

# FCC Part 47 §15.247 2400-2483.5 MHz 2015

## DUT Information

### Frequencies

2402 MHz (2402 MHz)	WLAN CH 3 (2422 MHz)	WLAN CH 6 (2437 MHz)
WLAN CH 9 (2452 MHz)	2440 MHz (2440 MHz)	2480 MHz (2480 MHz)
WLAN CH 2 (2417 MHz)	WLAN CH 4 (2427 MHz)	WLAN CH 5 (2432 MHz)
WLAN CH 7 (2442 MHz)	WLAN CH 8 (2447 MHz)	WLAN CH 10 (2457 MHz)
WLAN CH 11 (2462 MHz)	WLAN CH 12 (2467 MHz)	WLAN CH 13 (2472 MHz)
WLAN CH 1 (2412 MHz)	ZigBee CH 11 (2405 MHz)	

### Bandwidths

2 MHz (2 MHz)	1 MHz (1 MHz)	20 MHz (20 MHz)
40 MHz (40 MHz)		

### Power

20.000 dBm (20 dBm)

### Beamforming Gain

20.000 dBm (20 dBm)      0 dB

### Gain Tables

20.000 dBm (20 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 1321.3008K39/101229, FW 3.40
Vector Generator:	VG SMBV100A (VG SMBV100A) @ VISA (ADR TCPIP::192.168.48.25::INST0::INSTR), SN 260451, FW 4.70.108.41
Generator:	SMB100Aa (SMB100A) @ VISA (ADR TCPIP::192.168.48.30::INST0::INSTR), SN 177894, 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	2412.000	20.0	20.000000	PASS
Emission Bandwidth 20 dB	2412.000	20.0	20.000000	PASS
RF output power	2412.000	20.0	20.000000	PASS
Peak Power Spectral Density	2412.000	20.0	20.000000	PASS
Band Edge low	2412.000	20.0	20.000000	PASS
Tx Spurious Emission	2412.000	20.0	20.000000	PASS
Emission Bandwidth 20 dB	2437.000	20.0	20.000000	PASS
Minimum Emission Bandwidth 6 dB	2437.000	20.0	20.000000	PASS
RF output power	2437.000	20.0	20.000000	PASS
Peak Power Spectral Density	2437.000	20.0	20.000000	PASS
Tx Spurious Emission	2437.000	20.0	20.000000	PASS
Emission Bandwidth 20 dB	2462.000	20.0	20.000000	PASS
Minimum Emission Bandwidth 6 dB	2462.000	20.0	20.000000	PASS
RF output power	2462.000	20.0	20.000000	PASS
Peak Power Spectral Density	2462.000	20.0	20.000000	PASS
Band Edge high	2462.000	20.0	20.000000	PASS
Tx Spurious Emission	2462.000	20.0	20.000000	PASS

## Minimum Emission Bandwidth 6 dB (2412 MHz; 20.000 dBm; 20 MHz)

Customized settings.

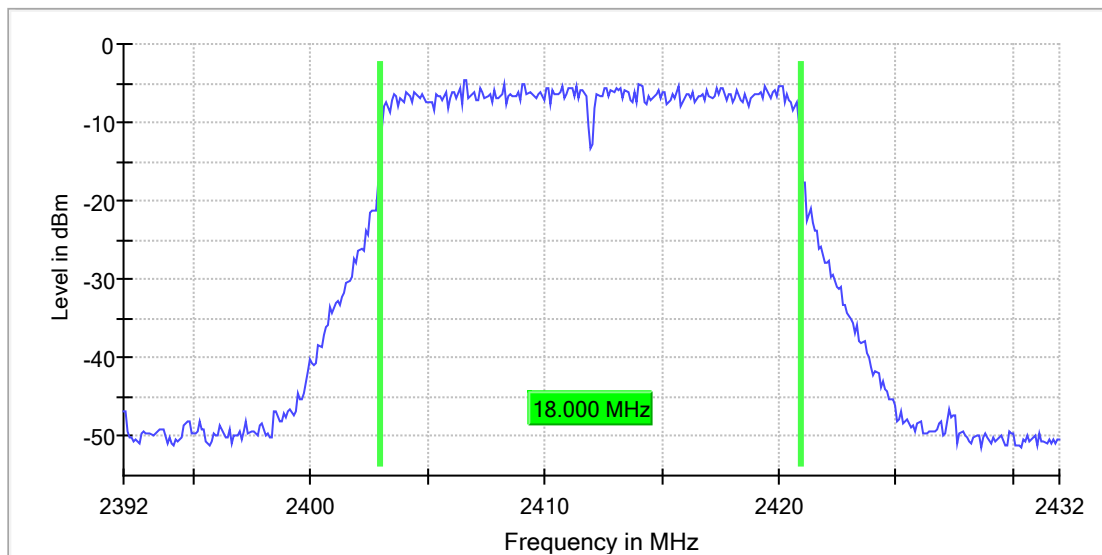
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

### 6 dB Bandwidth

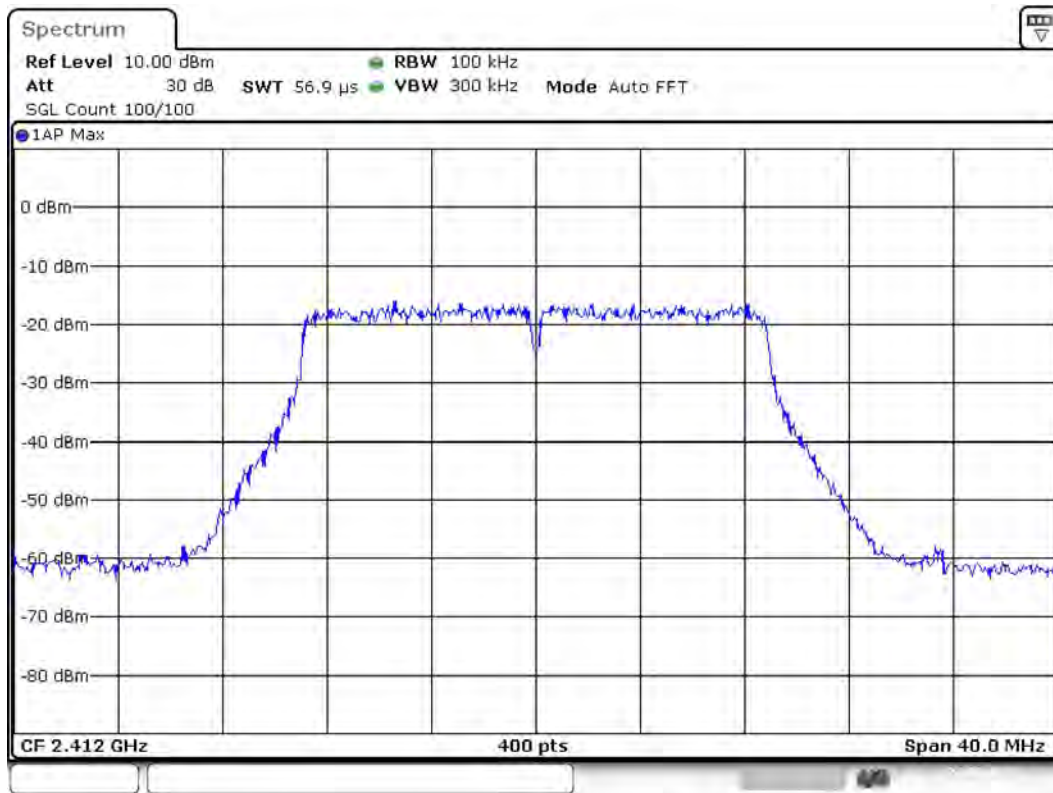
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2412.000000	18.000000	0.500000	---	2402.950000	2420.950000

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2412.000000	-4.6	PASS



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	400	~ 400
SweepTime	56.886 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 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 (2412 MHz; 20.000 dBm; 20 MHz)

Customized settings.

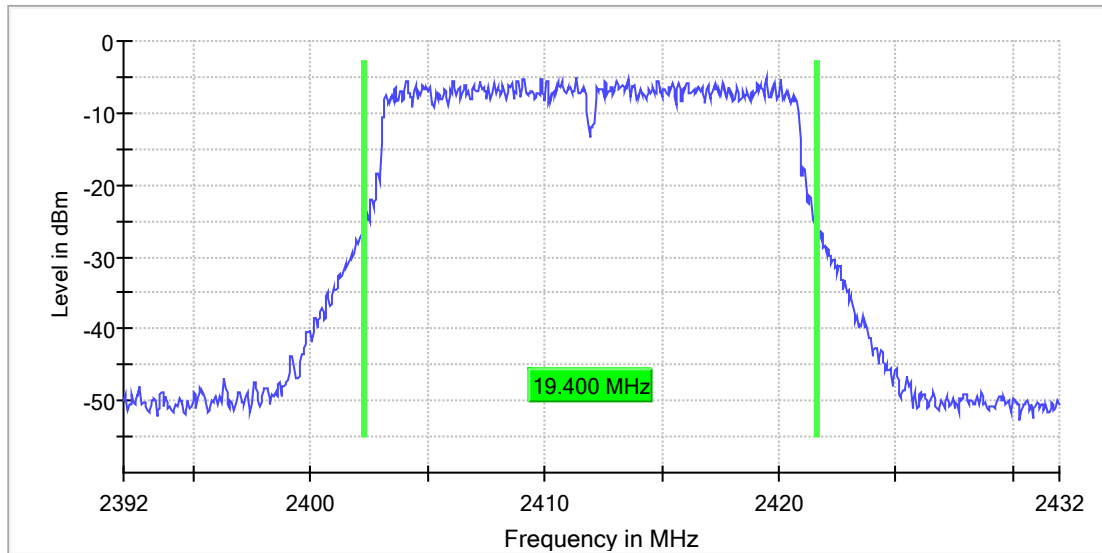
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

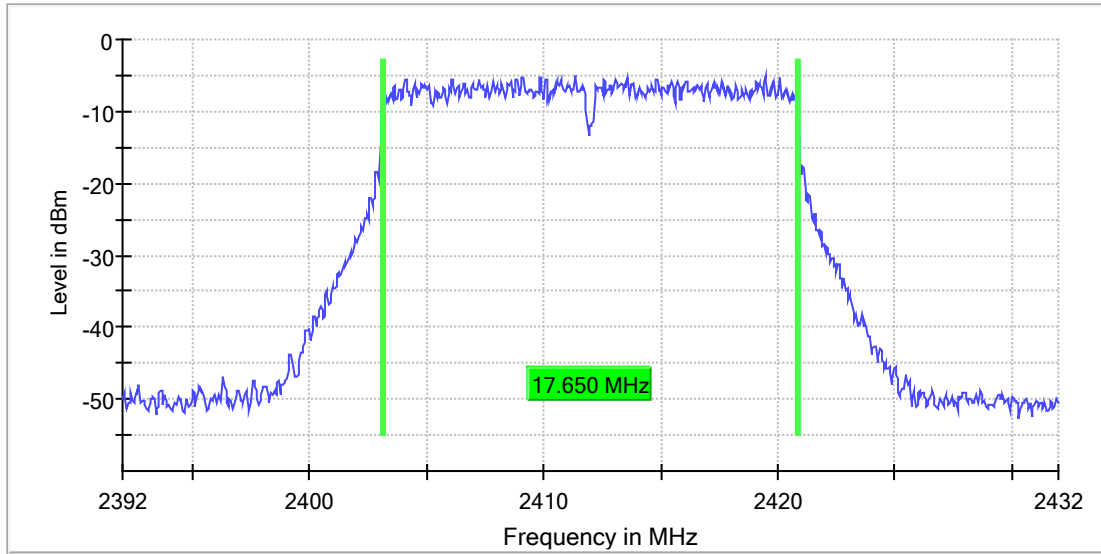
### 20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2412.000000	19.400000	---	---	2402.275000	2421.675000

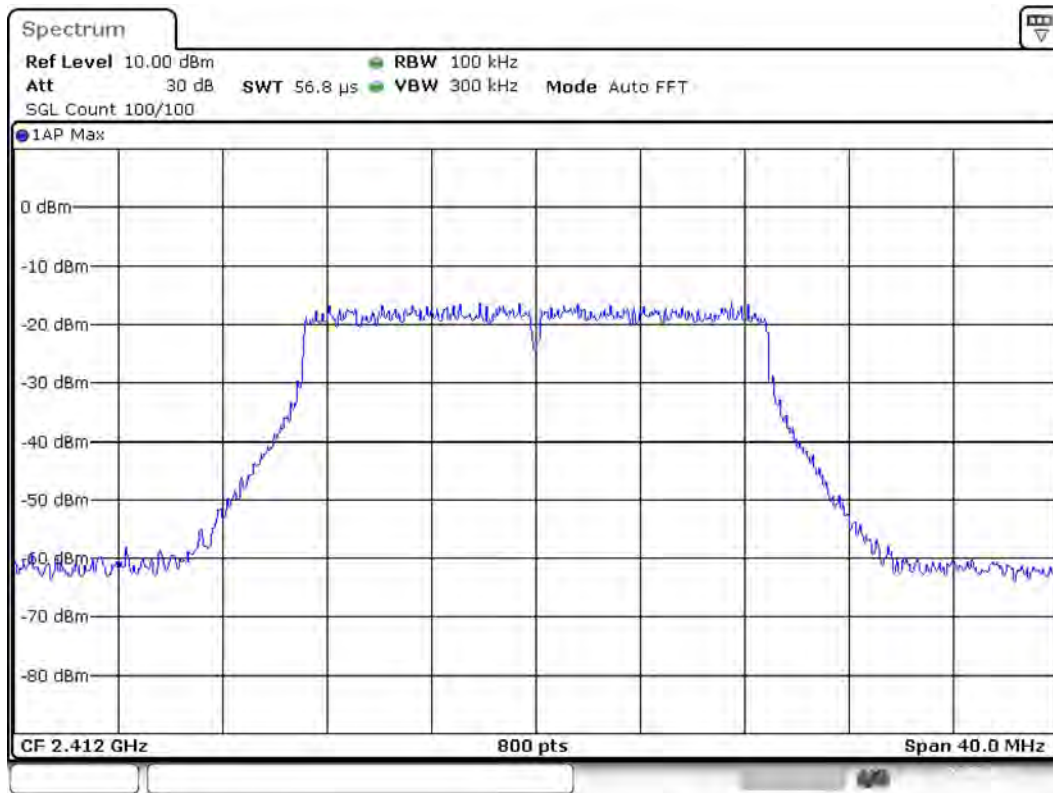
(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2412.000000	-5.0	PASS





Bandwidth



Date: 24.AUG.2023 10:44:44

## Measurement

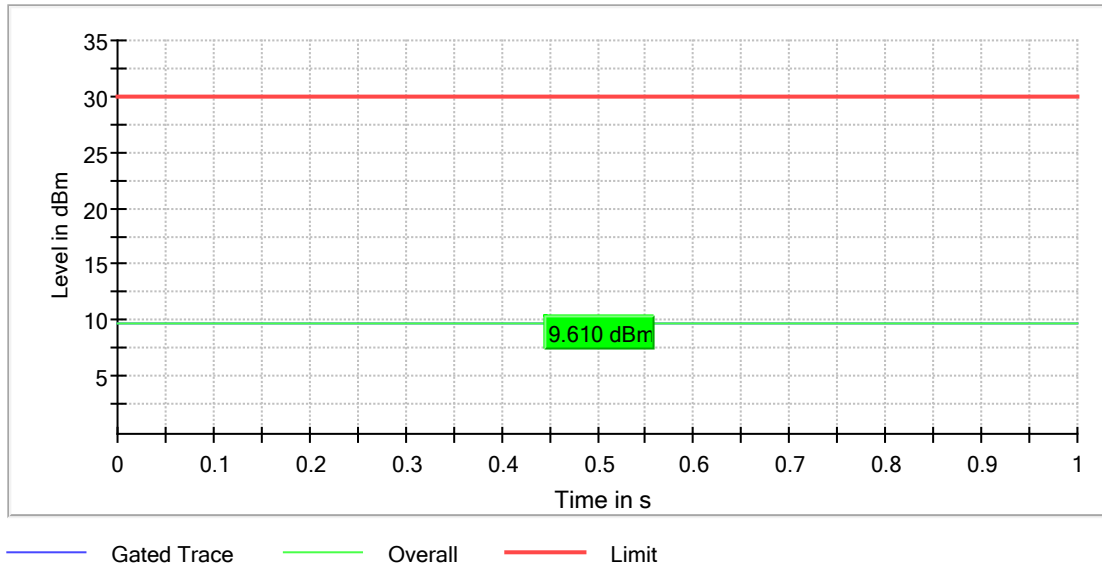
Setting	Instrument Value	Target Value
Start Frequency	2.39200 GHz	2.39200 GHz
Stop Frequency	2.43200 GHz	2.43200 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	800	~ 800
Sweeptime	56.836 μs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 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 (2412 MHz; 20.000 dBm; 20 MHz)

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

### Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2412.000000	9.6	30.0	9.6	100.000	PASS





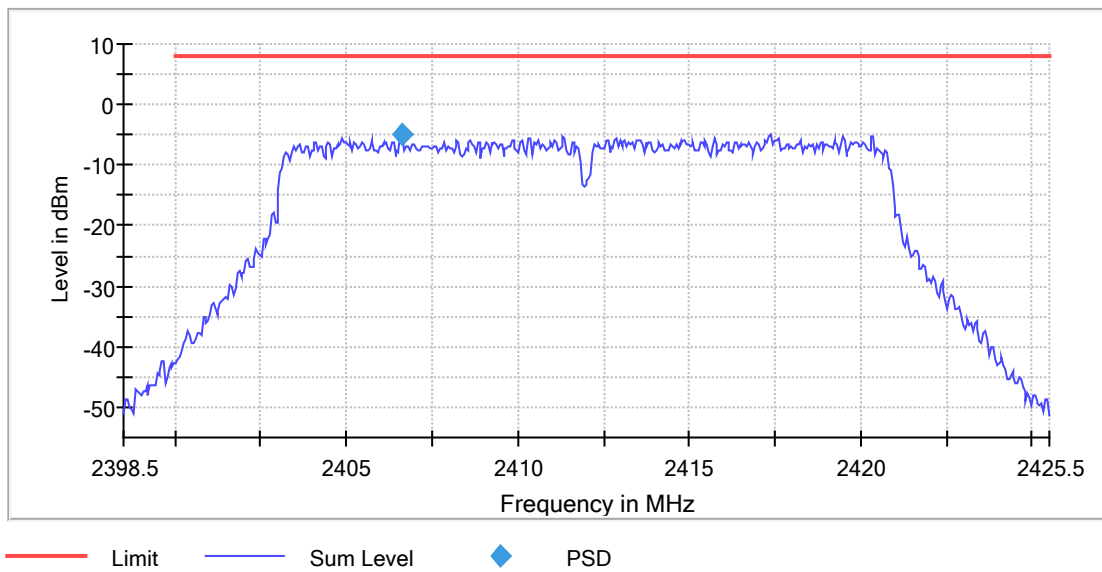
## Peak Power Spectral Density (2412 MHz; 20.000 dBm; 20 MHz)

Customized settings.

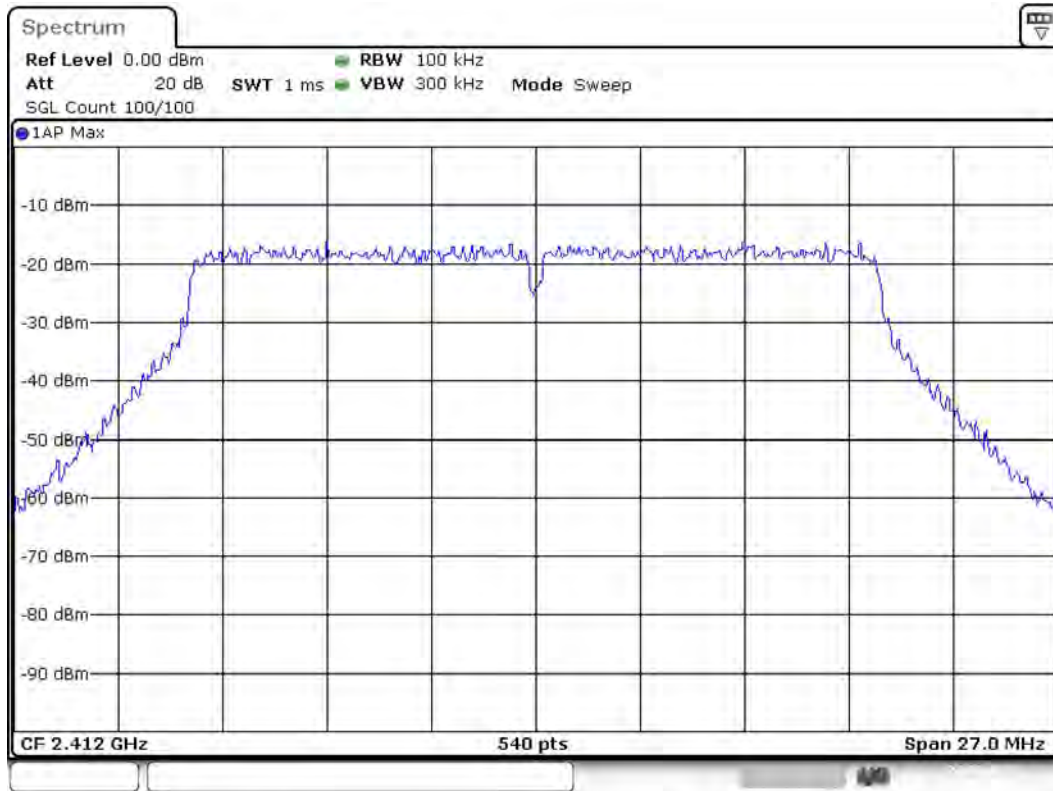
Test according to FCC title 47 part 15 §15.247(a),(e), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2412.000000	2406.625000	-4.899	8.0	PASS



PSD Connector 1



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## Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.39850 GHz	2.39850 GHz
Stop Frequency	2.42550 GHz	2.42550 GHz
Span	27.000 MHz	27.000 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	540	~ 540
SweepTime	1.030 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 (2412 MHz; 20.000 dBm; 20 MHz)

Customized settings.

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

### Result

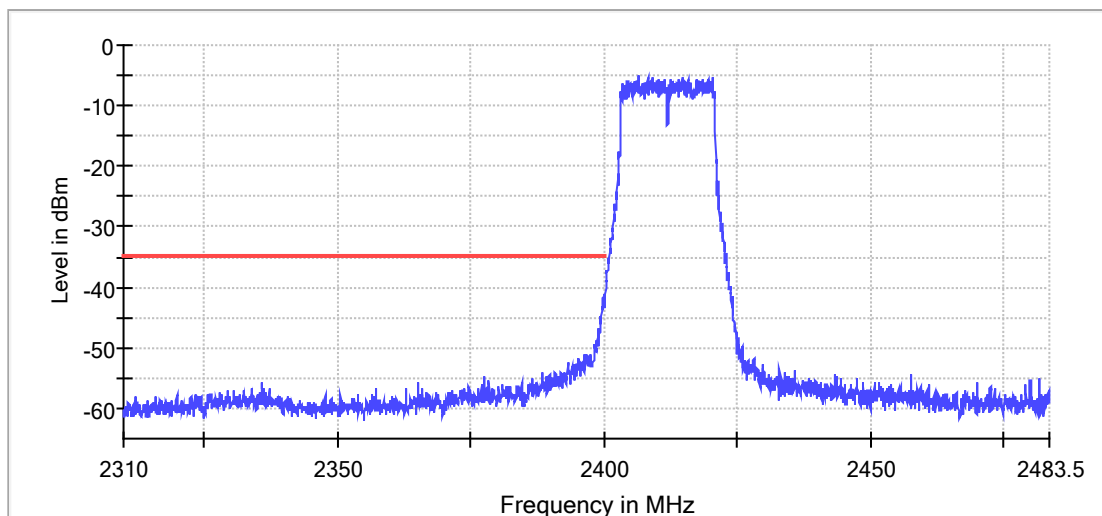
DUT Frequency (MHz)	Result
2412.000000	PASS

### Inband Peak

Frequency (MHz)	Level (dBm)
2406.575000	-4.9

### Measurements

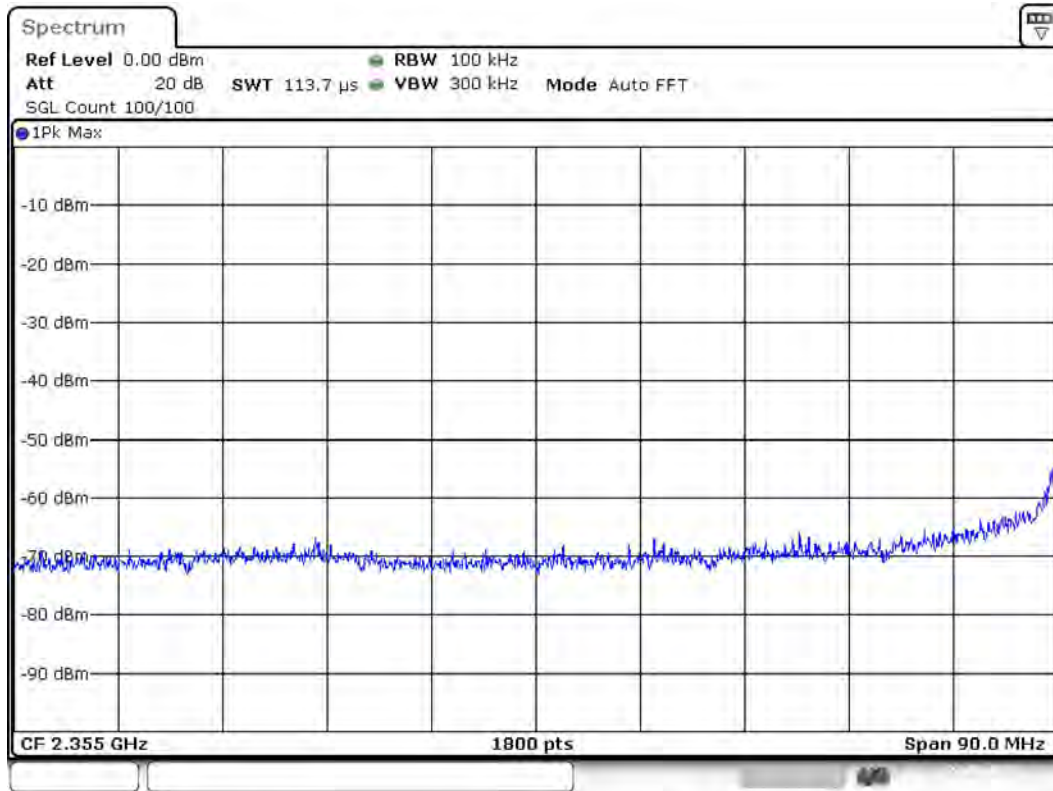
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975000	-41.6	6.7	-34.9	PASS
2399.925000	-41.7	6.8	-34.9	PASS
2399.875000	-42.8	7.9	-34.9	PASS
2399.725000	-43.0	8.1	-34.9	PASS
2399.825000	-43.0	8.1	-34.9	PASS
2399.675000	-43.0	8.1	-34.9	PASS
2399.625000	-43.6	8.7	-34.9	PASS
2399.775000	-43.7	8.8	-34.9	PASS
2399.575000	-43.9	9.0	-34.9	PASS
2399.375000	-44.7	9.8	-34.9	PASS
2399.325000	-44.7	9.8	-34.9	PASS
2399.525000	-45.0	10.1	-34.9	PASS
2399.425000	-45.5	10.6	-34.9	PASS
2399.275000	-45.7	10.8	-34.9	PASS
2399.475000	-46.2	11.3	-34.9	PASS



— Limit    — Sum Level    × Fail

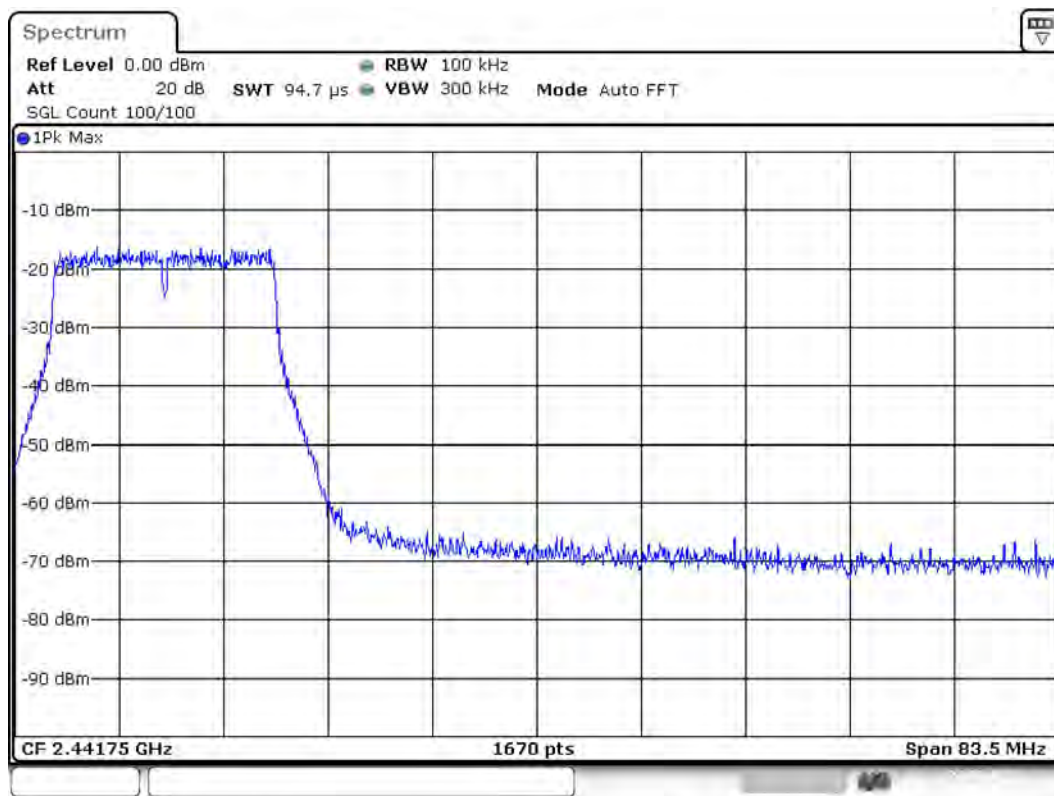
Band Edge Connector 1\_0





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Band Edge Connector 1\_1



Date: 24.AUG.2023 10:45:44

### 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
Sweptime	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	4 / max. 11	max. 11
Stable	1 / 1	1
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

<b>SweepPoints</b>	<b>1670</b>	<b>~ 1670</b>
<b>Sweeptime</b>	<b>94.727 µs</b>	<b>AUTO</b>
<b>Reference Level</b>	<b>0.000 dBm</b>	<b>0.000 dBm</b>
<b>Attenuation</b>	<b>20.000 dB</b>	<b>AUTO</b>
<b>Detector</b>	<b>MaxPeak</b>	<b>MaxPeak</b>
<b>SweepCount</b>	<b>100</b>	<b>100</b>
<b>Filter</b>	<b>3 dB</b>	<b>3 dB</b>
<b>Trace Mode</b>	<b>Max Hold</b>	<b>Max Hold</b>
<b>SweepType</b>	<b>FFT</b>	<b>AUTO</b>
<b>Preamp</b>	<b>off</b>	<b>off</b>
<b>Stablemode</b>	<b>Trace</b>	<b>Trace</b>
<b>Stablevalue</b>	<b>0.50 dB</b>	<b>0.50 dB</b>
<b>Run</b>	<b>1 / max. 1</b>	<b>max. 1</b>
<b>Stable</b>	<b>0 / 1</b>	<b>1</b>
<b>Max Stable Difference</b>	<b>0.00 dB</b>	<b>0.50 dB</b>

## Tx Spurious Emission (2412 MHz; 20.000 dBm; 20 MHz)

Customized settings.

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

### Result

DUT Frequency (MHz)	Result
2412.000000	PASS

### Final measurements

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

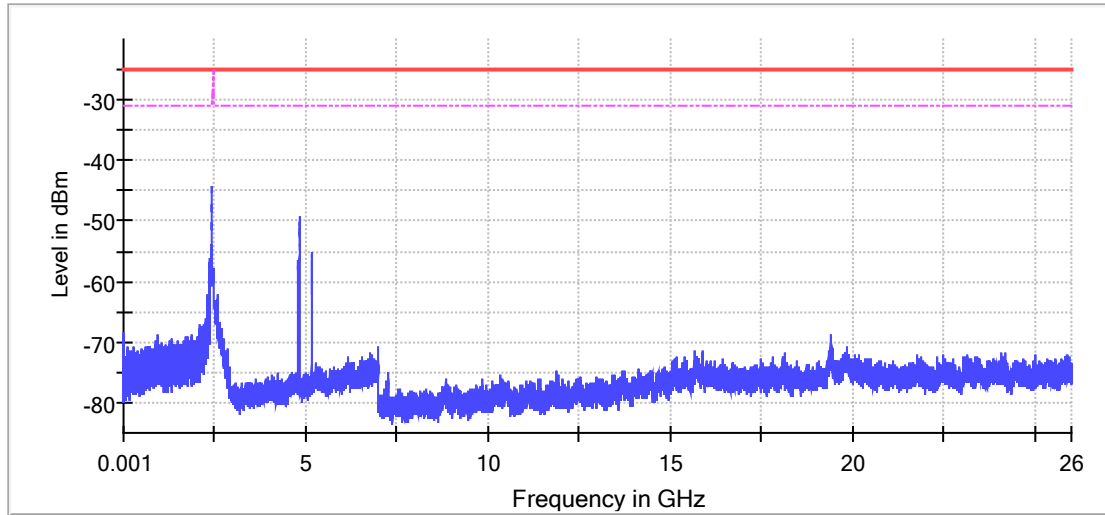
### Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2399.887550	-44.2	19.3	-24.9
2399.812584	-44.5	19.6	-24.9
2400.000000	-45.3	20.4	-24.9
2399.962517	-45.3	20.4	-24.9
2399.737618	-46.5	21.6	-24.9
2399.437752	-47.3	22.4	-24.9
2399.662651	-48.0	23.1	-24.9
2399.362786	-48.1	23.2	-24.9
2399.512718	-48.1	23.2	-24.9
2399.587685	-48.6	23.7	-24.9
4825.155800	-49.1	24.2	-24.9
4820.746594	-49.8	24.9	-24.9
4821.481462	-50.0	25.1	-24.9
2398.763054	-50.1	25.2	-24.9
2399.287819	-50.1	25.2	-24.9

### Measurement Settings

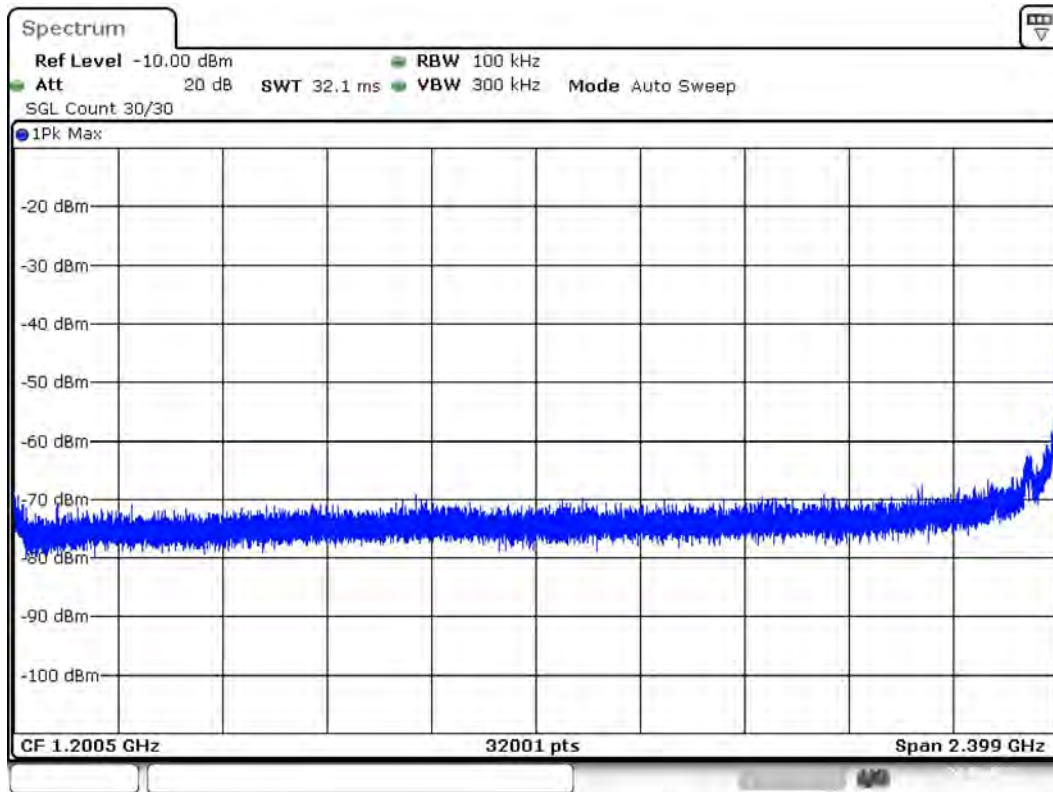
Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
1.000000	2400.000000	1	1
2483.500000	26000.000000	2	2





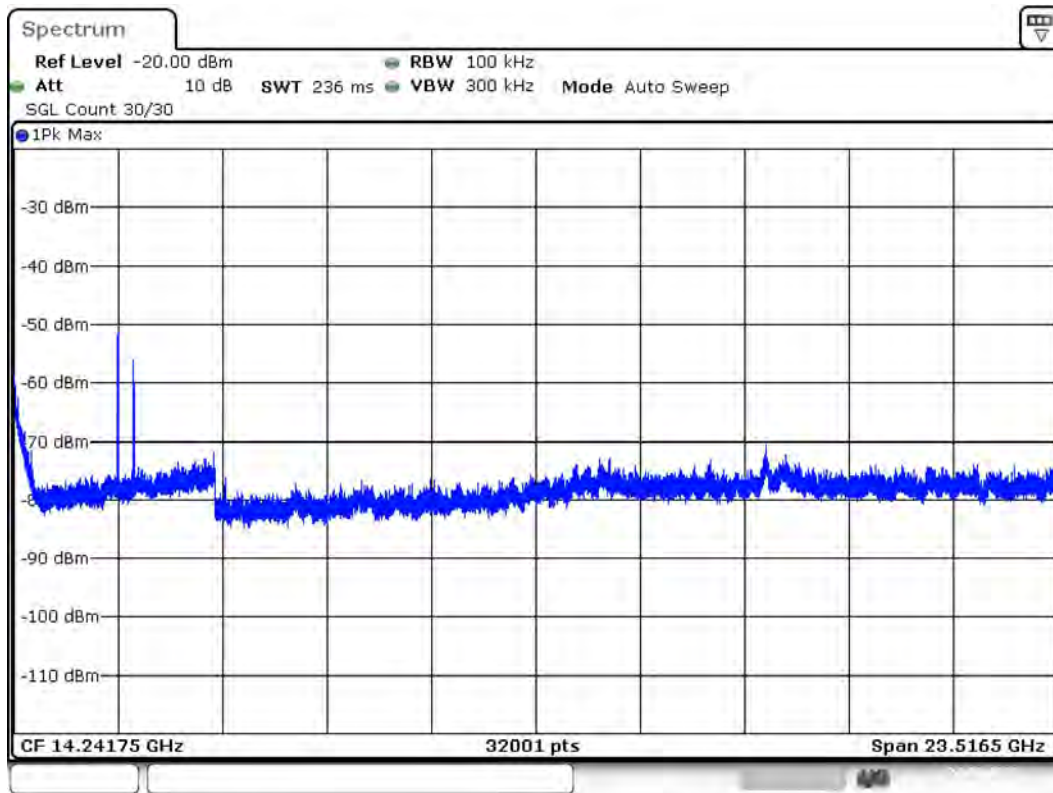
— Limit    — Sum Level    - - - Threshold    × Critical    × Final Critical

Spurious Connector 1\_0



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Spurious Connector 1\_1



Date: 24.AUG.2023 10:48:40

### Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	32001	~ 47980
SweepTime	32.100 ms	AUTO
Reference Level	-10.000 dBm	-30.000 dBm
Attenuation	20.000 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	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	32001	~ 470330
SweepTime	236.000 ms	AUTO
Reference Level	-20.000 dBm	-30.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	30	30

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

## Emission Bandwidth 20 dB (2437 MHz; 20.000 dBm; 20 MHz)

Customized settings.

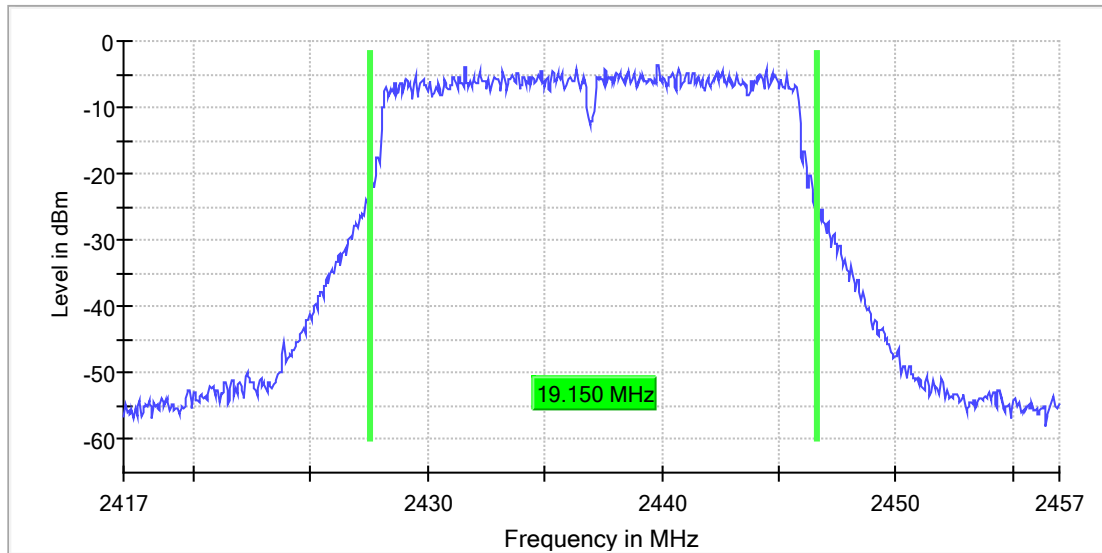
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

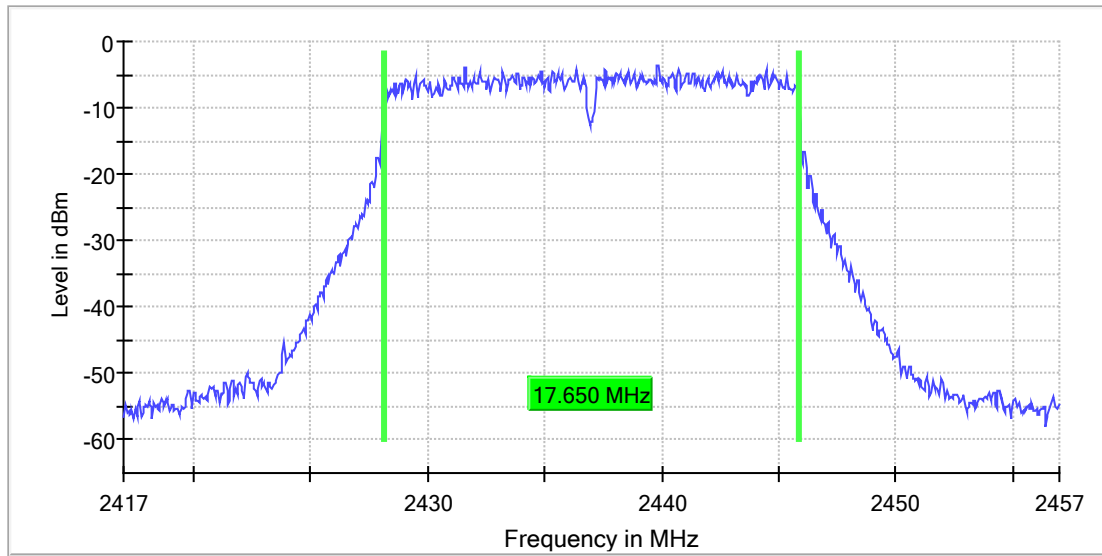
### 20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2437.000000	19.150000	---	---	2427.525000	2446.675000

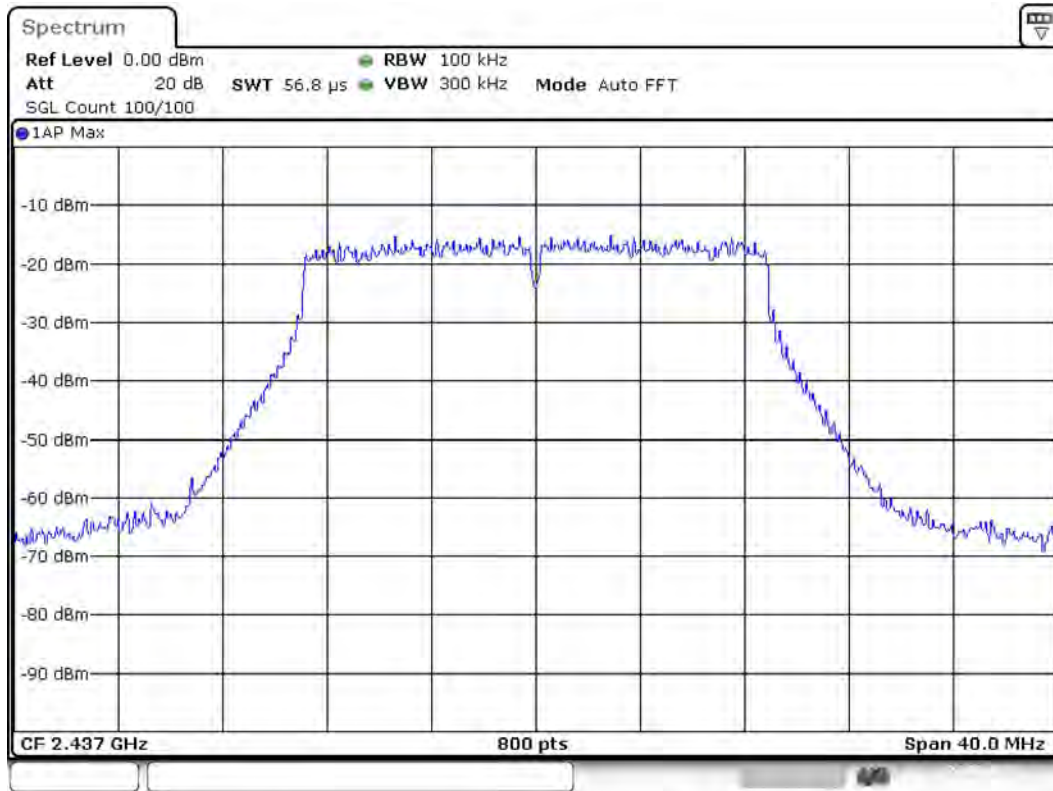
(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2437.000000	-3.7	PASS





Bandwidth



Date: 24.AUG.2023 10:51:19

## Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.41700 GHz	2.41700 GHz
Stop Frequency	2.45700 GHz	2.45700 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	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

## Minimum Emission Bandwidth 6 dB (2437 MHz; 20.000 dBm; 20 MHz)

Customized settings.

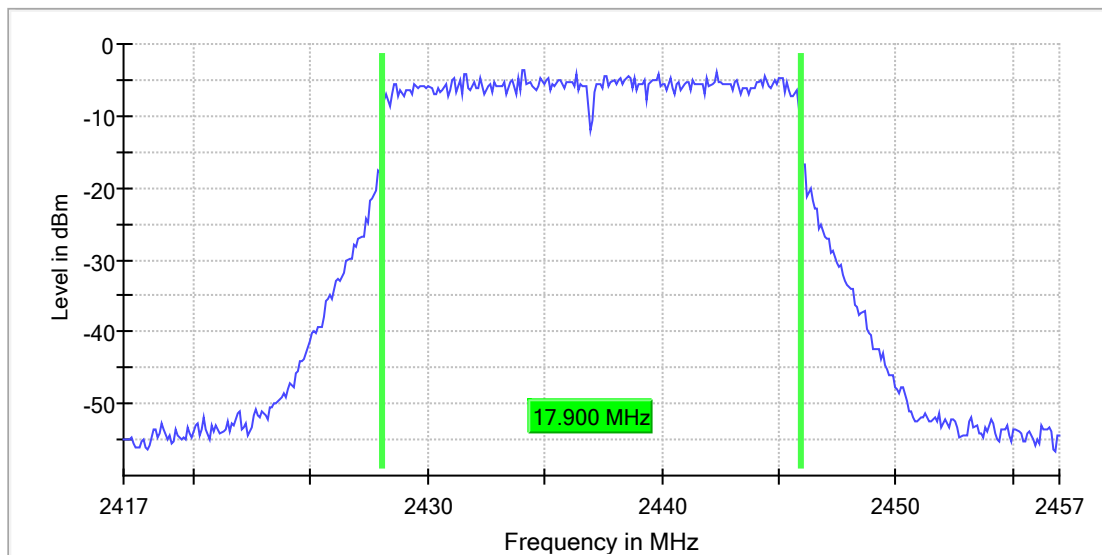
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

### 6 dB Bandwidth

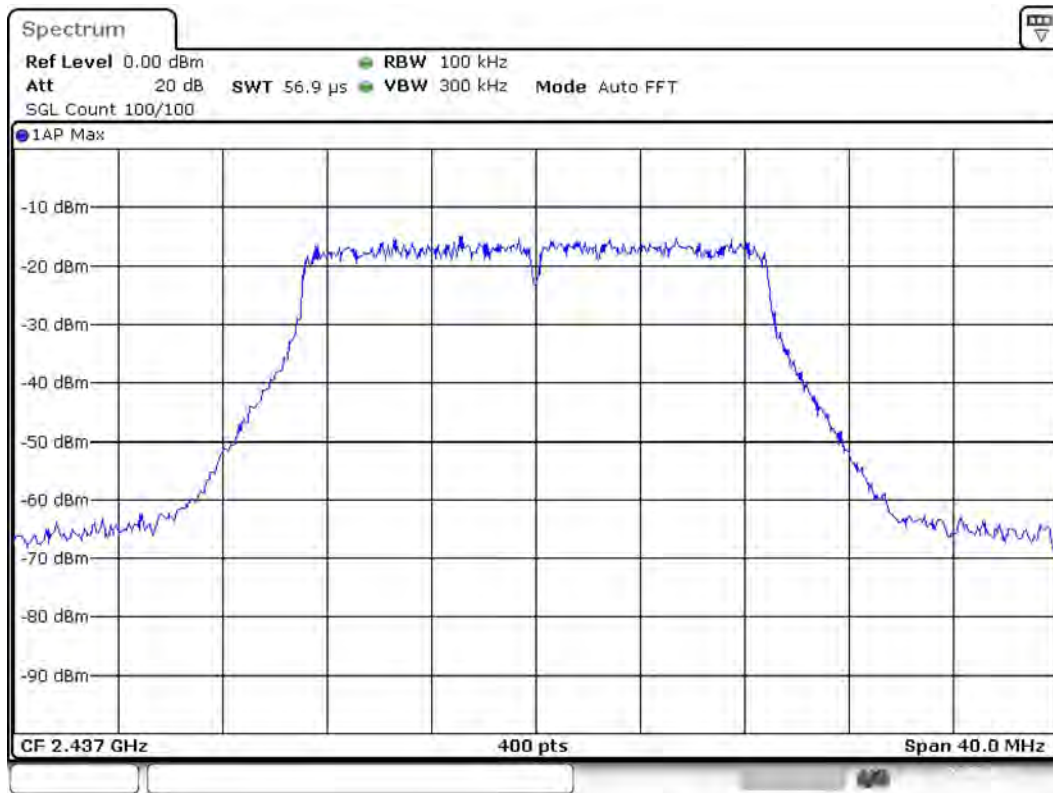
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2437.000000	17.900000	0.500000	---	2428.050000	2445.950000

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2437.000000	-3.6	PASS



Bandwidth



Date: 24.AUG.2023 10:51:34

## Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.41700 GHz	2.41700 GHz
Stop Frequency	2.45700 GHz	2.45700 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	400	~ 400
SweepTime	56.886 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

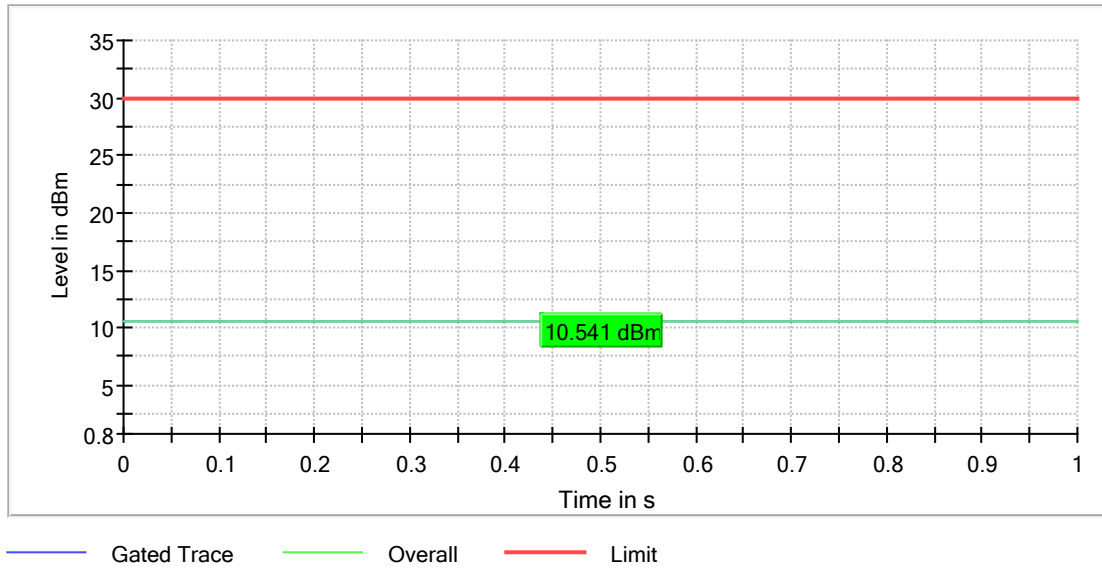


## RF output power (2437 MHz; 20.000 dBm; 20 MHz)

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

### Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2437.000000	10.5	30.0	10.5	100.000	PASS



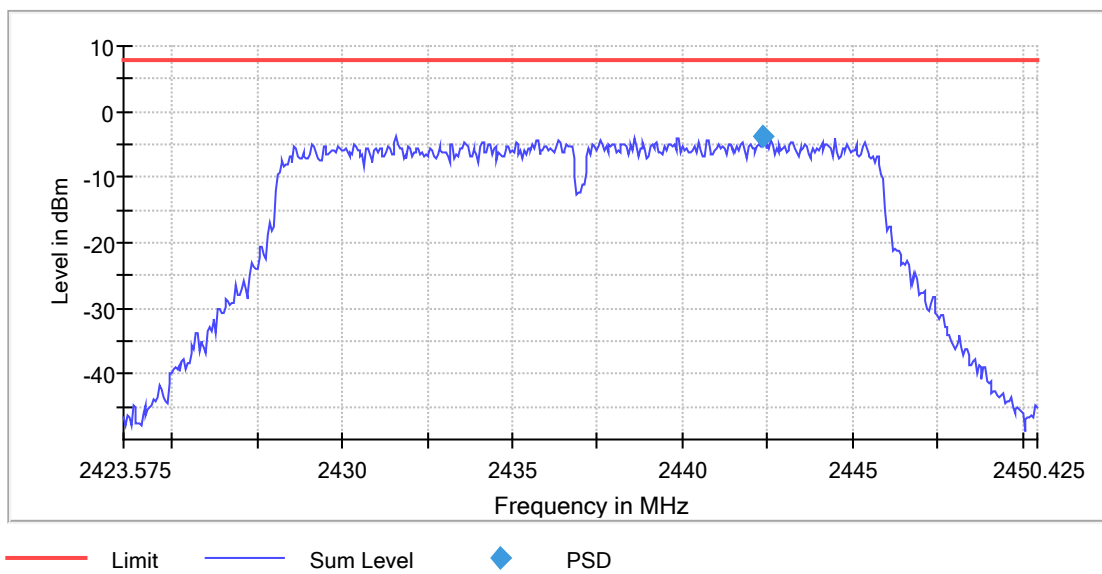
## Peak Power Spectral Density (2437 MHz; 20.000 dBm; 20 MHz)

Customized settings.

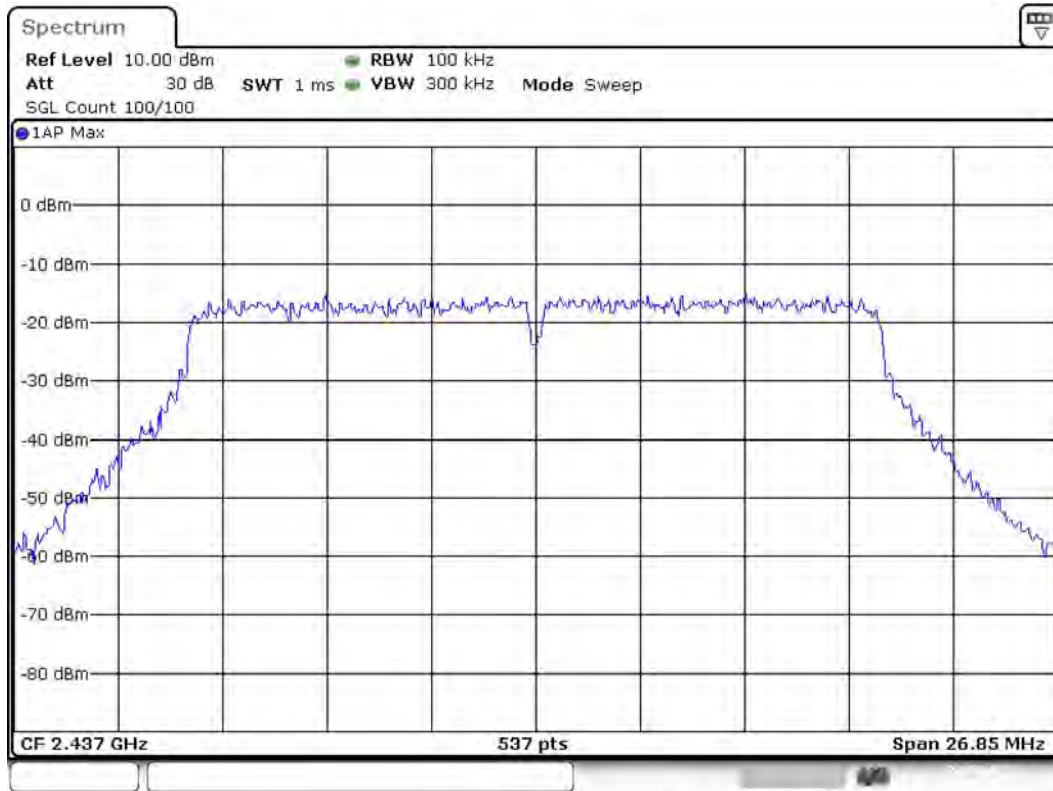
Test according to FCC title 47 part 15 §15.247(a),(e), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2442.350000	-3.709	8.0	PASS



PSD Connector 1



Date: 24.AUG.2023 10:52:06

## Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.42358 GHz	2.42358 GHz
Stop Frequency	2.45043 GHz	2.45043 GHz
Span	26.850 MHz	26.850 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	537	~ 537
SweepTime	1.020 ms	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 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 (2437 MHz; 20.000 dBm; 20 MHz)

Customized settings.

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

### Result

DUT Frequency (MHz)	Result
2437.000000	PASS

### Final measurements

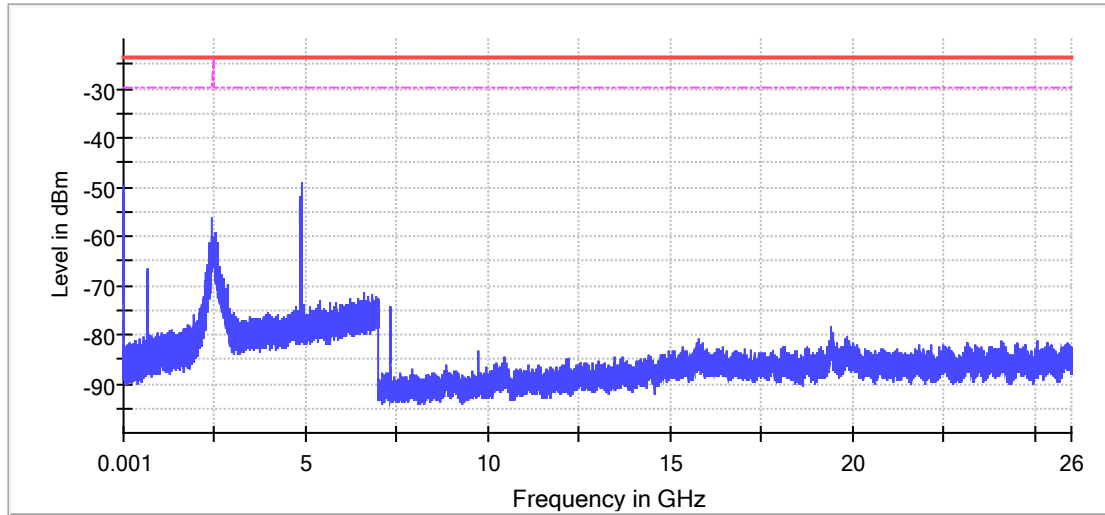
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

### Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4873.712361	-49.1	25.4	-23.7
4873.571224	-49.6	25.9	-23.7
4868.066912	-49.6	25.9	-23.7
4879.640082	-49.7	26.0	-23.7
4869.901683	-49.8	26.1	-23.7
4876.676221	-49.8	26.1	-23.7
1.000000	-49.9	26.2	-23.7
1.025000	-49.9	26.2	-23.7
4871.877590	-49.9	26.2	-23.7
4870.748500	-50.0	26.3	-23.7
4875.264859	-50.3	26.6	-23.7
4868.772593	-50.4	26.7	-23.7
4874.841450	-50.4	26.7	-23.7
4866.091005	-50.5	26.8	-23.7
4872.300998	-50.5	26.8	-23.7

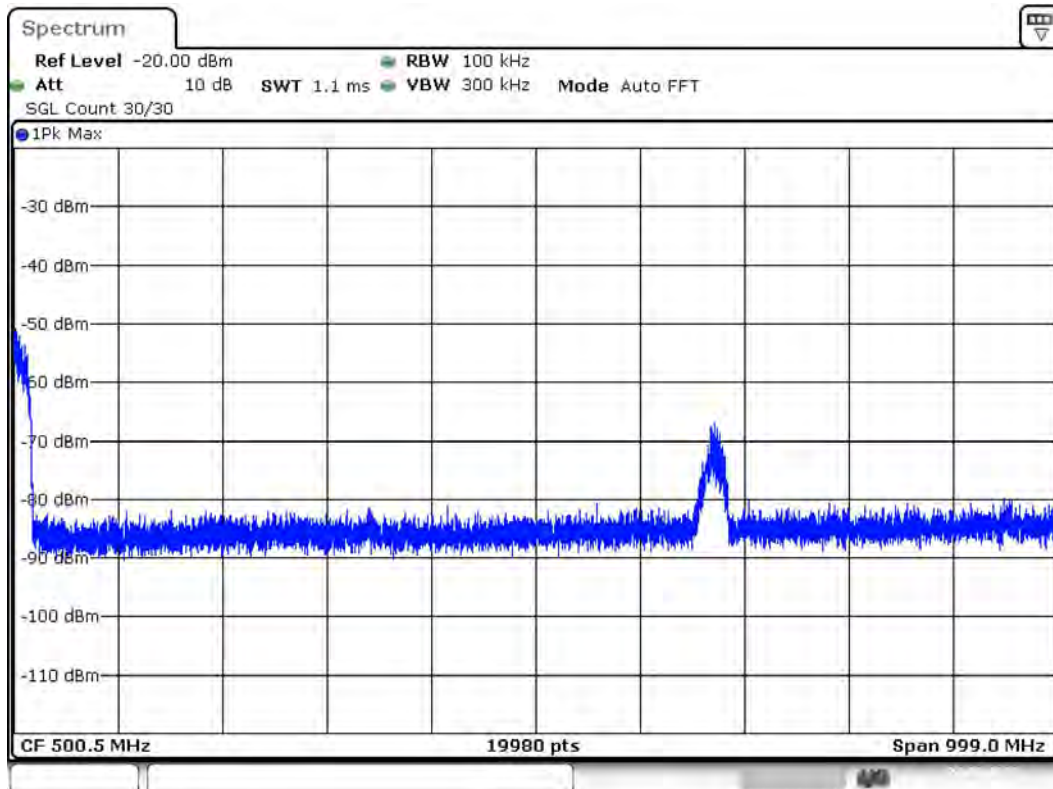
### Measurement Settings

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



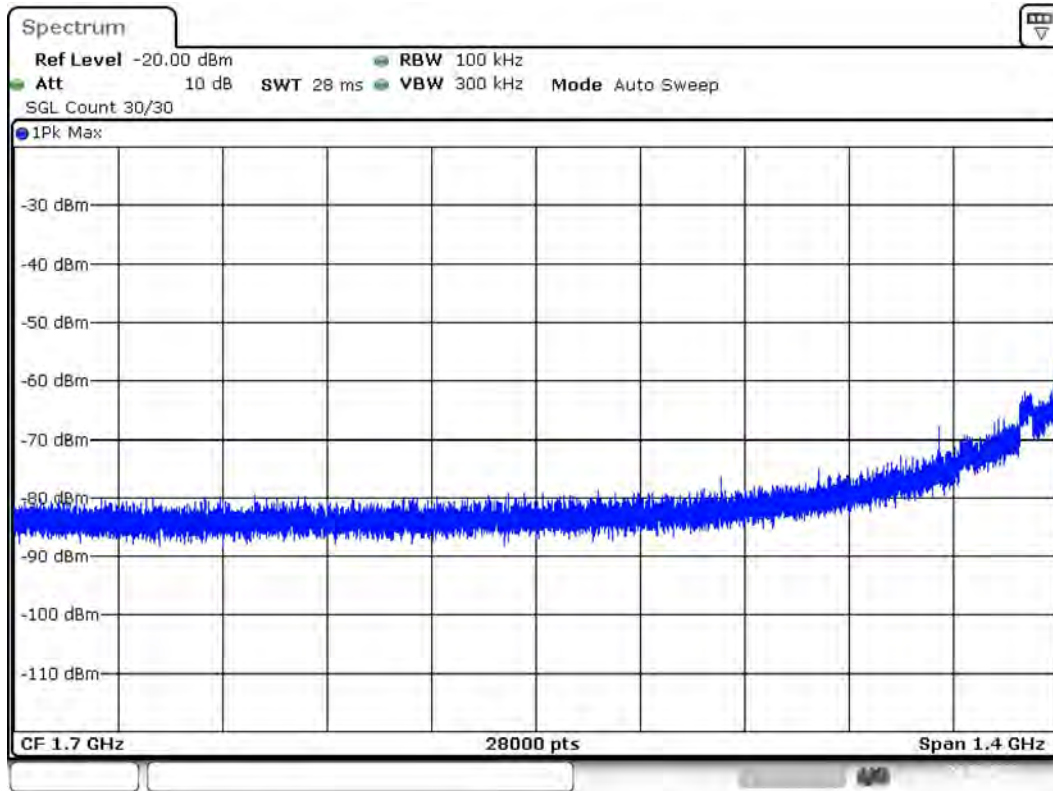
— Limit    — Sum Level    - - - Threshold    × Critical    × Final Critical

Spurious Connector 1\_0



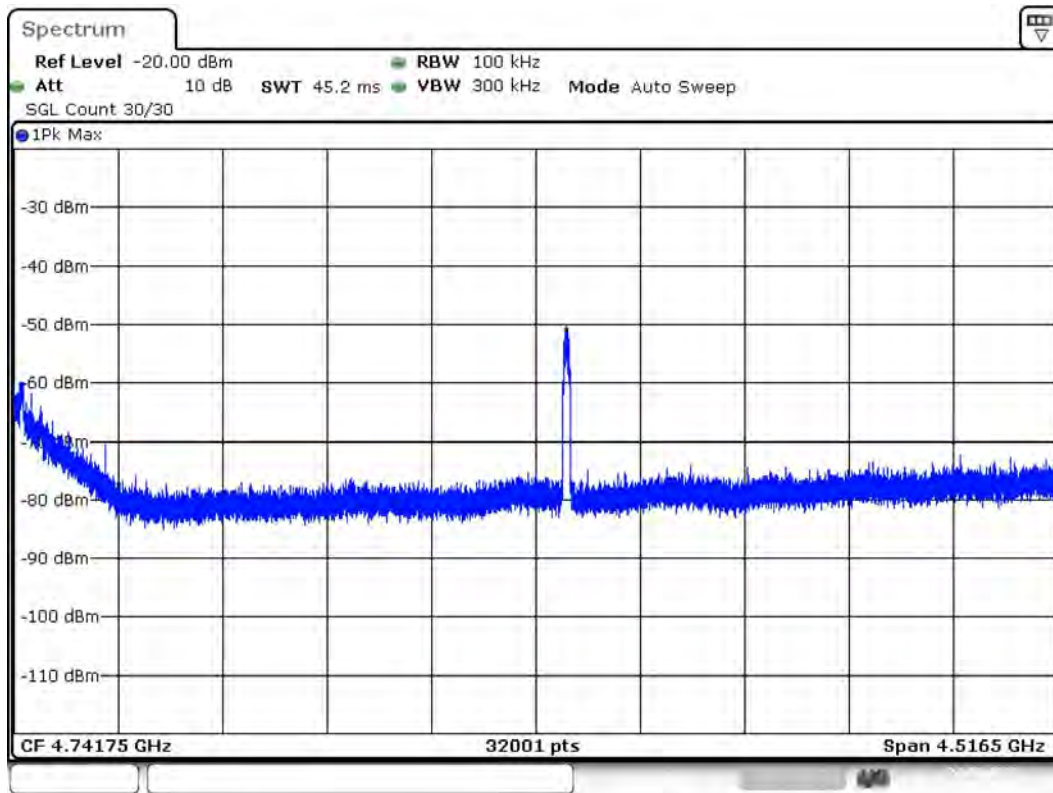
Date: 24.AUG.2023 10:54:11

Spurious Connector 1\_1



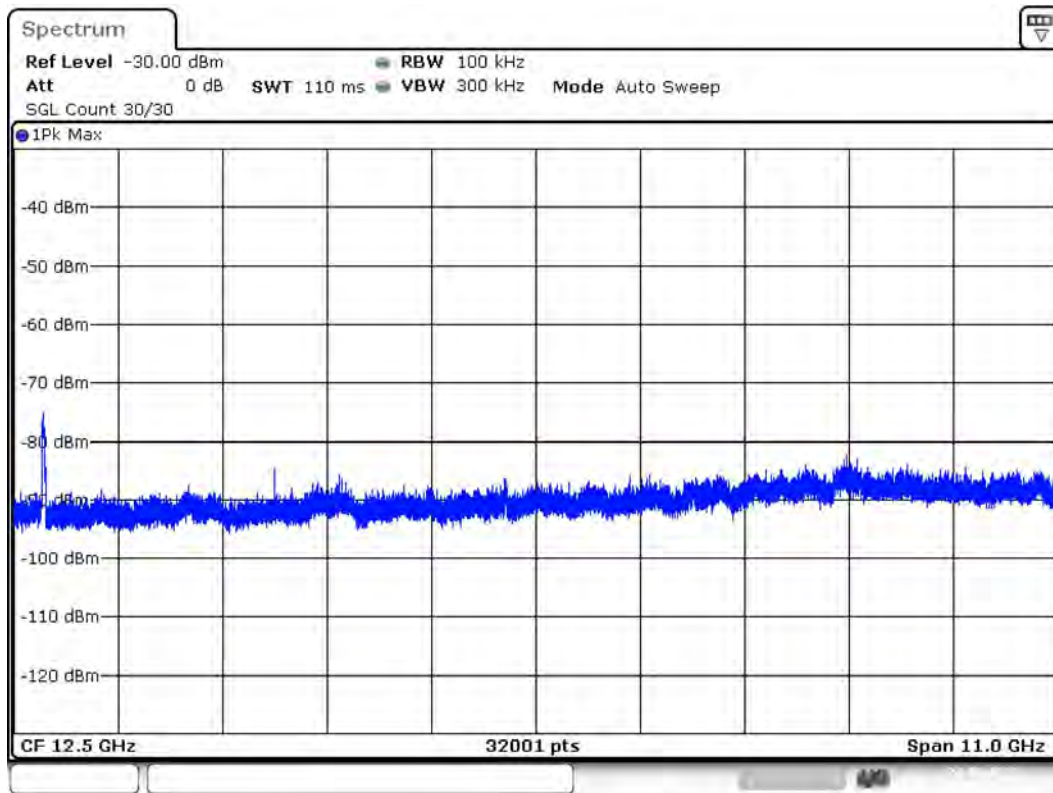
Date: 24.AUG.2023 10:54:28

Spurious Connector 1\_2



Date: 24.AUG.2023 10:54:47

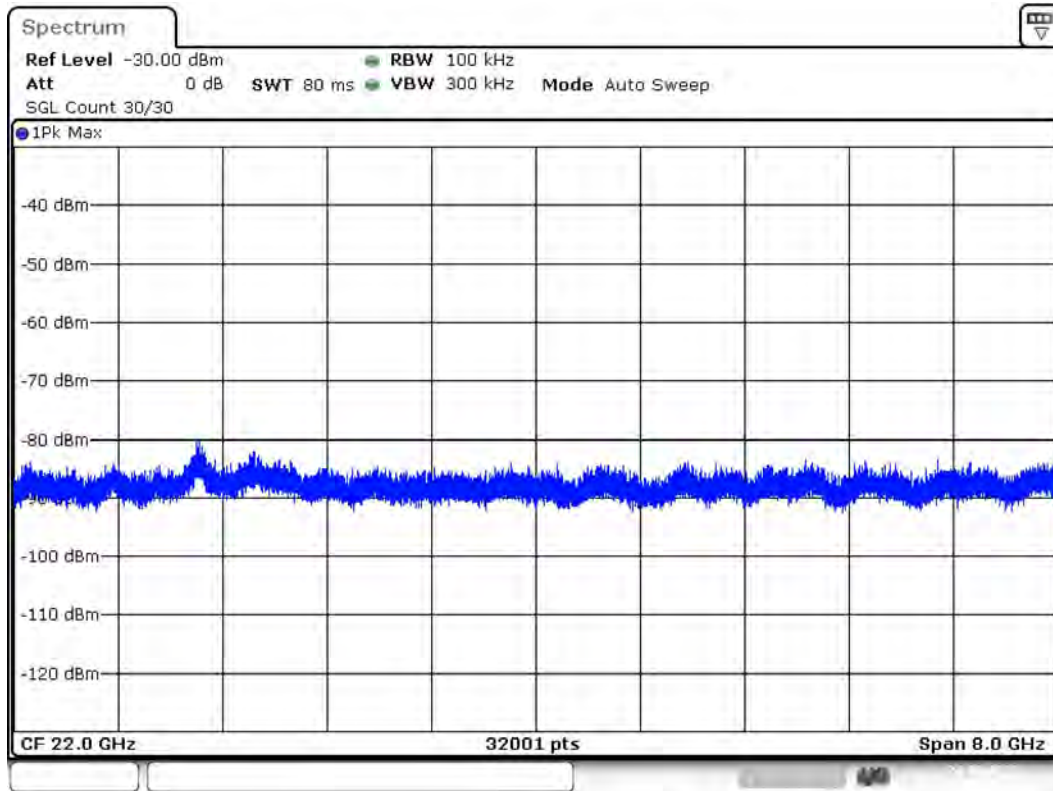
Spurious Connector 1\_3



Date: 24.AUG.2023 10:55:13

Spurious Connector 1\_4





Date: 24.AUG.2023 10:55:32

### Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19980	~ 19980
SweepTime	1.080 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	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	1.00 dB	1.00 dB
Run	1 / max. 1	max. 1
Stable	0 / 1	1
Max Stable Difference	0.00 dB	1.00 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

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

## Emission Bandwidth 20 dB (2462 MHz; 20.000 dBm; 20 MHz)

Customized settings.

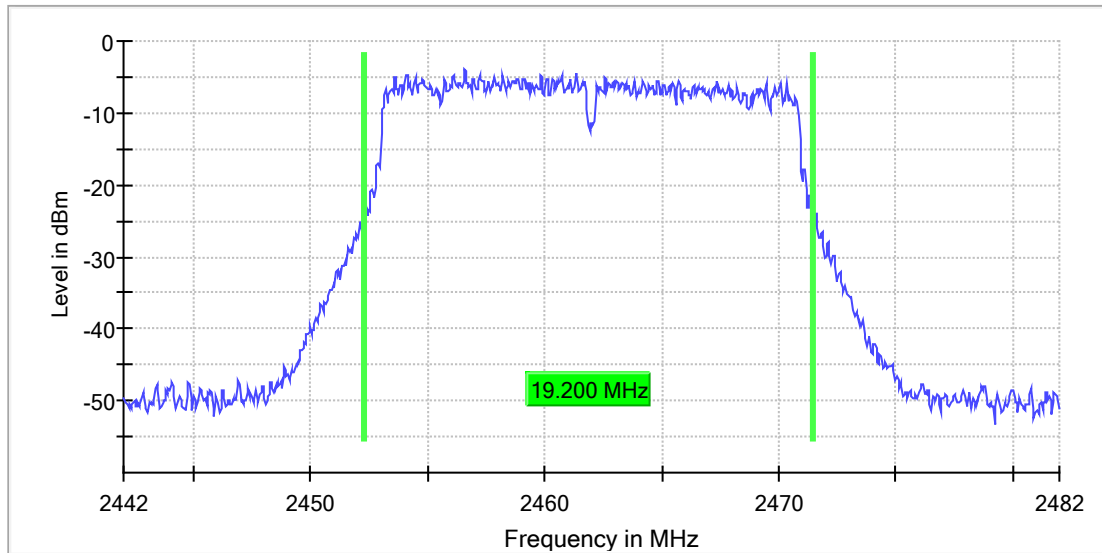
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

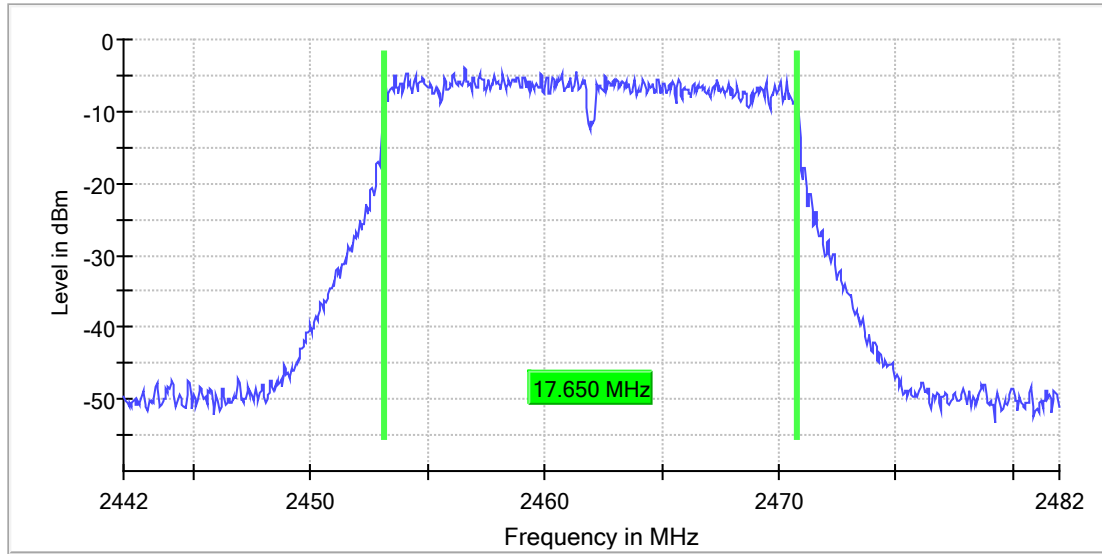
### 20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2462.000000	19.200000	---	---	2452.275000	2471.475000

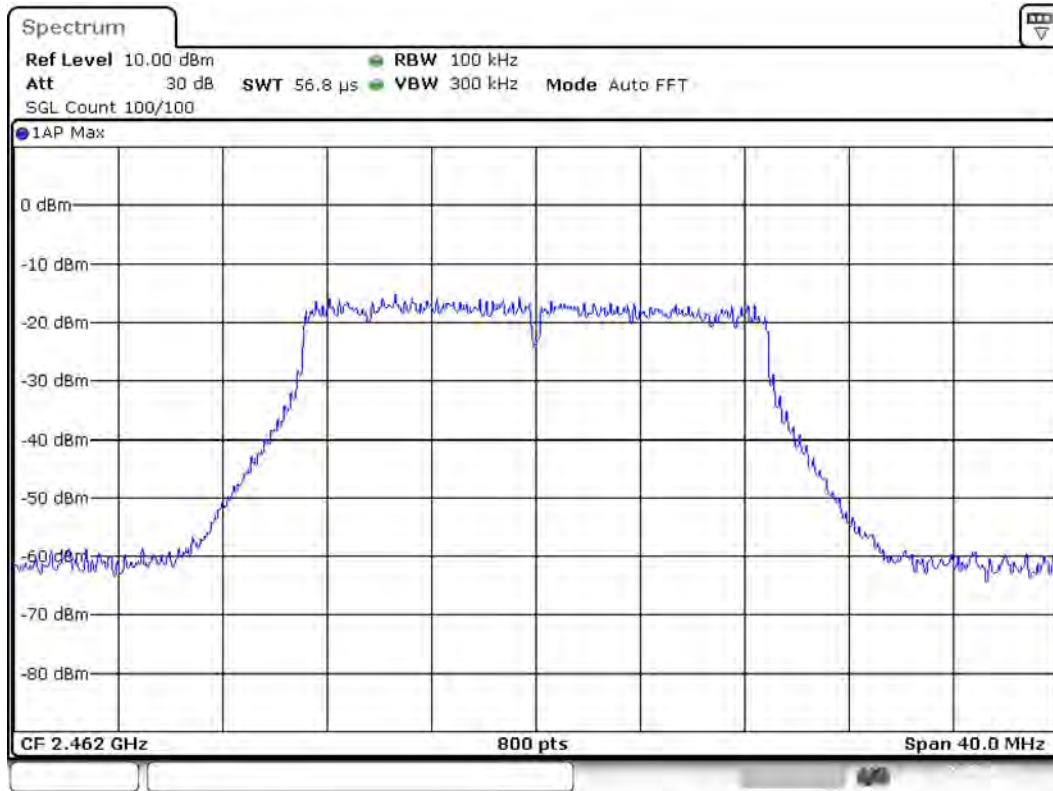
(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2462.000000	-4.0	PASS





Bandwidth



Date: 24.AUG.2023 10:58:18

## Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44200 GHz	2.44200 GHz
Stop Frequency	2.48200 GHz	2.48200 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 $\mu$ s	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 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

## Minimum Emission Bandwidth 6 dB (2462 MHz; 20.000 dBm; 20 MHz)

Customized settings.

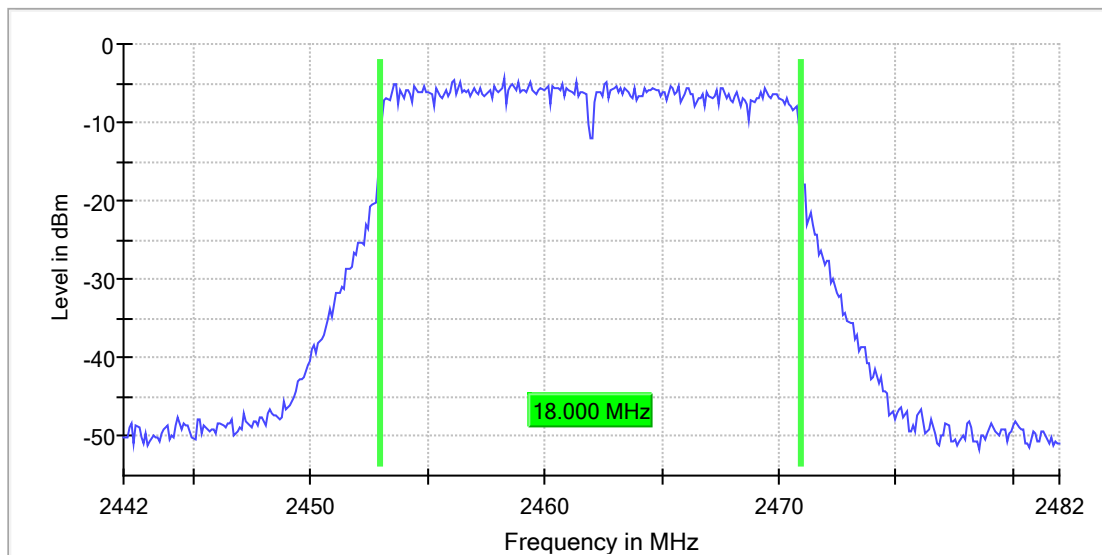
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

### 6 dB Bandwidth

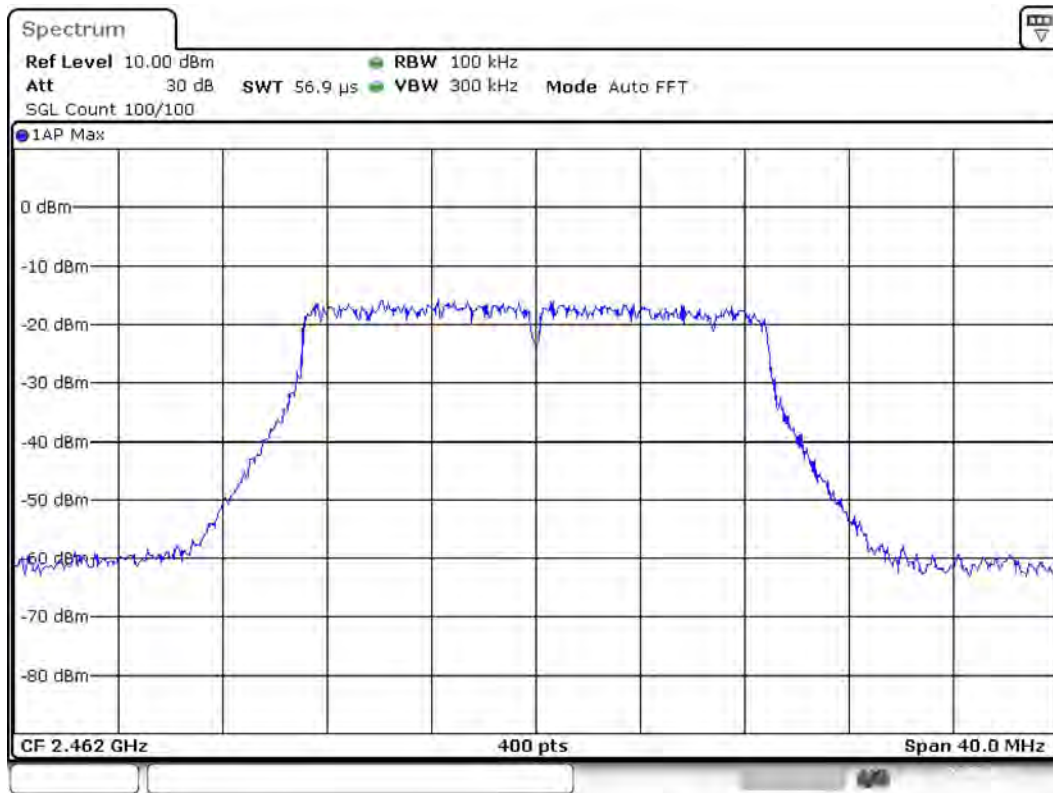
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2462.000000	18.000000	0.500000	---	2452.950000	2470.950000

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2462.000000	-4.4	PASS



Bandwidth



Date: 24.AUG.2023 10:58:31

## Measurement

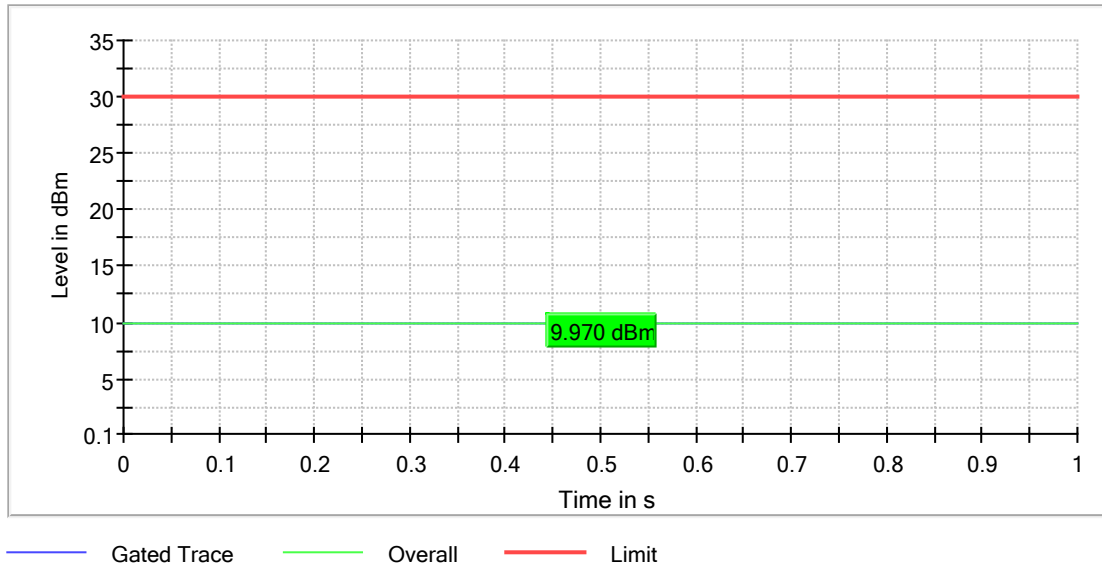
Setting	Instrument Value	Target Value
Start Frequency	2.44200 GHz	2.44200 GHz
Stop Frequency	2.48200 GHz	2.48200 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	400	~ 400
SweepTime	56.886 μs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 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 (2462 MHz; 20.000 dBm; 20 MHz)

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

### Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2462.000000	10.0	30.0	10.0	100.000	PASS





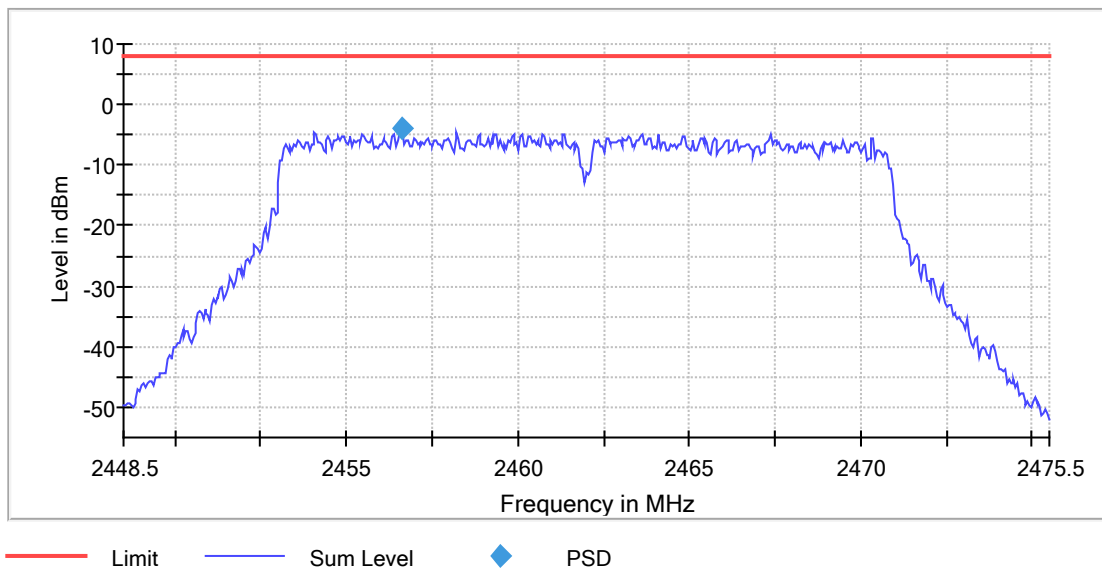
## Peak Power Spectral Density (2462 MHz; 20.000 dBm; 20 MHz)

Customized settings.

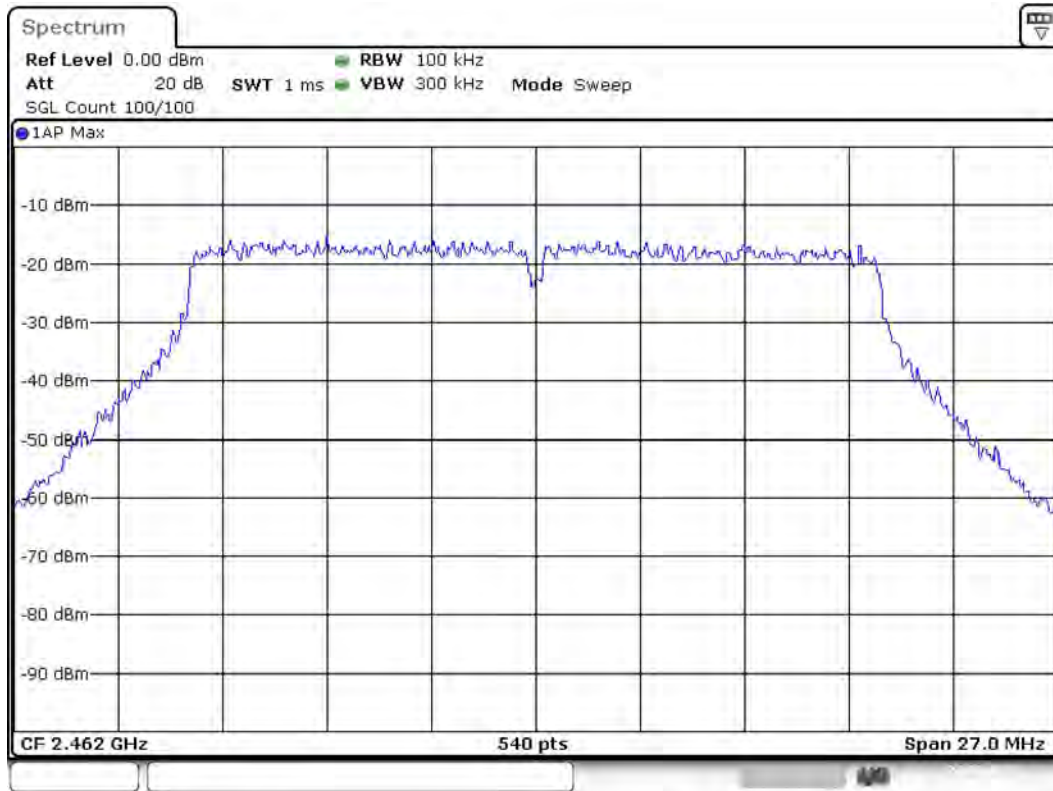
Test according to FCC title 47 part 15 §15.247(a),(e), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

### Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2462.000000	2456.625000	-4.055	8.0	PASS



PSD Connector 1



Date: 24.AUG.2023 10:59:03

## Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44850 GHz	2.44850 GHz
Stop Frequency	2.47550 GHz	2.47550 GHz
Span	27.000 MHz	27.000 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	540	~ 540
SweepTime	1.030 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 (2462 MHz; 20.000 dBm; 20 MHz)

Customized settings.

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

### Result

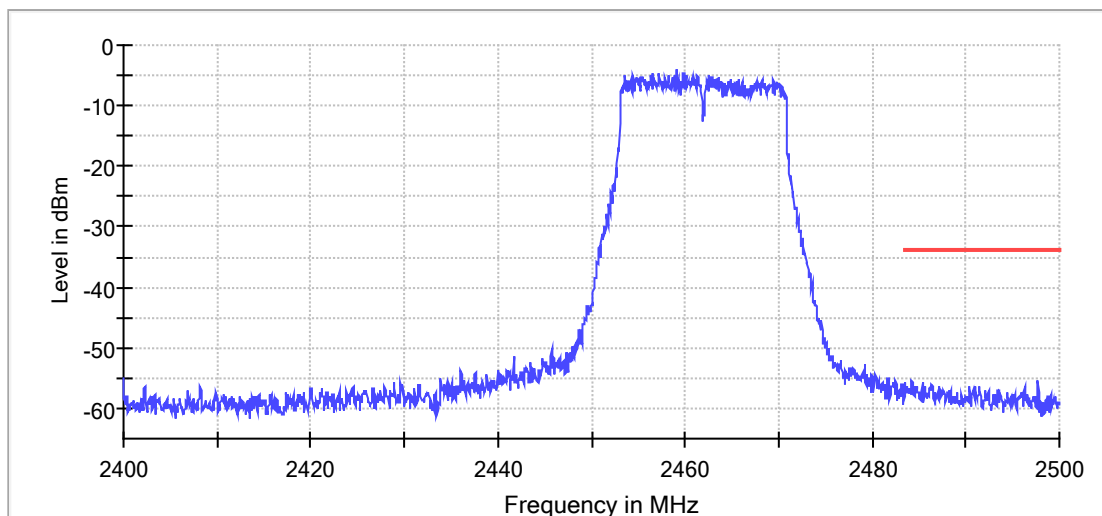
DUT Frequency (MHz)	Result
2462.000000	PASS

### Inband Peak

Frequency (MHz)	Level (dBm)
2459.125000	-3.9

### Measurements

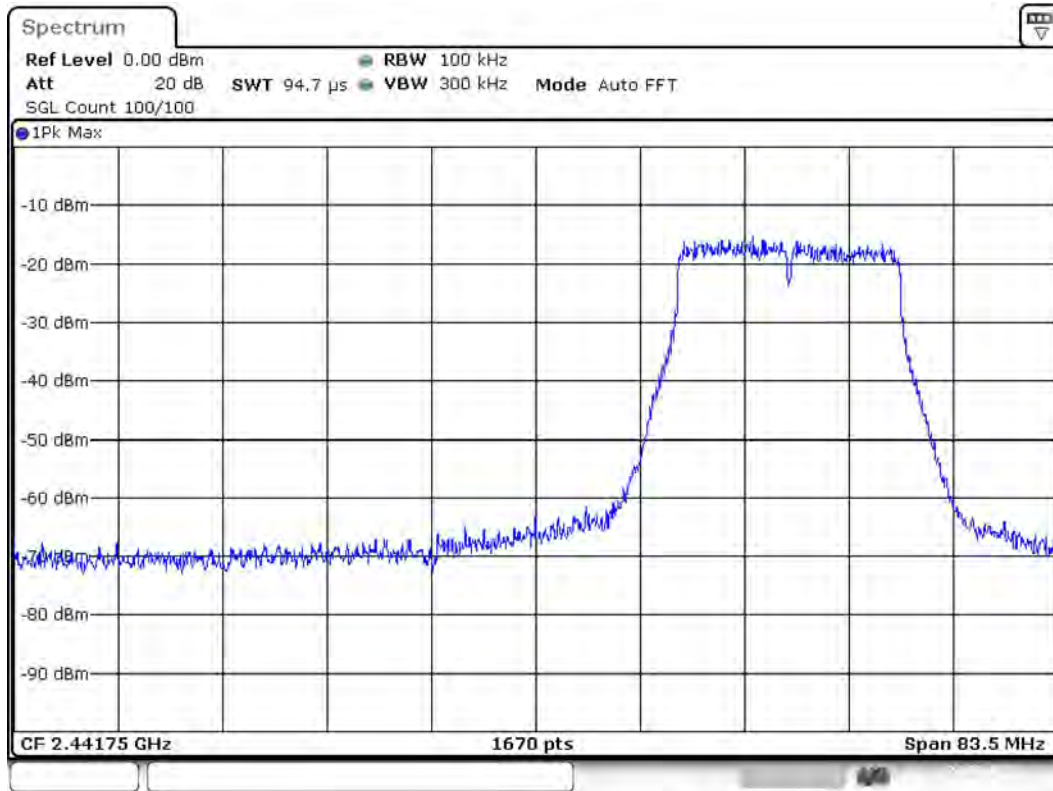
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2497.675000	-55.4	21.5	-33.9	PASS
2484.225000	-55.4	21.6	-33.9	PASS
2497.725000	-55.5	21.6	-33.9	PASS
2484.275000	-55.6	21.7	-33.9	PASS
2485.375000	-55.8	21.9	-33.9	PASS
2485.425000	-55.9	22.0	-33.9	PASS
2486.375000	-56.1	22.2	-33.9	PASS
2486.275000	-56.2	22.3	-33.9	PASS
2491.475000	-56.2	22.3	-33.9	PASS
2487.175000	-56.3	22.4	-33.9	PASS
2486.425000	-56.3	22.4	-33.9	PASS
2497.625000	-56.3	22.5	-33.9	PASS
2484.625000	-56.4	22.5	-33.9	PASS
2483.725000	-56.4	22.5	-33.9	PASS
2483.675000	-56.4	22.6	-33.9	PASS



— Limit    — Sum Level    × Fail

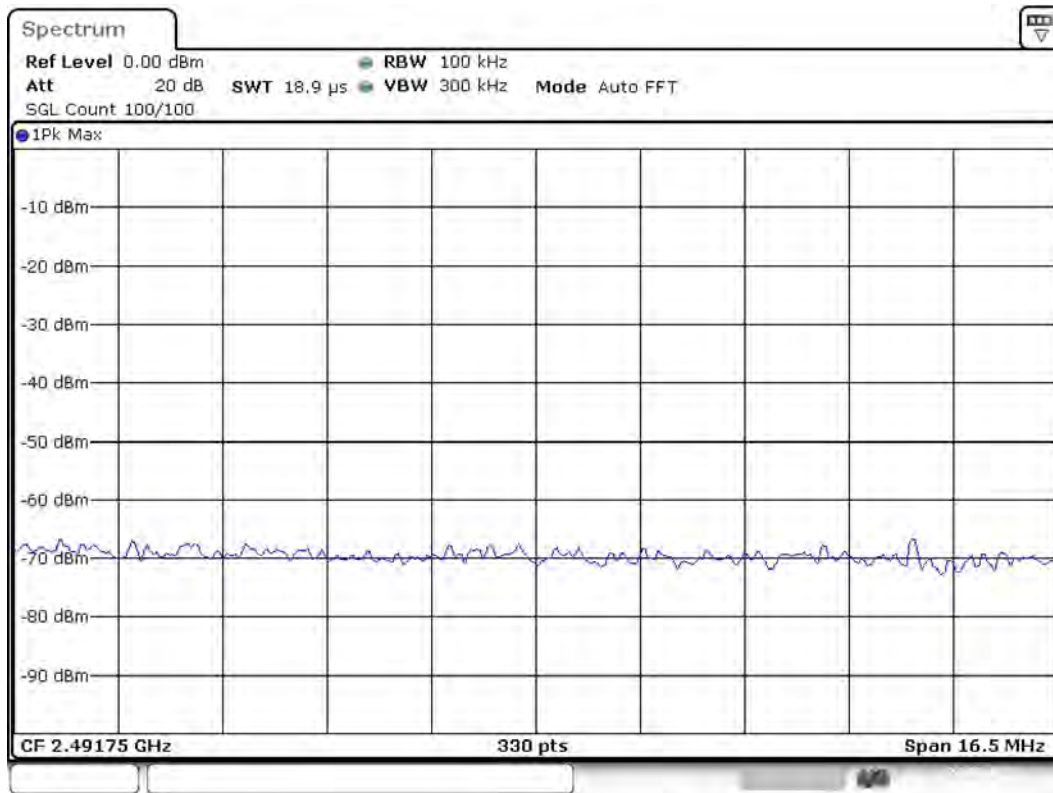
Band Edge Connector 1\_0





Date: 24.AUG.2023 10:59:17

Band Edge Connector 1\_1



Date: 24.AUG.2023 10:59:22

### 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
Sweptime	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	1 / max. 1	max. 1
Stable	0 / 1	1
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

<b>SweepPoints</b>	<b>330</b>	<b>~ 330</b>
<b>Sweeptime</b>	<b>18.945 µs</b>	<b>AUTO</b>
<b>Reference Level</b>	<b>0.000 dBm</b>	<b>0.000 dBm</b>
<b>Attenuation</b>	<b>20.000 dB</b>	<b>AUTO</b>
<b>Detector</b>	<b>MaxPeak</b>	<b>MaxPeak</b>
<b>SweepCount</b>	<b>100</b>	<b>100</b>
<b>Filter</b>	<b>3 dB</b>	<b>3 dB</b>
<b>Trace Mode</b>	<b>Max Hold</b>	<b>Max Hold</b>
<b>SweepType</b>	<b>FFT</b>	<b>AUTO</b>
<b>Preamp</b>	<b>off</b>	<b>off</b>
<b>Stablemode</b>	<b>Trace</b>	<b>Trace</b>
<b>Stablevalue</b>	<b>0.50 dB</b>	<b>0.50 dB</b>
<b>Run</b>	<b>1 / max. 1</b>	<b>max. 1</b>
<b>Stable</b>	<b>0 / 1</b>	<b>1</b>
<b>Max Stable Difference</b>	<b>0.00 dB</b>	<b>0.50 dB</b>

## Tx Spurious Emission (2462 MHz; 20.000 dBm; 20 MHz)

Customized settings.

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

### Result

DUT Frequency (MHz)	Result
2462.000000	PASS

### Final measurements

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

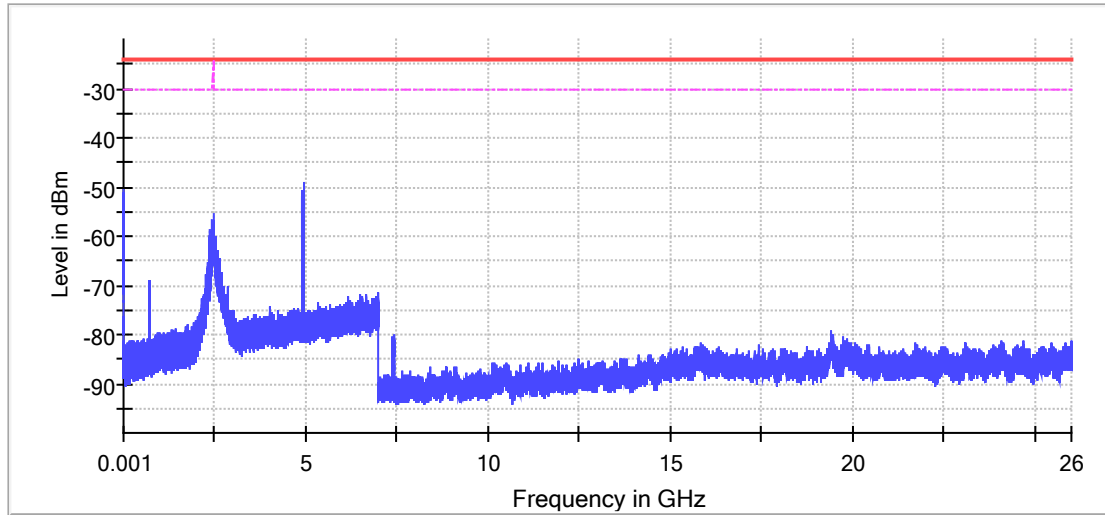
### Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4925.932760	-49.0	25.0	-24.1
4927.767531	-49.2	25.1	-24.1
4927.626394	-49.4	25.4	-24.1
4922.686627	-49.4	25.4	-24.1
4924.944806	-49.5	25.5	-24.1
4925.791624	-49.8	25.8	-24.1
4922.827763	-50.4	26.4	-24.1
1.000000	-50.5	26.4	-24.1
1.025000	-50.5	26.4	-24.1
4925.227079	-50.6	26.5	-24.1
4918.029132	-50.6	26.6	-24.1
4.375000	-51.0	26.9	-24.1
4927.061850	-51.1	27.0	-24.1
4926.497305	-51.2	27.1	-24.1
4923.815717	-51.2	27.2	-24.1

### Measurement Settings

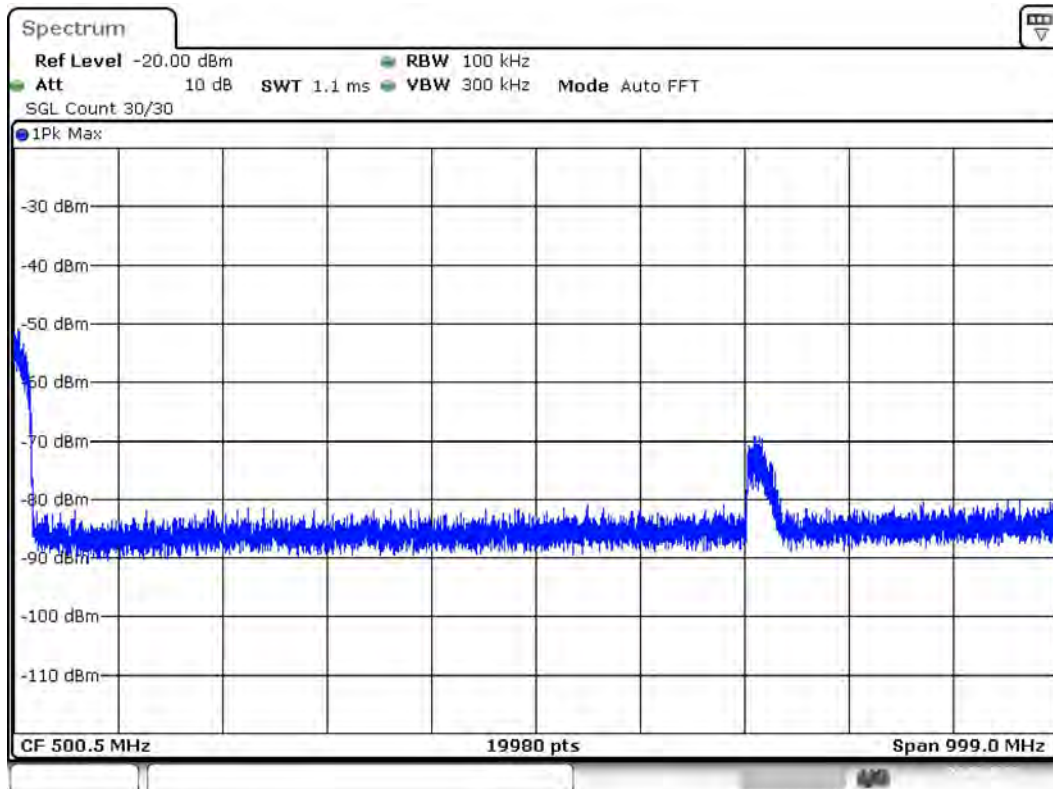
Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
1.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2





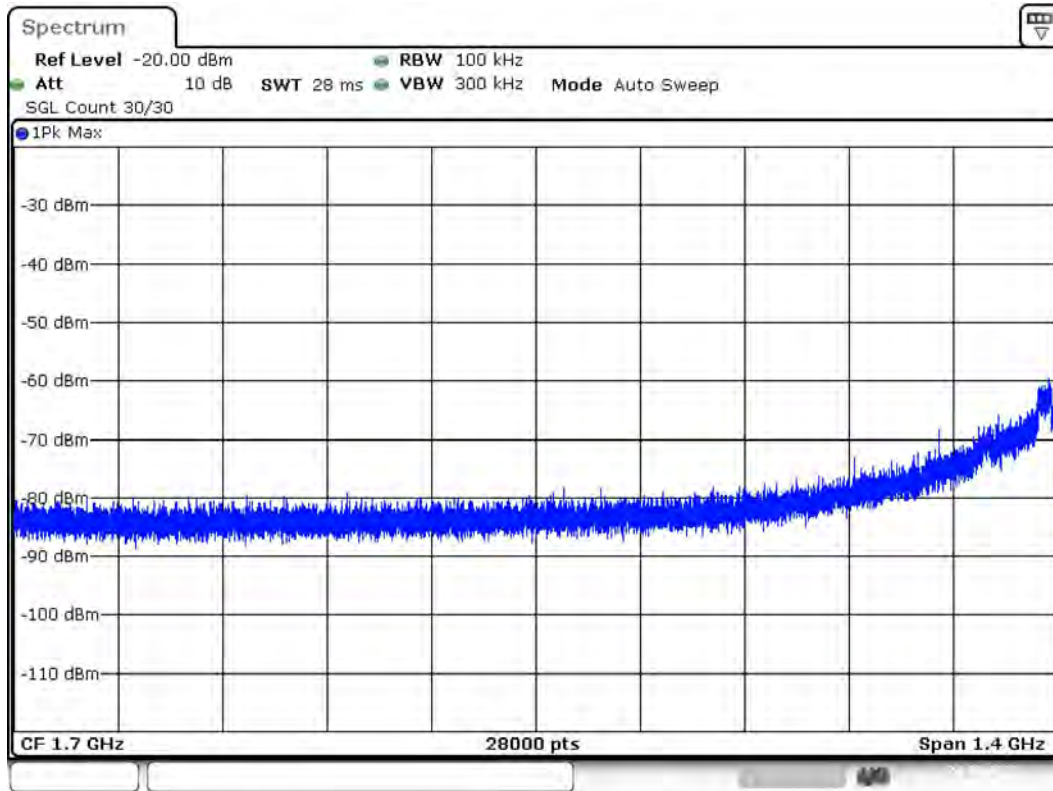
— Limit    — Sum Level    - - - Threshold    × Critical    × Final Critical

Spurious Connector 1\_0



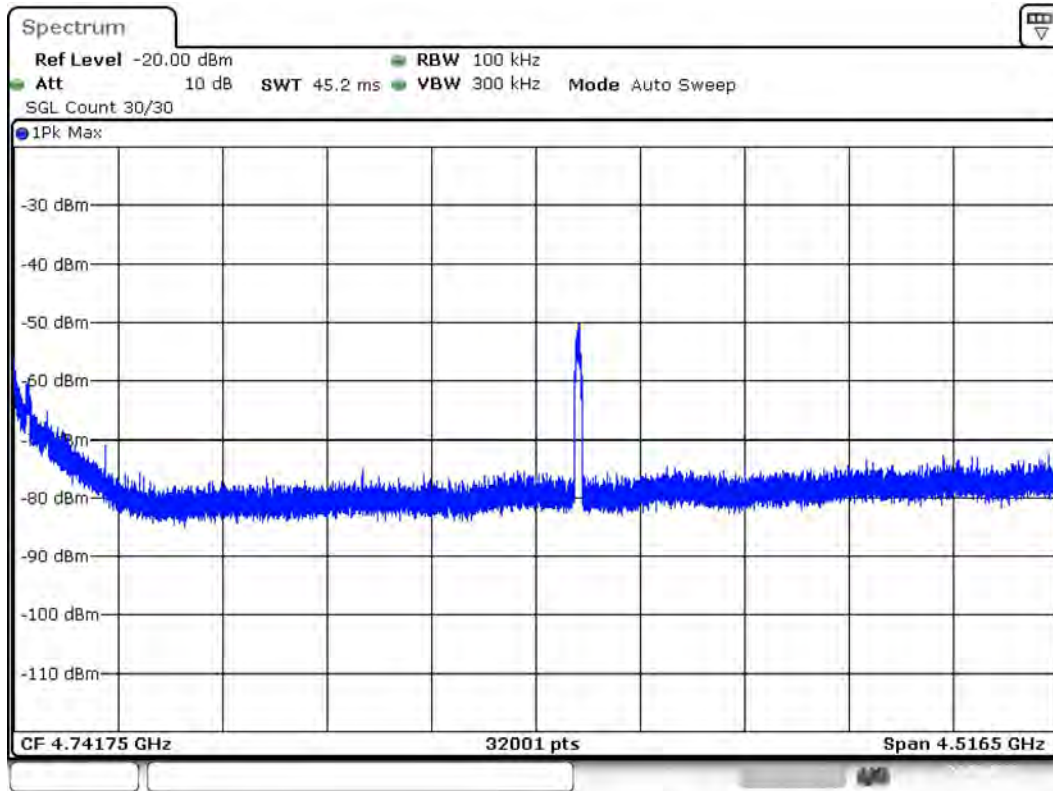
Date: 24.AUG.2023 11:01:27

Spurious Connector 1\_1



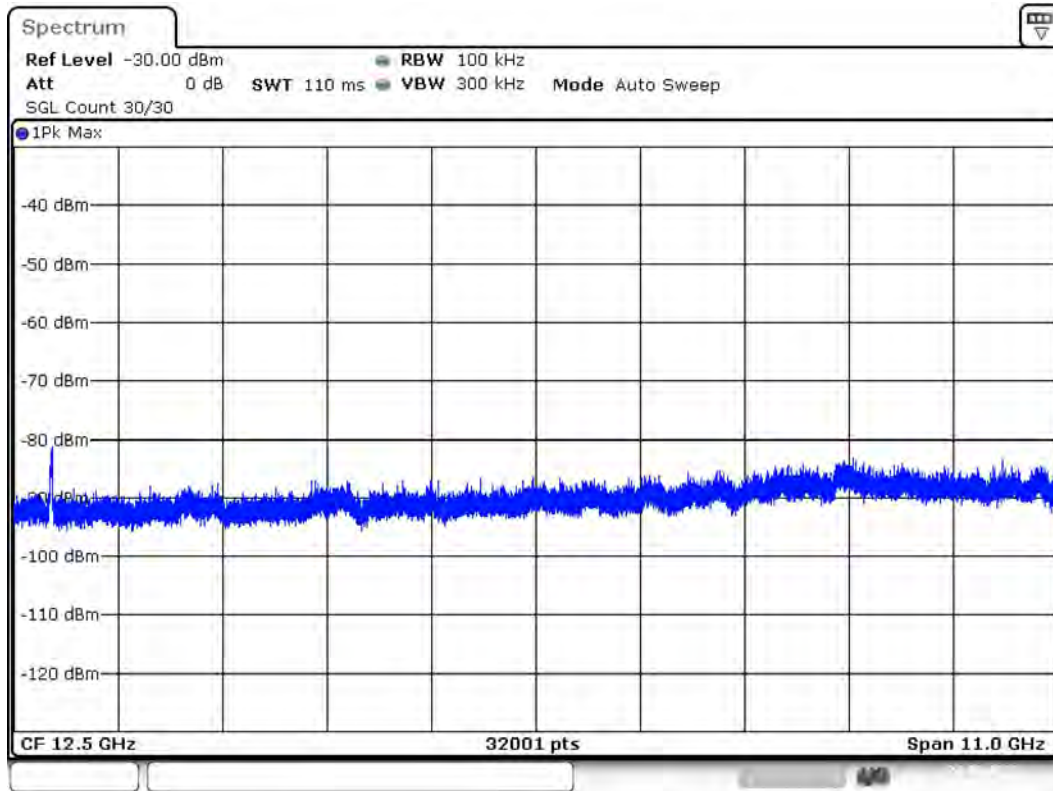
Date: 24.AUG.2023 11:01:44

Spurious Connector 1\_2



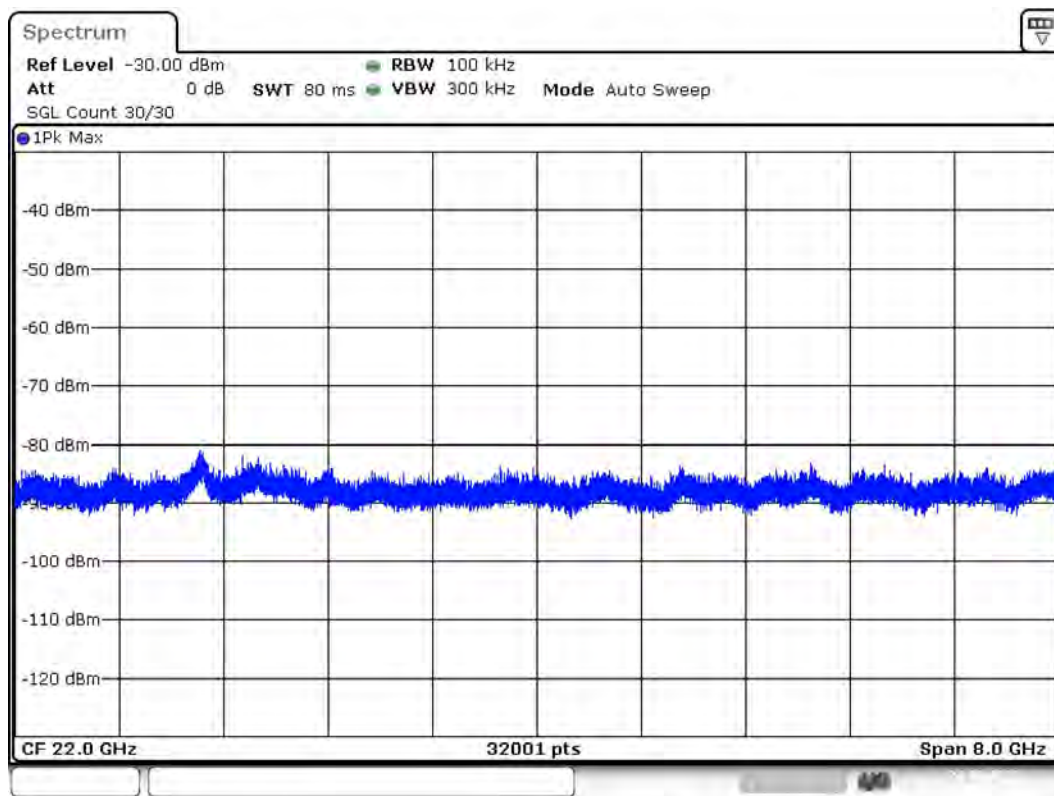
Date: 24.AUG.2023 11:02:03

Spurious Connector 1\_3



Date: 24.AUG.2023 11:02:29

Spurious Connector 1\_4



Date: 24.AUG.2023 11:02:48

### Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	19980	~ 19980
SweepTime	1.080 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	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

### 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

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