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

20.000 dBm (20 dBm)

Beamforming Gain

Powerstep name (value)	Beamforming gain table names
20.000 dBm (20 dBm)	---

Gain Tables

Powerstep name (value)	Gain table names
20.000 dBm (20 dBm)	Port 1: ---;

DUT Settings

No. of transmission chains	1
Equipment Type	Other
Digital Modulation	No
Frequency Hopping	Yes
Carrier Frequency Separation	1 MHz
Dwell Time	5 ms

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 (1) (SMB100A) @ VISA (ADR TCPIP::192.168.48.30::INST0::INSTR), SN 178361, FW 3.20.390.24 / 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
Band Edge low	--- (hopping)	20.0	3.000000	PASS
Band Edge high	--- (hopping)	20.0	3.000000	PASS
Time of Channel Occupancy	2406.000 (hopping)	20.0	3.000000	PASS
RF output power	2406.000 (single)	20.0	3.000000	PASS
Emission Bandwidth 20 dB	2406.000 (single)	20.0	3.000000	PASS
Band Edge low	2406.000 (single)	20.0	3.000000	PASS
Tx Spurious Emission	2406.000 (single)	20.0	3.000000	PASS
Emission Bandwidth 20 dB	2442.000 (single)	20.0	3.000000	PASS
RF output power	2442.000 (single)	20.0	3.000000	PASS
Tx Spurious Emission	2442.000 (single)	20.0	3.000000	PASS
Emission Bandwidth 20 dB	2475.000 (single)	20.0	3.000000	PASS
RF output power	2475.000 (single)	20.0	3.000000	PASS
Band Edge high	2475.000 (single)	20.0	3.000000	PASS
Tx Spurious Emission	2475.000 (single)	20.0	3.000000	PASS

Band Edge low (frequency independent; 20.000 dBm; 3 MHz)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Result
hopping	PASS

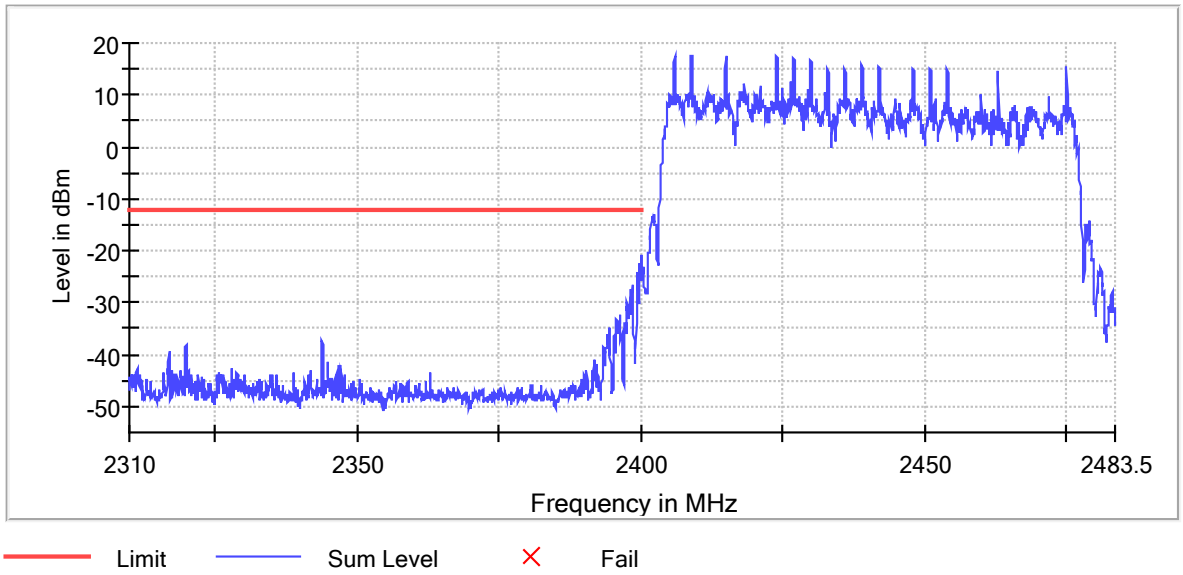
Inband Peak

Frequency (MHz)	Level (dBm)
2408.975000	17.7

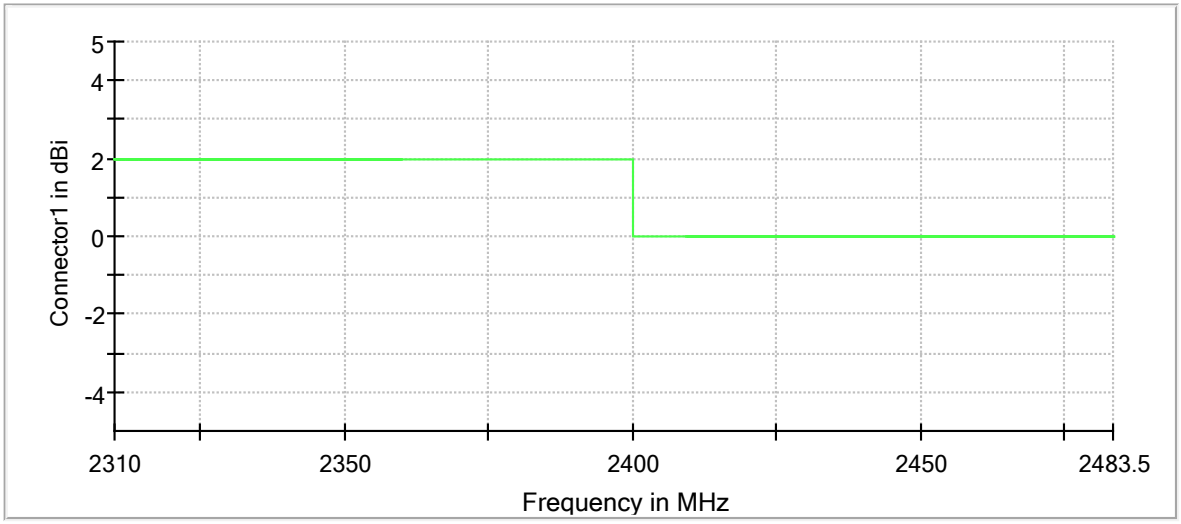
Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.775000	-22.4	10.1	-12.3	PASS
2399.725000	-22.6	10.3	-12.3	PASS
2399.875000	-22.8	10.5	-12.3	PASS
2399.925000	-23.5	11.1	-12.3	PASS
2399.825000	-24.2	11.8	-12.3	PASS
2399.475000	-24.2	11.8	-12.3	PASS
2399.425000	-24.4	12.1	-12.3	PASS
2399.525000	-25.7	13.3	-12.3	PASS
2399.975000	-25.9	13.6	-12.3	PASS
2399.675000	-26.6	14.3	-12.3	PASS
2398.525000	-26.7	14.3	-12.3	PASS
2399.375000	-26.7	14.4	-12.3	PASS
2398.475000	-26.7	14.4	-12.3	PASS
2398.225000	-27.6	15.2	-12.3	PASS
2399.625000	-27.9	15.6	-12.3	PASS

Band Edge

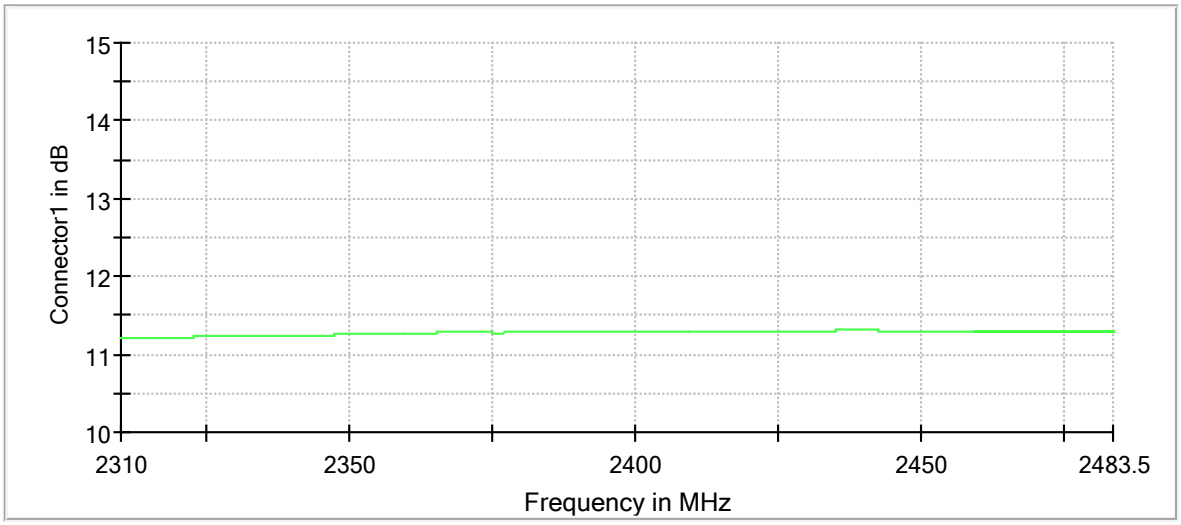


Gain



Connector1

Attenuation



Connector1

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	10.000 dBm	10.000 dBm
Attenuation	30.000 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	**11 / 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	**10.000 dBm**	**10.000 dBm**
Attenuation	**30.000 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	**73 / max. 150**	**max. 150**
Stable	**3 / 3**	**3**
Max Stable Difference	**0.00 dB**	**0.50 dB**

Band Edge high (frequency independent; 20.000 dBm; 3 MHz)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Result
hopping	PASS

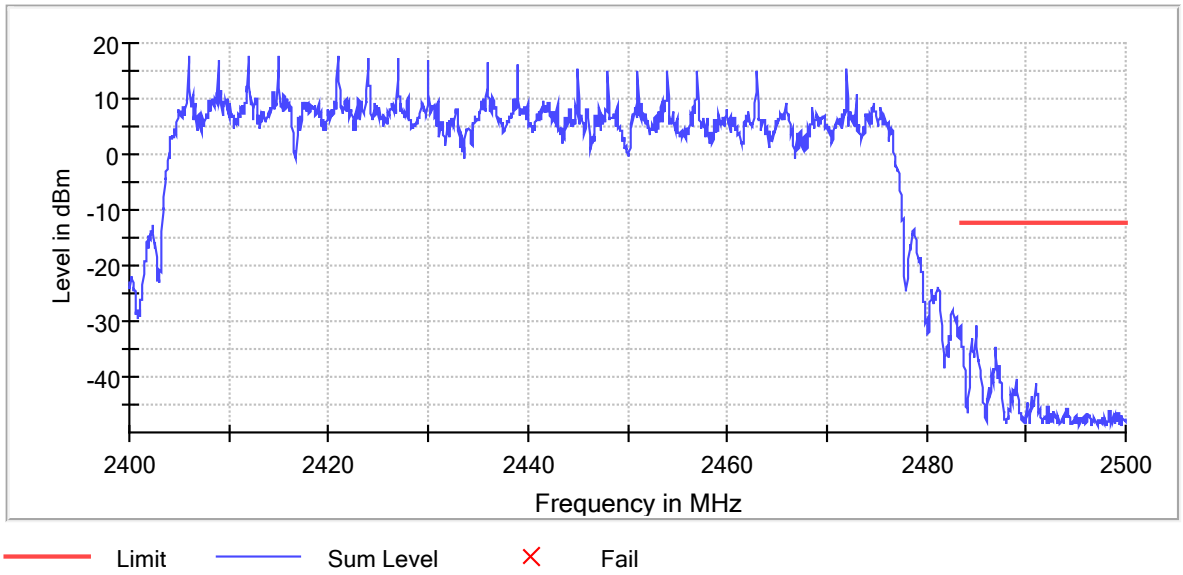
Inband Peak

Frequency (MHz)	Level (dBm)
2411.975000	17.7

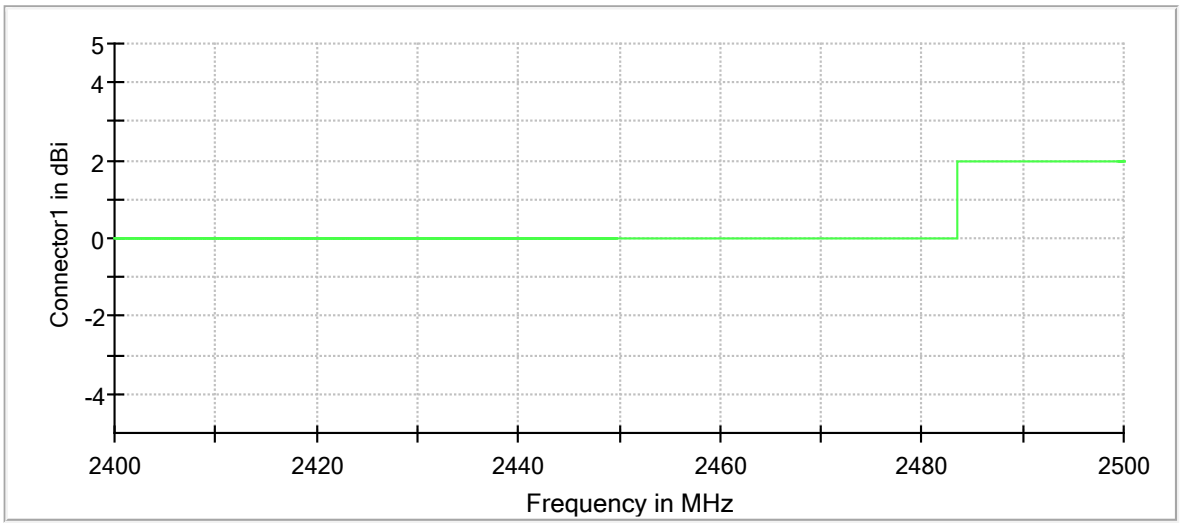
Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2484.975000	-30.8	18.4	-12.3	PASS
2485.025000	-30.9	18.6	-12.3	PASS
2484.925000	-32.7	20.4	-12.3	PASS
2484.575000	-33.1	20.8	-12.3	PASS
2483.525000	-33.1	20.8	-12.3	PASS
2484.525000	-33.6	21.3	-12.3	PASS
2484.625000	-34.0	21.7	-12.3	PASS
2483.575000	-34.4	22.1	-12.3	PASS
2483.625000	-34.5	22.2	-12.3	PASS
2486.975000	-34.7	22.4	-12.3	PASS
2485.075000	-34.8	22.5	-12.3	PASS
2486.925000	-35.0	22.7	-12.3	PASS
2484.675000	-35.3	23.0	-12.3	PASS
2484.875000	-35.3	23.0	-12.3	PASS
2484.725000	-35.7	23.3	-12.3	PASS

Band Edge

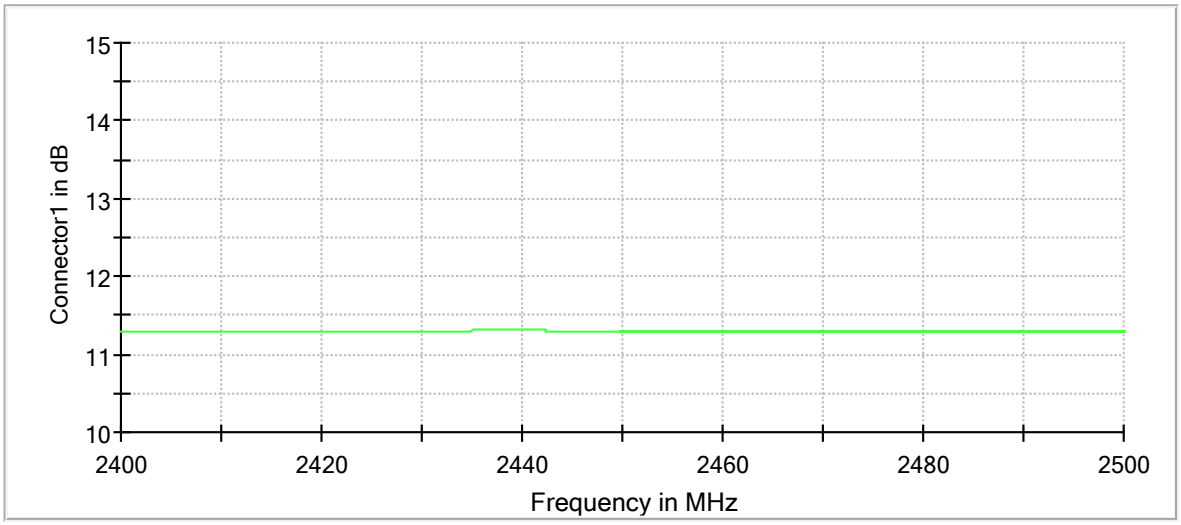


Gain



Connector1

Attenuation



Connector1

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	10.000 dBm	10.000 dBm
Attenuation	30.000 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	**76 / 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	**2.48350 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	**10.000 dBm**	**10.000 dBm**
Attenuation	**30.000 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	**9 / max. 150**	**max. 150**
Stable	**3 / 3**	**3**
Max Stable Difference	**0.00 dB**	**0.50 dB**

Time of Channel Occupancy (2406 MHz; 20.000 dBm; 3 MHz)

Customized settings.

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Result	Number of Hops	Average time of occupancy (ms)	Threshold (dBm)
2406.000000	PASS	39	0.292	0.0

Periode

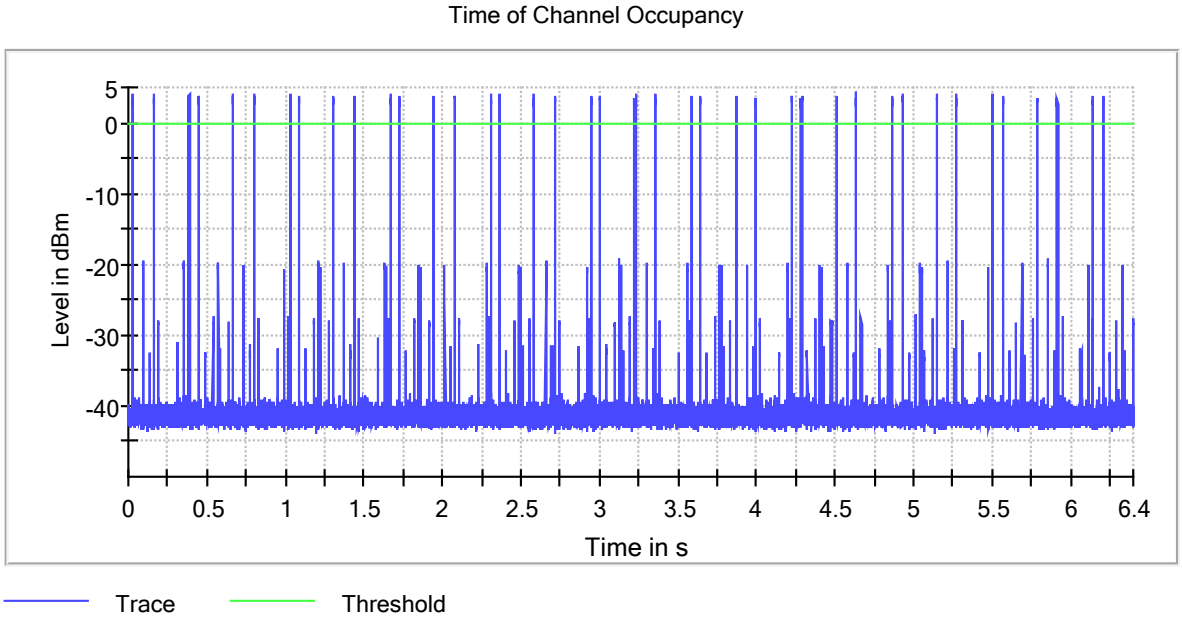
Min (ms)	Max (ms)	Mean (ms)
59.228	230.409	161.048

Transmit Time per Hop

Min (ms)	Max (ms)	Limit Max for Max (ms)	Limit Min for Max (ms)	Mean (ms)
0.00	0.02	400.000	0.000	0.007

DwellTime

Min (ms)	Max (ms)	Mean (ms)
0.00	0.83	0.339



Measurement

Setting	Instrument Value	Target Value
Center Frequency	2.40600 GHz	2.40600 GHz

Span	**ZeroSpan**	**ZeroSpan**
RBW	**1.500 MHz**	**~ 1.500 MHz**
VBW	**3.000 MHz**	**~ 3.000 MHz**
SweepPoints	**30001**	**~ 30001**
Sweeptime	**6.400 s**	**6.400 s**
Reference Level	**-10.000 dBm**	**-10.000 dBm**
Attenuation	**0.000 dB**	**0.000 dB**
Detector	**MaxPeak**	**MaxPeak**
SweepCount	**1**	**1**
Filter	**Channel**	**Channel**
Trace Mode	**Clear Write**	**Clear Write**
Sweeptype	**Sweep**	**AUTO**
Preamp	**off**	**off**
Trigger	**External**	**External**
Trigger Offset	**0.000 s**	**0.000 s**

OSP

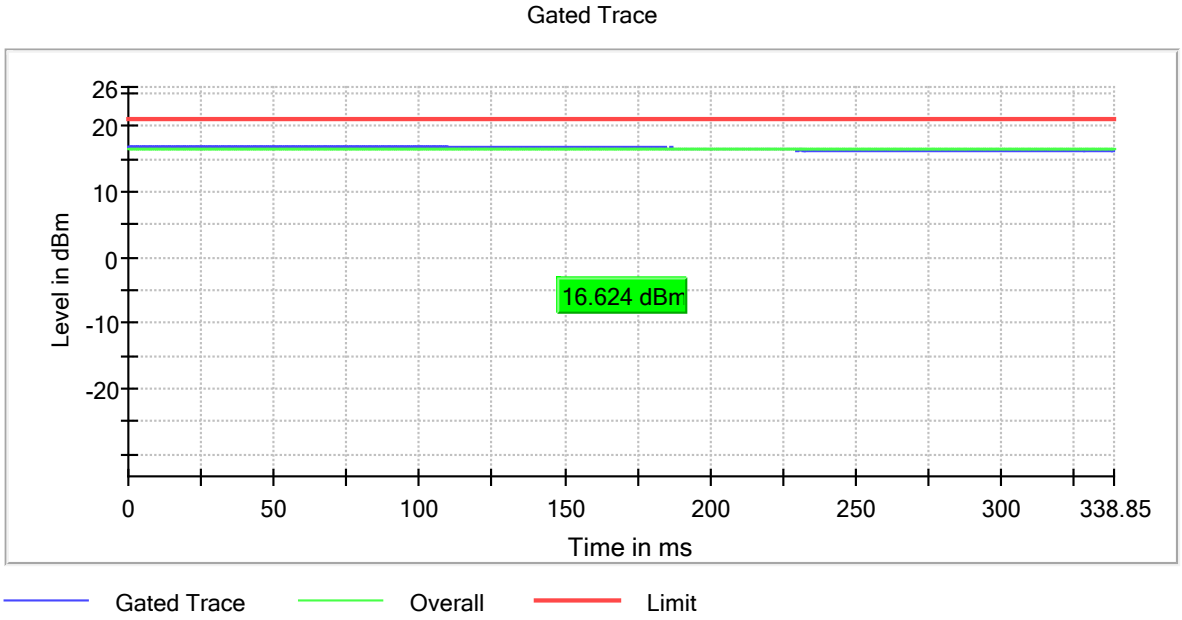
Setting	Instrument Value	Target Value
Measurement Time	**6.400 s**	**6.400 s**
Tracepoints	**6400000**	**6400000**
Time resolution	**1.000 µs**	**1.000 µs**
Detector	**RMS**	**RMS**

RF output power (2406 MHz; 20.000 dBm; 3 MHz; Test Mode)

Test according to FCC title 47 part 15 §15.247(b), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2406.000000	16.6	21.0	16.6	34.056	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 (2406 MHz; 20.000 dBm; 3 MHz; Test Mode)

Customized settings.

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

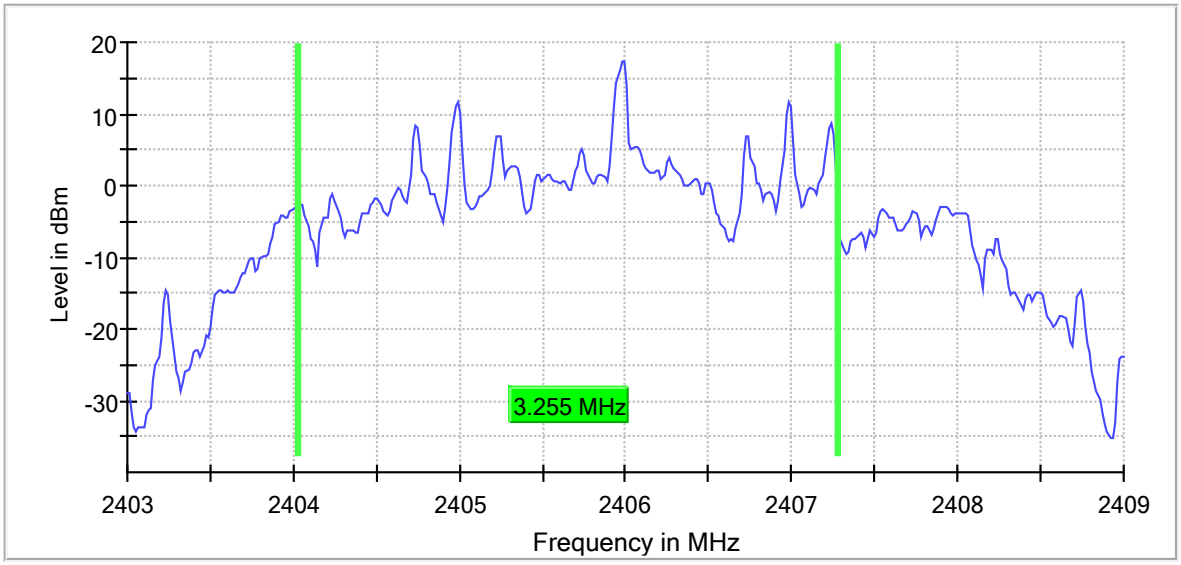
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2406.000000	3.255000	---	---	2404.027500	2407.282500

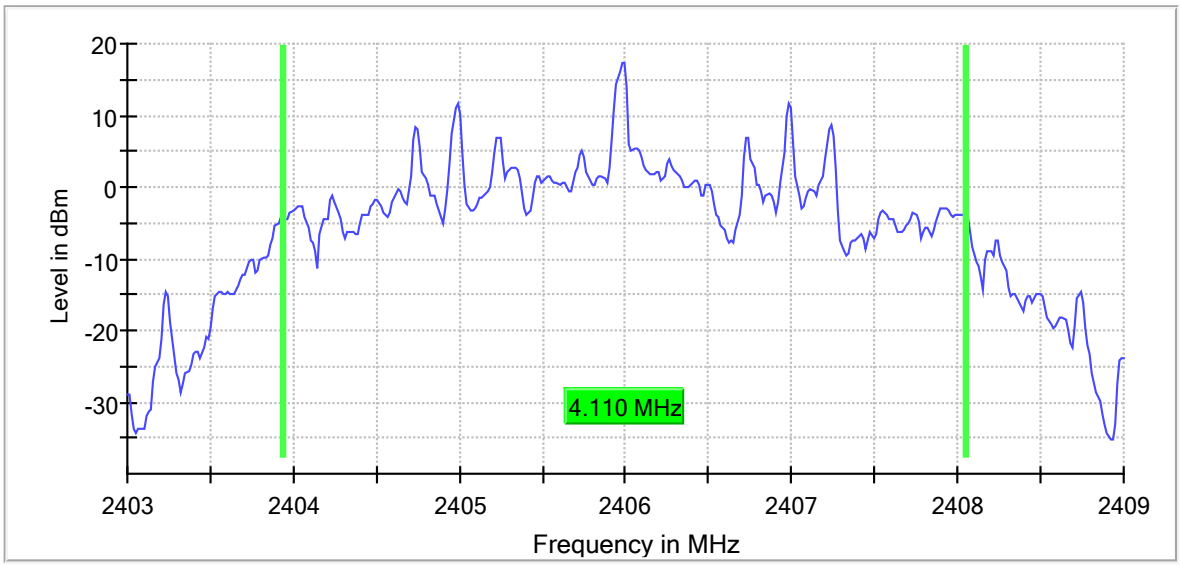
(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2406.000000	17.4	PASS

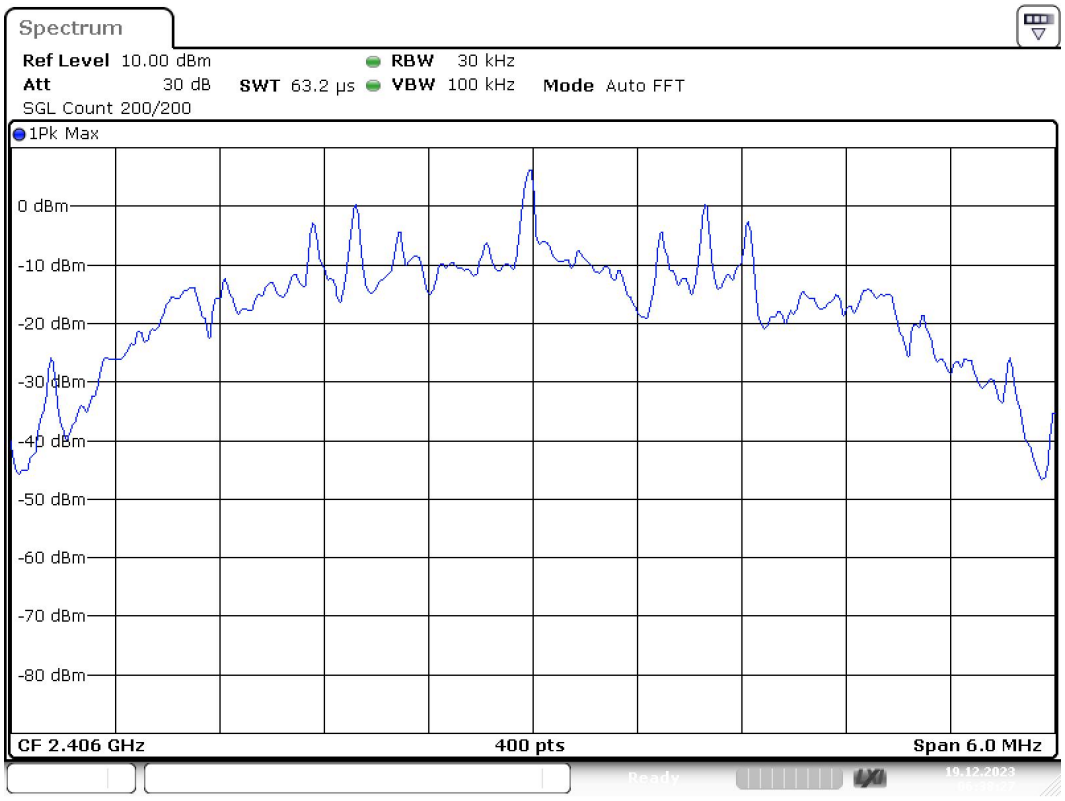
20 dB Bandwidth



99 % Bandwidth



Bandwidth



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Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40300 GHz	2.40300 GHz
Stop Frequency	2.40900 GHz	2.40900 GHz
Span	6.000 MHz	6.000 MHz

RBW	**30.000 kHz**	**>= 30.000 kHz**
VBW	**100.000 kHz**	**>= 90.000 kHz**
SweepPoints	**400**	**~ 400**
Sweeptime	**63.216 µs**	**AUTO**
Reference Level	**10.000 dBm**	**10.000 dBm**
Attenuation	**30.000 dB**	**AUTO**
Detector	**MaxPeak**	**MaxPeak**
SweepCount	**200**	**200**
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**

Band Edge low (2406 MHz; 20.000 dBm; 3 MHz; Test Mode)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

Result

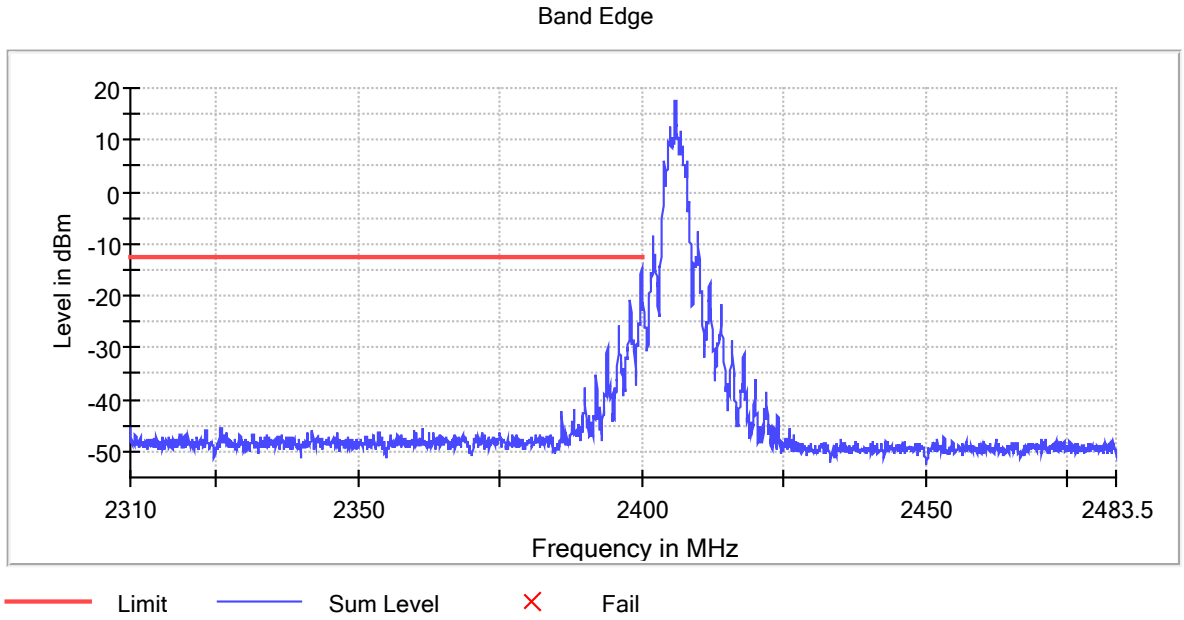
DUT Frequency (MHz)	Result
2406.000000	PASS

Inband Peak

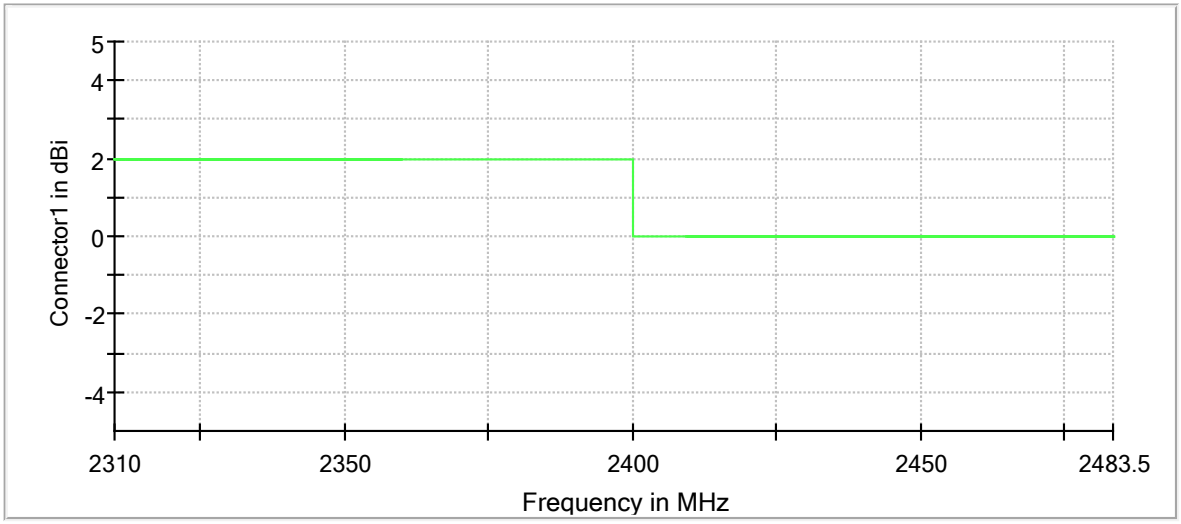
Frequency (MHz)	Level (dBm)
2405.975000	17.6

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975000	-14.7	2.3	-12.4	PASS
2399.925000	-15.8	3.4	-12.4	PASS
2399.875000	-19.0	6.6	-12.4	PASS
2399.825000	-20.0	7.6	-12.4	PASS
2397.975000	-20.8	8.4	-12.4	PASS
2398.025000	-20.9	8.5	-12.4	PASS
2397.925000	-22.2	9.8	-12.4	PASS
2399.775000	-23.0	10.6	-12.4	PASS
2398.075000	-23.3	10.9	-12.4	PASS
2398.125000	-24.8	12.5	-12.4	PASS
2399.625000	-25.3	12.9	-12.4	PASS
2399.575000	-25.4	13.0	-12.4	PASS
2399.725000	-25.4	13.0	-12.4	PASS
2399.525000	-25.5	13.1	-12.4	PASS
2397.875000	-25.7	13.3	-12.4	PASS

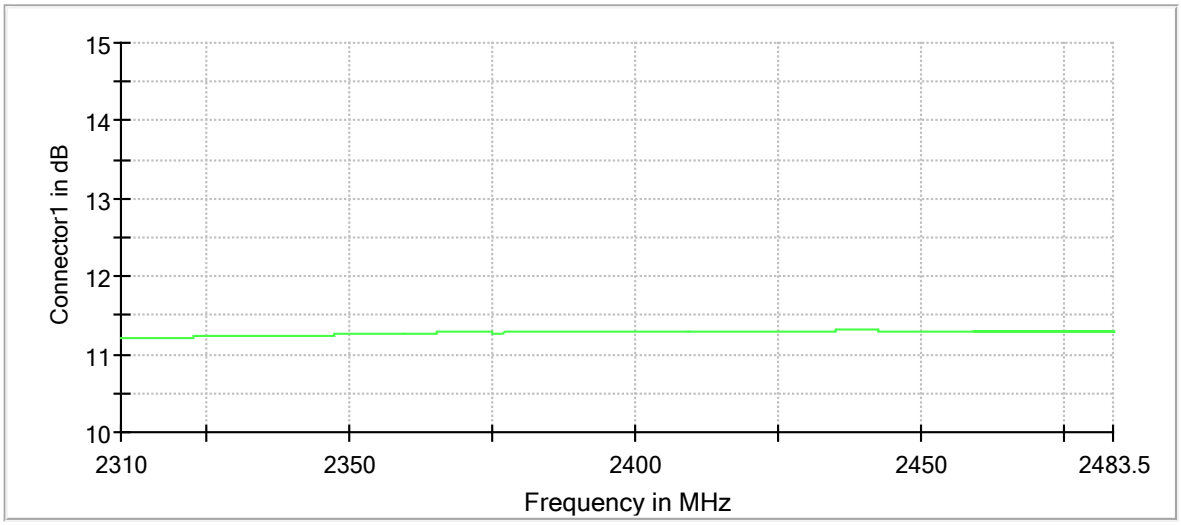


Gain



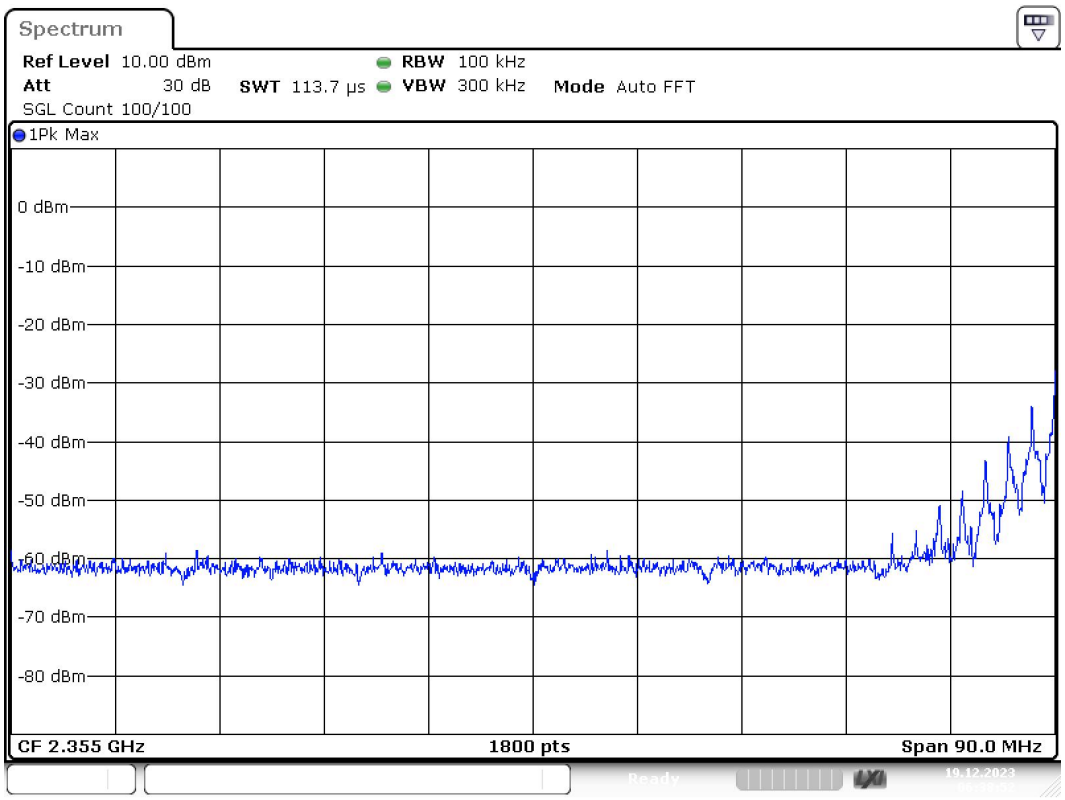
Connector1

Attenuation



Connector1

Band Edge Connector 1_0



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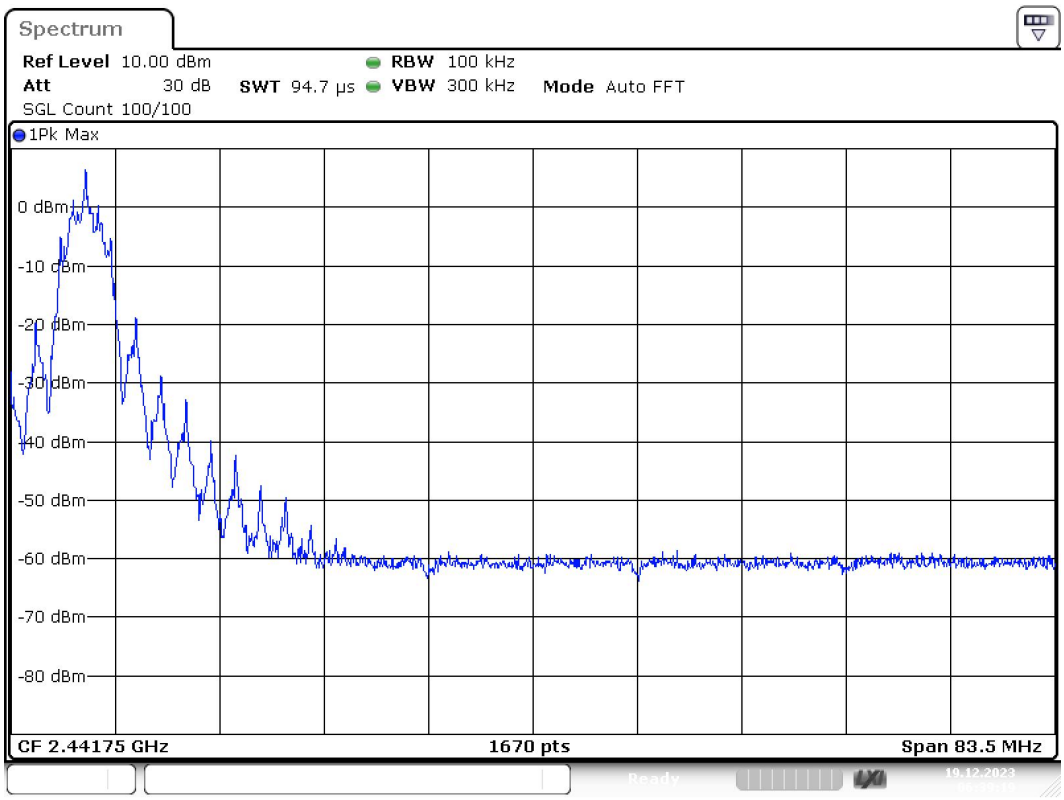
Band Edge Connector 1_1



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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	10.000 dBm	10.000 dBm
Attenuation	30.000 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	6 / 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	**10.000 dBm**	**10.000 dBm**
Attenuation	**30.000 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	**18 / max. 150**	**max. 150**
Stable	**3 / 3**	**3**
Max Stable Difference	**0.00 dB**	**0.50 dB**

Tx Spurious Emission (2406 MHz; 20.000 dBm; 3 MHz; Test Mode)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Result
2406.000000	PASS

Final measurements

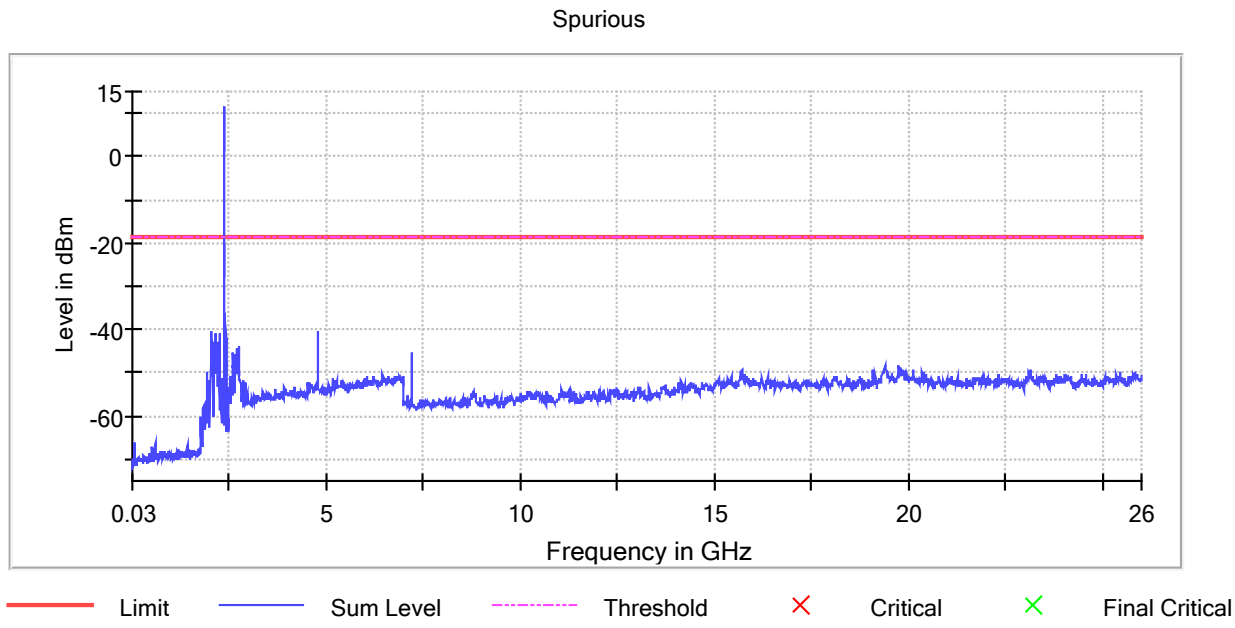
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

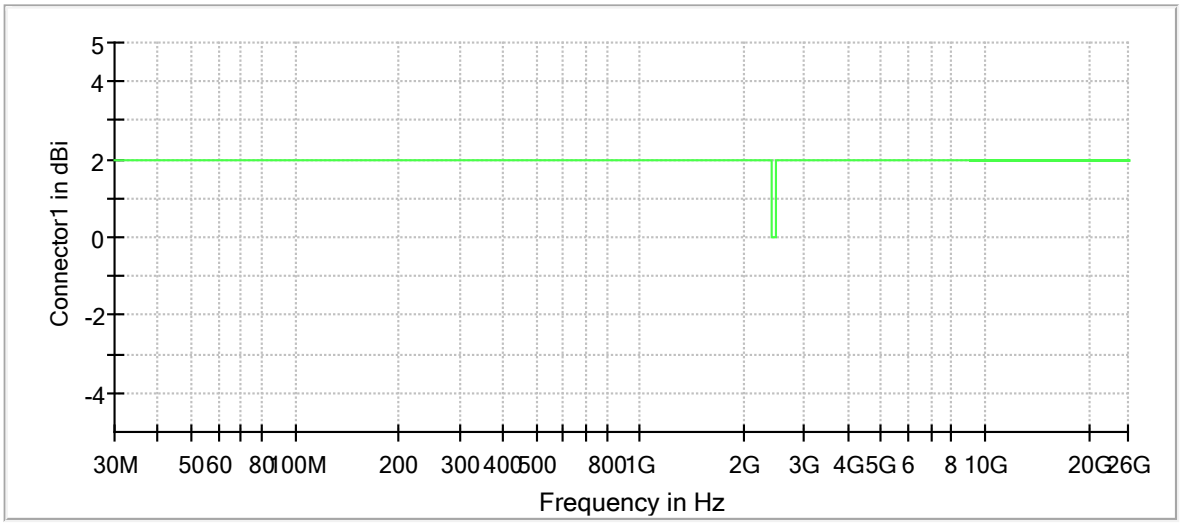
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2395.021008	-19.9	1.5	-18.4
2385.063025	-38.6	20.2	-18.4
4807.166065	-40.3	21.9	-18.4
2056.449580	-40.6	22.2	-18.4
2185.903361	-40.7	22.3	-18.4
2275.525210	-41.0	22.6	-18.4
2195.861345	-41.6	23.2	-18.4
2086.323529	-42.2	23.8	-18.4
2165.987395	-42.2	23.8	-18.4
2136.113445	-42.8	24.4	-18.4
2215.777311	-42.9	24.6	-18.4
2116.197479	-43.2	24.8	-18.4
2758.342223	-43.8	25.4	-18.4
2708.370909	-44.4	26.0	-18.4
7215.783362	-45.1	26.7	-18.4

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1

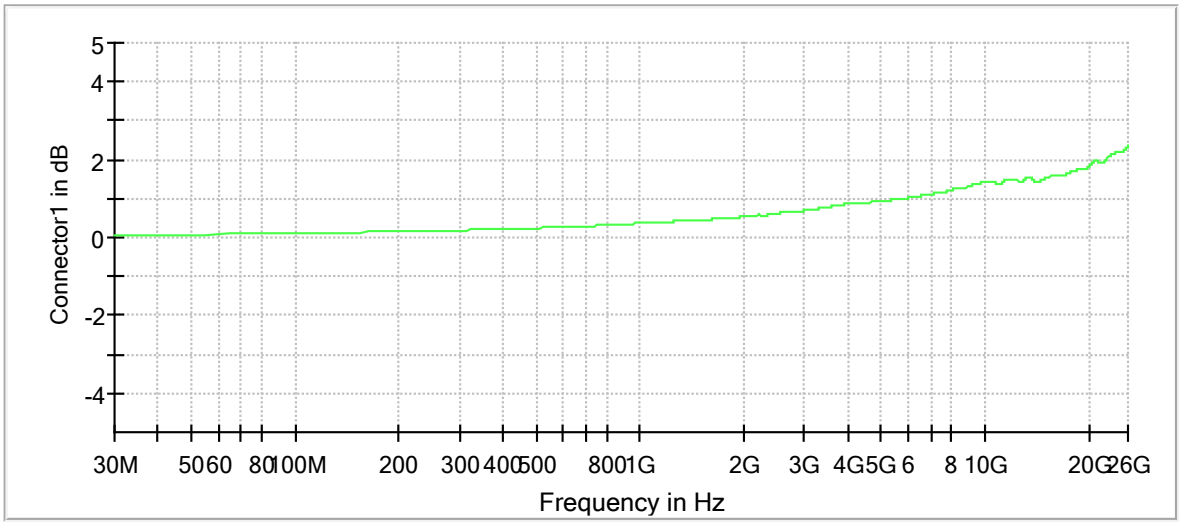

Spurious
15
0
-20
-40
-60
Level in dBm
0.03
5
10
15
20
26
Frequency in GHz
Limit
Sum Level
Threshold
Critical
Final Critical

Gain



Connector1

Attenuation



Connector1

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	238	~ 238
Sweeptime	23.700 ms	AUTO
Reference Level	-10.000 dBm	-30.000 dBm
Attenuation	20.000 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	5 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Emission Bandwidth 20 dB (2442 MHz; 20.000 dBm; 3 MHz; Test Mode)

Customized settings.

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

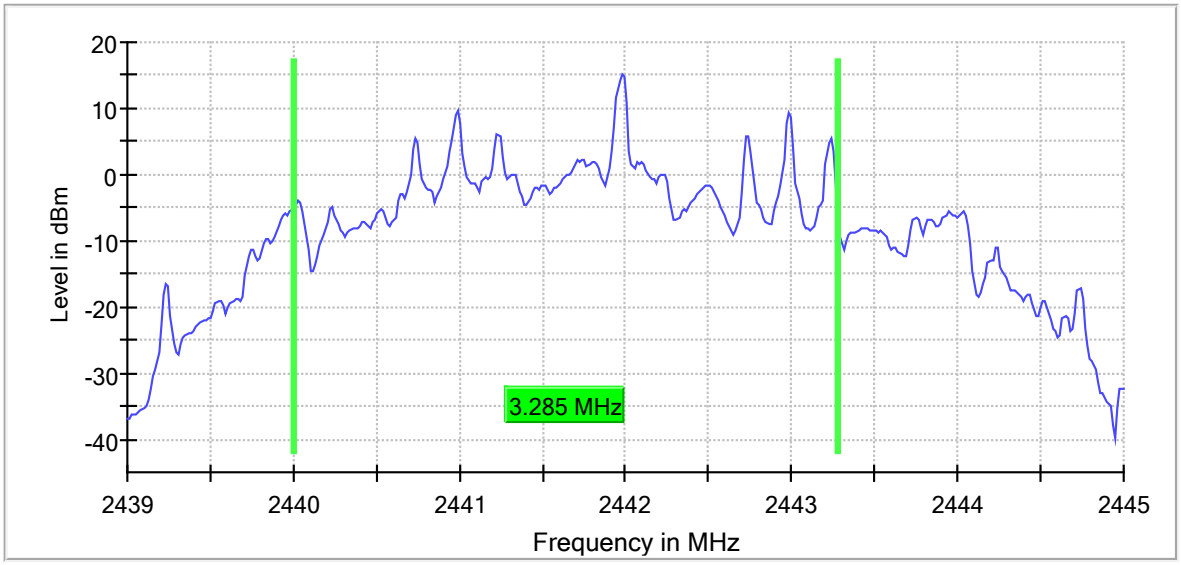
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2442.000000	3.285000	---	---	2439.997500	2443.282500

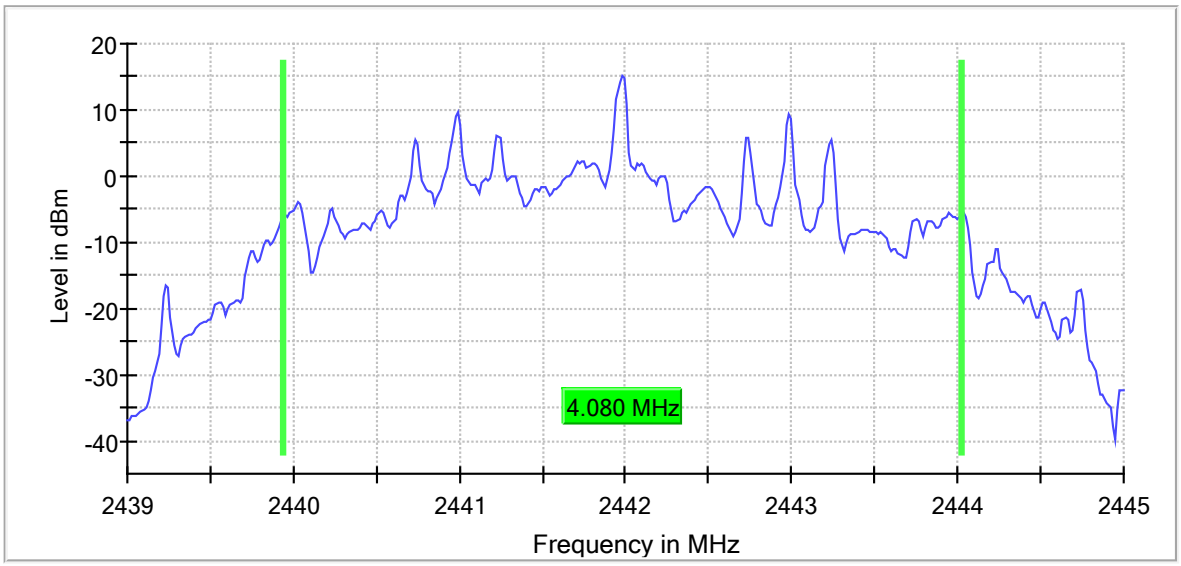
(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2442.000000	15.1	PASS

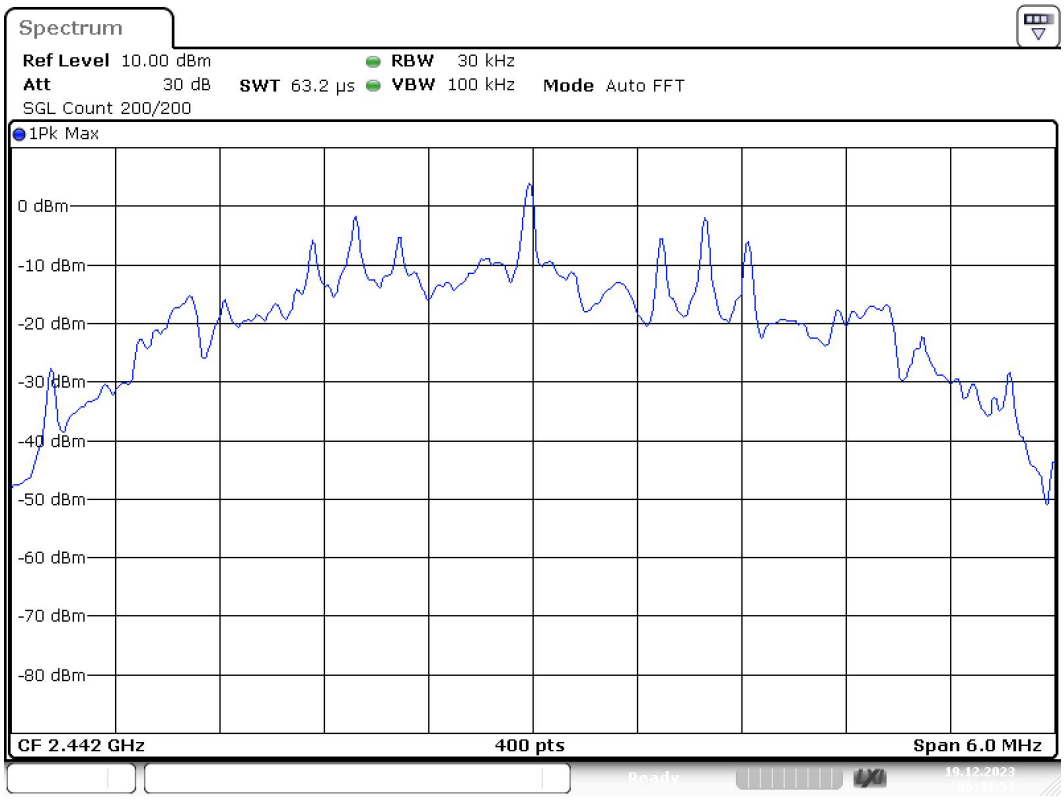
20 dB Bandwidth



99 % Bandwidth



Bandwidth



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Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43900 GHz	2.43900 GHz
Stop Frequency	2.44500 GHz	2.44500 GHz
Span	6.000 MHz	6.000 MHz

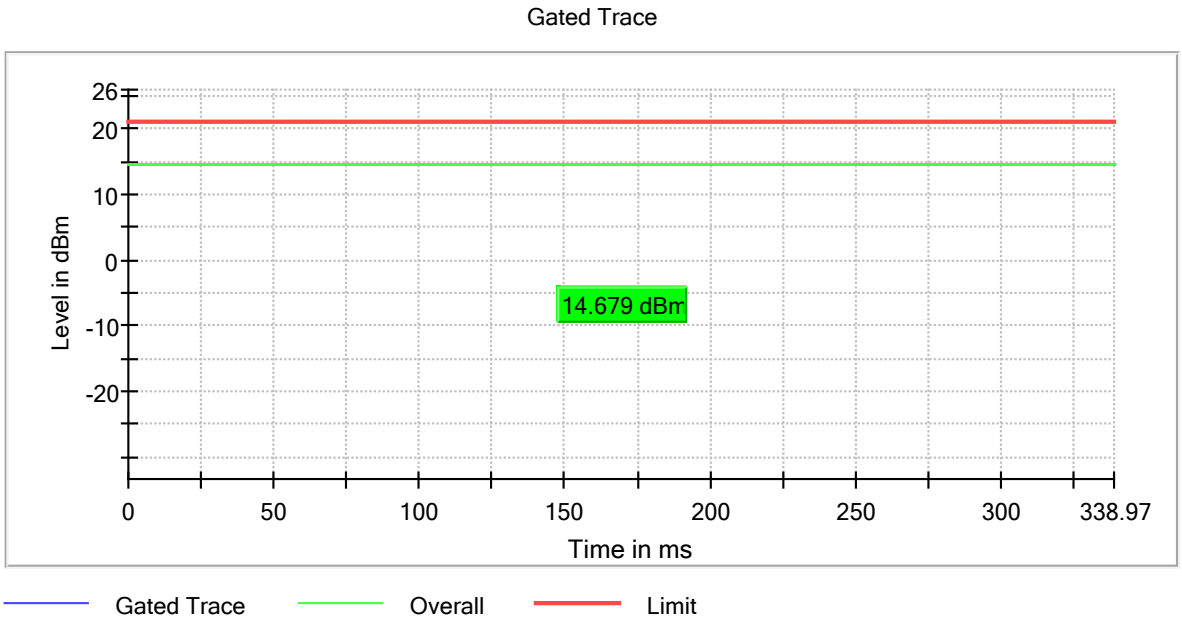
RBW	**30.000 kHz**	**>= 30.000 kHz**
VBW	**100.000 kHz**	**>= 90.000 kHz**
SweepPoints	**400**	**~ 400**
Sweeptime	**63.216 µs**	**AUTO**
Reference Level	**10.000 dBm**	**10.000 dBm**
Attenuation	**30.000 dB**	**AUTO**
Detector	**MaxPeak**	**MaxPeak**
SweepCount	**200**	**200**
Filter	**3 dB**	**3 dB**
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 (2442 MHz; 20.000 dBm; 3 MHz; Test Mode)

Test according to FCC title 47 part 15 §15.247(b), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2442.000000	14.7	21.0	14.7	34.070	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

Tx Spurious Emission (2442 MHz; 20.000 dBm; 3 MHz; Test Mode)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Result
2442.000000	PASS

Final measurements

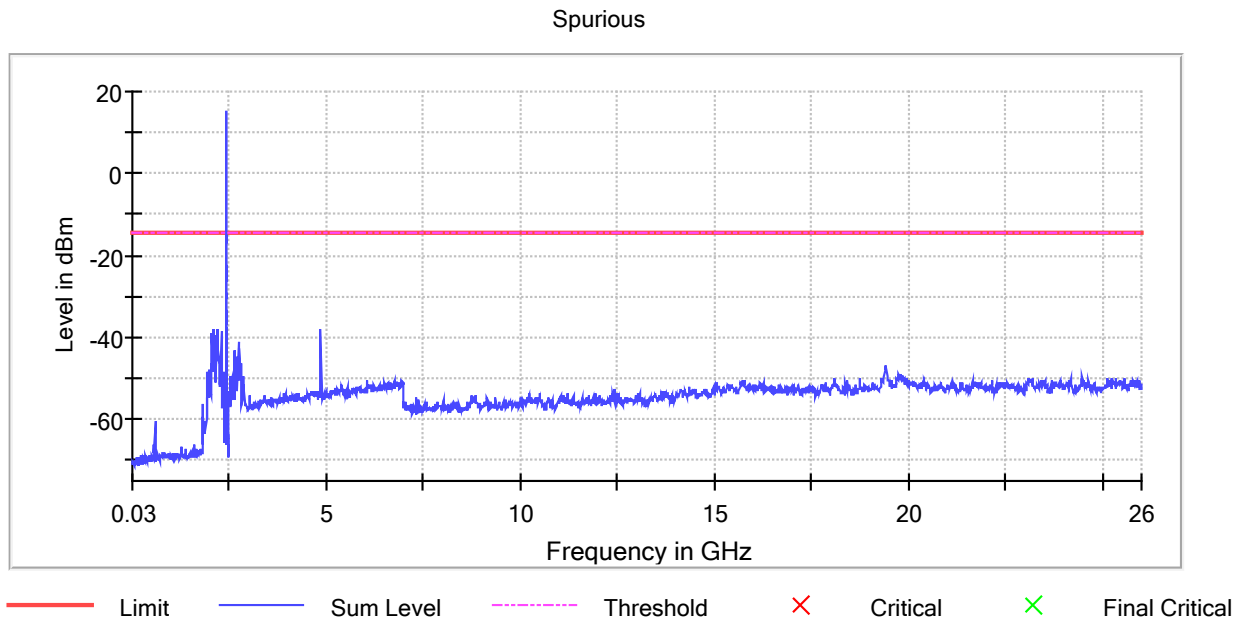
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

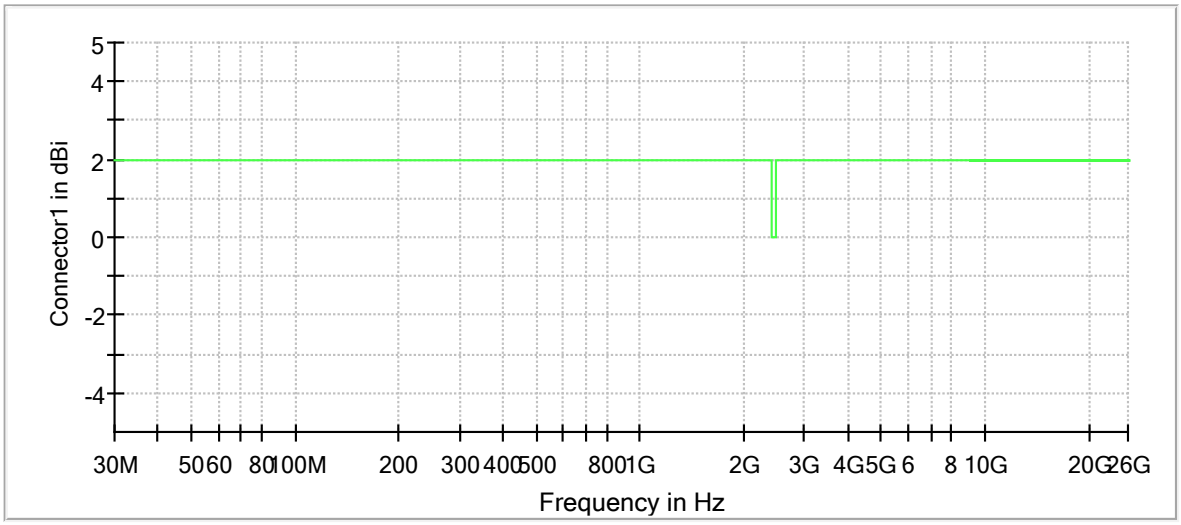
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2136.113445	-37.9	23.4	-14.5
2215.777311	-37.9	23.5	-14.5
2235.693277	-38.1	23.7	-14.5
4887.120166	-38.1	23.7	-14.5
2315.357143	-38.6	24.1	-14.5
2086.323529	-38.9	24.4	-14.5
2185.903361	-39.6	25.1	-14.5
2205.819328	-39.6	25.2	-14.5
2156.029412	-40.0	25.6	-14.5
2748.347960	-40.9	26.5	-14.5
2126.155462	-41.2	26.8	-14.5
2165.987395	-41.9	27.4	-14.5
2798.319273	-42.5	28.1	-14.5
2245.651261	-42.9	28.4	-14.5
2648.405334	-43.0	28.6	-14.5

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1

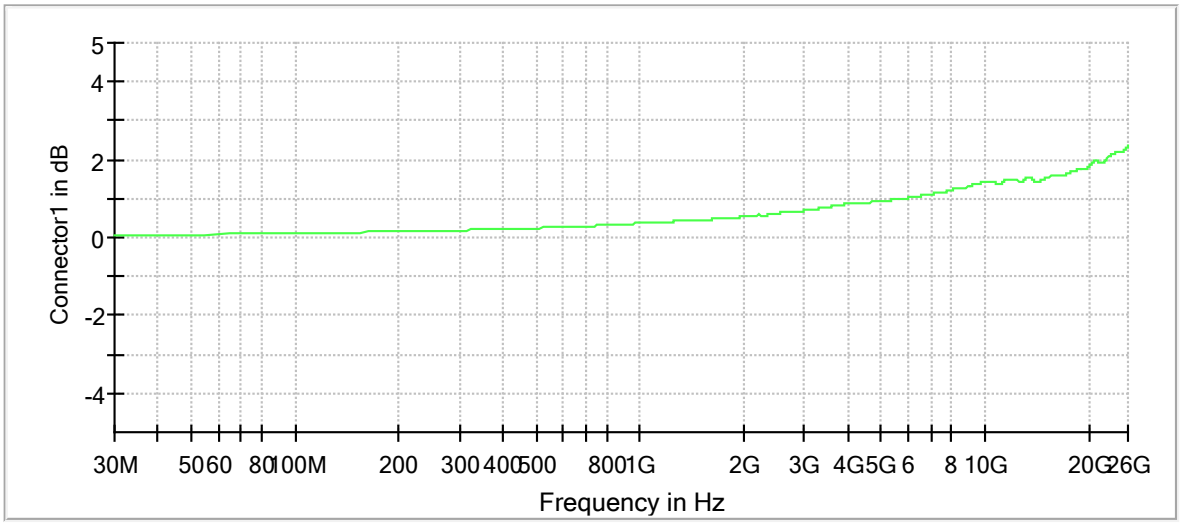

Spurious
20
0
-20
-40
-60
Level in dBm
0.03
5
10
15
20
26
Frequency in GHz
Limit
Sum Level
Threshold
Critical
Final Critical

Gain



Connector1

Attenuation



Connector1

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	238	~ 238
Sweeptime	23.700 ms	AUTO
Reference Level	-10.000 dBm	-30.000 dBm
Attenuation	20.000 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	9 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Emission Bandwidth 20 dB (2475 MHz; 20.000 dBm; 3 MHz; Test Mode)

Customized settings.

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

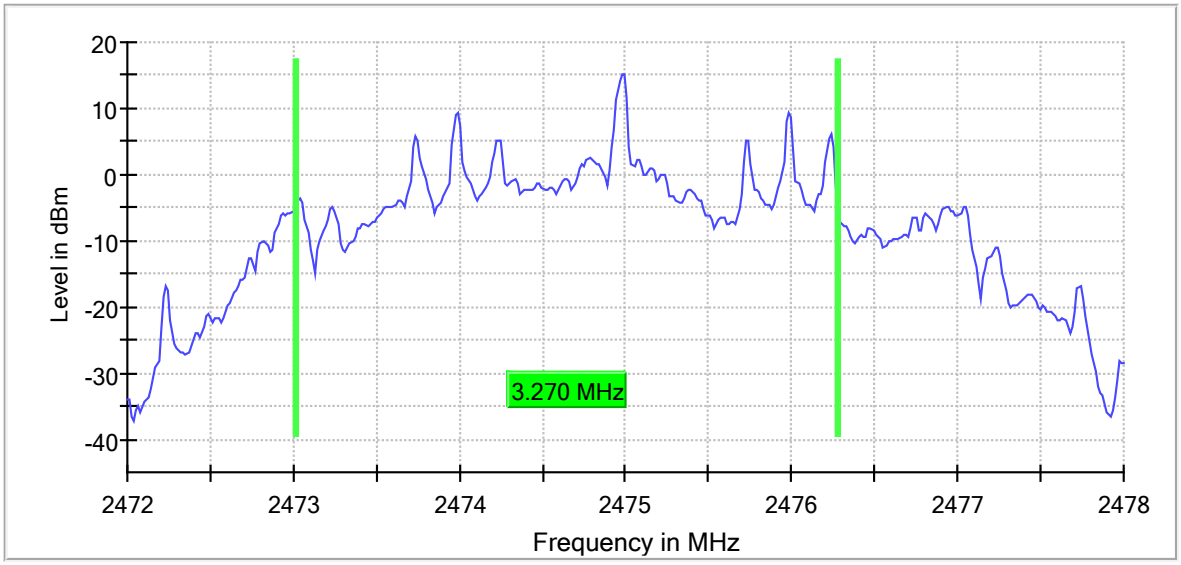
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2475.000000	3.270000	---	---	2473.012500	2476.282500

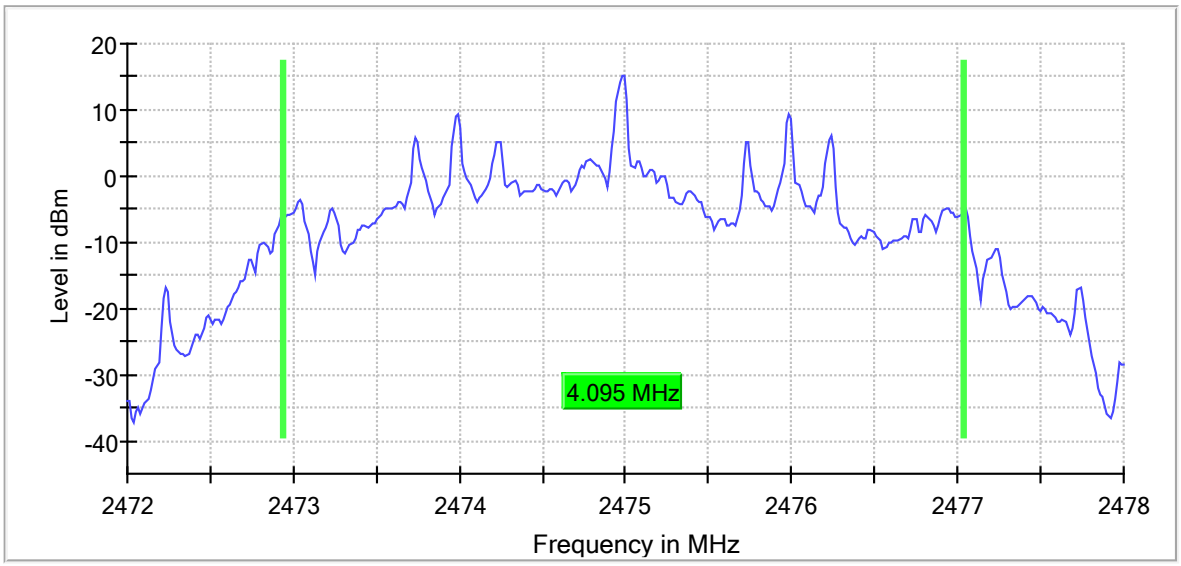
(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2475.000000	15.2	PASS

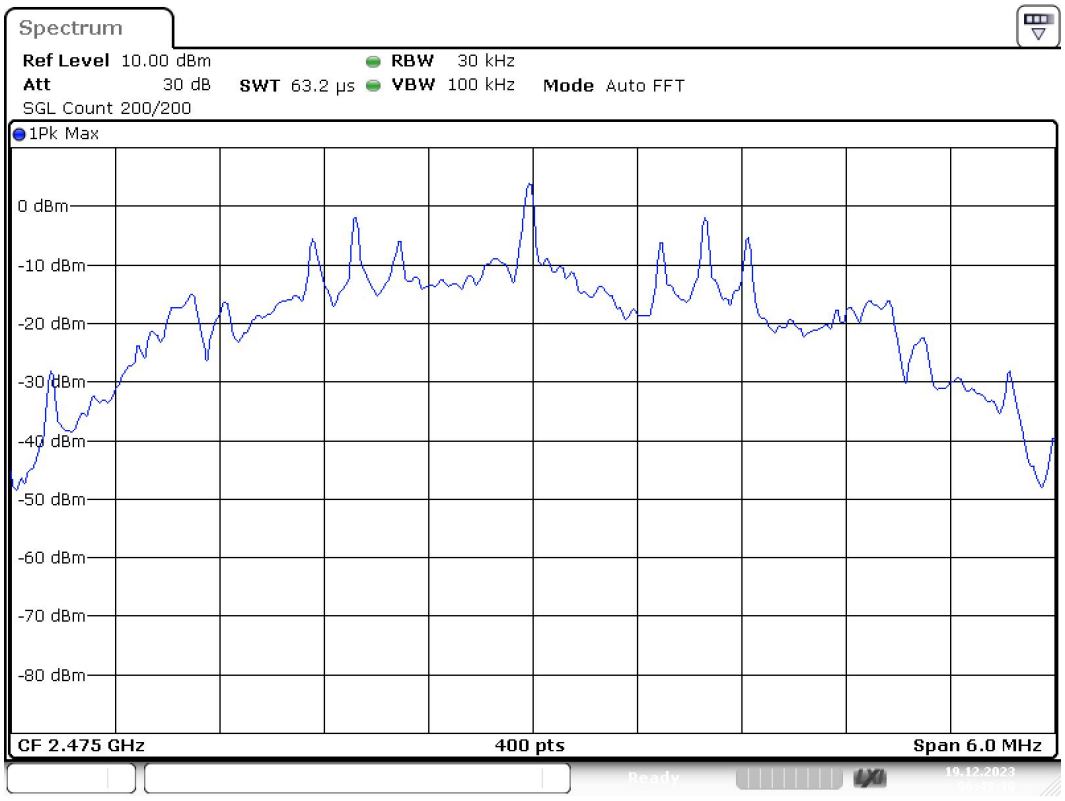
20 dB Bandwidth



99 % Bandwidth



Bandwidth



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Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47200 GHz	2.47200 GHz
Stop Frequency	2.47800 GHz	2.47800 GHz
Span	6.000 MHz	6.000 MHz

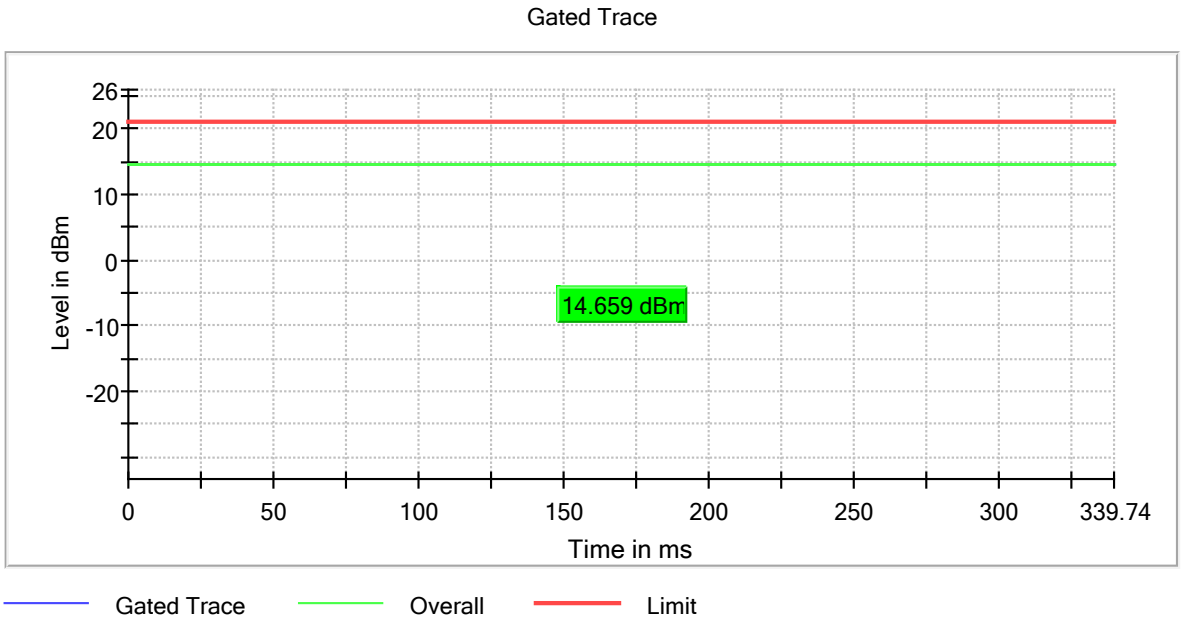
RBW	**30.000 kHz**	**>= 30.000 kHz**
VBW	**100.000 kHz**	**>= 90.000 kHz**
SweepPoints	**400**	**~ 400**
Sweeptime	**63.216 µs**	**AUTO**
Reference Level	**10.000 dBm**	**10.000 dBm**
Attenuation	**30.000 dB**	**AUTO**
Detector	**MaxPeak**	**MaxPeak**
SweepCount	**200**	**200**
Filter	**3 dB**	**3 dB**
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 (2475 MHz; 20.000 dBm; 3 MHz; Test Mode)

Test according to FCC title 47 part 15 §15.247(b), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2475.000000	14.7	21.0	14.7	34.141	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

Band Edge high (2475 MHz; 20.000 dBm; 3 MHz; Test Mode)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Result
2475.000000	PASS

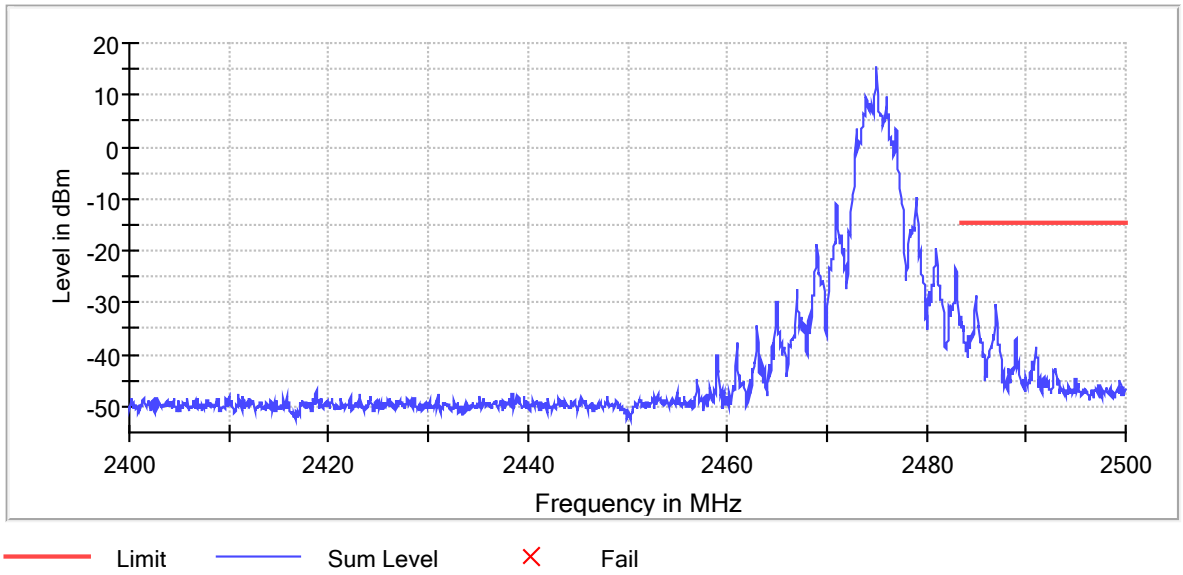
Inband Peak

Frequency (MHz)	Level (dBm)
2474.975000	15.4

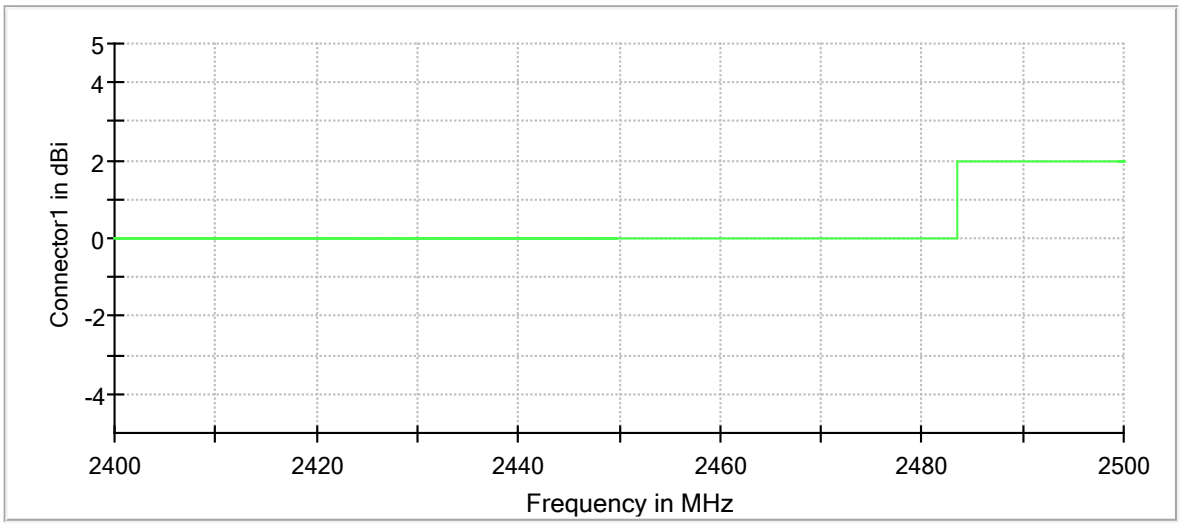
Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2484.975000	-28.7	14.1	-14.6	PASS
2484.925000	-29.0	14.4	-14.6	PASS
2485.025000	-29.0	14.4	-14.6	PASS
2486.975000	-30.5	15.8	-14.6	PASS
2487.025000	-30.8	16.2	-14.6	PASS
2486.925000	-31.2	16.6	-14.6	PASS
2484.875000	-31.5	16.9	-14.6	PASS
2485.075000	-31.6	17.0	-14.6	PASS
2484.825000	-32.7	18.0	-14.6	PASS
2483.525000	-33.8	19.1	-14.6	PASS
2487.075000	-33.8	19.2	-14.6	PASS
2485.125000	-33.8	19.2	-14.6	PASS
2484.775000	-34.2	19.6	-14.6	PASS
2485.225000	-34.2	19.6	-14.6	PASS
2485.275000	-34.3	19.7	-14.6	PASS

Band Edge

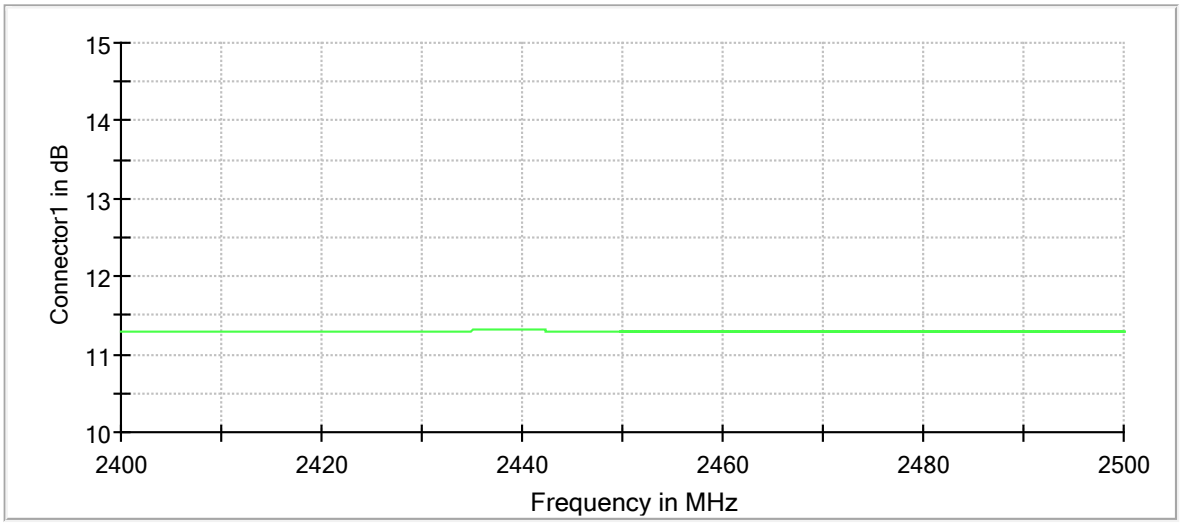


Gain



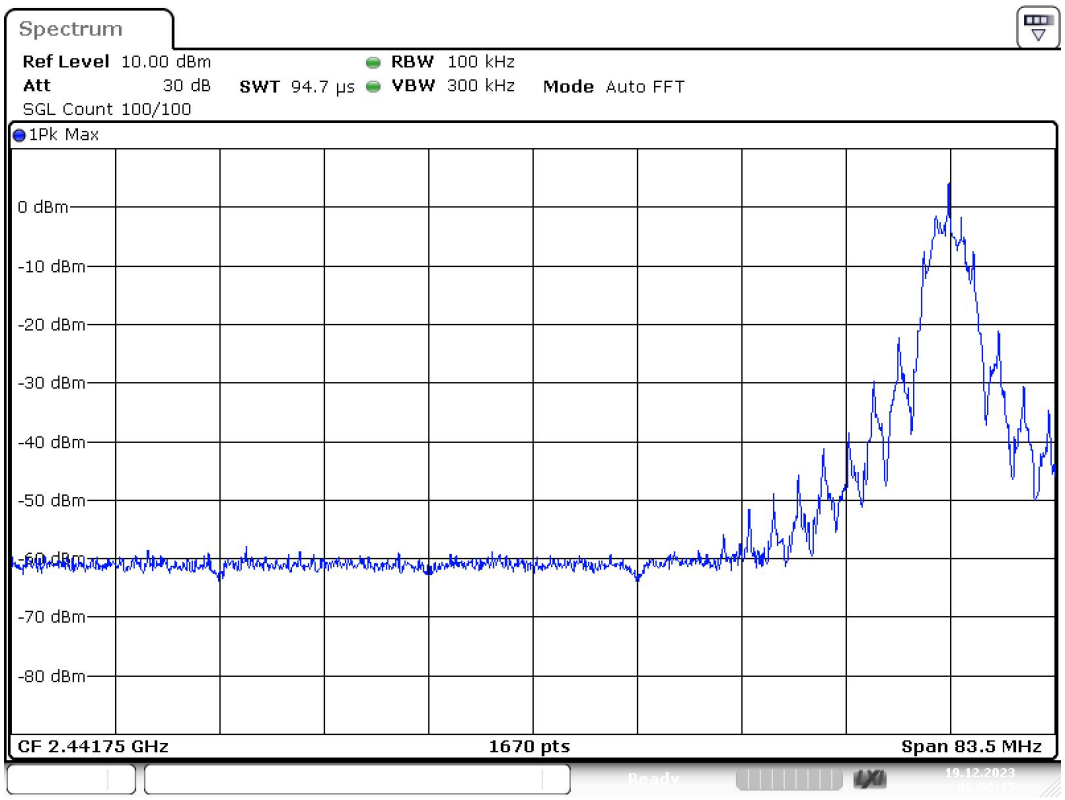
Connector1

Attenuation



Connector1

Band Edge Connector 1_0



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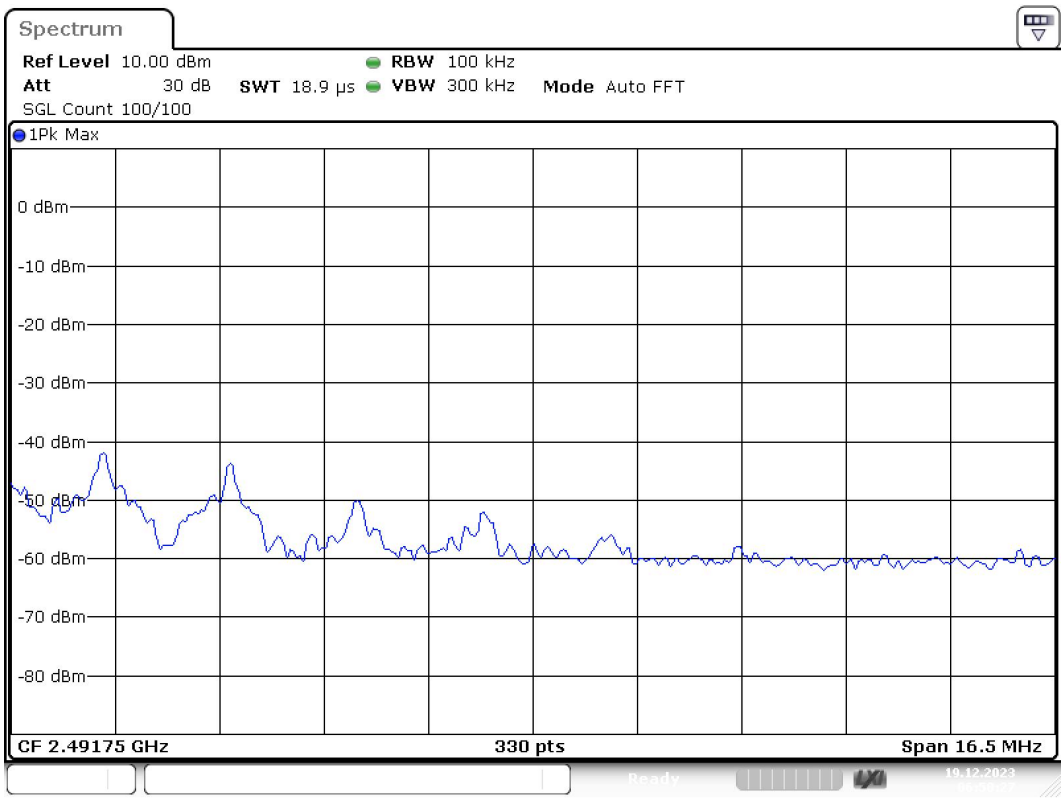
Band Edge Connector 1_1



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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	10.000 dBm	10.000 dBm
Attenuation	30.000 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	11 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.18 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	**10.000 dBm**	**10.000 dBm**
Attenuation	**30.000 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	**16 / max. 150**	**max. 150**
Stable	**3 / 3**	**3**
Max Stable Difference	**0.26 dB**	**0.50 dB**

Tx Spurious Emission (2475 MHz; 20.000 dBm; 3 MHz; Test Mode)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Result
2475.000000	PASS

Final measurements

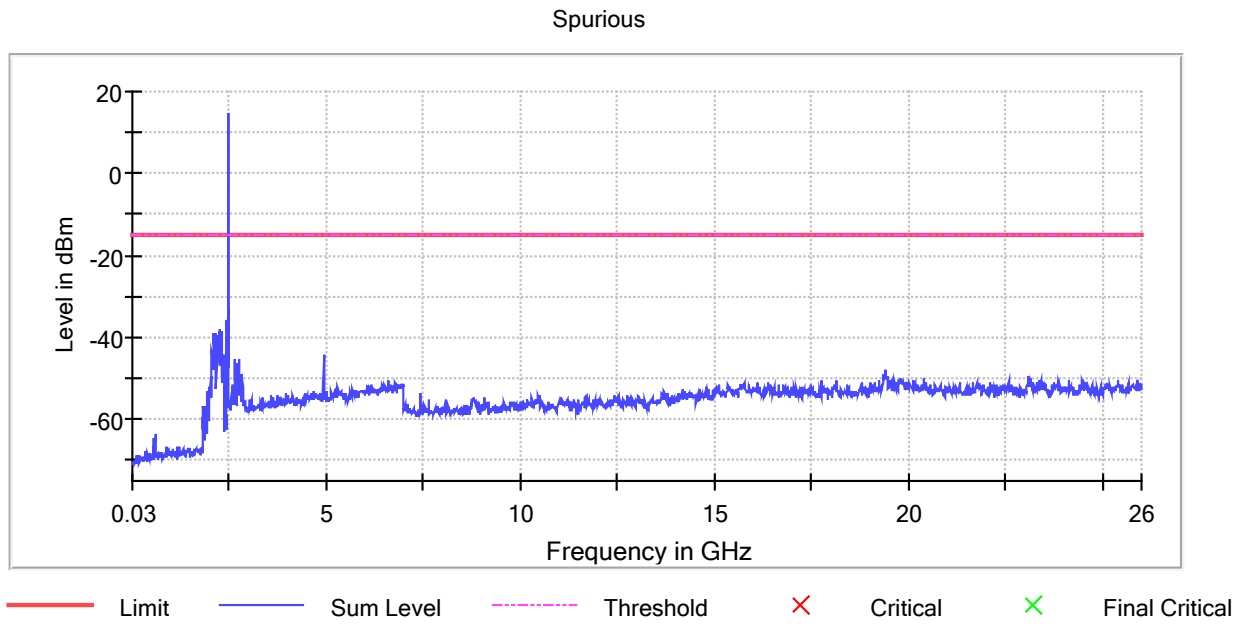
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

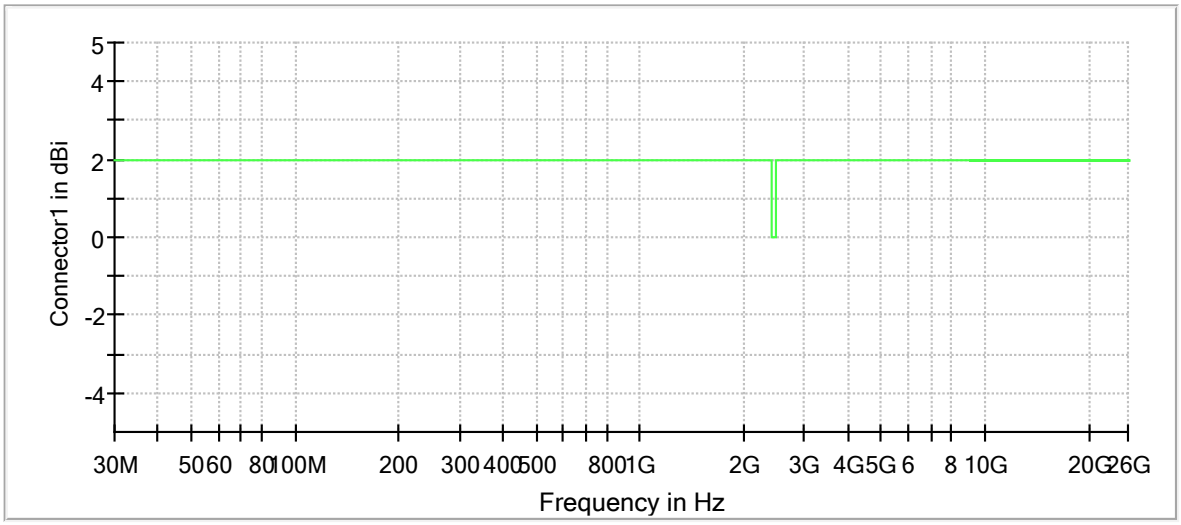
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2488.497131	-32.9	17.9	-15.0
2285.483193	-37.9	22.9	-15.0
2265.567227	-38.3	23.3	-15.0
2345.231092	-38.4	23.4	-15.0
2126.155462	-39.0	24.1	-15.0
2175.945378	-39.2	24.2	-15.0
2235.693277	-39.4	24.4	-15.0
2185.903361	-39.4	24.5	-15.0
2215.777311	-39.7	24.8	-15.0
2165.987395	-39.8	24.9	-15.0
2136.113445	-41.2	26.3	-15.0
2255.609244	-42.5	27.5	-15.0
2106.239496	-43.2	28.2	-15.0
2086.323529	-43.2	28.3	-15.0
2245.651261	-43.6	28.6	-15.0

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1

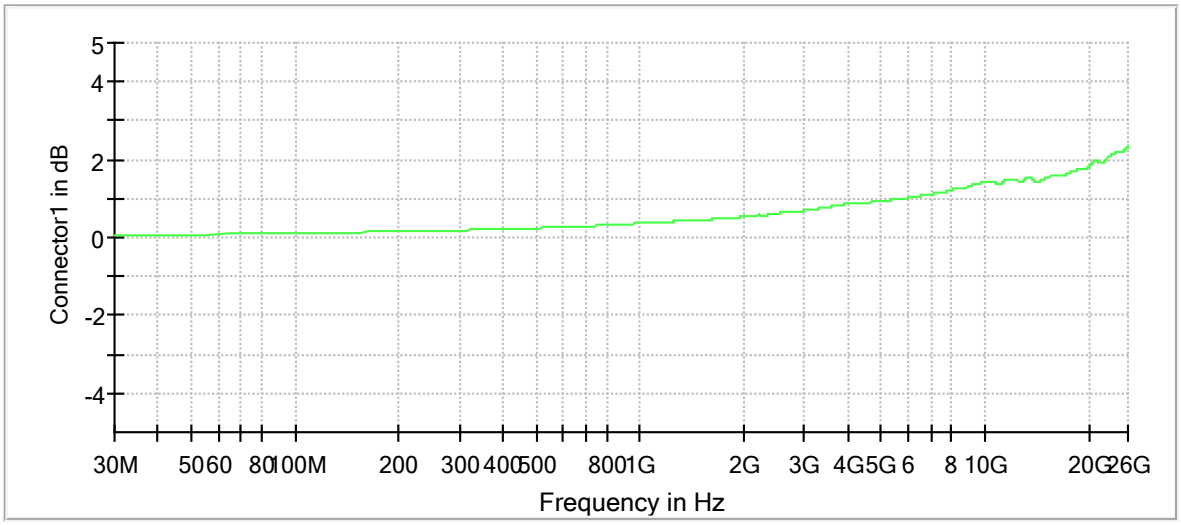

Spurious
20
0
-20
-40
-60
Level in dBm
0.03
5
10
15
20
26
Frequency in GHz
Limit
Sum Level
Threshold
Critical
Final Critical

Gain



Connector1

Attenuation



Connector1

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	238	~ 238
Sweeptime	23.700 ms	AUTO
Reference Level	-10.000 dBm	-30.000 dBm
Attenuation	20.000 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	15 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB