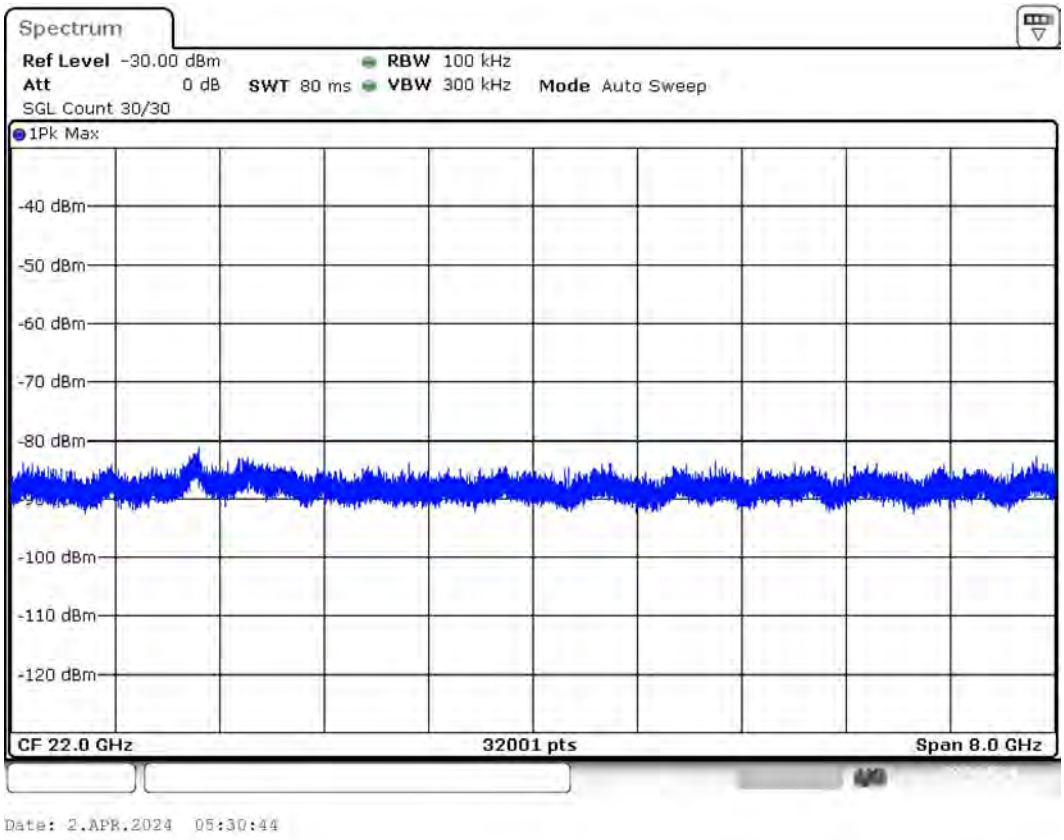
Spurious Connector 1_2



Spurious Connector 1_3



Spurious Connector 1_4



Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 101
Sweeptime	9.990 ms	AUTO
Reference Level	-20.000 dBm	-30.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	0.50 dB

Pre Measurement 2

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	28000	~ 28000
Sweeptime	28.000 ms	AUTO
Reference Level	-20.000 dBm	-30.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30

Filter	**3 dB**	**3 dB**
Trace Mode	**Max Hold**	**Max Hold**
Sweeptype	**Sweep**	**AUTO**
Preamp	**off**	**off**
Stablemode	**Trace**	**Trace**
Stablevalue	**1.00 dB**	**1.00 dB**
Run	**1 / max. 1**	**max. 1**
Stable	**0 / 3**	**3**
Max Stable Difference	**0.00 dB**	**1.00 dB**