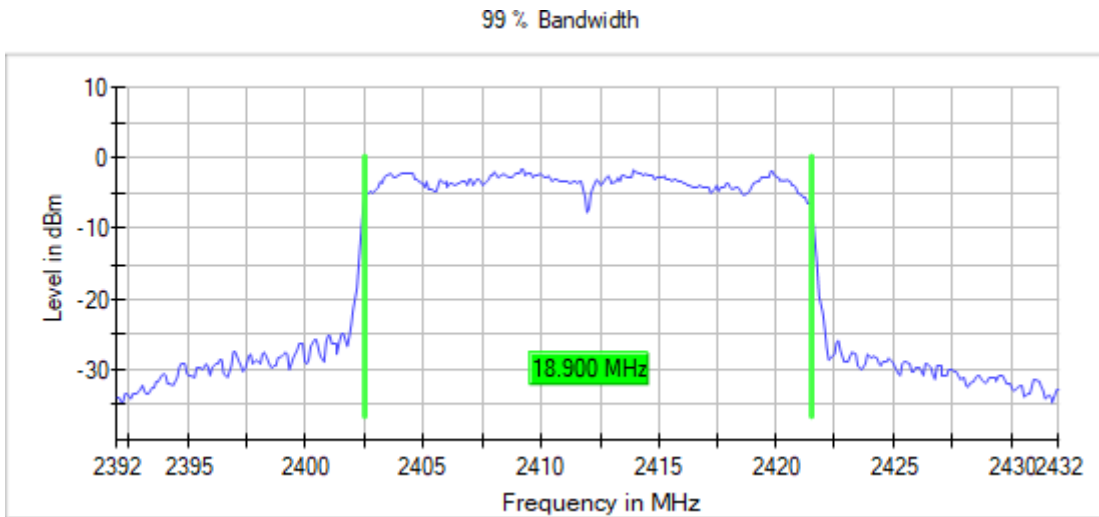


**Attachments**

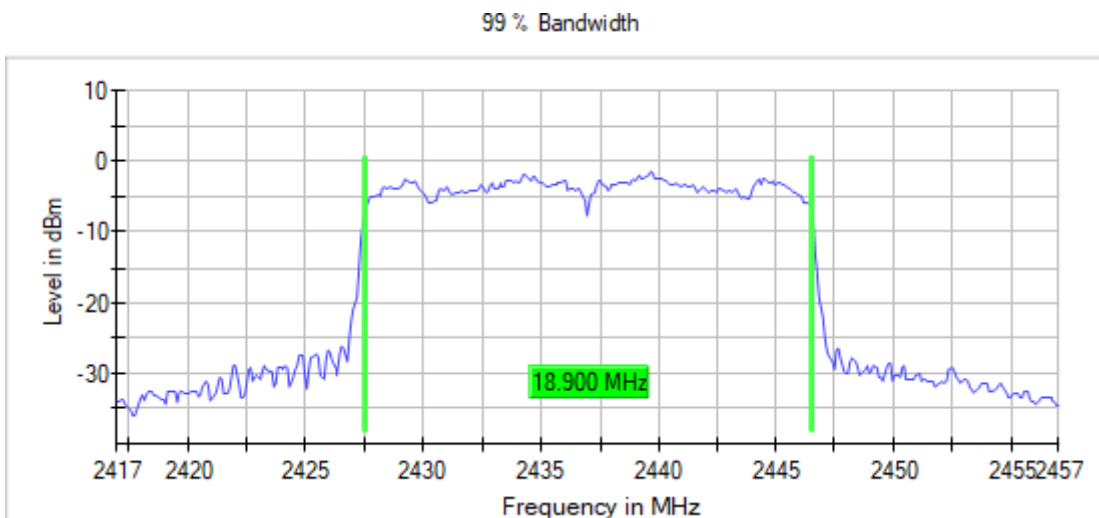
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



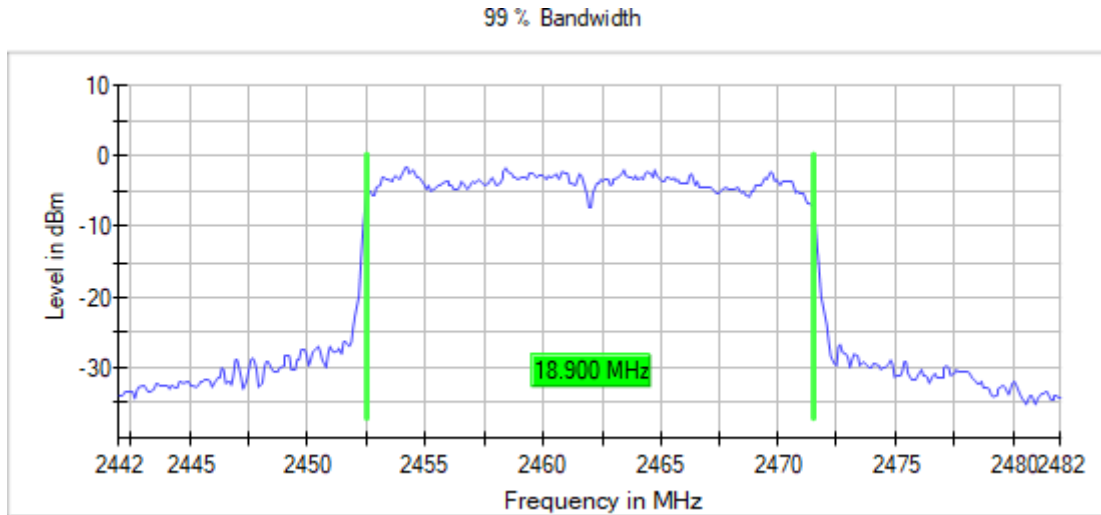
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



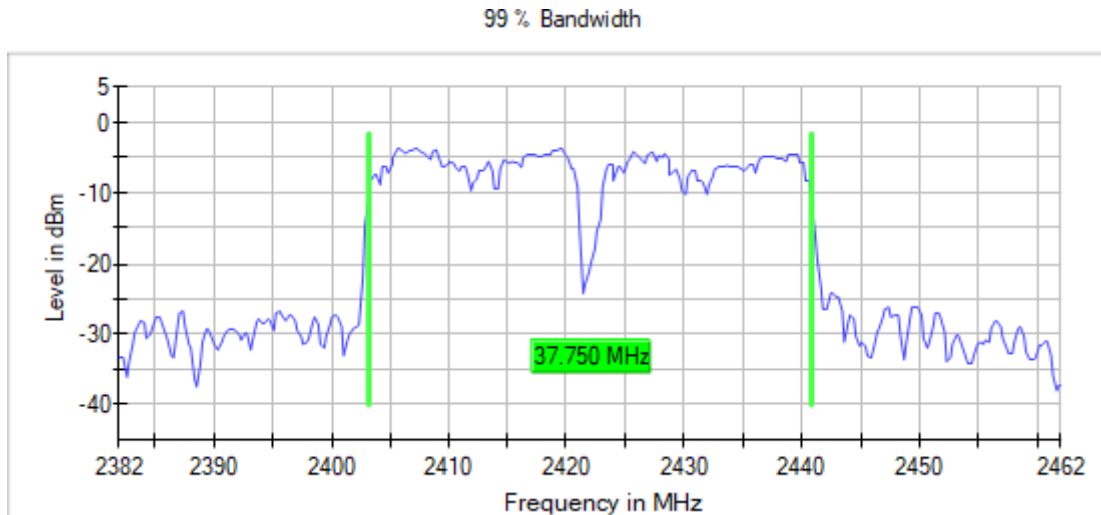
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



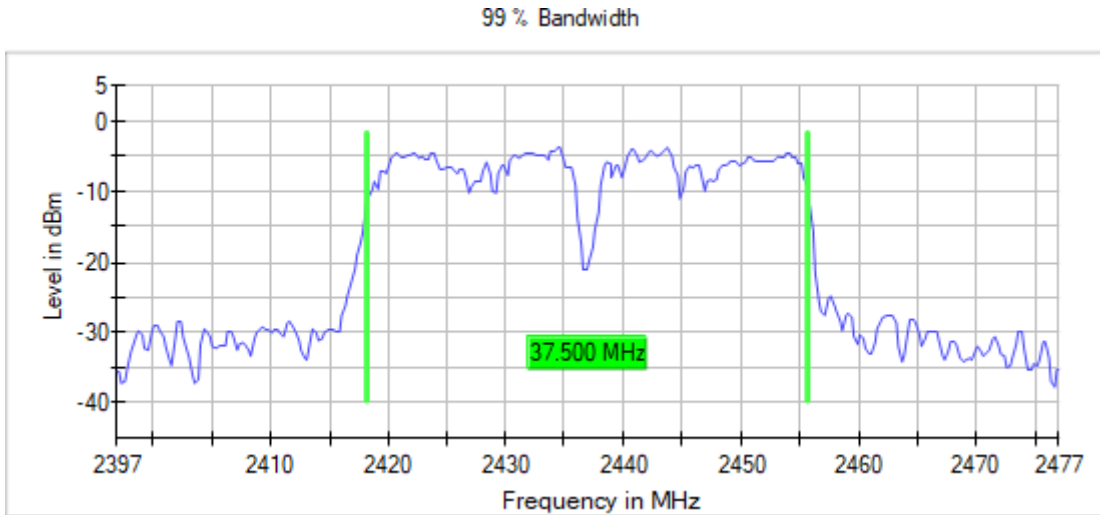
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



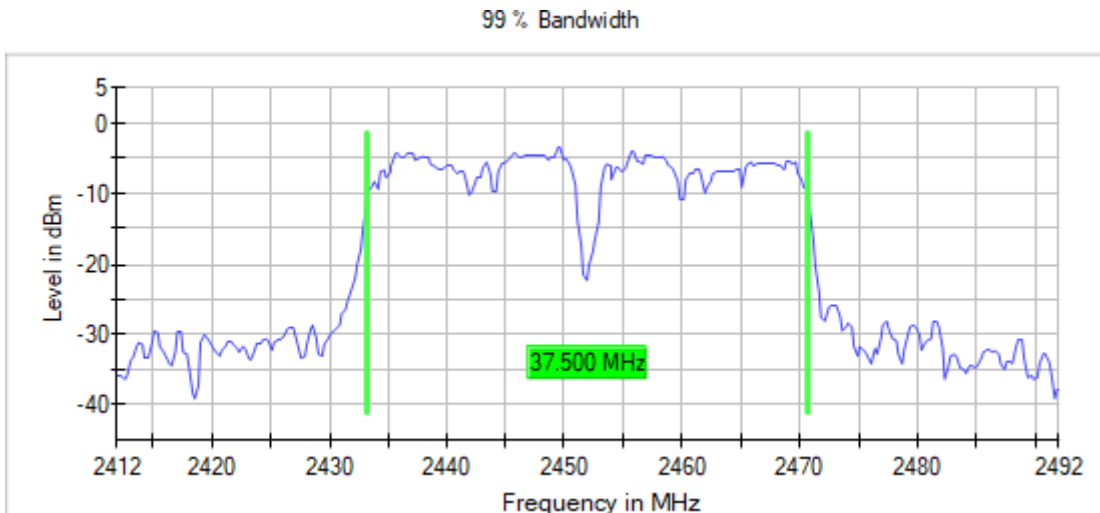
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



Modulation: 802.11ax HE20 Partial RU

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2412.00000		18.900
2437.00000	20	18.900
2462.00000		19.000

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2422.00000		37.750
2437.00000	40	37.500
2452.00000		37.750

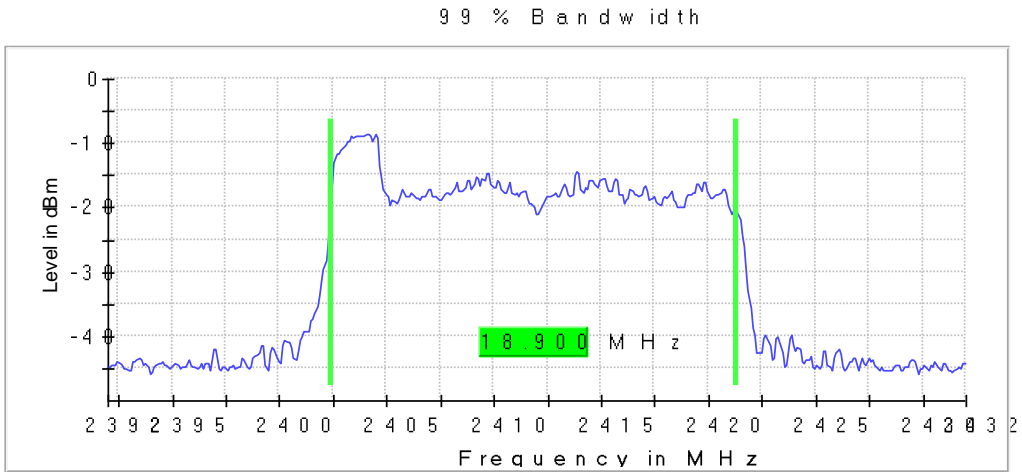
**Verdict**

Pass

**Attachments**

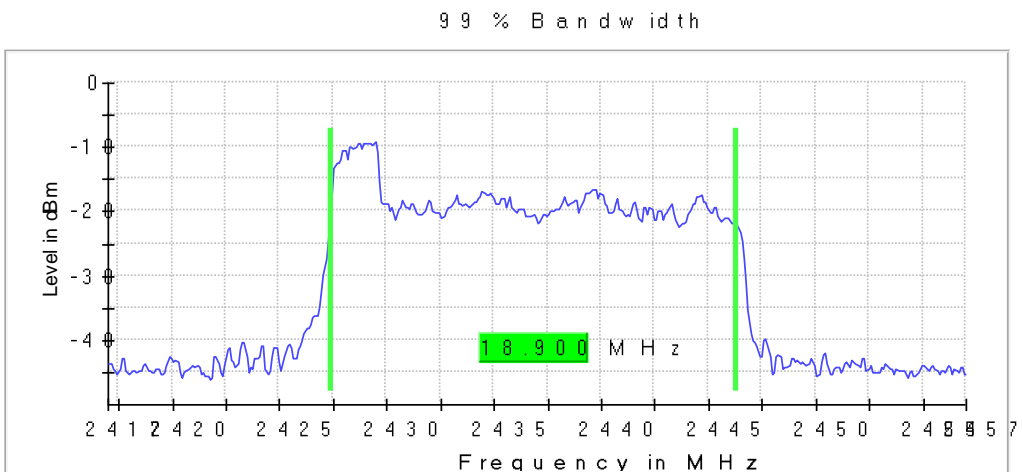
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



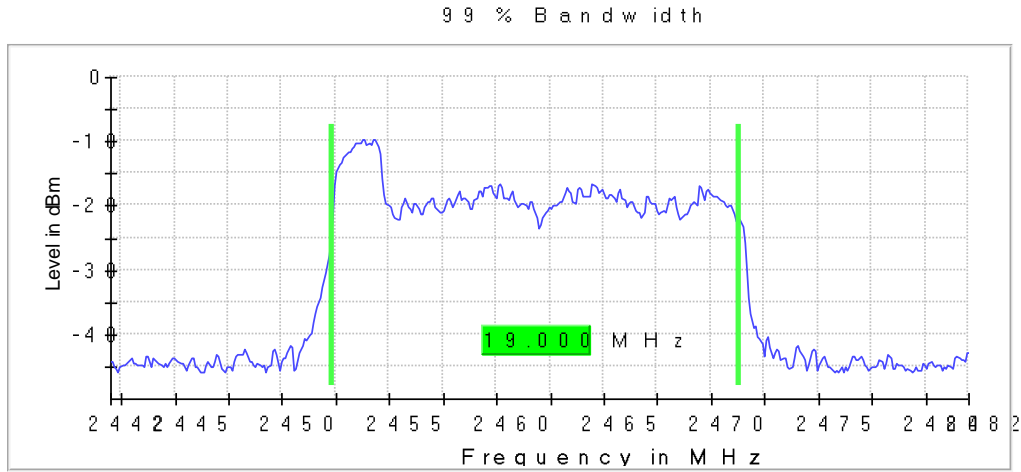
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



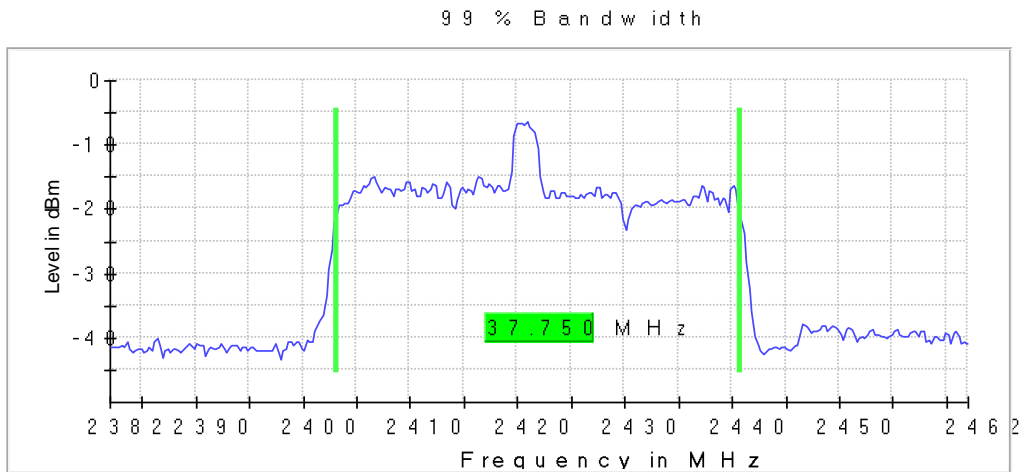
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



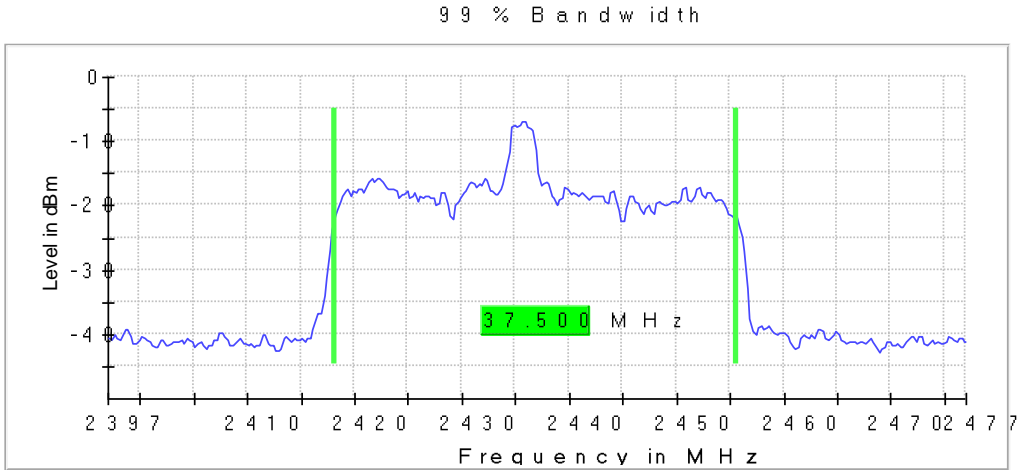
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



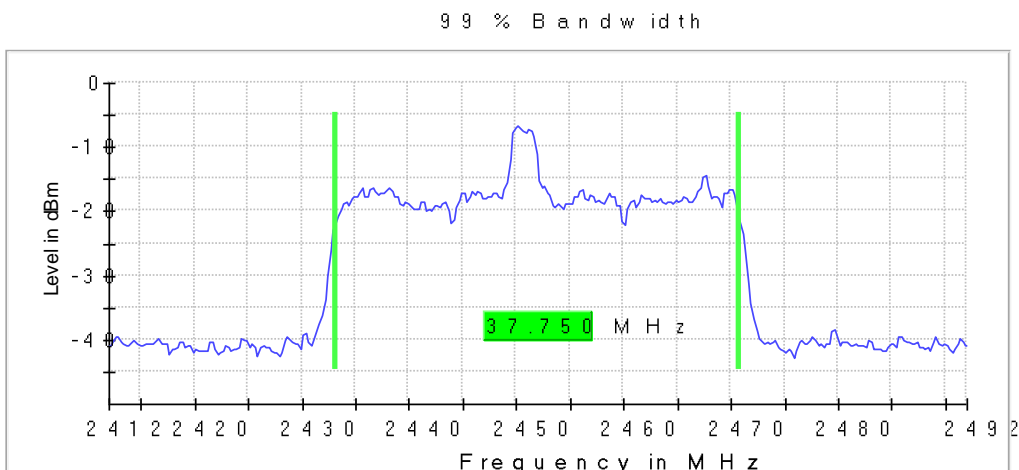
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



**Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



### Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.43800 GHz	2.47800 GHz
Stop Frequency	2.40400 GHz	2.44200 GHz	2.48200 GHz
Span	4.000 MHz	4.000 MHz	4.000 MHz
RBW	20.000 kHz	20.000 kHz	20.000 kHz
VBW	100.000 kHz	100.000 kHz	100.000 kHz
SweepPoints	400	400	400
Sweeptime	94.824 µs	94.824 µs	94.824 µs
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	6 / max. 150	6 / max. 150	5 / max. 150
Stable	3 / 3	3 / 3	3 / 3
Max Stable	0.08 dB	0.17 dB	0.15 dB



## Appendix C.2: SISO B

## TEST CASES DETAILS

### RSS-247 5.2 (a) / FCC 15.247 (a) (2) 6 dB Bandwidth

#### Limits

The minimum 6 dB bandwidth shall be at least 500 kHz.

Modulation: 802.11b

#### Results

Freq (MHz)	BW (MHz)	Emission Bandwidth (MHz)
2412.00000	20	10.00
2437.00000	20	10.40
2462.00000	20	10.10

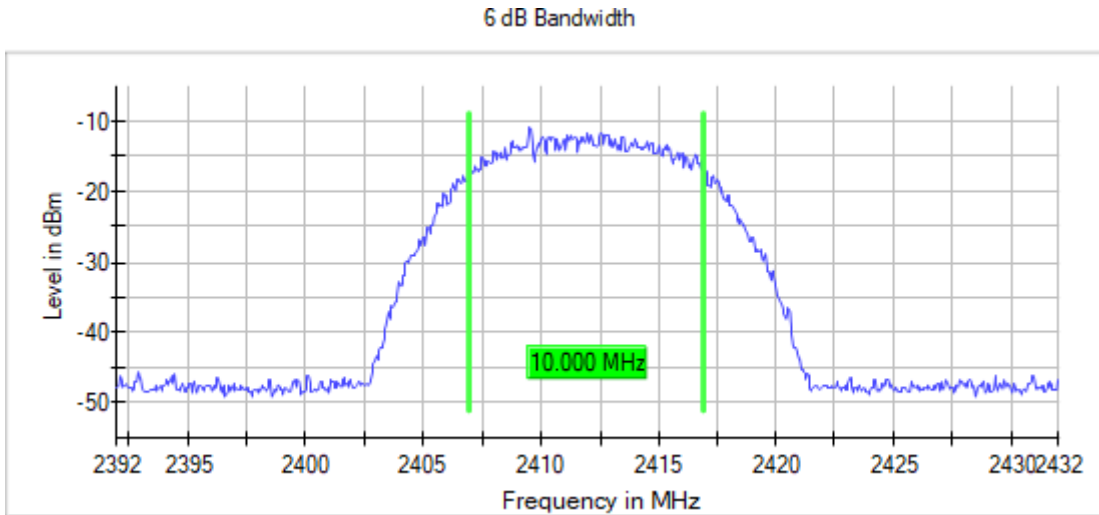
#### Verdict

Pass

**Attachments**

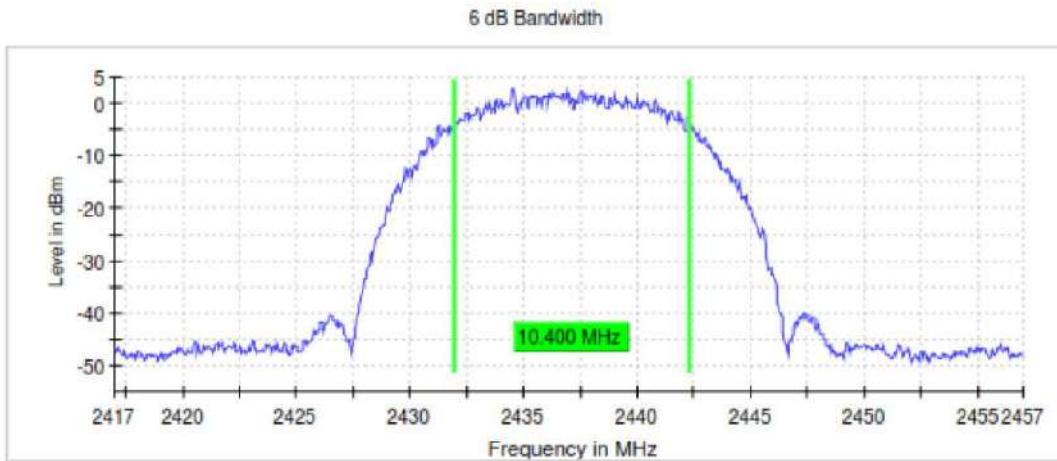
**Frequency MHz = 2412.00000, Bandwidth MHz = 20, Modulation = 802.11b , Number of Transmission Chains = 1,**

**Images:**



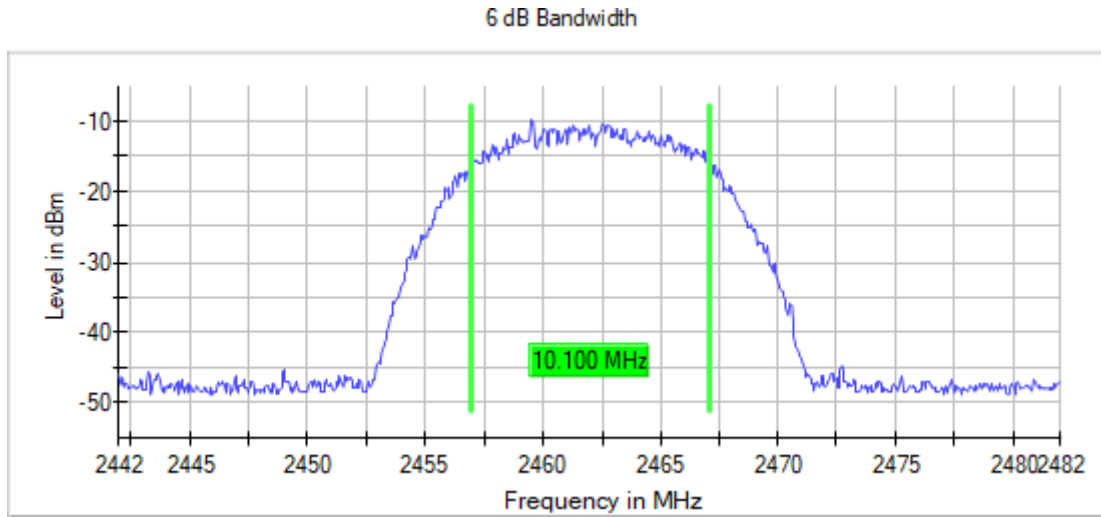
**Frequency MHz = 2437.00000, Bandwidth MHz = 20, Modulation = 802.11b , Number of Transmission Chains = 1,**

**Images:**



**Frequency MHz = 2462.00000, Bandwidth MHz = 20, Modulation = 802.11b , Number of Transmission Chains = 1,**

**Images:**



Modulation: 802.11g

**Results**

Freq (MHz)	BW (MHz)	Emission Bandwidth (MHz)
2412.00000	20	16.60
2437.00000	20	16.55
2462.00000	20	16.55

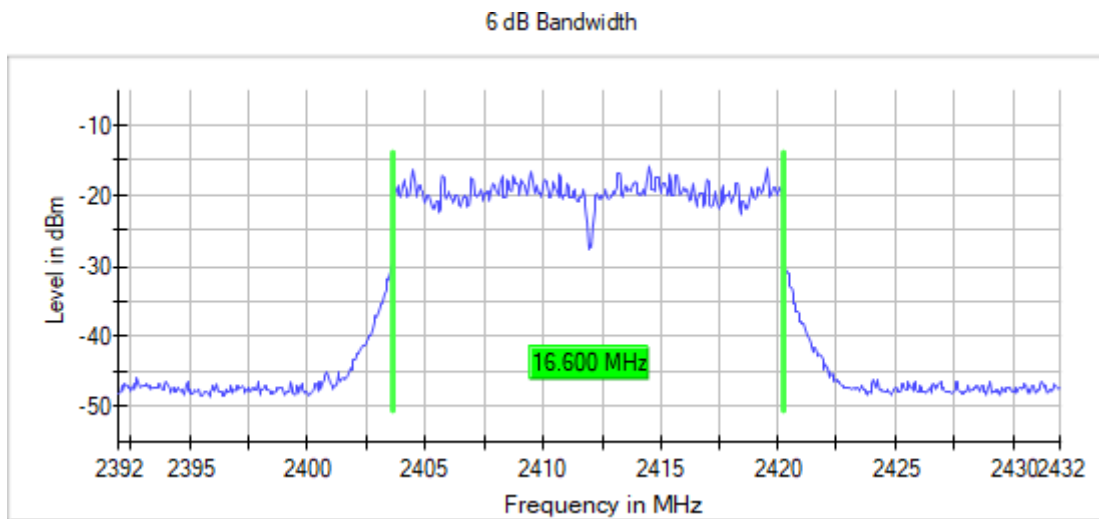
**Verdict**

Pass

**Attachments**

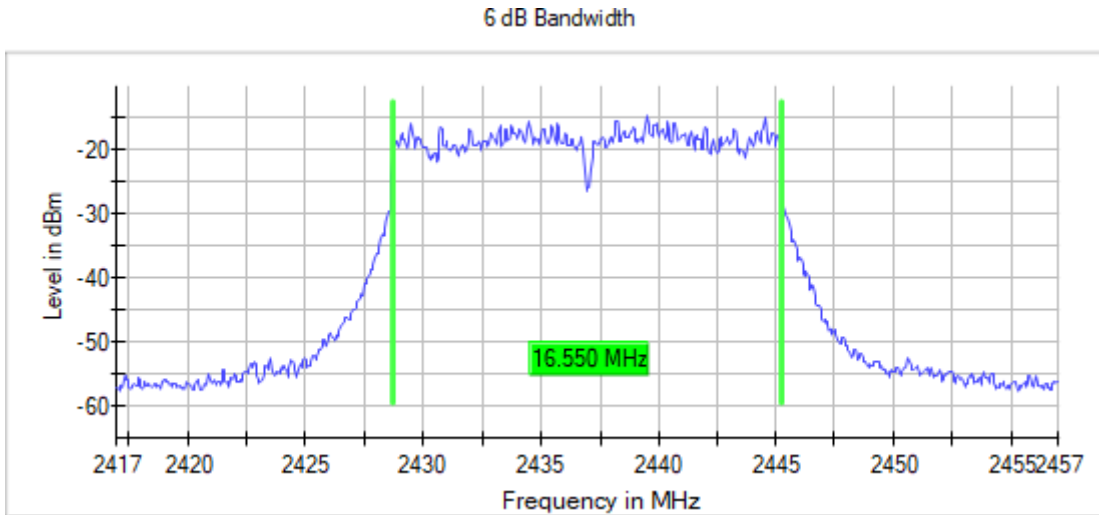
Frequency MHz = 2412.00000, Bandwidth MHz = 20, Modulation = 802.11g , Number of Transmission Chains = 1,

**Images:**



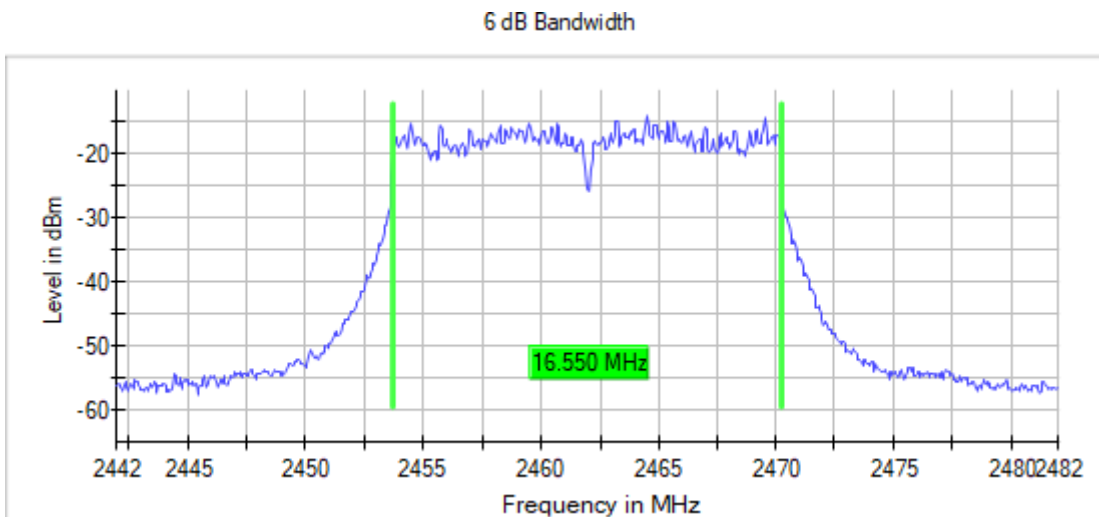
**Frequency MHz = 2437.00000, Bandwidth MHz = 20, Modulation = 802.11g , Number of Transmission Chains = 1,**

**Images:**



**Frequency MHz = 2462.00000, Bandwidth MHz = 20, Modulation = 802.11g , Number of Transmission Chains = 1,**

**Images:**



Modulation: 802.11n

**Results**

Freq (MHz)	BW (MHz)	Emission Bandwidth (MHz)
2412.00000		17.80
2437.00000	20	17.75
2462.00000		17.75

Modulation: 802.11n HT40

**Results**

Freq (MHz)	BW (MHz)	Emission Bandwidth (MHz)
2422.00000		36.45
2437.00000	40	36.40
2452.00000		36.45

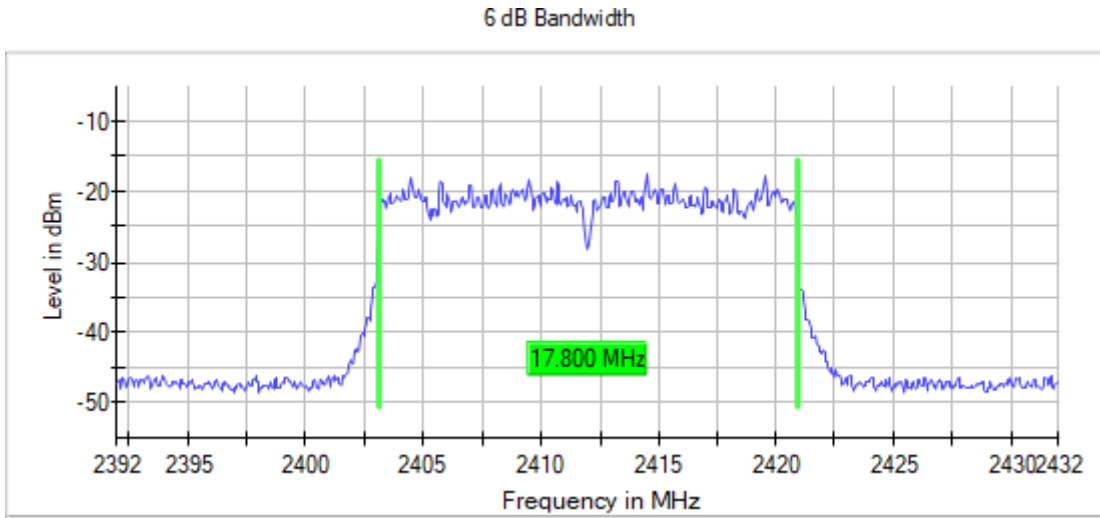
**Verdict**

Pass

**Attachments**

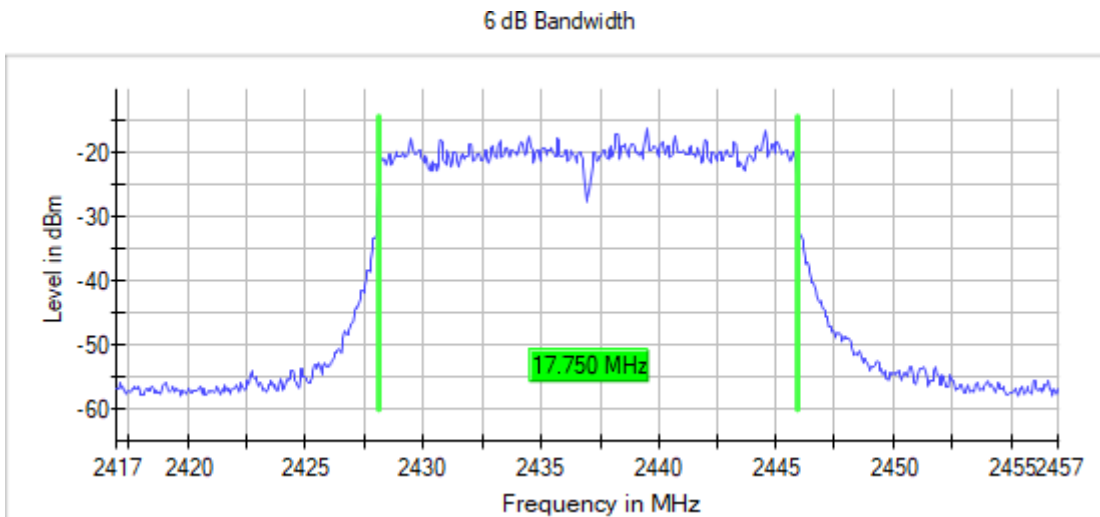
**Frequency MHz = 2412.00000, Bandwidth MHz = 20, Modulation = 802.11n , Number of Transmission Chains = 1,**

**Images:**



**Frequency MHz = 2437.00000, Bandwidth MHz = 20, Modulation = 802.11n , Number of Transmission Chains = 1,**

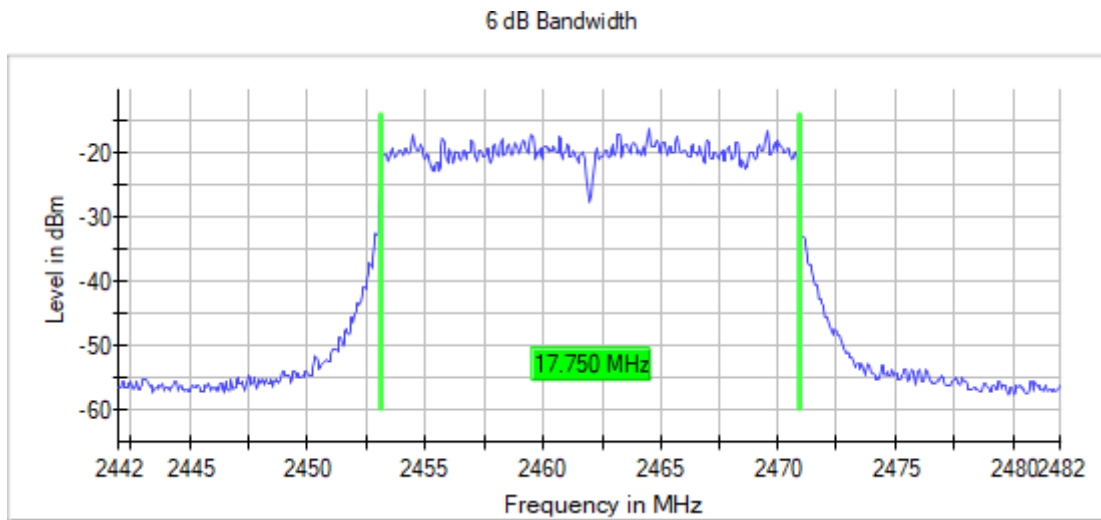
**Images:**





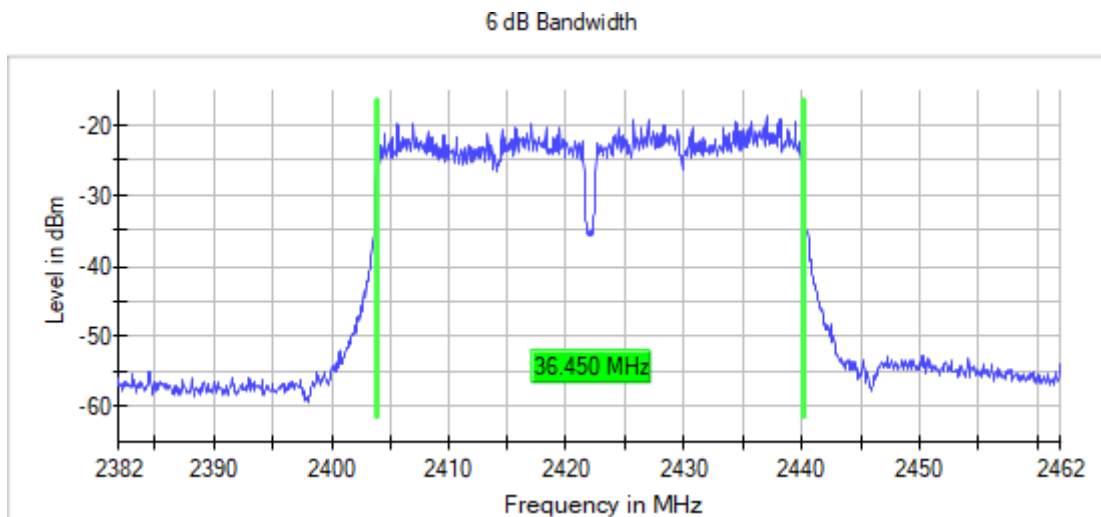
Frequency MHz = 2462.00000, Bandwidth MHz = 20, Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



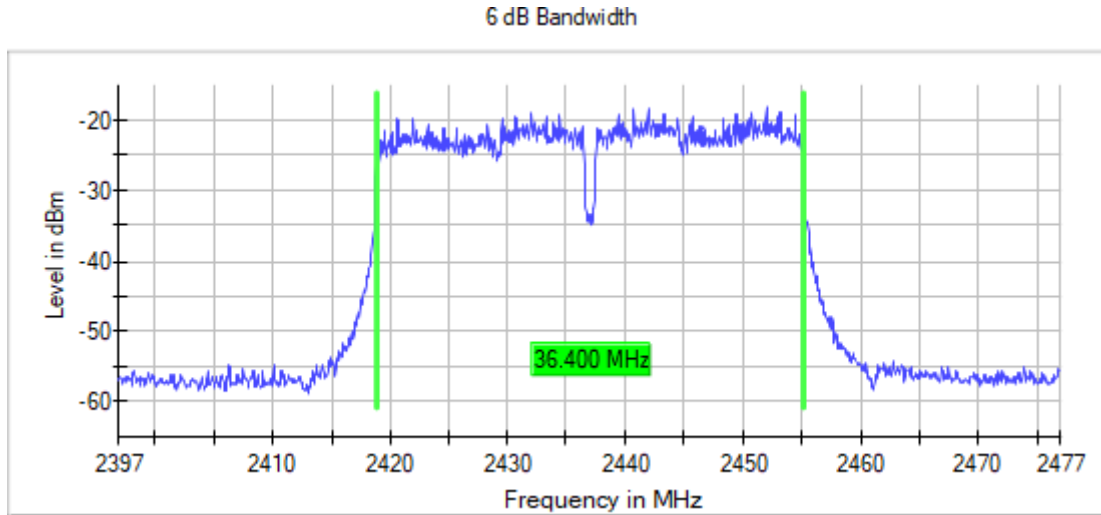
Frequency MHz = 2422.00000, Bandwidth MHz = 40, Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



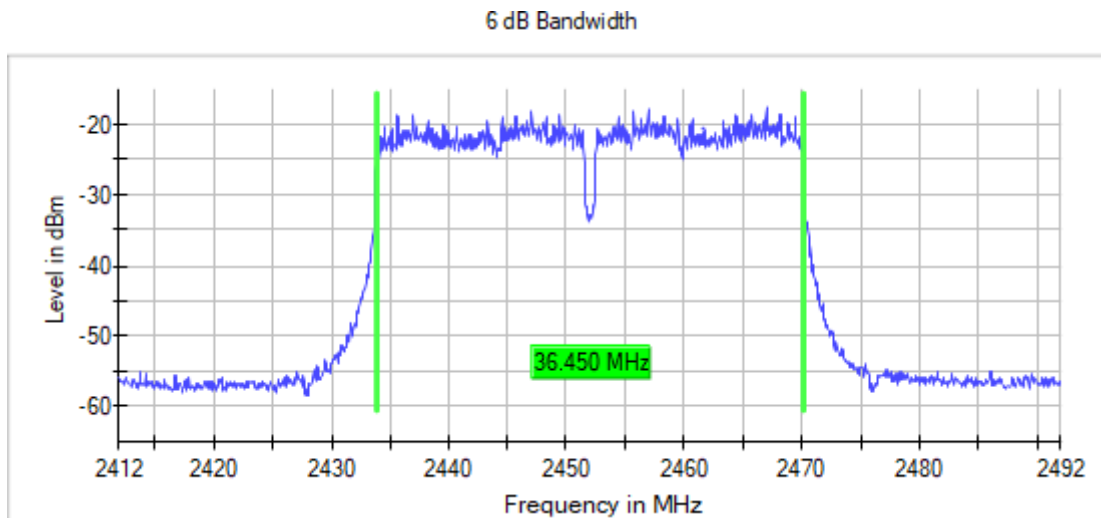
Frequency MHz = 2437.00000, Bandwidth MHz = 40, Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Bandwidth MHz = 40, Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



Modulation: 802.11ax HE20 Full RU

**Results**

Freq (MHz)	BW (MHz)	Emission Bandwidth (MHz)
2412.00000		18.90
2437.00000	20	18.85
2462.00000		18.85

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	BW (MHz)	Emission Bandwidth (MHz)
2422.00000		35.80
2437.00000	40	35.25
2452.00000		35.25

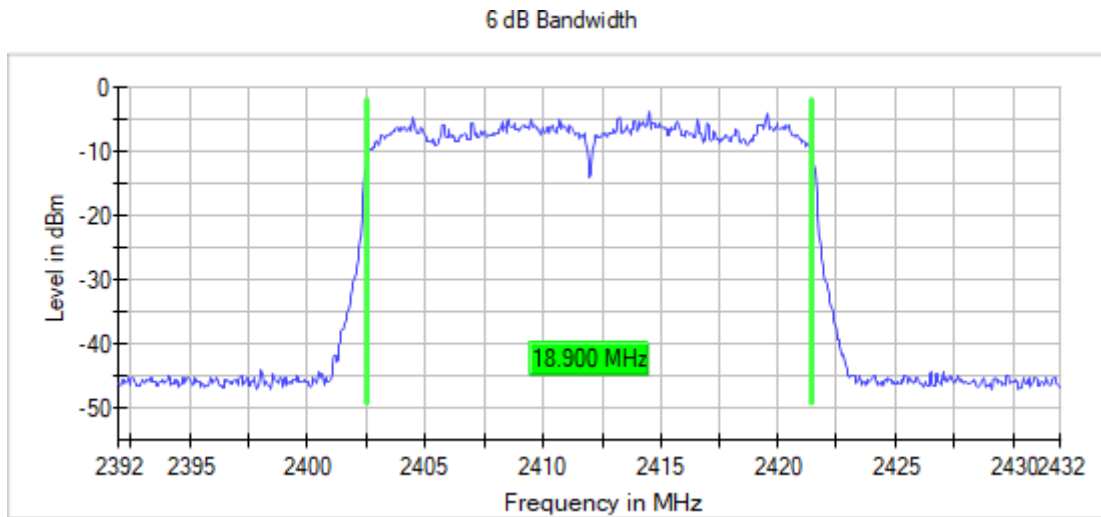
**Verdict**

Pass

**Attachments**

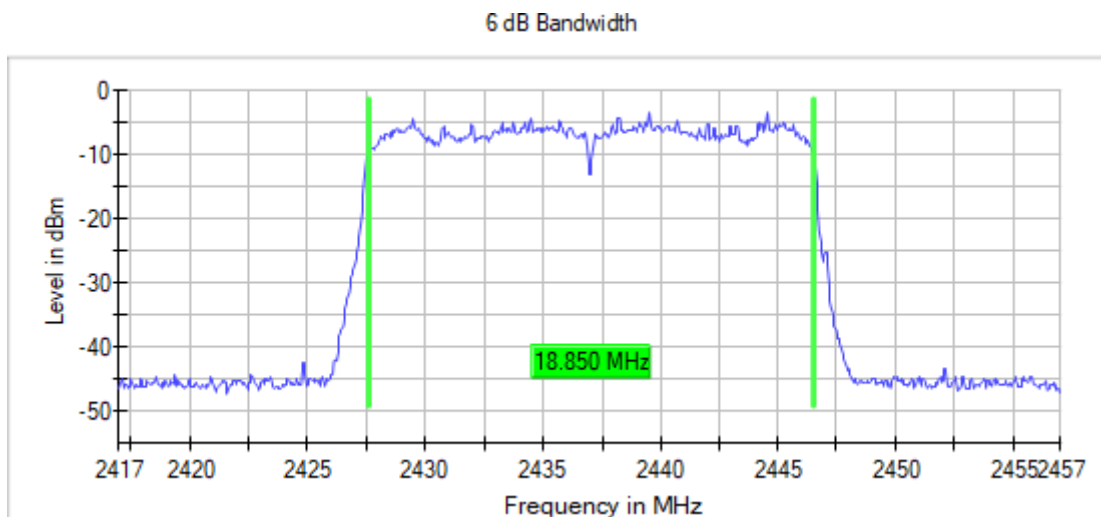
**Frequency MHz = 2412.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



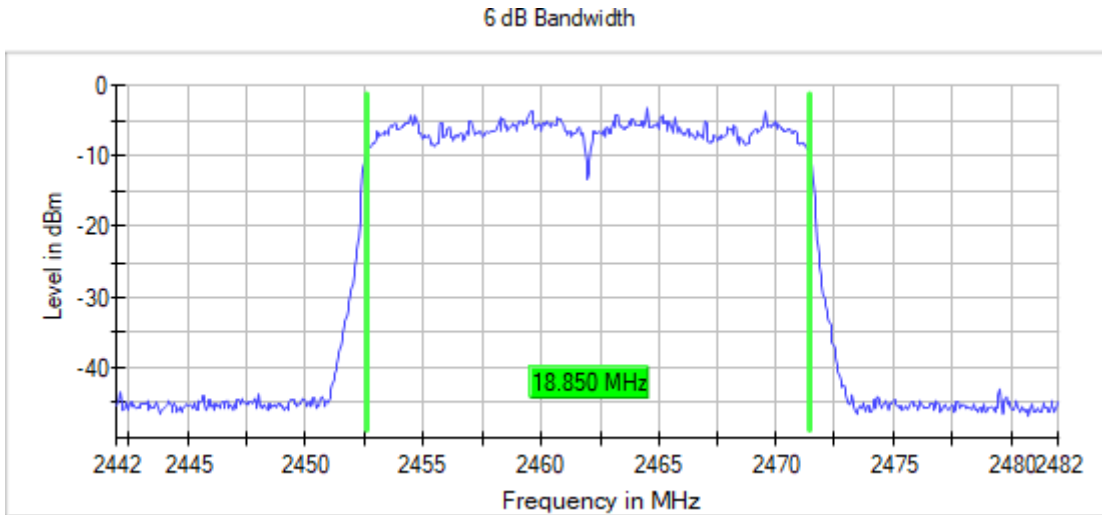
**Frequency MHz = 2437.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



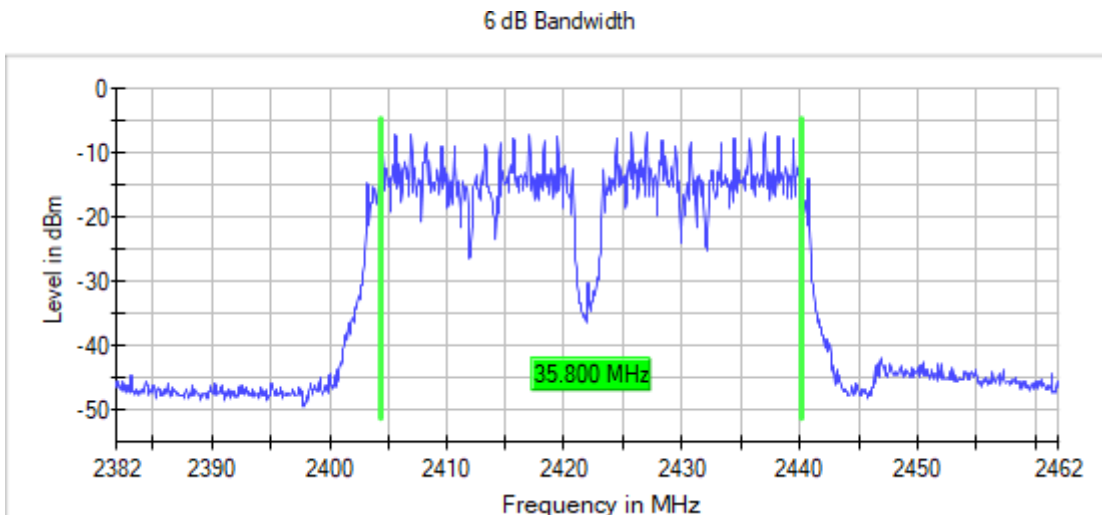
Frequency MHz = 2462.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2422.00000, Bandwidth MHz = 40, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



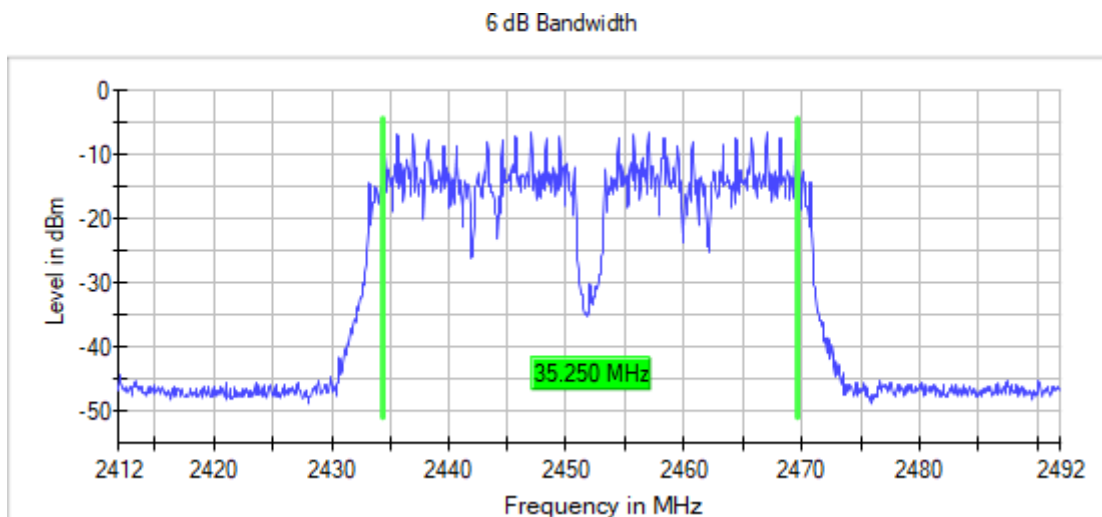
Frequency MHz = 2437.00000, Bandwidth MHz = 40, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Bandwidth MHz = 40, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



## Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39200	2.41700	2.44200
Stop Frequency	2.43200	2.45700	2.48200
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
SweepPoints	800	800	800
Sweeptime	56.836 $\mu$ s	56.836 $\mu$ s	56.836 $\mu$ s
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.50 dB	0.50 dB	0.50 dB
Run	72 / max.	66 / max.	71 / max.
Stable	5 / 5	5 / 5	5 / 5
Max Stable	0.16 dB	0.23 dB	0.12 dB

### RSS-247 5.2 (b) / FCC 15.247 (e) Power spectral density

#### Limits

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Modulation: 802.11b

#### Results

Freq (MHz)	BW (MHz)	PSD (dBm)
2412.00000	20	-12.57
2437.00000	20	-7.33
2462.00000	20	-11.81

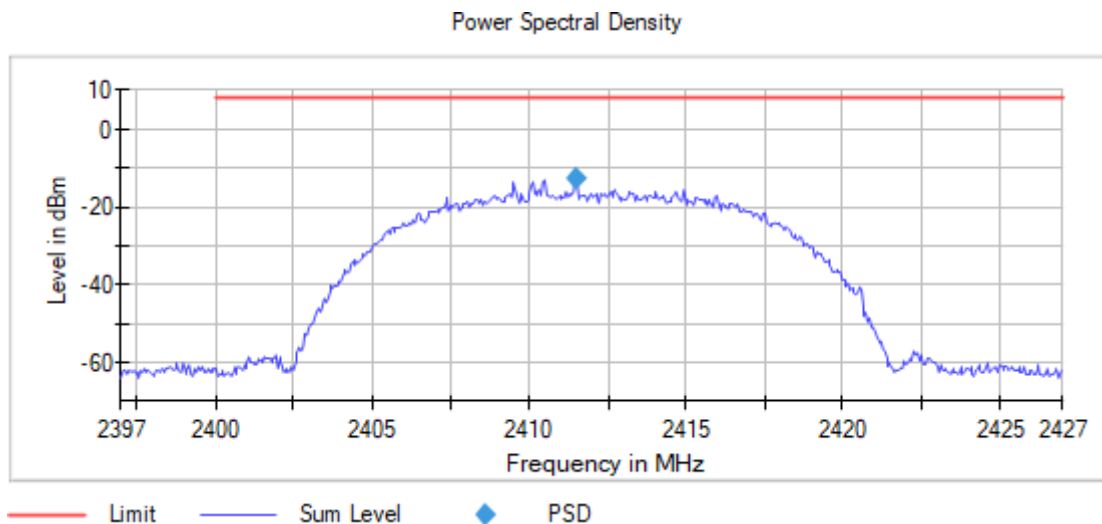
#### Verdict

Pass

#### Attachments

Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11b , Number of Transmission Chains = 1,

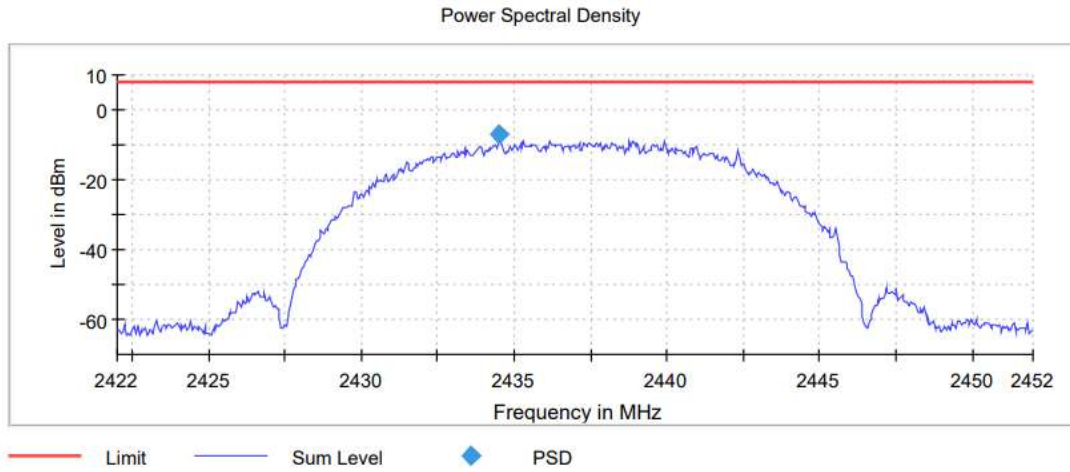
#### Images:





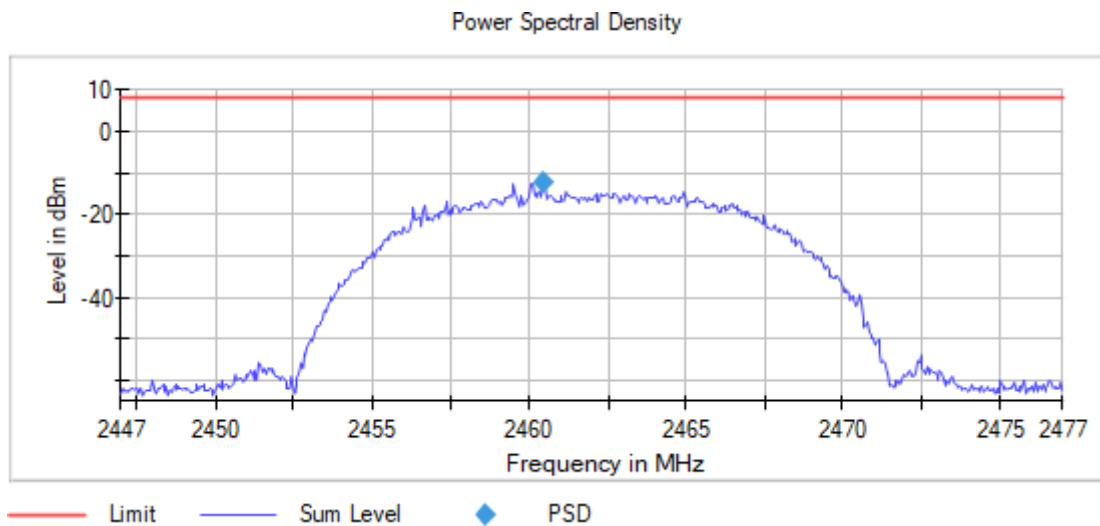
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11b , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11b , Number of Transmission Chains = 1,

Images:



Modulation: 802.11g  
**Results**

Freq (MHz)	BW (MHz)	PSD (dBm)
2412.00000	20	-19.63
2437.00000	20	-18.33
2462.00000	20	-17.75

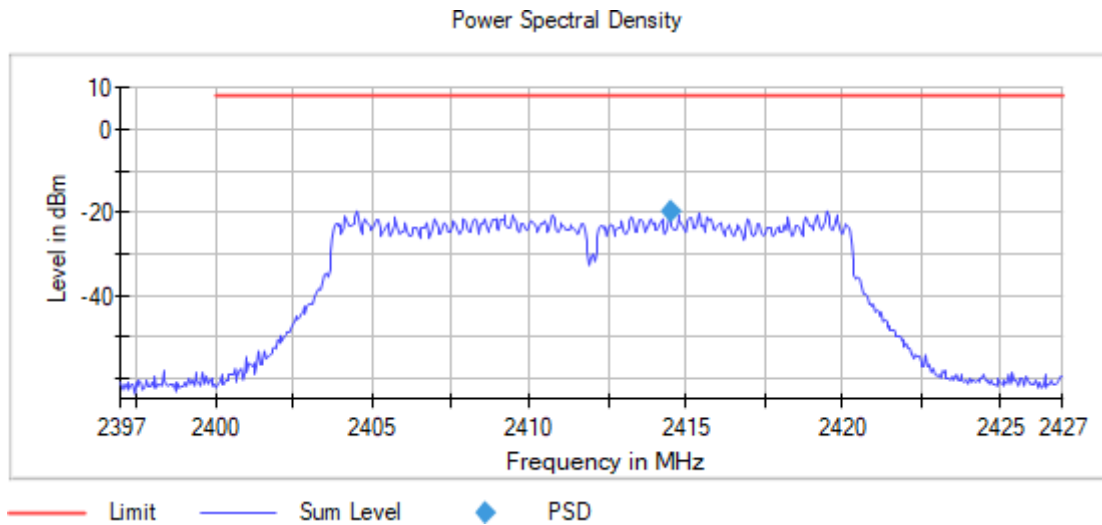
**Verdict**

Pass

**Attachments**

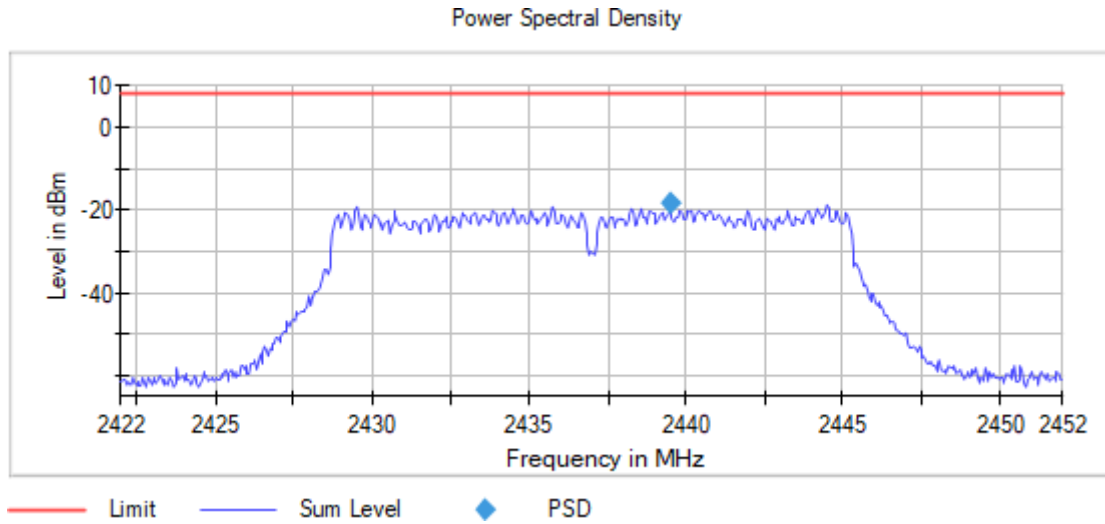
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11g , Number of Transmission Chains = 1,

**Images:**



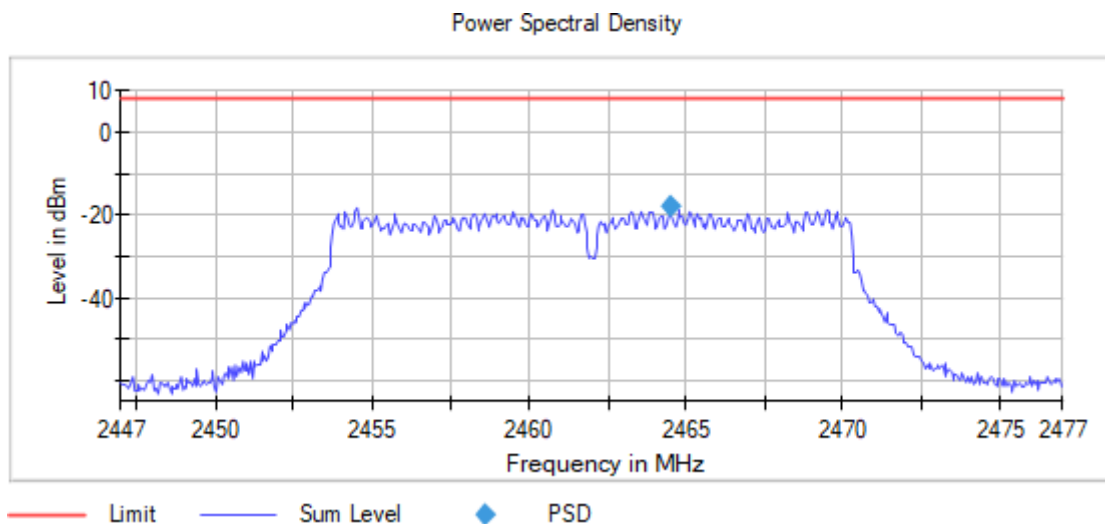
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11g , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11g , Number of Transmission Chains = 1,

Images:



Modulation: 802.11n20

**Results**

Freq (MHz)	BW (MHz)	PSD (dBm)
2412.00000		-21.27
2437.00000	20	-19.87
2462.00000		-19.63

Modulation: 802.11n40

**Results**

Freq (MHz)	BW (MHz)	PSD (dBm)
2422.00000		-21.82
2437.00000	40	-21.49
2452.00000		-21.02

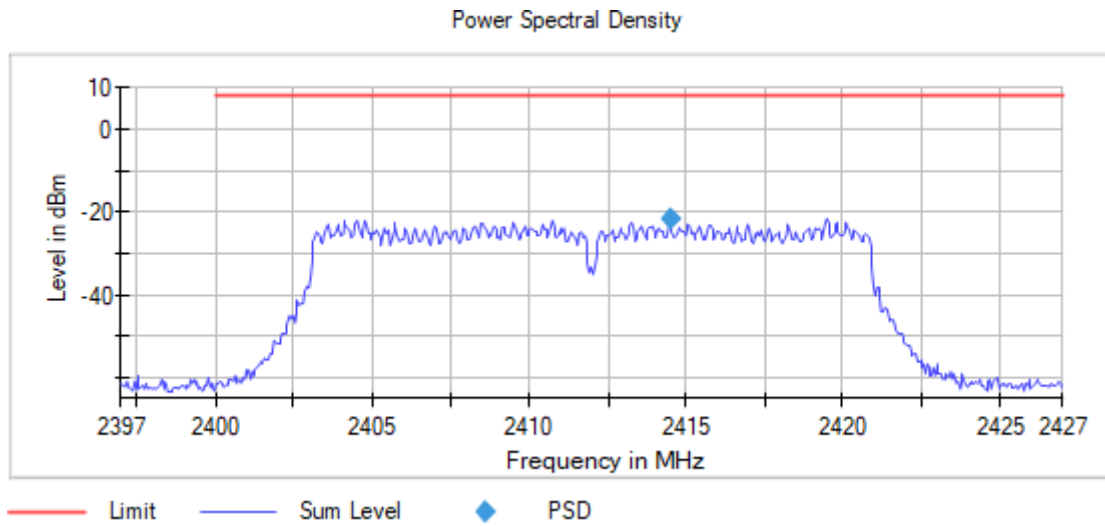
**Verdict**

Pass

**Attachments**

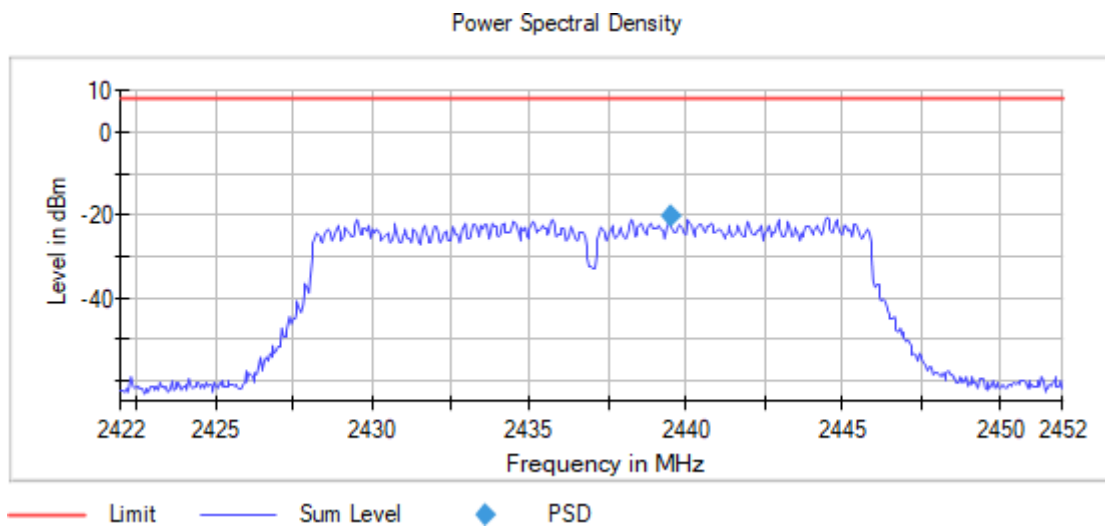
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11n , Number of Transmission Chains = 1,**

**Images:**



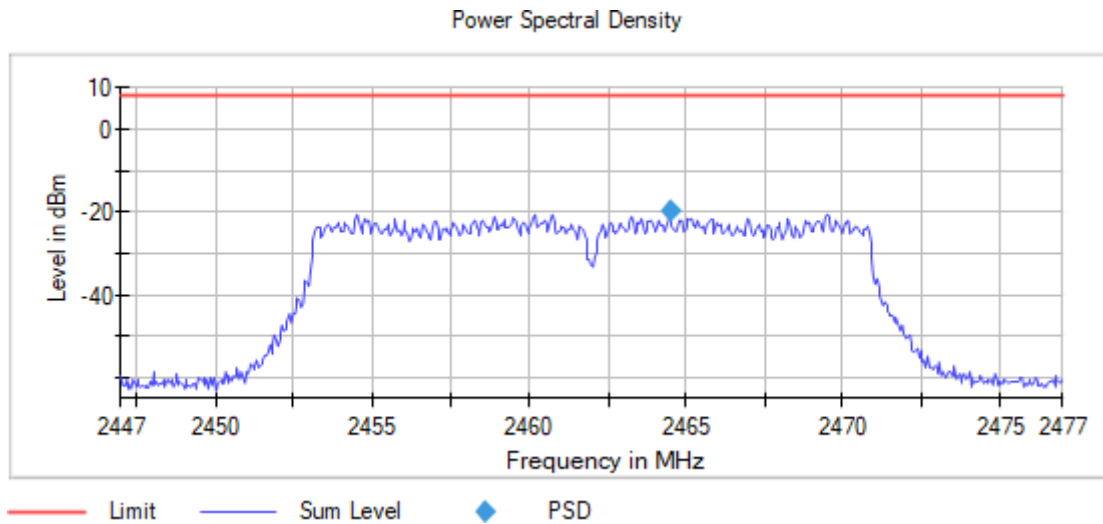
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11n , Number of Transmission Chains = 1,**

**Images:**



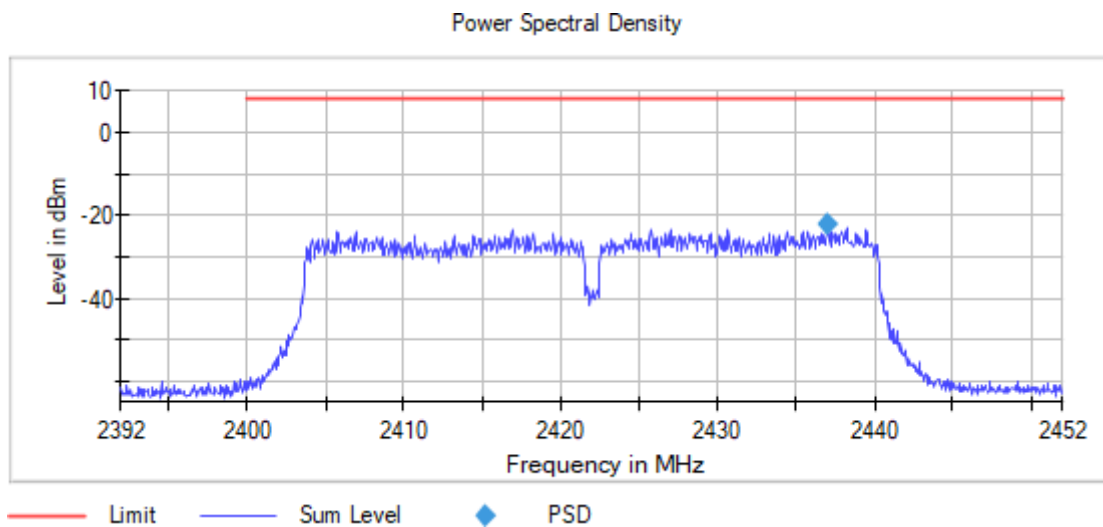
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



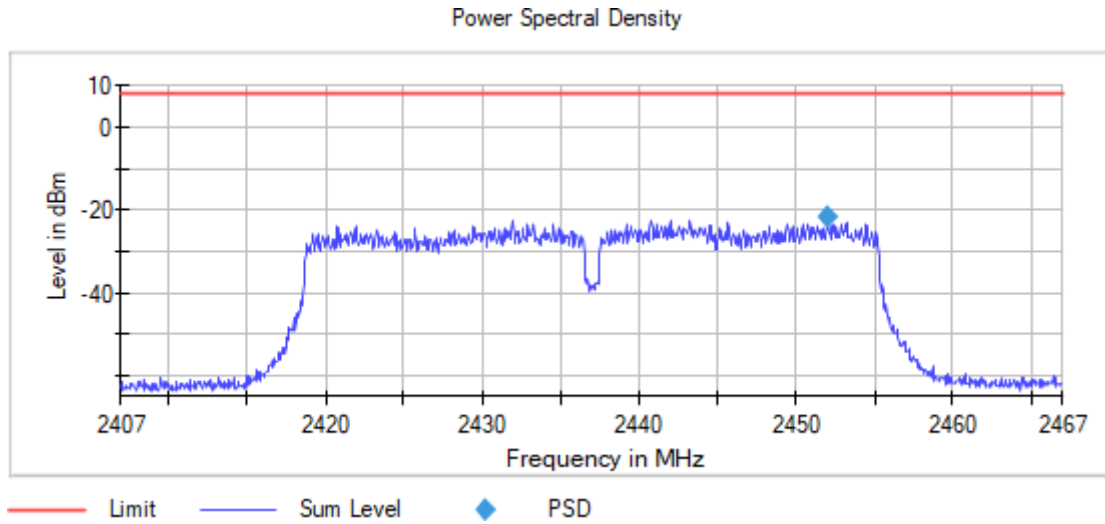
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



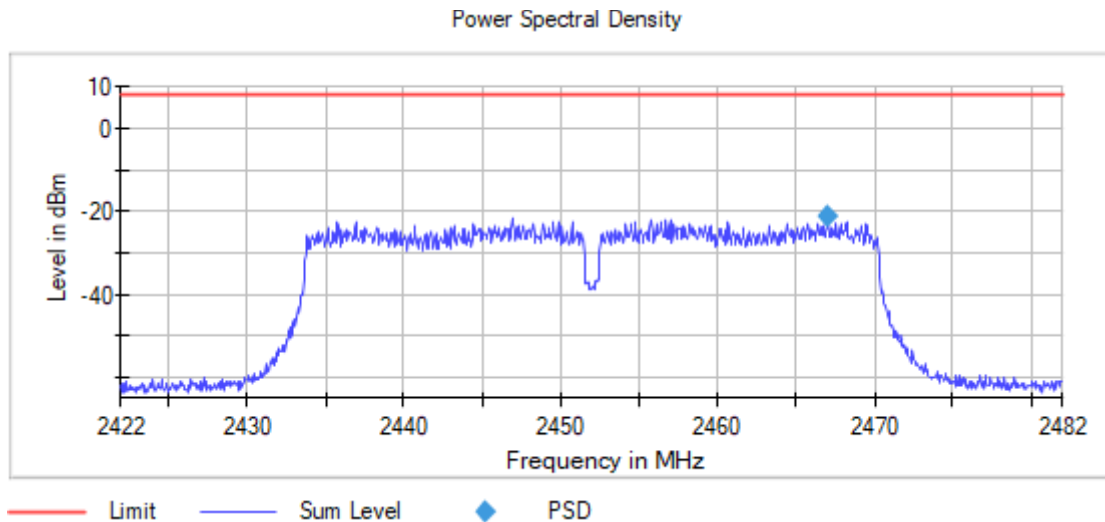
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



Modulation: 802.11ax HE20 Full RU

**Results**

**Results**

Freq (MHz)	Equipment	BW (MHz)	PSD (dBm)
2412.00000	Digital Transmission System (DTS)	20	-7.33
2437.00000			-7.41
2462.00000			-7.35

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	Equipment	BW (MHz)	PSD (dBm)
2422.00000	Digital Transmission System (DTS)	40	-10.86
2437.00000			-10.85
2452.00000			-10.56

**Verdict**

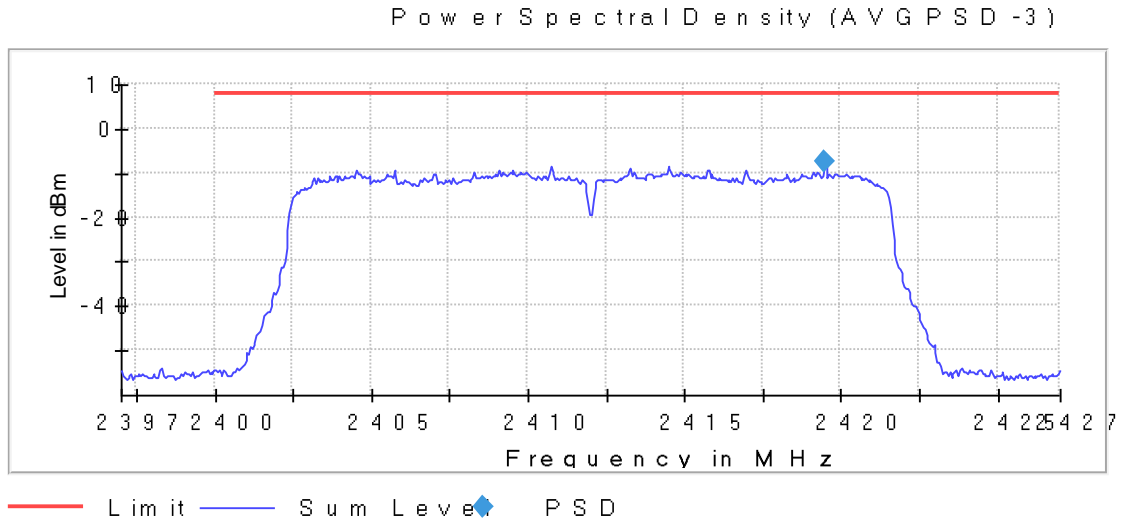
Pass



**Attachments**

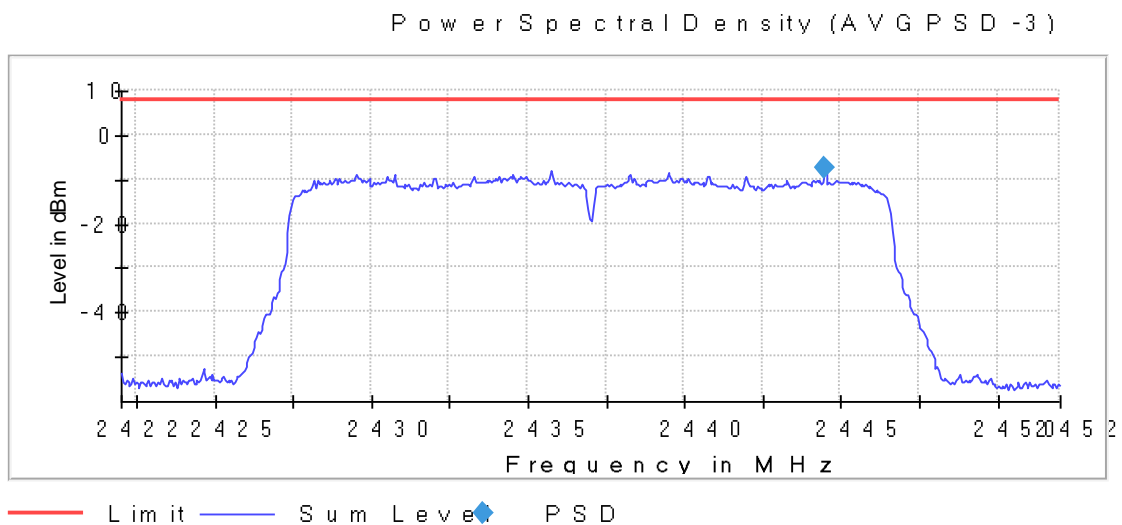
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



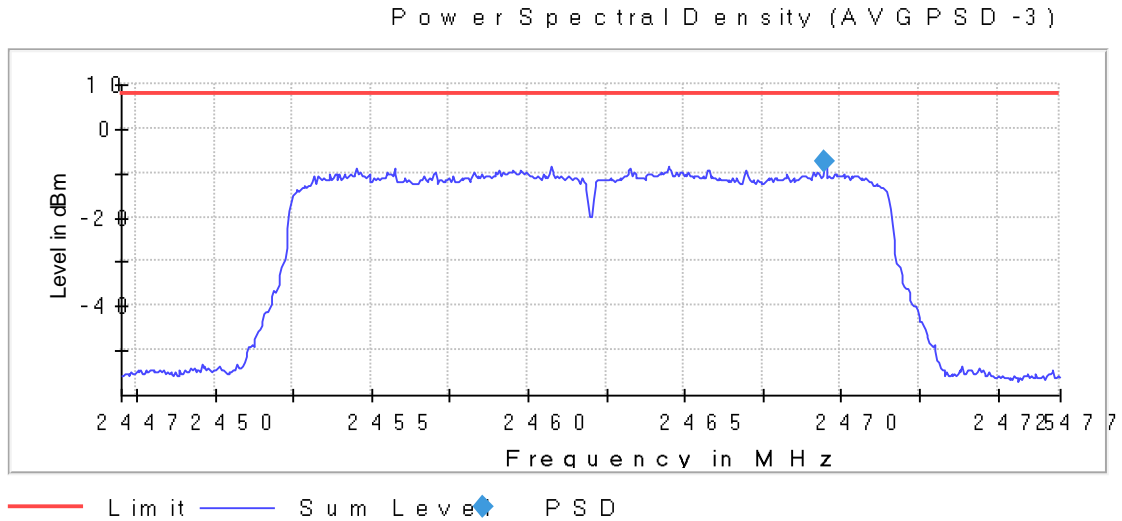
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



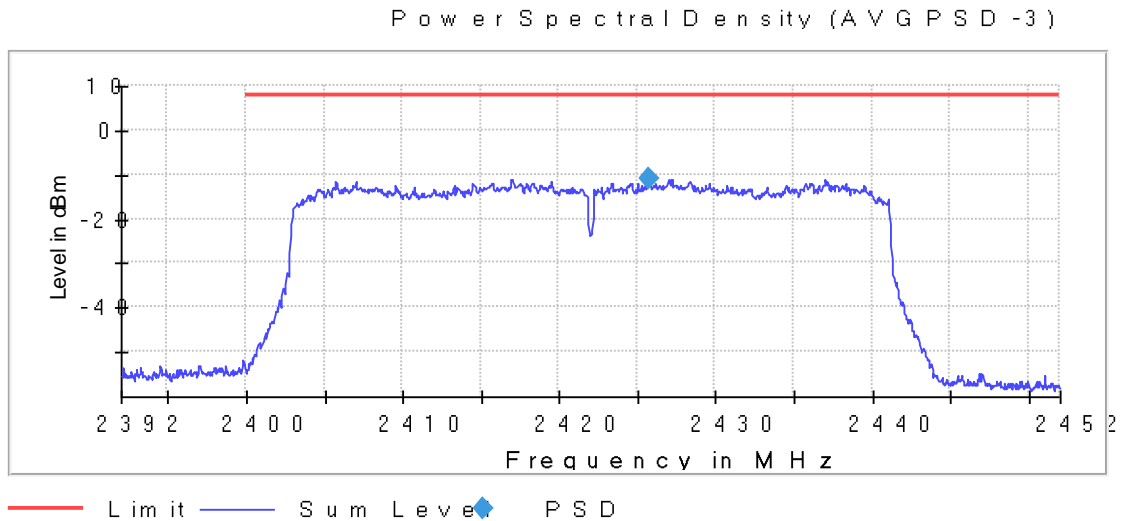
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



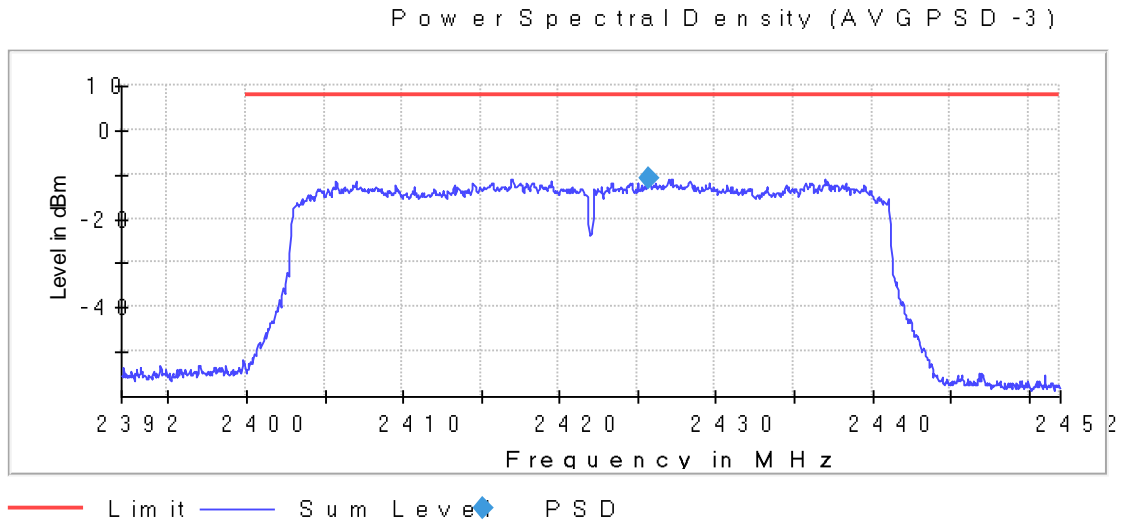
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



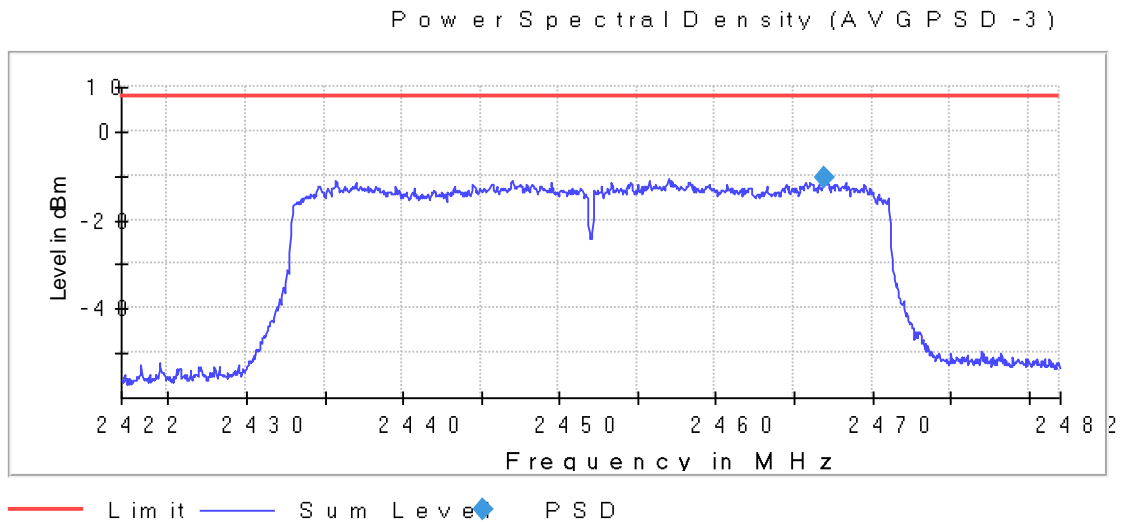
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



### Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39700 GHz	2.42200 GHz	2.44700 GHz
Stop Frequency	2.42700 GHz	2.45200 GHz	2.47700 GHz
Span	30/60.000 MHz	30/60.000 MHz	30/60.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
SweepPoints	600	600	600
Sweeptime	12.000 ms	12.000 ms	12.000 ms
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	RMS	RMS	RMS
SweepCount	5000	5000	5000
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	Sweep	Sweep	Sweep
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.50 dB	0.50 dB	0.50 dB
Run	6 / max. 15	4 / max. 15	6 / max. 15
Stable	1 / 1	1 / 1	1 / 1
Max Stable	0.28 dB	0.49 dB	0.49 dB

Modulation: 802.11ax HE20 Partial RU

**Results**

**Results**

Freq (MHz)	Equipment	BW (MHz)	PSD (dBm)
2412.00000	Digital		-3.78
2437.00000	Transmission	20	-2.50
2462.00000	System (DTS)		-2.89

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	Equipment	BW (MHz)	PSD (dBm)
2422.00000	Digital		-6.58
2437.00000	Transmission	40	-6.50
2452.00000	System (DTS)		-6.39

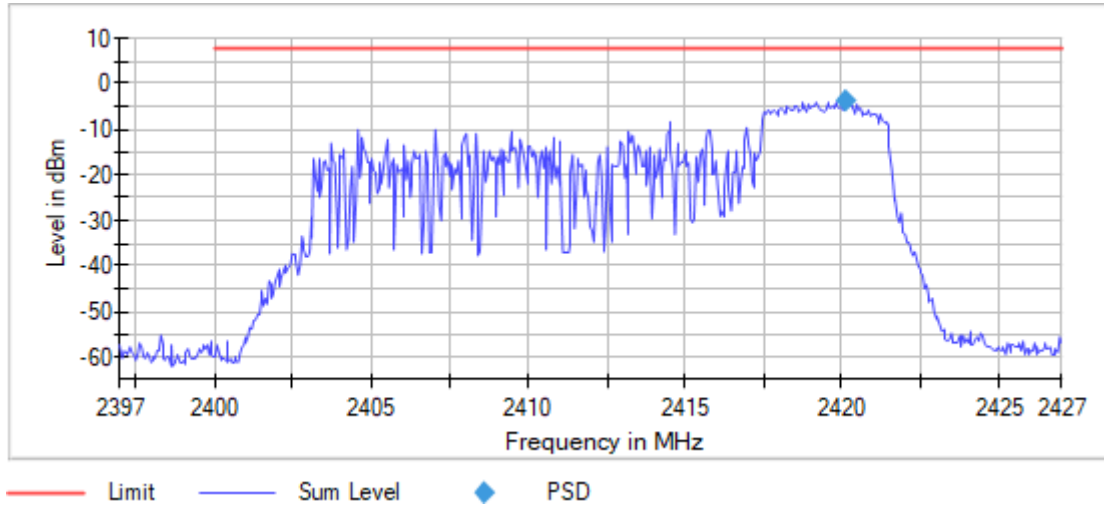
**Verdict**

Pass

**Attachments**

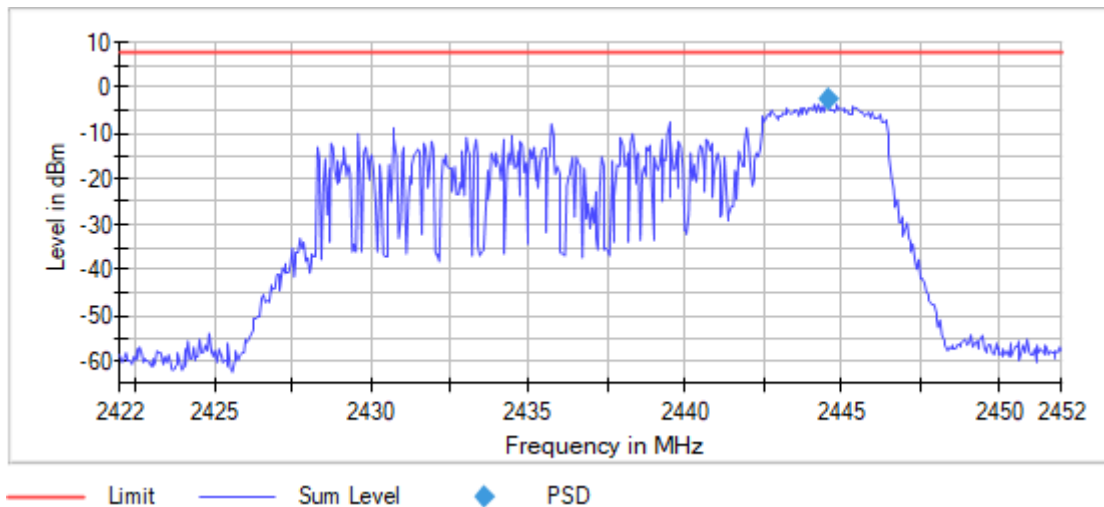
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



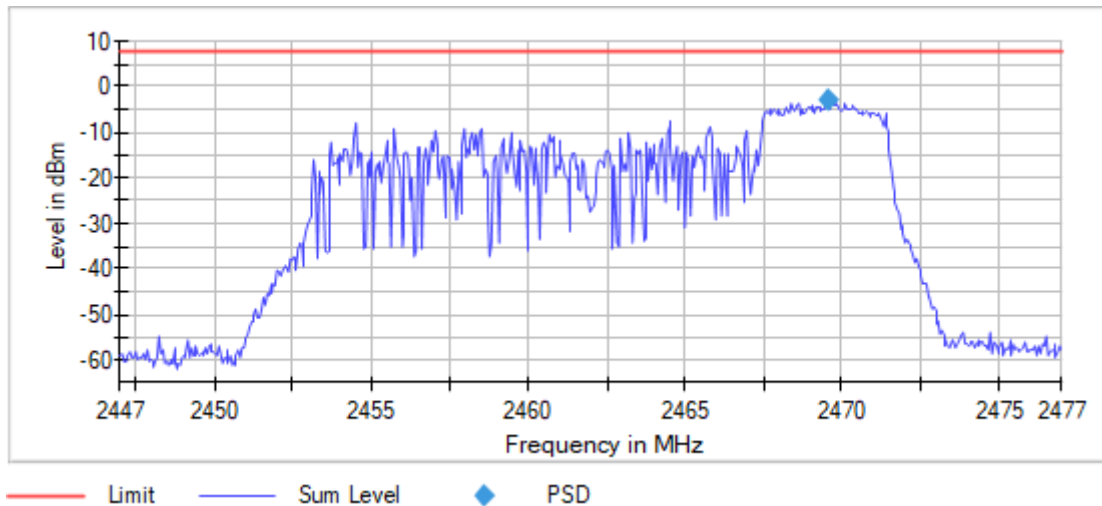
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



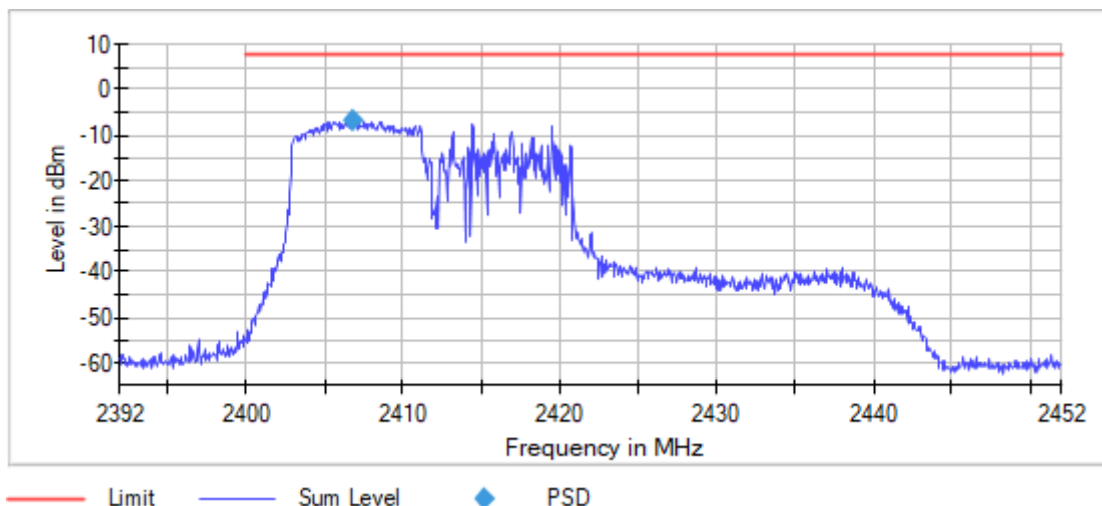
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



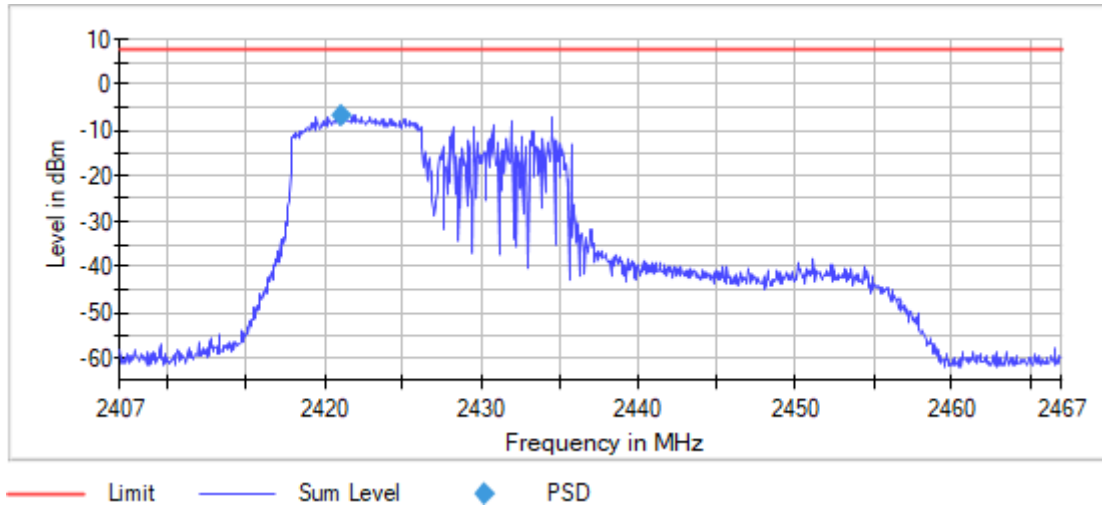
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



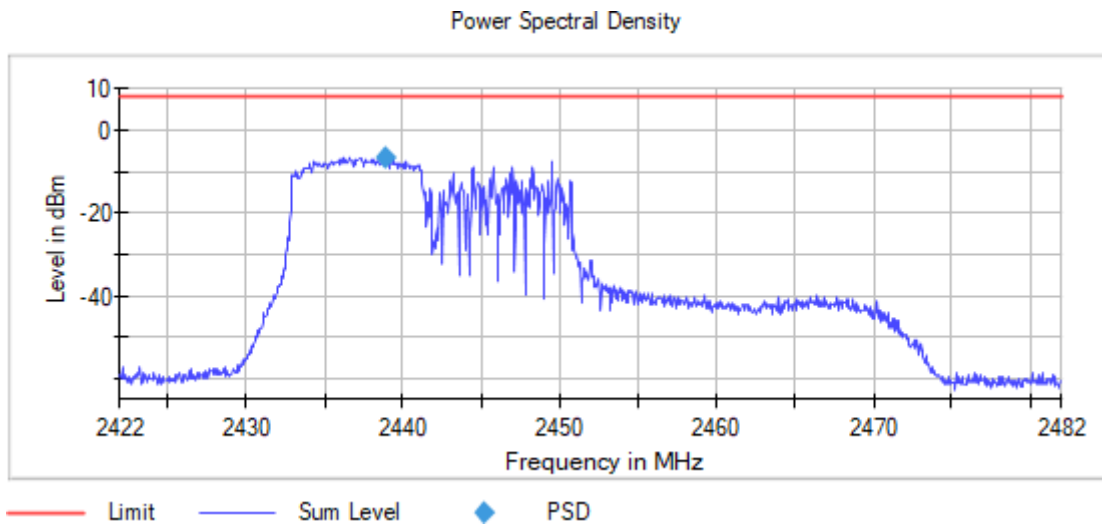
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:





### Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39700 GHz	2.42200 GHz	2.44700 GHz
Stop Frequency	2.42700 GHz	2.45200 GHz	2.47700 GHz
Span	30/60.000 MHz	30/60.000 MHz	30/60.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
SweepPoints	600	600	600
Sweeptime	12.000 ms	12.000 ms	12.000 ms
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	RMS	RMS	RMS
SweepCount	5000	5000	5000
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	Sweep	Sweep	Sweep
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.50 dB	0.50 dB	0.50 dB
Run	6 / max. 15	4 / max. 15	6 / max. 15
Stable	1 / 1	1 / 1	1 / 1
Max Stable	0.28 dB	0.49 dB	0.49 dB

**RSS-247 5.4 (d) / FCC 15.247 (b) (1) Maximum Average Conducted Output Power**

**Limits**

For systems using digital modulation in the 2400 -2483.5 MHz band: 1 watt (30 dBm).  
 The e.i.r.p. shall not exceed 4 W (36 dBm) (RSS-247).

Antenna gain: -2.5 dBi

Modulation: 802.11b

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2412.00000		8.13
2437.00000	20	9.20
2462.00000		8.57

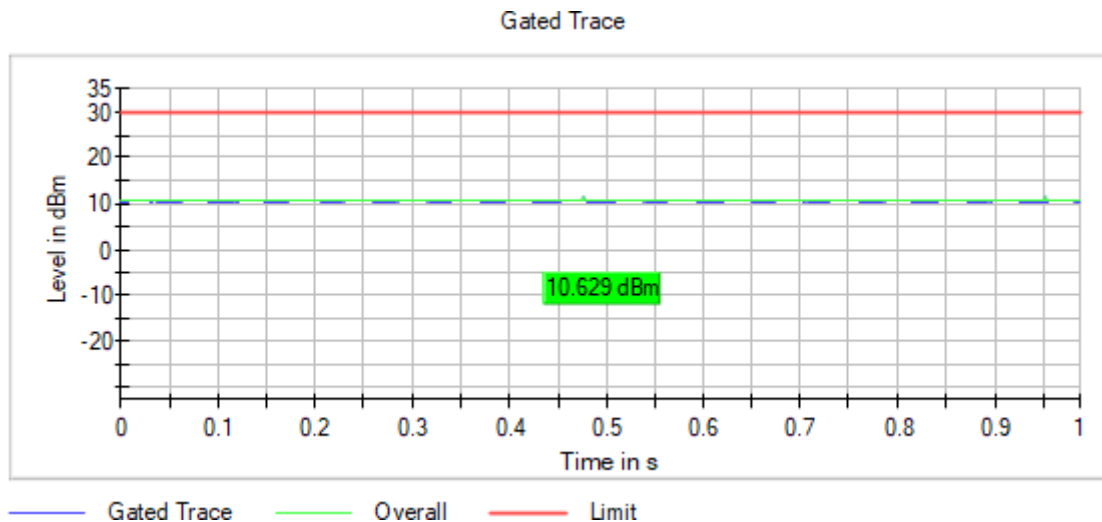
**Verdict**

Pass

**Attachments**

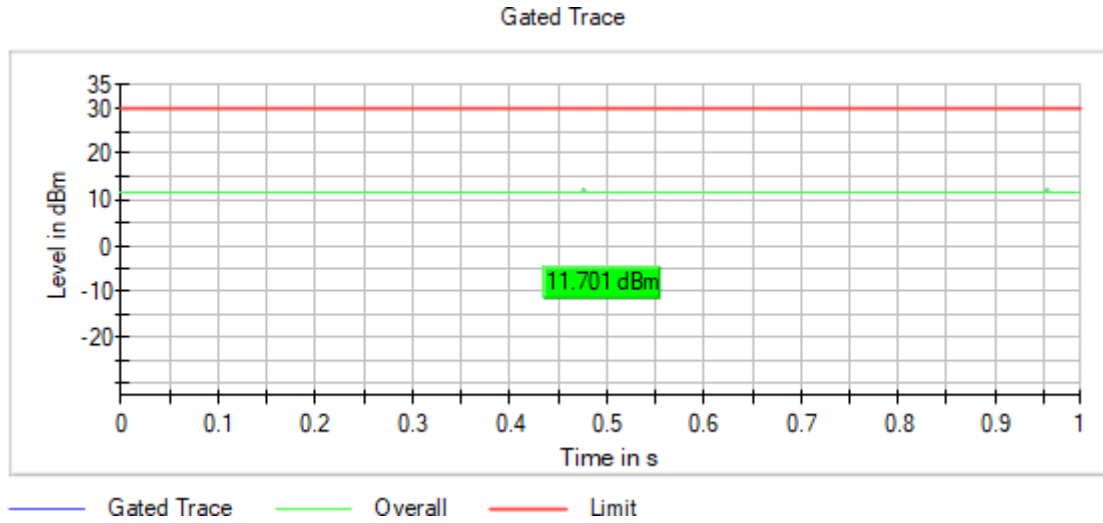
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1, Modulation = 802.11b , Number of Transmission Chains = 1,

**Images:**



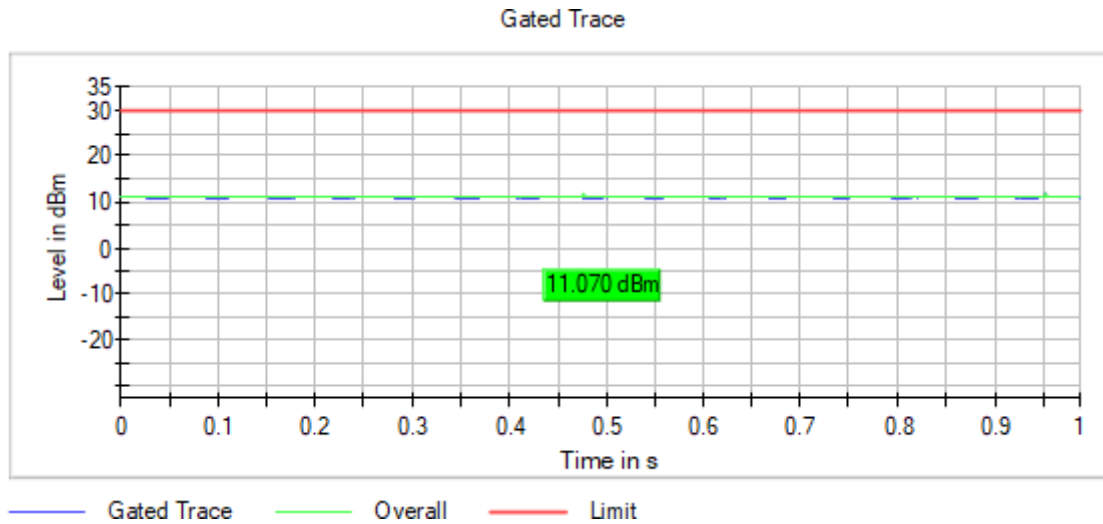
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1,  
Modulation = 802.11b , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11b , Number of Transmission Chains = 1,

Images:



Antenna gain: -2.5 dBi

Modulation: 802.11g

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2412.00000		4.54
2437.00000	20	5.26
2462.00000		5.52

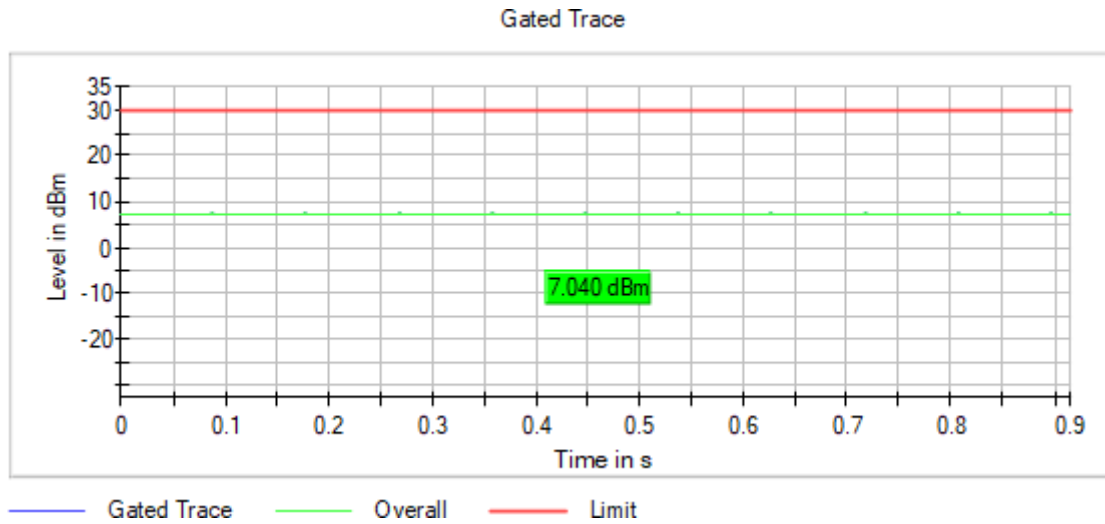
**Verdict**

Pass

**Attachments**

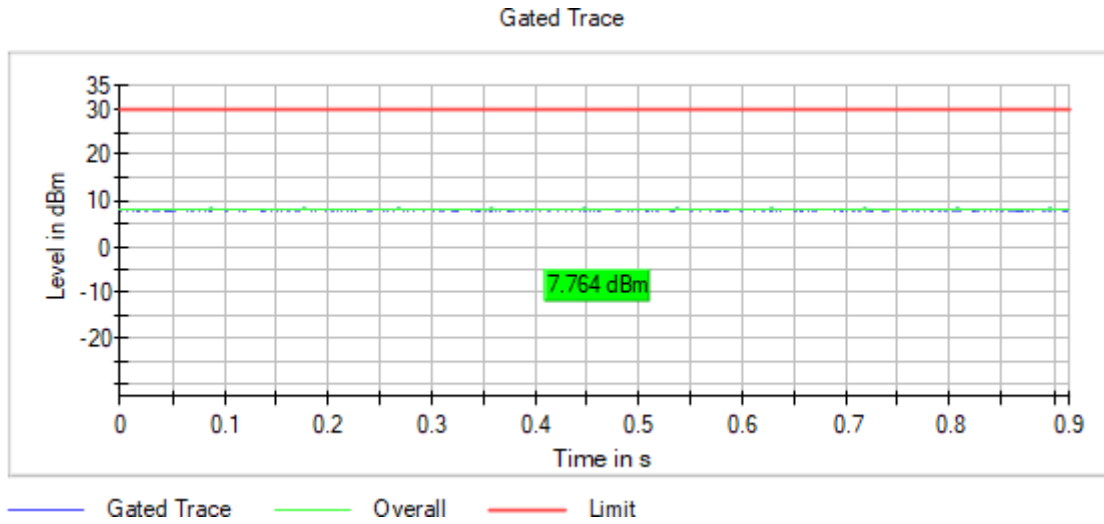
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1, Modulation = 802.11g , Number of Transmission Chains = 1,

**Images:**



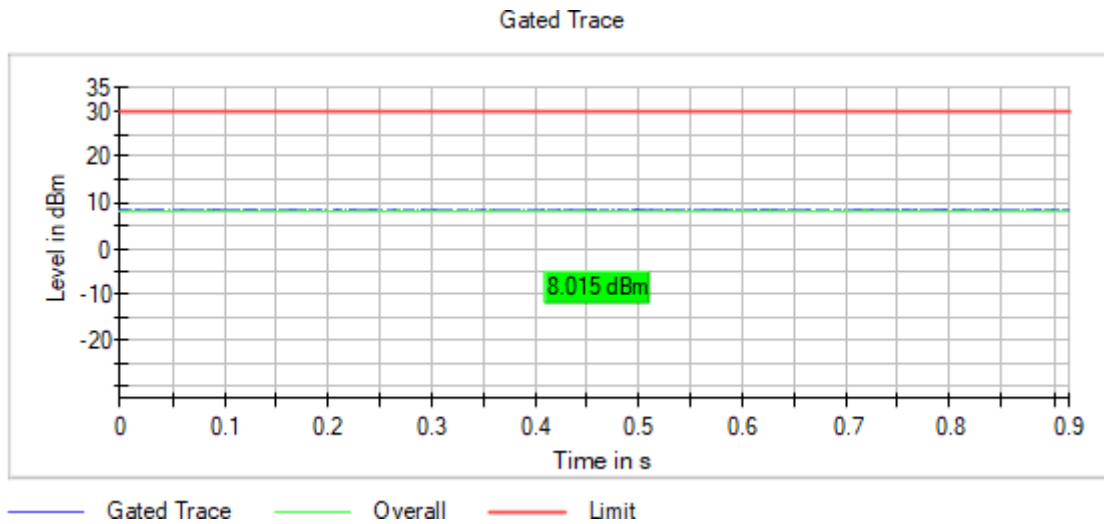
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1,  
Modulation = 802.11g , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11g , Number of Transmission Chains = 1,

Images:



Antenna gain: -2.5 dBi

Modulation: 802.11n

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2412.00000	20	2.93
2437.00000		3.63
2462.00000		3.66

Modulation: 802.11n

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2422.00000	40	3.99
2437.00000		4.43
2452.00000		4.87

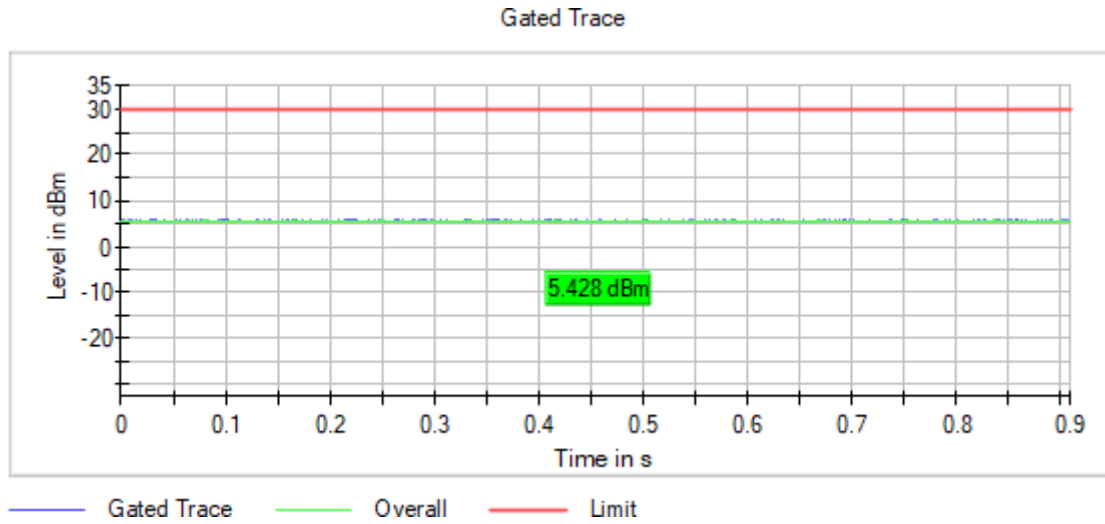
**Verdict**

Pass

**Attachments**

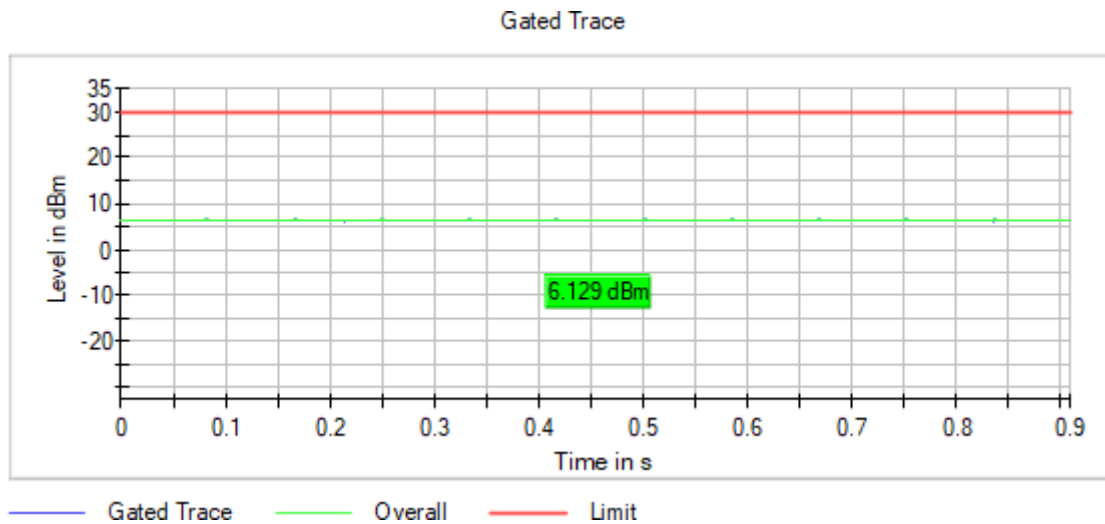
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11n , Number of Transmission Chains = 1,**

**Images:**



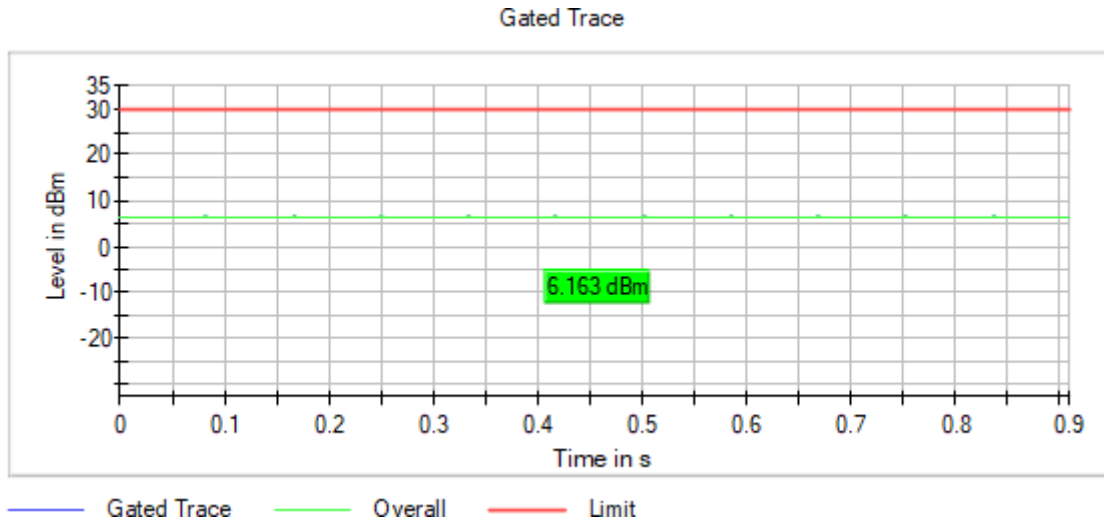
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11n , Number of Transmission Chains = 1,**

**Images:**



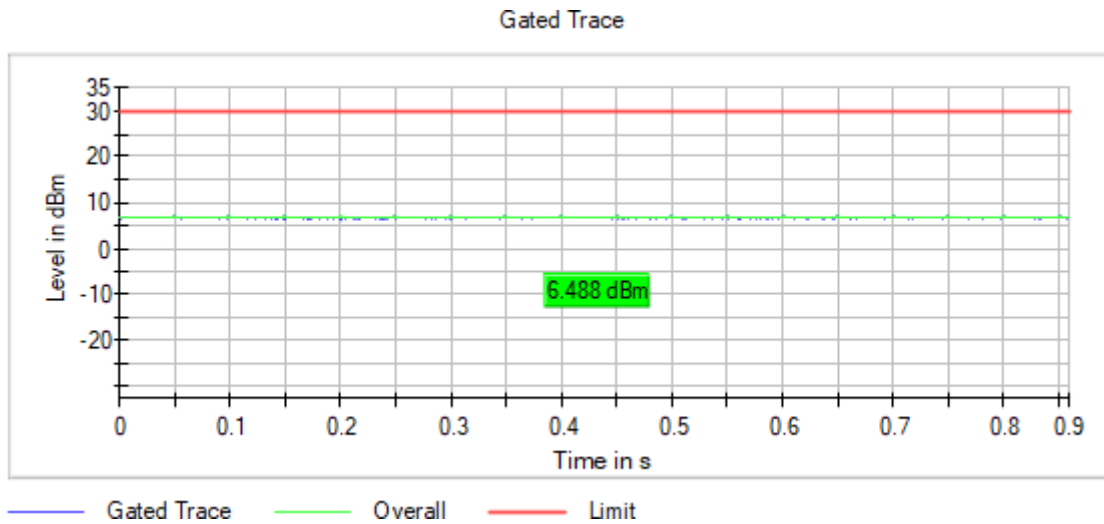
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1,  
Modulation = 802.11n , Number of Transmission Chains = 1,

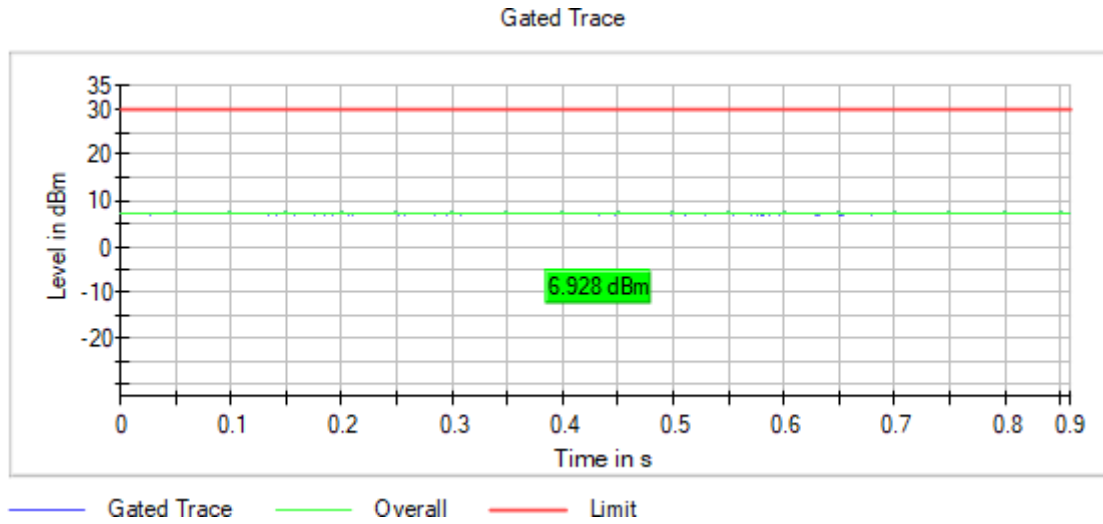
Images:





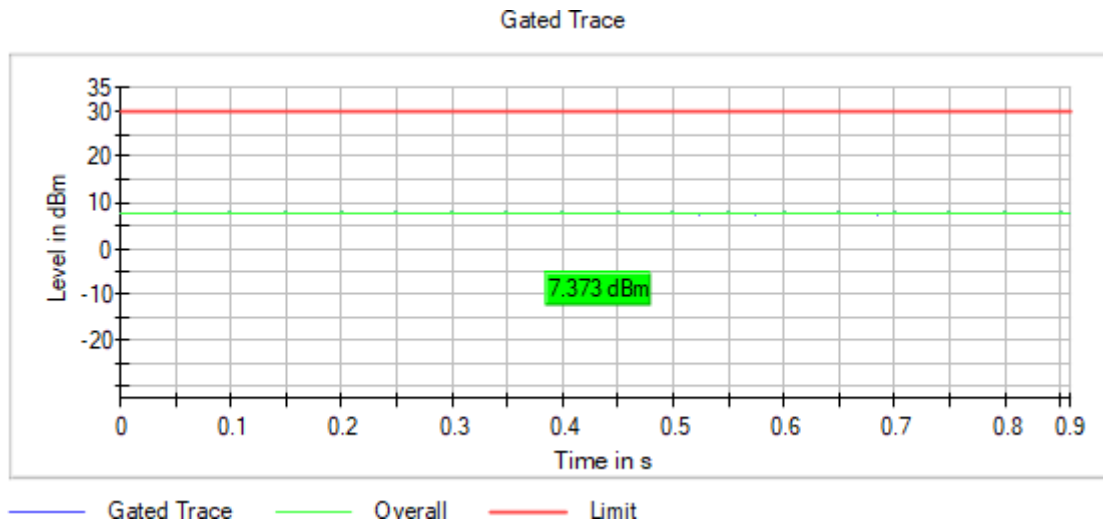
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



Antenna gain: -2.5 dBi

Modulation: 802.11ax HE20 Full RU

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2412.00000	20	5.6
2437.00000		6.0
2462.00000		5.9

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2422.00000	40	5.9
2437.00000		6.1
2452.00000		6.2

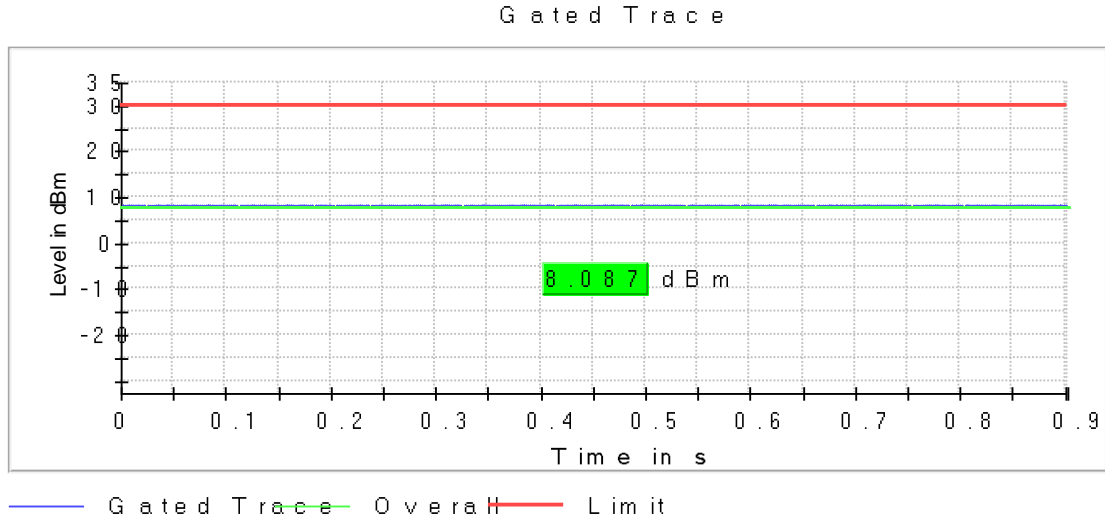
**Verdict**

Pass

**Attachments**

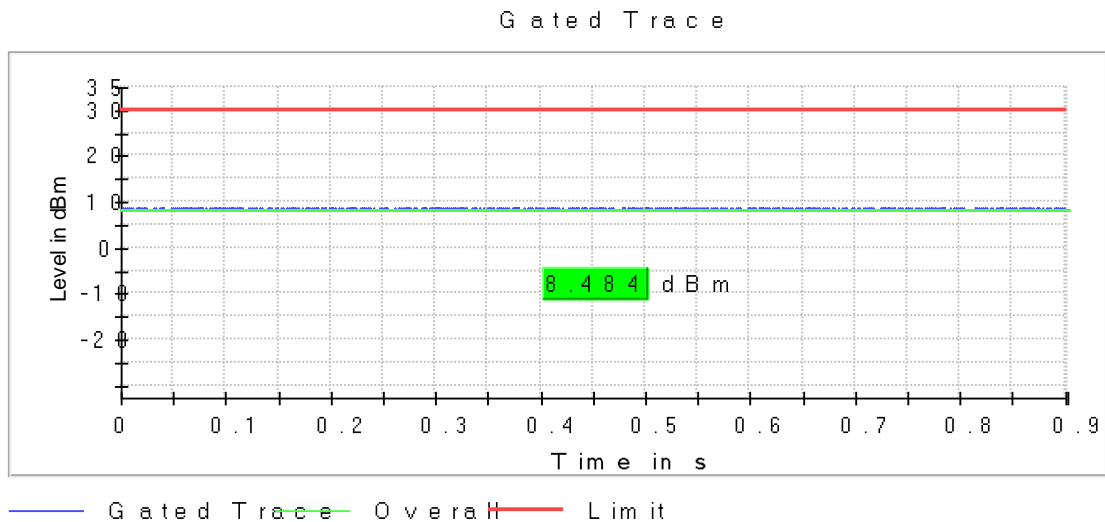
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



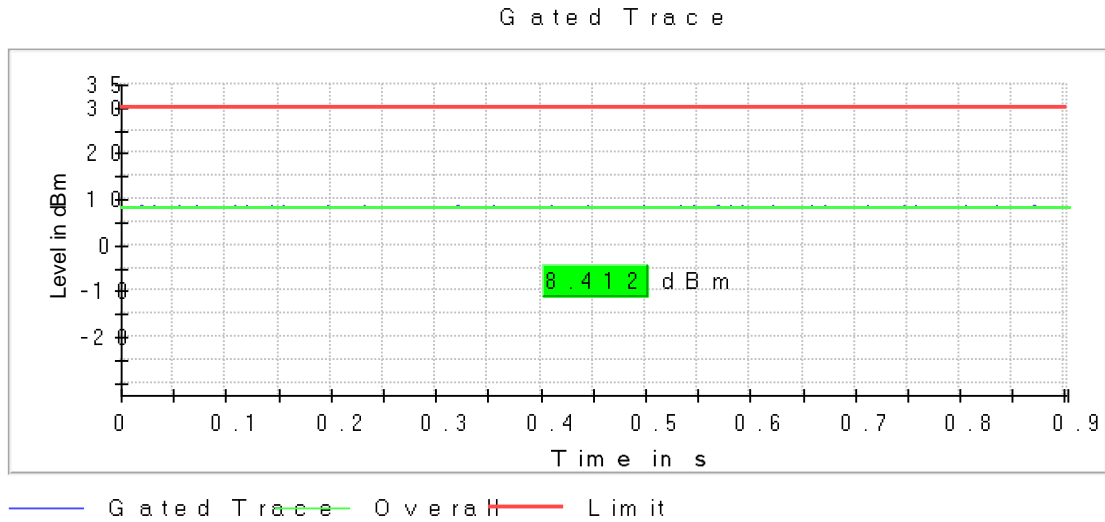
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



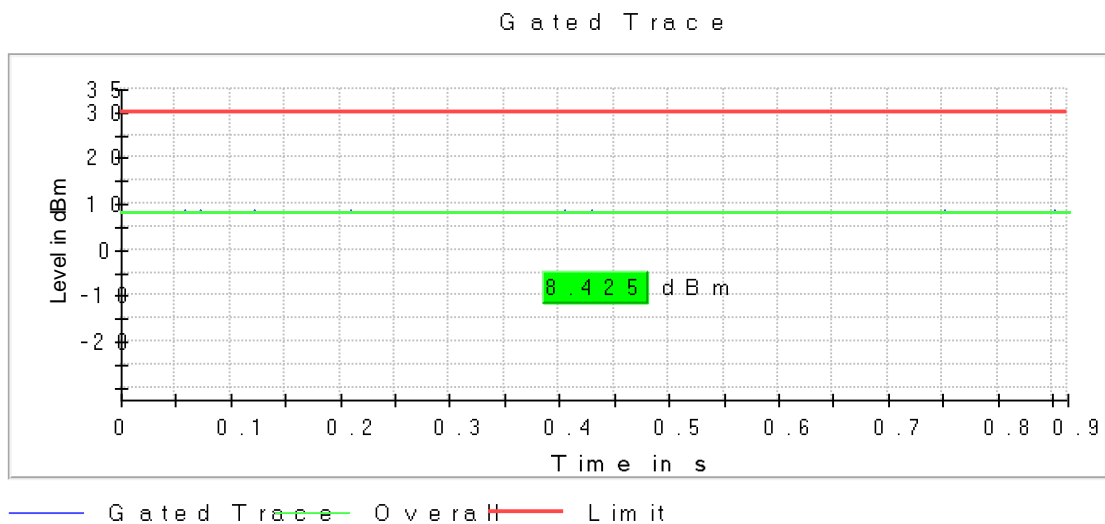
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



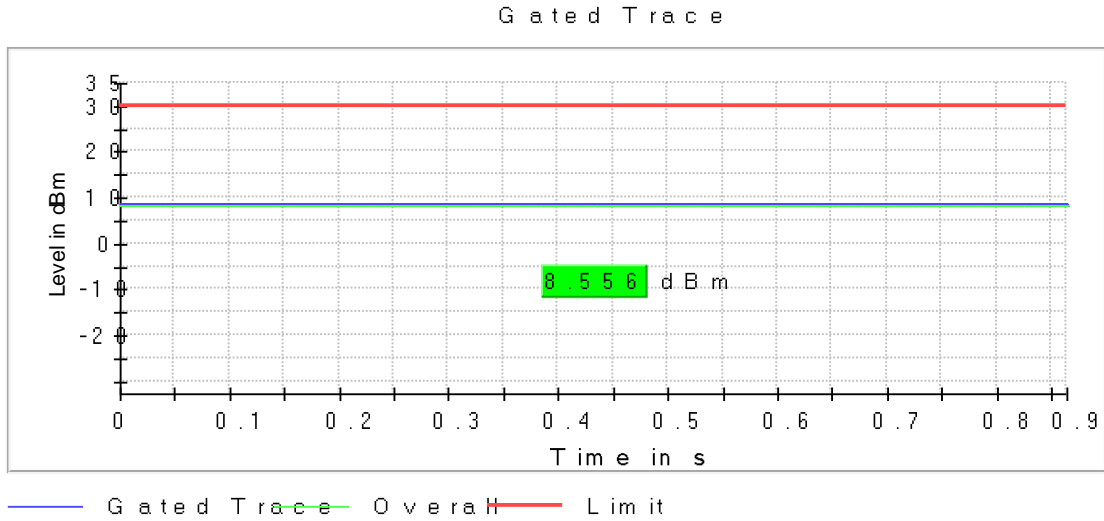
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE40 , Number of Transmission Chains = 1,

Images:



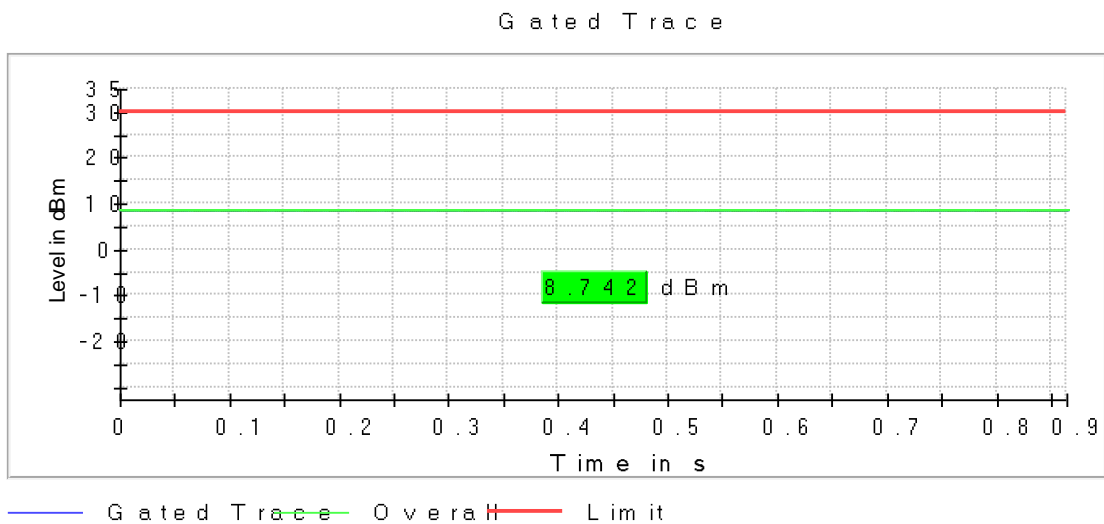
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
 Modulation = 802.11ax HE40 , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
 Modulation = 802.11ax HE40 , Number of Transmission Chains = 1,

Images:



**OSP PowerMeter settings**

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

Antenna gain: -2.5 dBi

Modulation: 802.11ax HE20 Partial RU

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2412.00000	20	4.33
2437.00000		5.00
2462.00000		4.93

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2422.00000	40	4.36
2437.00000		4.77
2452.00000		5.06

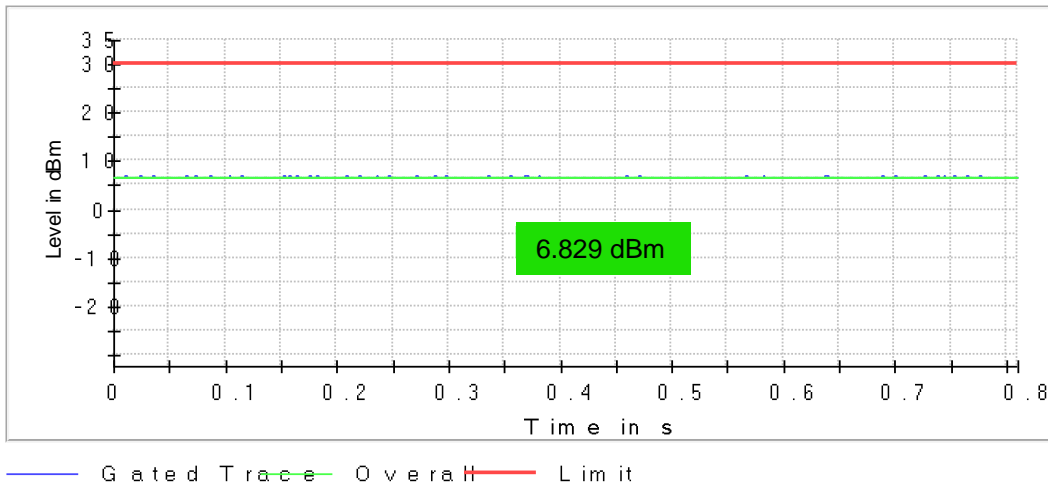
**Verdict**

Pass

**Attachments**

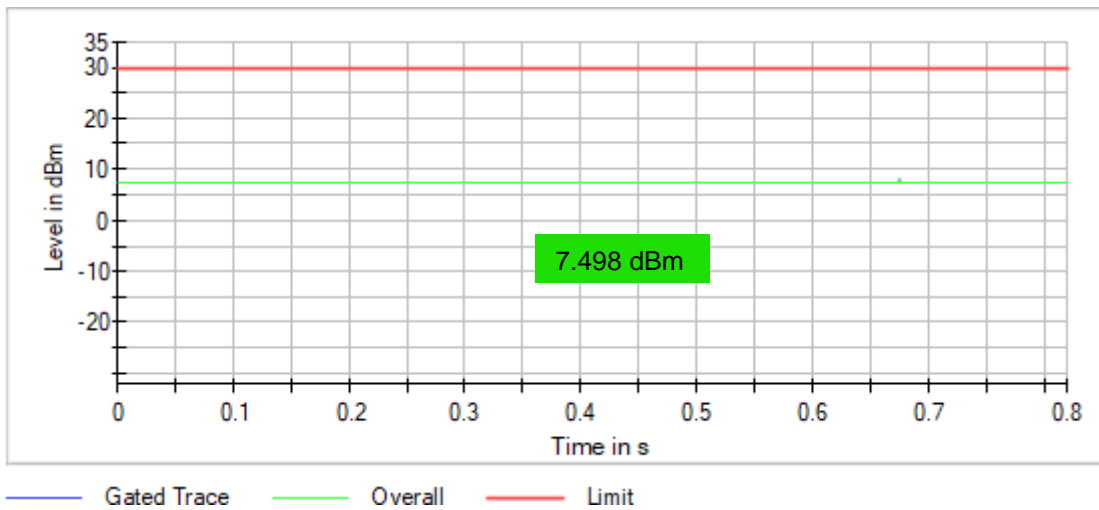
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



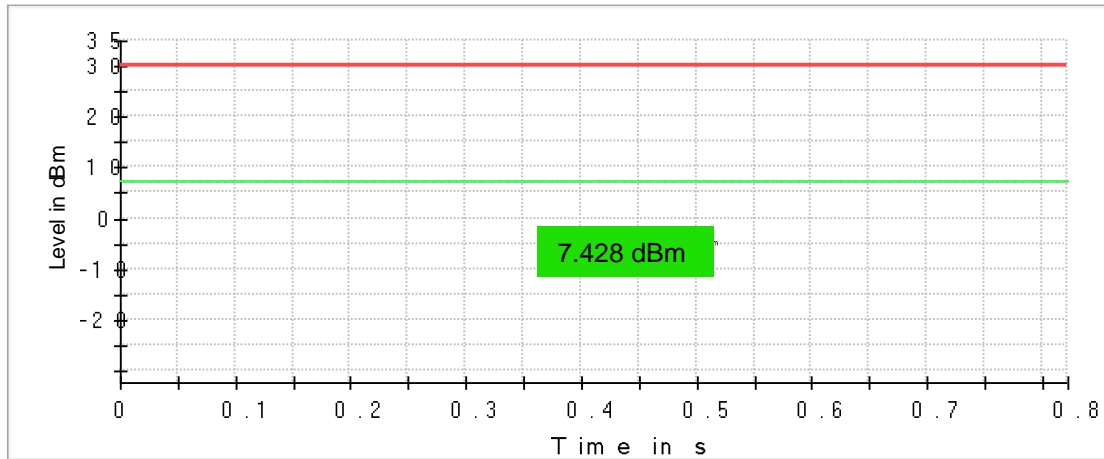
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



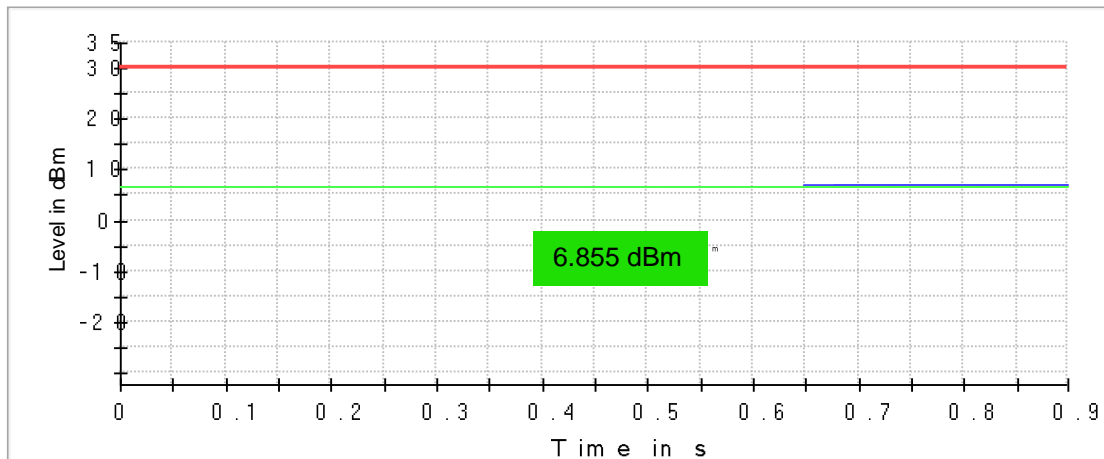
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE40 , Number of Transmission Chains = 1,

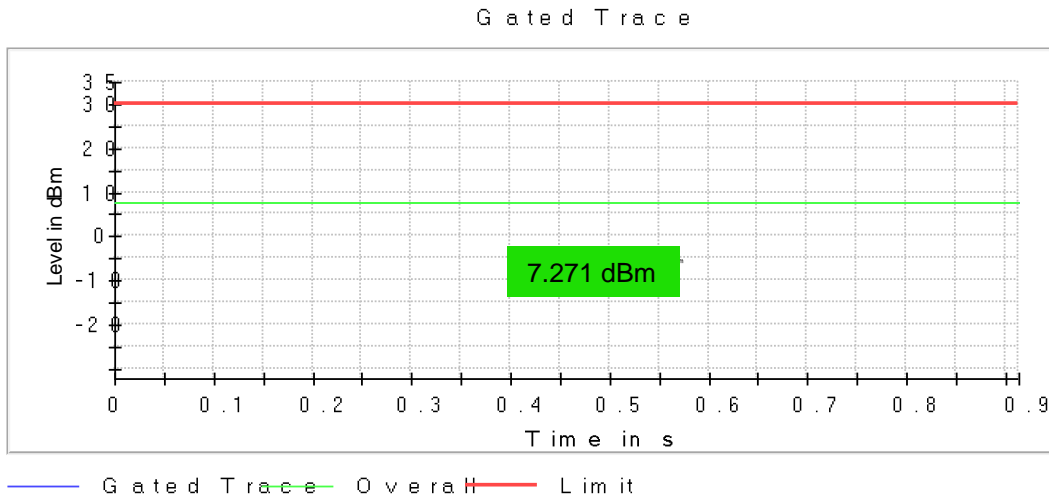
Images:





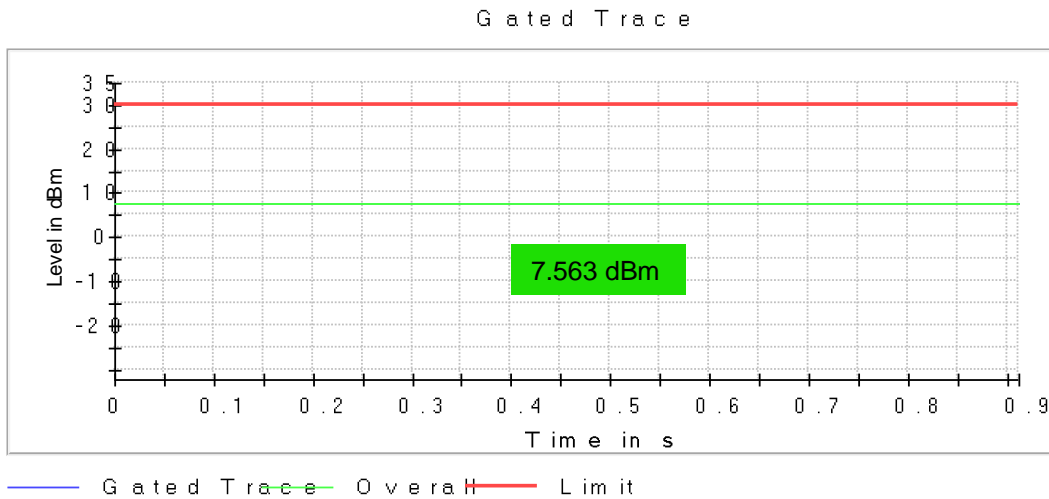
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
 Modulation = 802.11ax HE40 , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
 Modulation = 802.11ax HE40 , Number of Transmission Chains = 1,

Images:



**OSP PowerMeter settings**

Setting	Instrument Value
Measurement Time	1.000 s
Points	100000
Time resolution	1.000 µs

**RSS-247 5.5 / FCC 15.247 (d) Band-edge emissions compliance (Transmitter)**

**Limits**

In any 100 kHz bandwidths outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Modulation: 802.11b

**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2355.575000	-53.6
20	2484.475000	-54.0
20	2484.525000	-54.0
20	2343.275000	-53.7
20	2488.025000	-54.2
20	2355.625000	-53.7
20	2488.075000	-54.4
20	2370.975000	-53.8
20	2492.475000	-54.5
20	2370.925000	-53.9
20	2484.575000	-54.6
20	2343.325000	-53.9
20	2314.025000	-54.3
20	2492.425000	-54.7
20	2359.625000	-54.3
20	2494.175000	-54.7
20	2320.725000	-54.3
20	2483.525000	-54.8
20	2484.625000	-54.8
20	2320.675000	-54.3
20	2314.075000	-54.3
20	2489.925000	-54.9
20	2492.375000	-54.9
20	2311.875000	-54.3
20	2337.875000	-54.3
20	2484.425000	-55.0
20	2337.925000	-54.5

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2492.525000	-55.0
20	2351.775000	-54.5
20	2483.575000	-55.0

**Verdict**

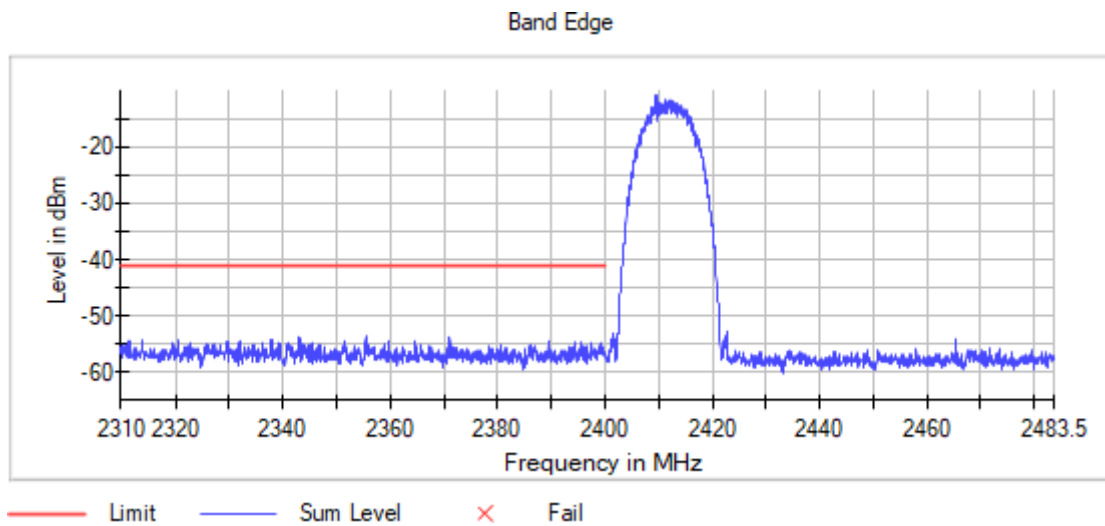
Pass

**Attachments**

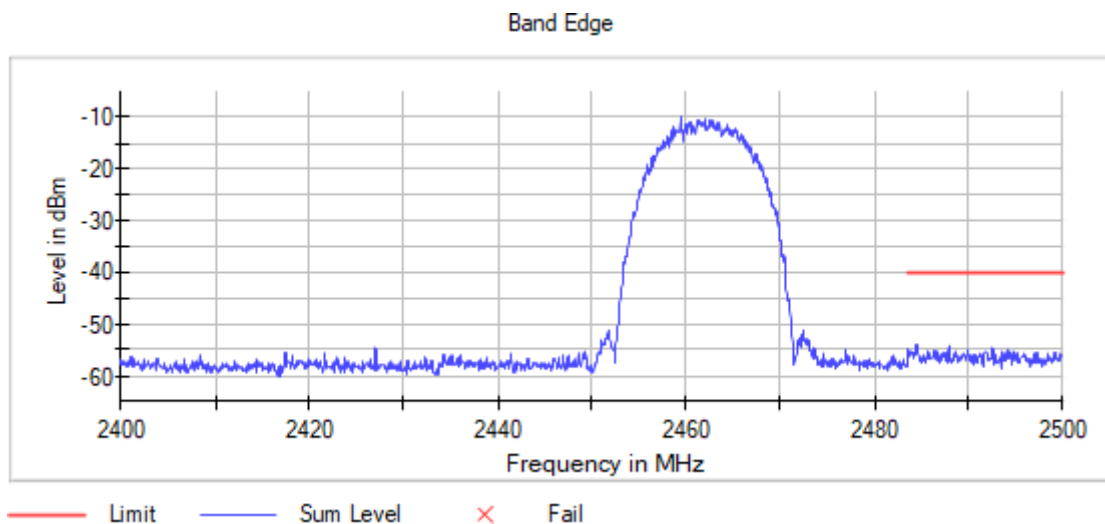
Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11b ,  
 Number of Transmission Chains = 1, Measurement Point = 1,

**Images:**

**Low Channel:**



**High Channel:**



Modulation: 802.11g

**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2484.225000	-53.7
20	2397.475000	-53.2
20	2397.425000	-53.2
20	2484.175000	-53.7
20	2483.525000	-54.5
20	2355.925000	-53.4
20	2355.975000	-53.5
20	2498.225000	-54.6
20	2395.425000	-53.6
20	2498.275000	-54.7
20	2395.475000	-53.6
20	2487.875000	-54.8
20	2483.575000	-54.9
20	2397.525000	-53.6
20	2396.375000	-53.7
20	2487.175000	-54.9
20	2396.425000	-53.8
20	2487.275000	-54.9
20	2499.775000	-54.9
20	2366.475000	-53.9
20	2499.725000	-55.0
20	2366.525000	-54.0
20	2397.075000	-54.2
20	2484.425000	-55.0
20	2399.475000	-54.2
20	2487.225000	-55.0
20	2484.475000	-55.0
20	2380.925000	-54.3
20	2486.525000	-55.0
20	2397.575000	-54.3

**Verdict**

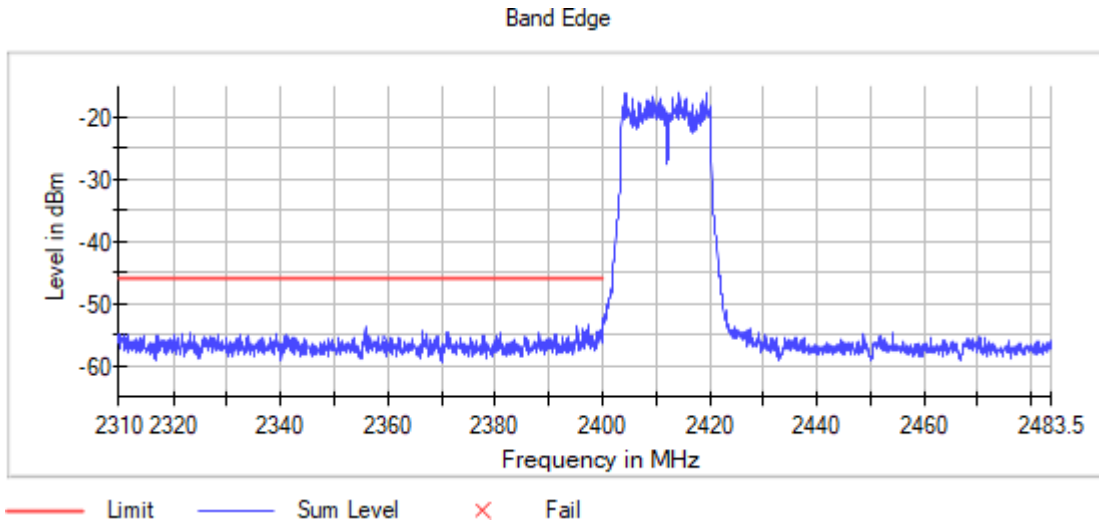
Pass

**Attachments**

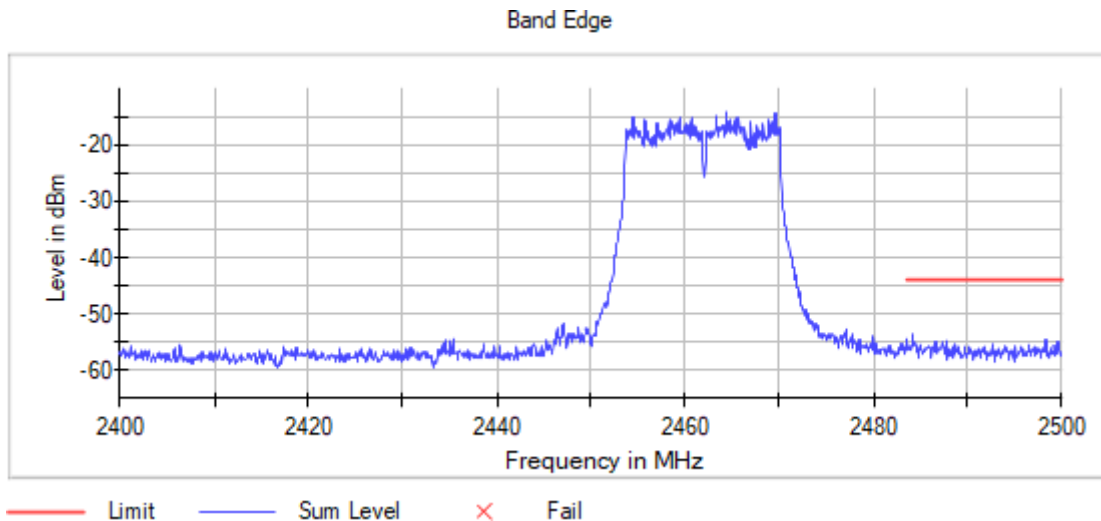
**Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11g ,  
Number of Transmission Chains = 1, Measurement Point = 1,**

**Images:**

**Low Channel:**



**High Channel:**



Modulation: 802.11n

**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2496.175000	-53.9
20	2399.975000	-52.4
20	2496.225000	-54.3
20	2399.925000	-53.4
20	2399.325000	-53.5
20	2484.675000	-54.4
20	2399.275000	-53.6
20	2483.625000	-54.4
20	2357.775000	-53.7
20	2483.875000	-54.5
20	2357.725000	-53.8
20	2497.575000	-54.5
20	2495.275000	-54.5
20	2394.725000	-54.0
20	2355.575000	-54.0
20	2489.275000	-54.5
20	2489.325000	-54.5
20	2355.625000	-54.2
20	2399.875000	-54.3
20	2484.575000	-54.6
20	2361.075000	-54.4
20	2491.725000	-54.6
20	2483.925000	-54.6
20	2353.925000	-54.4
20	2361.125000	-54.4
20	2497.625000	-54.7
20	2484.725000	-54.7
20	2399.375000	-54.5
20	2394.675000	-54.5
20	2491.675000	-54.8

BW (MHz)	Freq (MHz)	Lvl (dBm)
40	2340.975000	-54.3
40	2497.775000	-54.5
40	2351.475000	-54.3
40	2497.725000	-54.5
40	2335.375000	-54.4
40	2493.225000	-54.5
40	2494.675000	-54.5
40	2328.725000	-54.5
40	2312.825000	-54.5
40	2497.825000	-54.6
40	2335.425000	-54.5
40	2485.275000	-54.6
40	2485.325000	-53.5
40	2399.475000	-52.6
40	2399.425000	-52.6
40	2493.275000	-53.6
40	2485.375000	-53.8
40	2399.525000	-53.0
40	2483.575000	-53.9
40	2399.575000	-53.4
40	2493.325000	-53.9
40	2398.225000	-53.6
40	2485.025000	-54.1
40	2398.275000	-53.7
40	2485.075000	-54.3
40	2399.375000	-54.1
40	2351.425000	-54.2
40	2483.625000	-54.4
40	2484.875000	-54.4
40	2398.175000	-54.3

**Verdict**

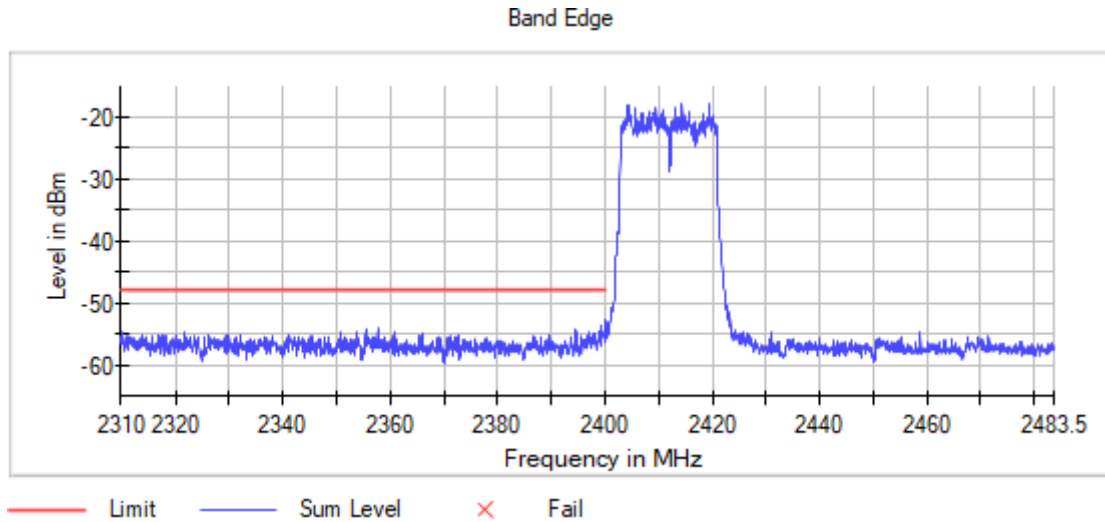
Pass

**Attachments**

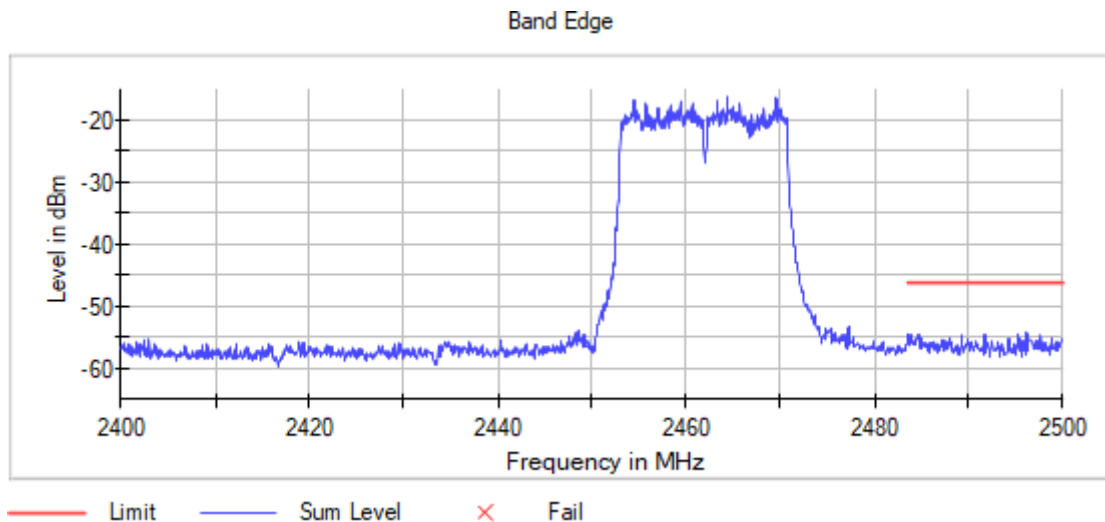
**Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11n ,  
Number of Transmission Chains = 1, Measurement Point = 1,**

**Images:**

**Low Channel:**



**High Channel:**

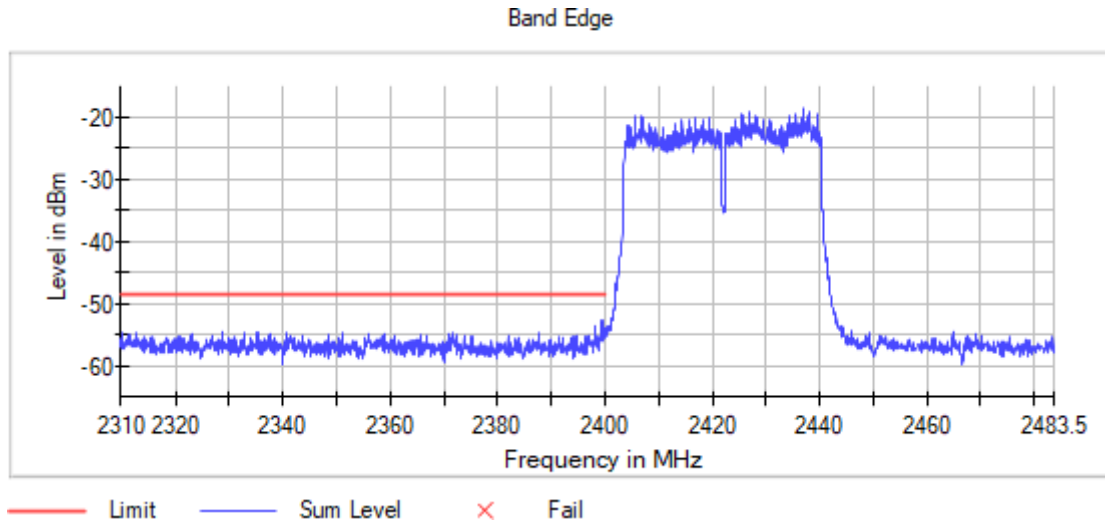




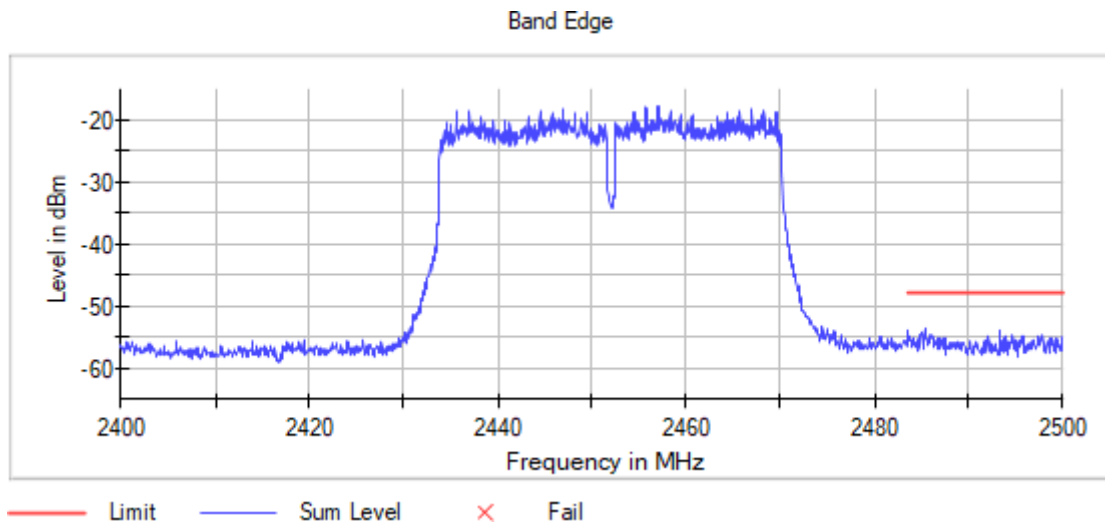
Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40, Modulation = 802.11n ,  
Number of Transmission Chains = 1, Measurement Point = 1,

Images:

Low Channel:



High Channel:



Modulation: 802.11ax HE20 Full RU

**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2396.975000	-49.1
20	2396.925000	-49.3
20	2399.975000	-49.8
20	2397.025000	-49.9
20	2399.925000	-49.9
20	2397.725000	-50.4
20	2399.325000	-50.6
20	2398.825000	-50.7
20	2399.625000	-50.9
20	2398.875000	-51.0
20	2398.725000	-51.0
20	2397.675000	-51.0
20	2399.575000	-51.0
20	2397.775000	-51.1
20	2394.275000	-51.3
20	2488.025000	-53.3
20	2487.975000	-53.7
20	2490.725000	-53.7
20	2483.575000	-53.9
20	2483.625000	-54.0
20	2485.125000	-54.3
20	2490.775000	-54.3
20	2483.525000	-54.3
20	2484.575000	-54.3
20	2483.825000	-54.3
20	2486.675000	-54.4
20	2483.775000	-54.4
20	2484.475000	-54.4
20	2499.075000	-54.5
20	2484.525000	-54.5
40	2386.225000	-47.2
40	2396.975000	-47.2
40	2386.275000	-47.3
40	2397.025000	-47.5
40	2394.475000	-47.7
40	2394.525000	-47.7

BW (MHz)	Freq (MHz)	Lvl (dBm)
40	2399.775000	-47.9
40	2399.725000	-48.0
40	2386.975000	-48.2
40	2387.025000	-48.3
40	2396.925000	-48.3
40	2394.575000	-48.4
40	2385.775000	-48.7
40	2385.725000	-48.8
40	2391.525000	-48.9
40	2489.475000	-45.3
40	2489.525000	-45.5
40	2484.775000	-46.3
40	2484.725000	-46.5
40	2488.275000	-46.6
40	2488.225000	-46.7
40	2485.725000	-46.8
40	2485.775000	-46.9
40	2489.425000	-47.1
40	2485.675000	-47.6
40	2488.175000	-47.8
40	2489.575000	-47.8
40	2484.525000	-48.1
40	2486.975000	-48.1
40	2488.325000	-48.1

**Verdict**

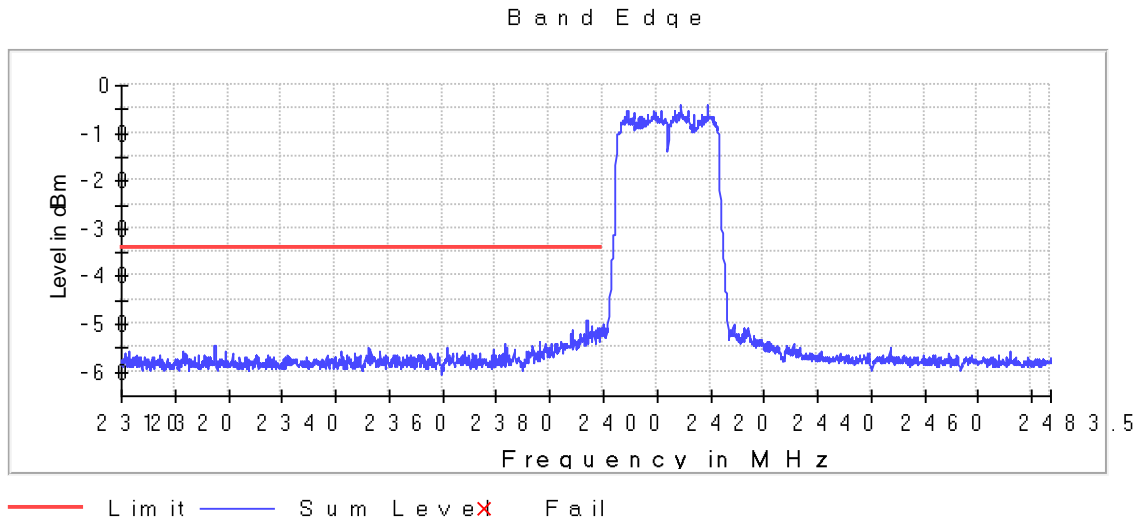
Pass

**Attachments**

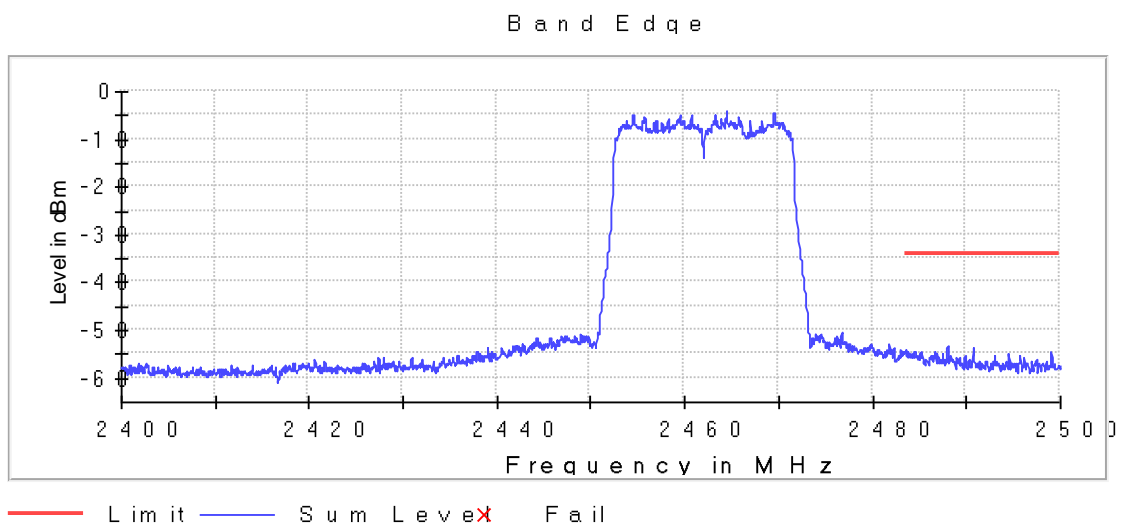
**Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 ,  
Number of Transmission Chains = 1, Measurement Point = 1,**

**Images:**

**Low Channel:**



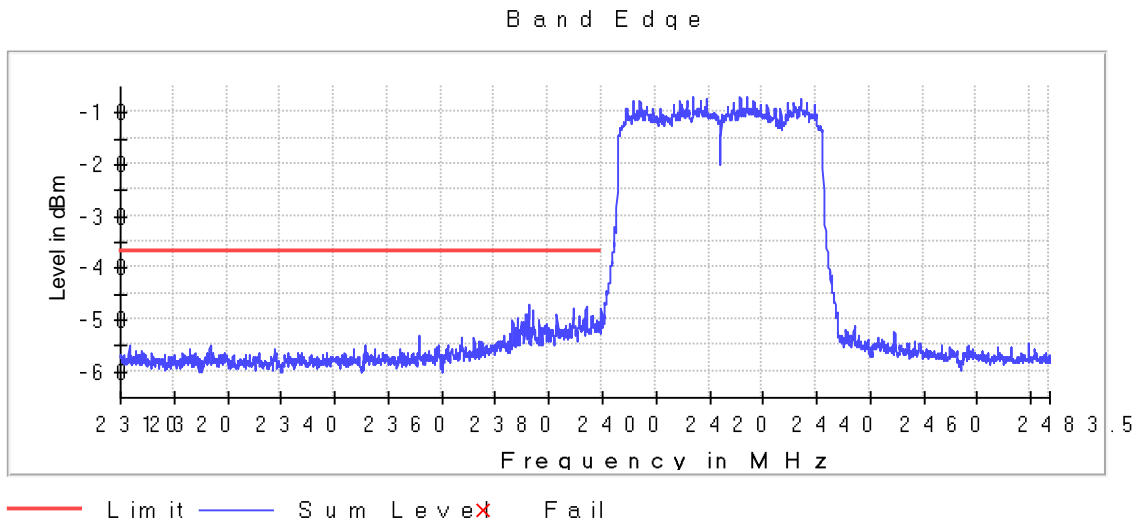
**High Channel:**



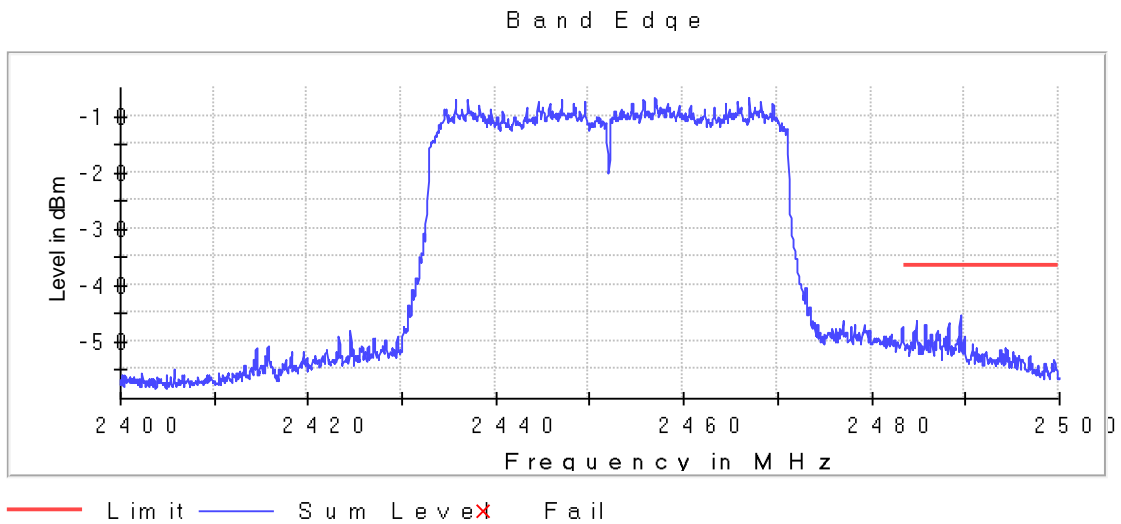
Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40, Modulation = 802.11ax HE40 ,  
Number of Transmission Chains = 1, Measurement Point = 1,

Images:

Low Channel:



High Channel:



## Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	2.31000	2.40000
Stop Frequency	2.40000	2.48350
Span	90.000 MHz	83.500 MHz
RBW	100.000	100.000
VBW	300.000	300.000
SweepPoints	1800	1670
Sweeptime	113.672 $\mu$ s	94.727 $\mu$ s
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max.	129 / max.
Stable	3 / 3	3 / 3
Max Stable	0.00 dB	0.31 dB

Modulation: 802.11ax HE20 Partial RU

**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2484.025000	-51.8
20	2399.775000	-49.2
20	2485.375000	-51.8
20	2399.725000	-49.4
20	2399.825000	-49.8
20	2485.425000	-51.9
20	2399.875000	-49.9
20	2483.975000	-51.9
20	2483.575000	-52.1
20	2397.625000	-50.2
20	2396.425000	-50.2
20	2483.625000	-52.2
20	2397.575000	-50.6
20	2484.325000	-52.3
20	2396.475000	-50.7
20	2484.475000	-52.3
20	2399.475000	-50.8
20	2484.375000	-52.5
20	2397.525000	-50.9
20	2484.425000	-52.6
20	2483.525000	-52.7
20	2399.225000	-50.9
20	2490.375000	-52.8
20	2399.175000	-50.9
20	2484.125000	-52.8
20	2399.525000	-51.0
20	2397.675000	-51.0
20	2487.075000	-52.9
20	2397.475000	-51.2
20	2484.075000	-53.0
40	2399.475000	-49.8

BW (MHz)	Freq (MHz)	Lvl (dBm)
40	2499.875000	-53.7
40	2399.875000	-50.1
40	2498.975000	-53.7
40	2398.225000	-50.1
40	2484.725000	-53.7
40	2399.325000	-50.3
40	2486.475000	-53.7
40	2398.275000	-50.6
40	2484.675000	-53.7
40	2399.125000	-50.7
40	2496.225000	-53.8
40	2399.425000	-48.7
40	2499.825000	-53.2
40	2492.675000	-53.4
40	2399.375000	-48.8
40	2485.875000	-53.4
40	2399.775000	-48.9
40	2499.025000	-53.5
40	2399.575000	-49.0
40	2496.875000	-53.5
40	2399.725000	-49.0
40	2496.975000	-53.5
40	2399.825000	-49.3
40	2496.175000	-53.6
40	2399.525000	-49.3
40	2496.825000	-53.6
40	2399.975000	-49.8
40	2399.625000	-49.8
40	2486.425000	-53.6

**Verdict**

Pass

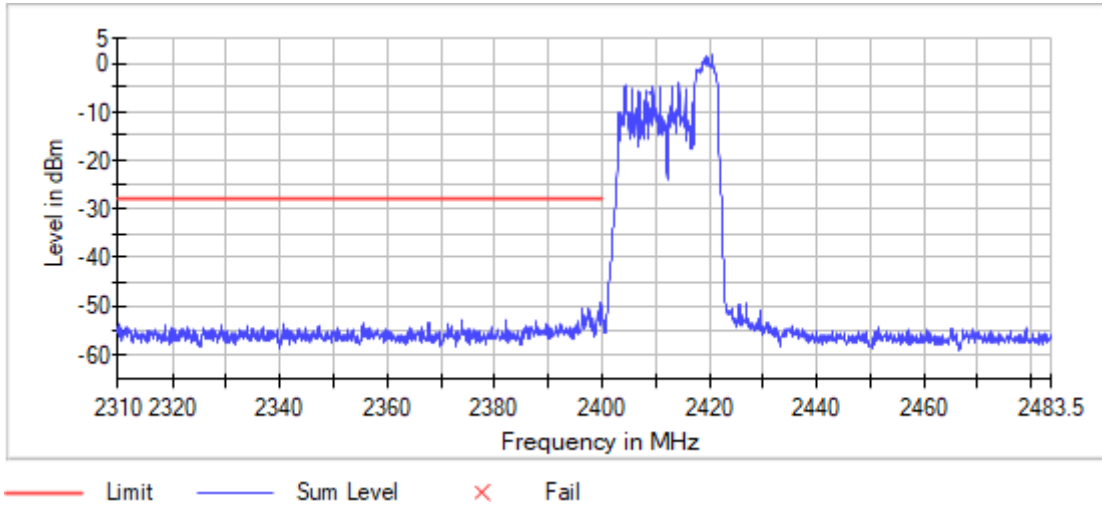


**Attachments**

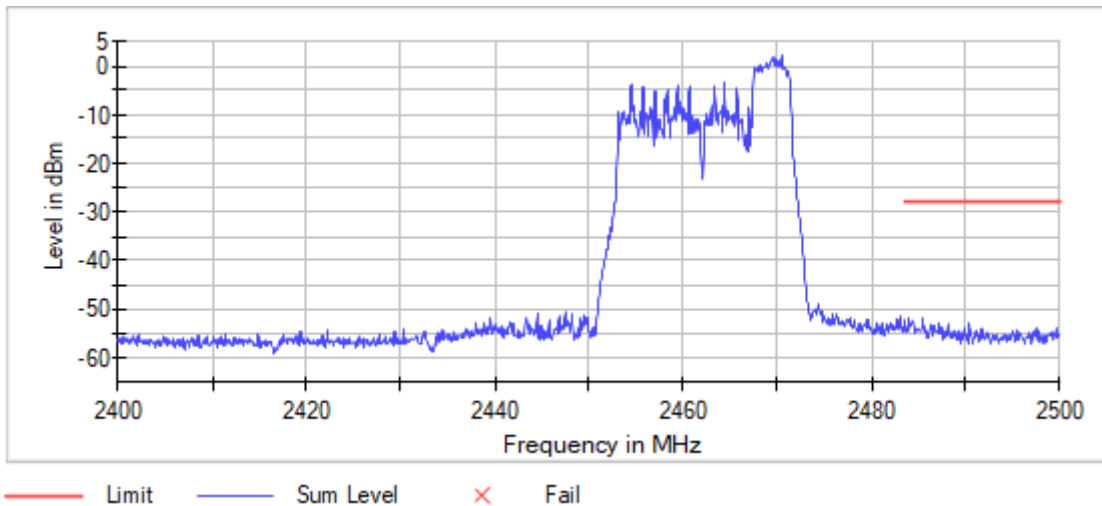
**Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 ,  
Number of Transmission Chains = 1, Measurement Point = 1,**

**Images:**

**Low Channel:**



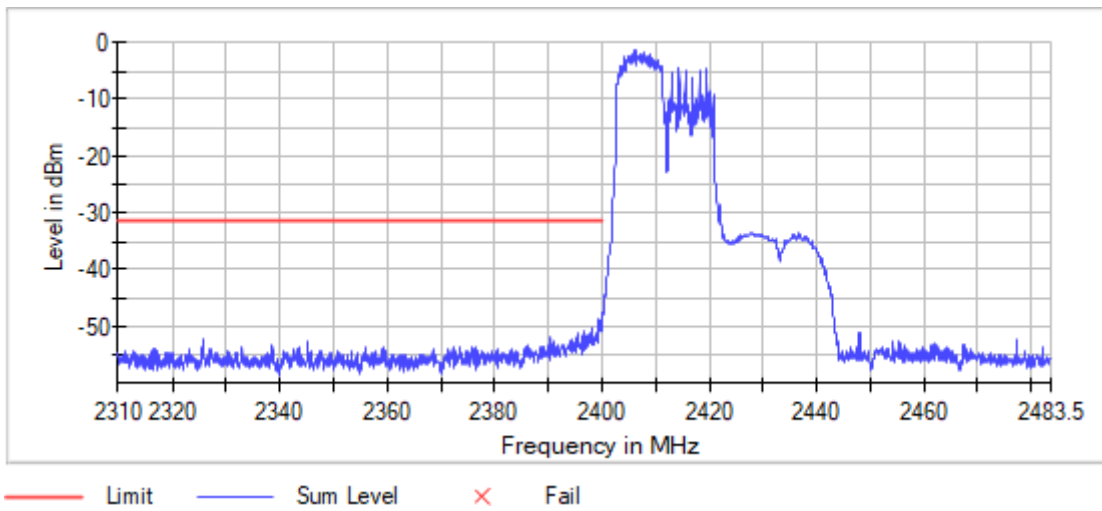
**High Channel:**



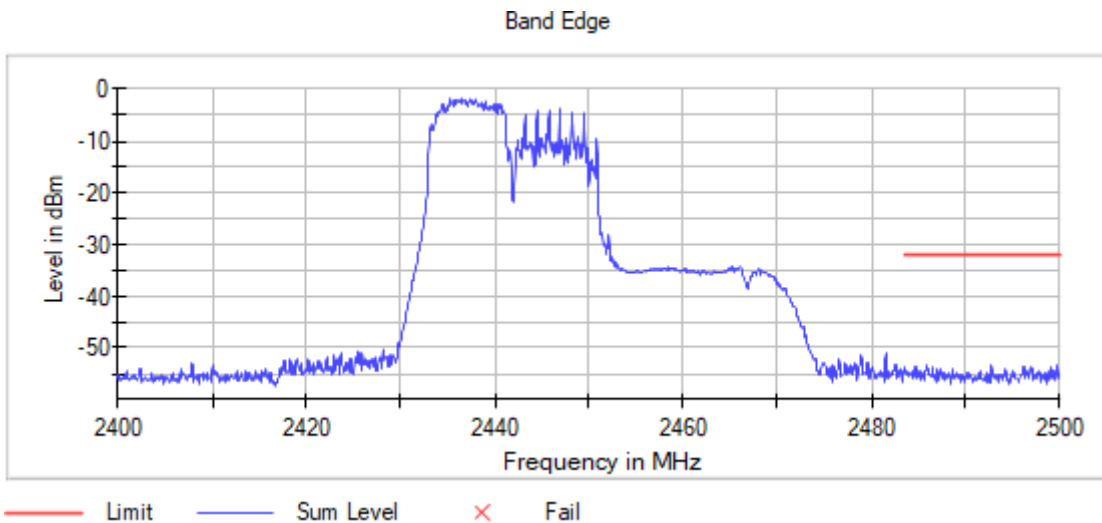
Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40, Modulation = 802.11ax HE40 ,  
Number of Transmission Chains = 1, Measurement Point = 1,

Images:

Low Channel:



High Channel:



## Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	2.31000	2.40000
Stop Frequency	2.40000	2.48350
Span	90.000 MHz	83.500 MHz
RBW	100.000	100.000
VBW	300.000	300.000
SweepPoints	1800	1670
Sweeptime	113.672 $\mu$ s	94.727 $\mu$ s
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max.	129 / max.
Stable	3 / 3	3 / 3
Max Stable	0.00 dB	0.31 dB

**FCC 2.1049 / 99dBw Occupied Channel Bandwidth 99%**

**Limits**

No Limit has been set to this test case

Modulation: 802.11b

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2412.00000	20	13.200
2437.00000	20	13.400
2462.00000	20	13.100

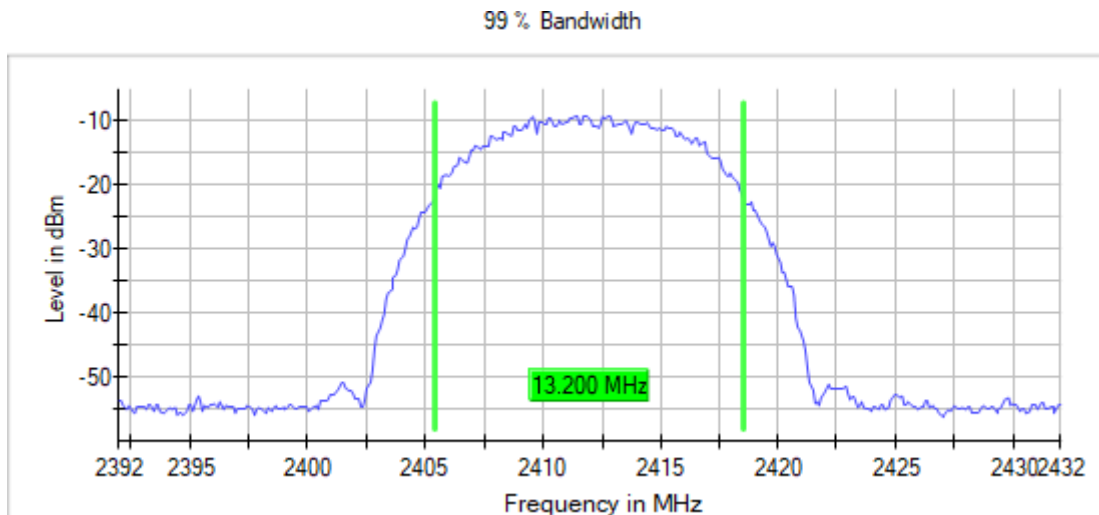
**Verdict**

Pass

**Attachments**

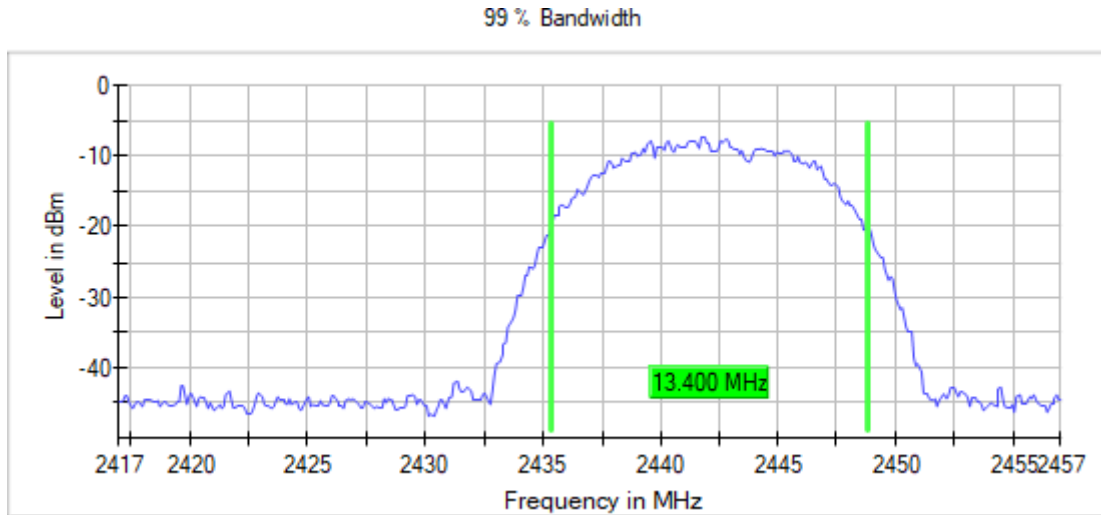
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11b , Number of Transmission Chains = 1,

**Images:**



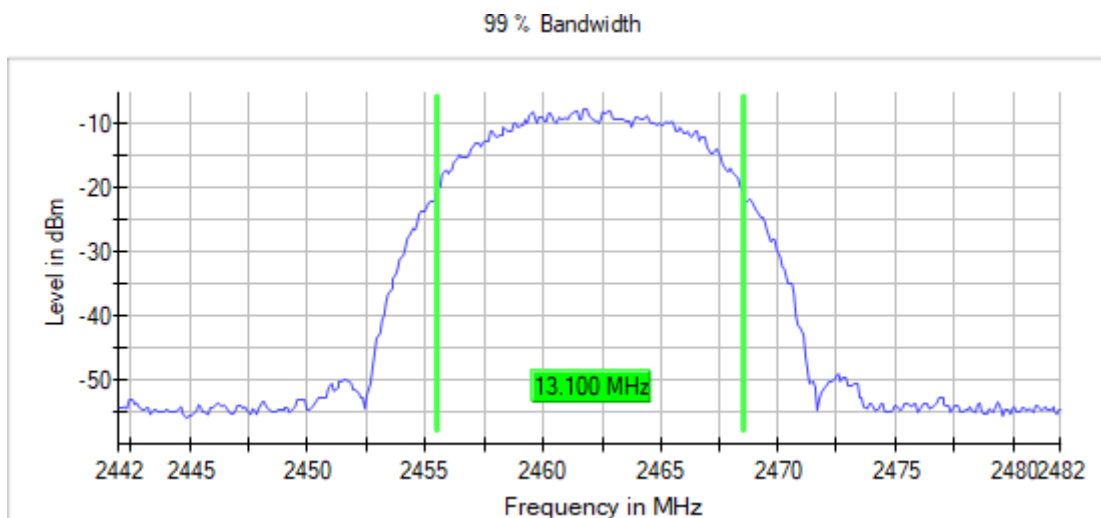
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11b , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11b , Number of Transmission Chains = 1,

Images:



Modulation: 802.11g

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2412.00000	20	16.600
2437.00000	20	16.500
2462.00000	20	16.500

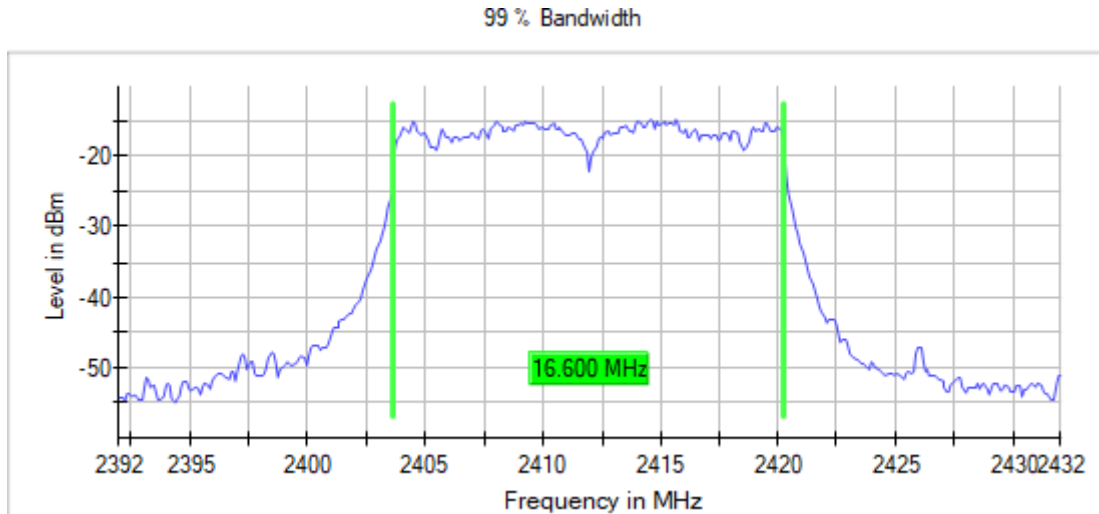
**Verdict**

Pass

**Attachments**

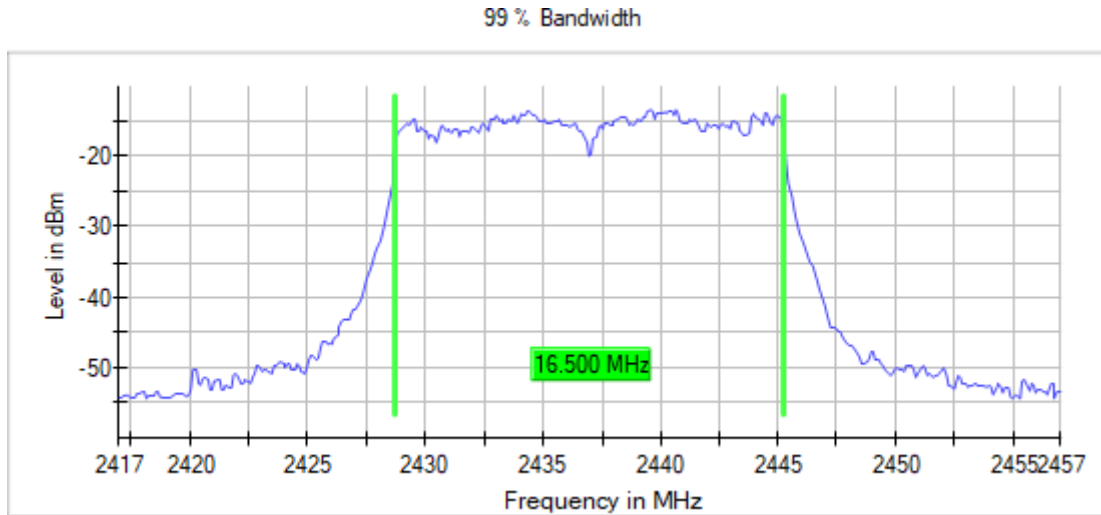
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11g , Number of Transmission Chains = 1,

**Images:**



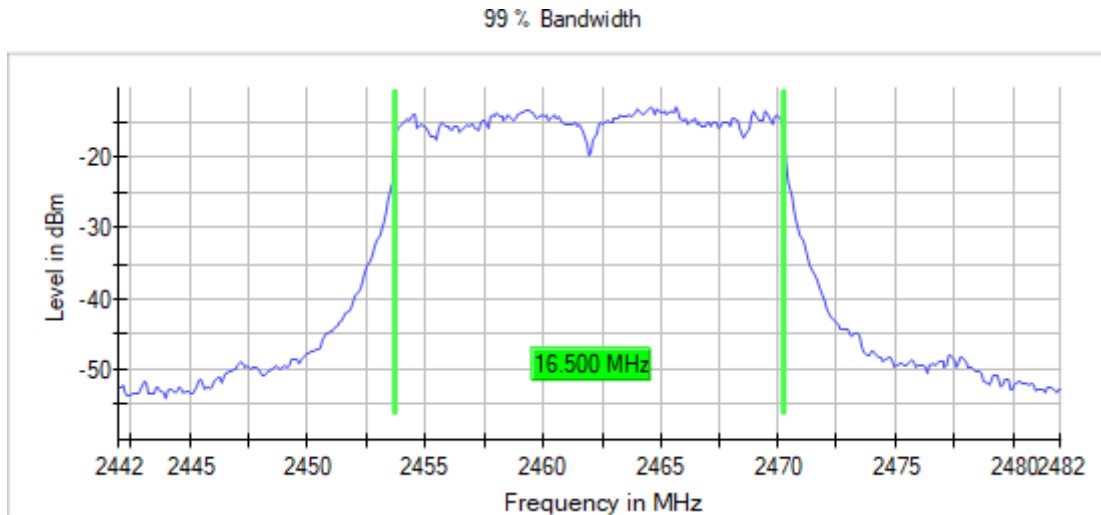
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11g , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11g , Number of Transmission Chains = 1,

Images:



Modulation: 802.11n20

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2412.00000		17.700
437.00000	20	17.700
2462.00000		17.700

Modulation: 802.11n40

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2422.00000		36.250
2437.00000	40	36.250
2452.00000		36.250

**Verdict**

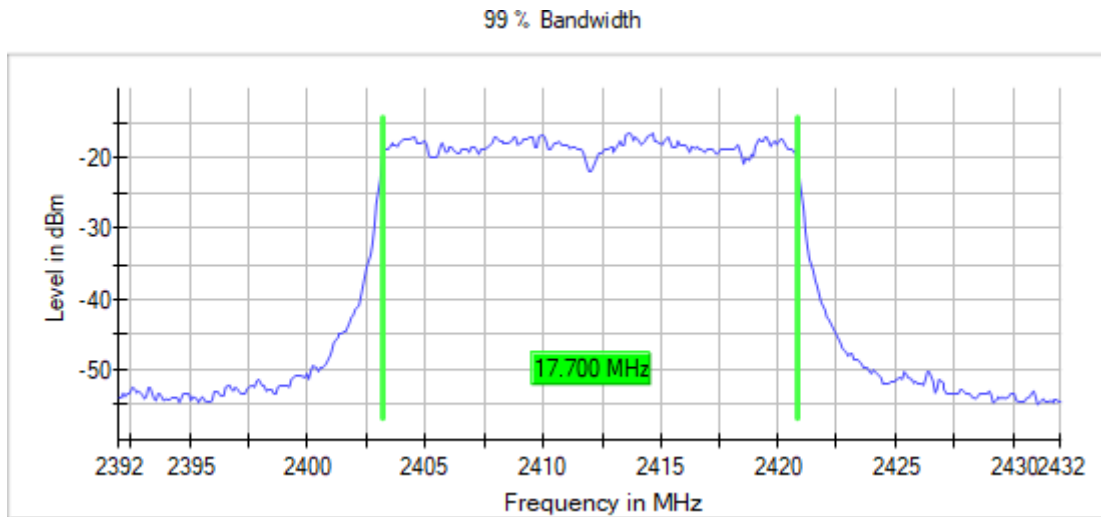
Pass



**Attachments**

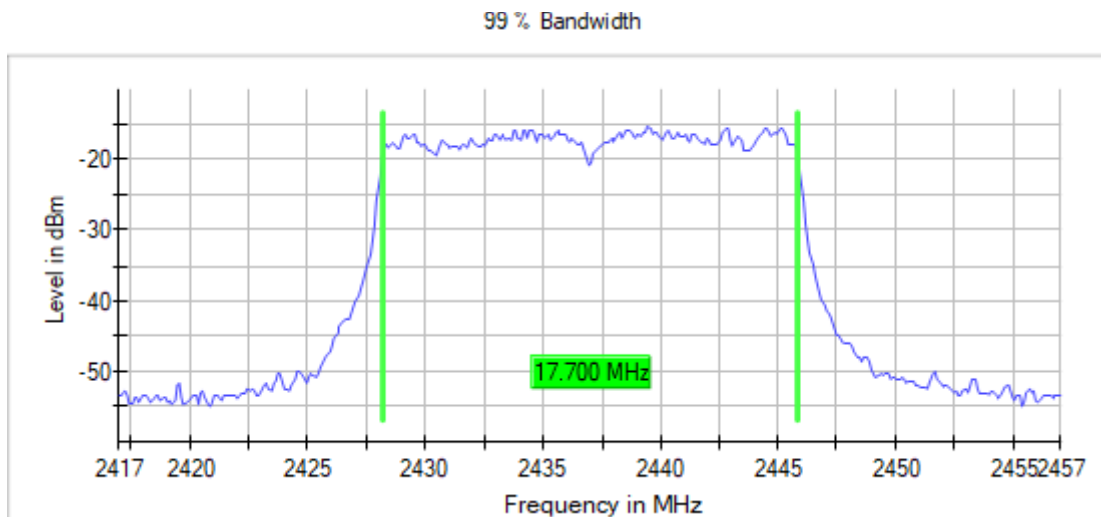
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11n , Number of Transmission Chains = 1,**

**Images:**



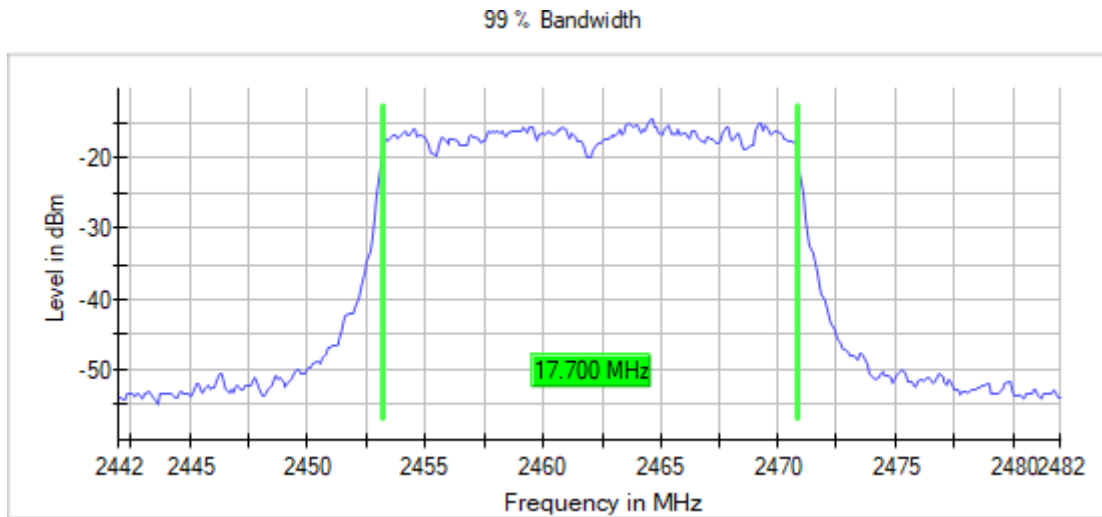
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11n , Number of Transmission Chains = 1,**

**Images:**



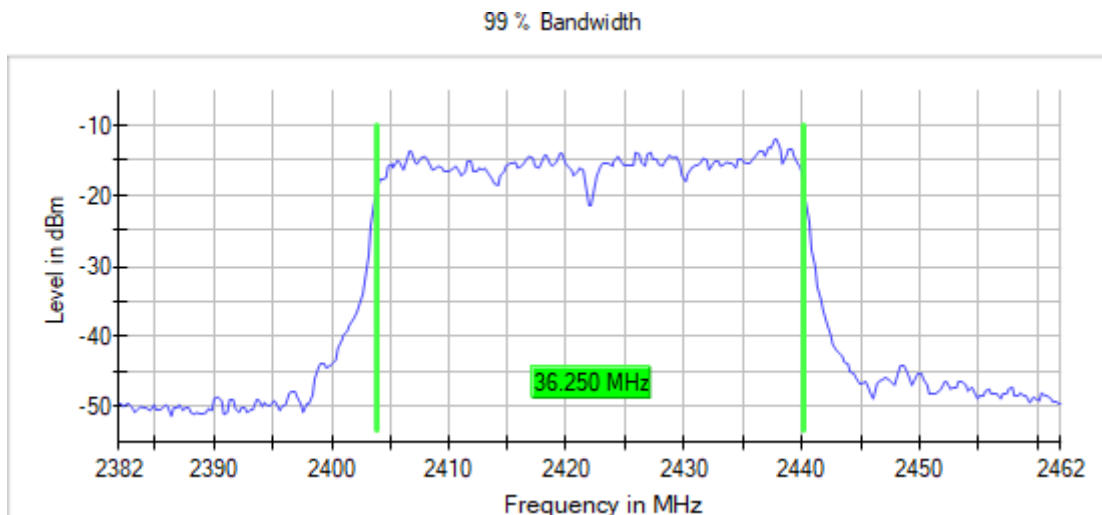
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



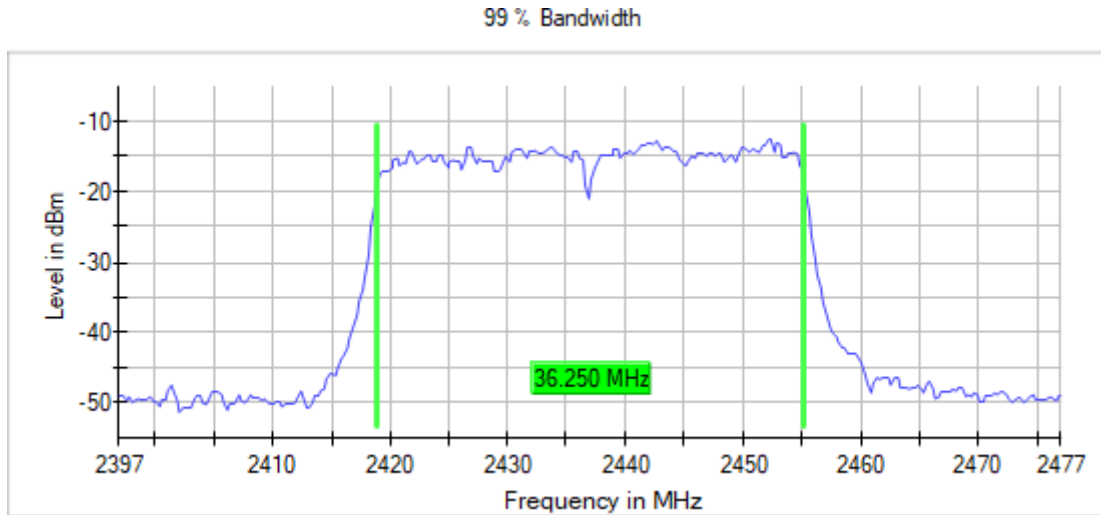
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



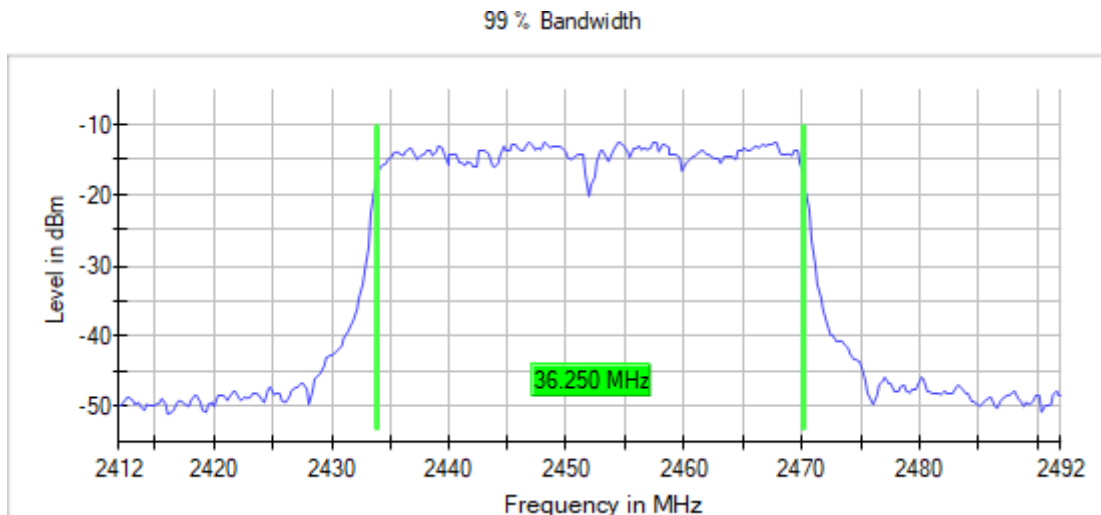
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 1,

Images:



Modulation: 802.11ax HE20 Full RU

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2412.00000		18.900
2437.00000	20	18.900
2462.00000		18.900

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2422.00000		37.500
2437.00000	40	37.250
2452.00000		37.500

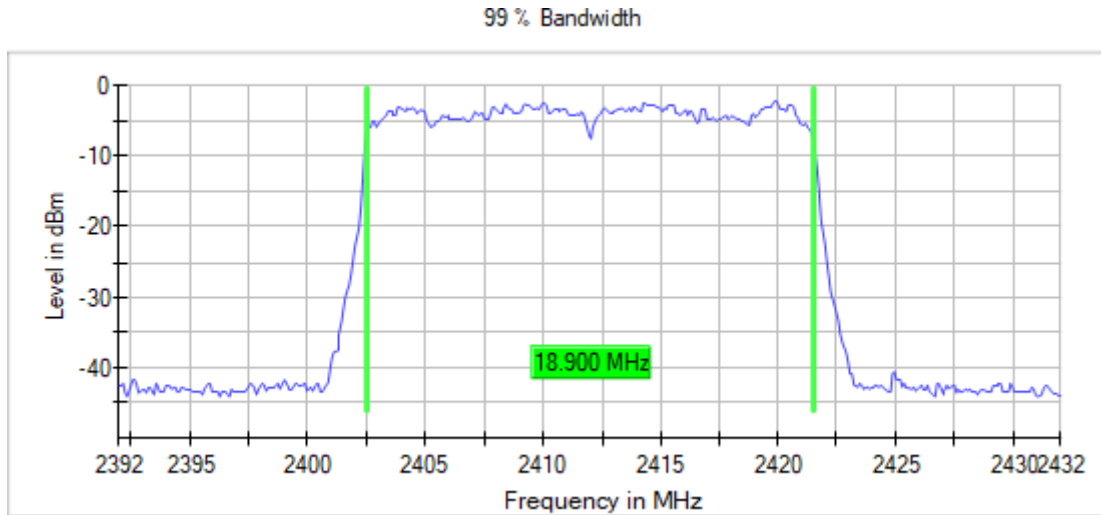
**Verdict**

Pass

**Attachments**

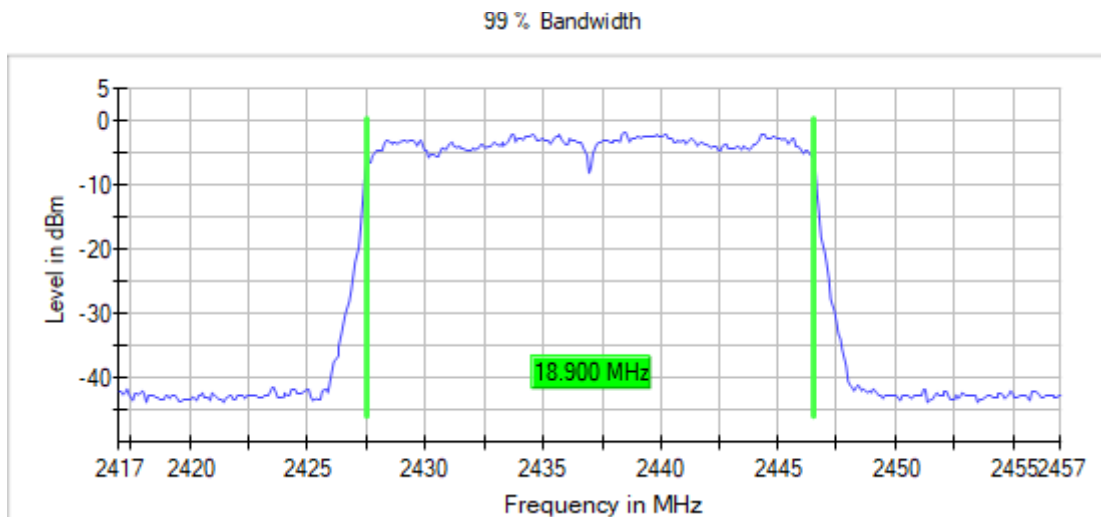
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



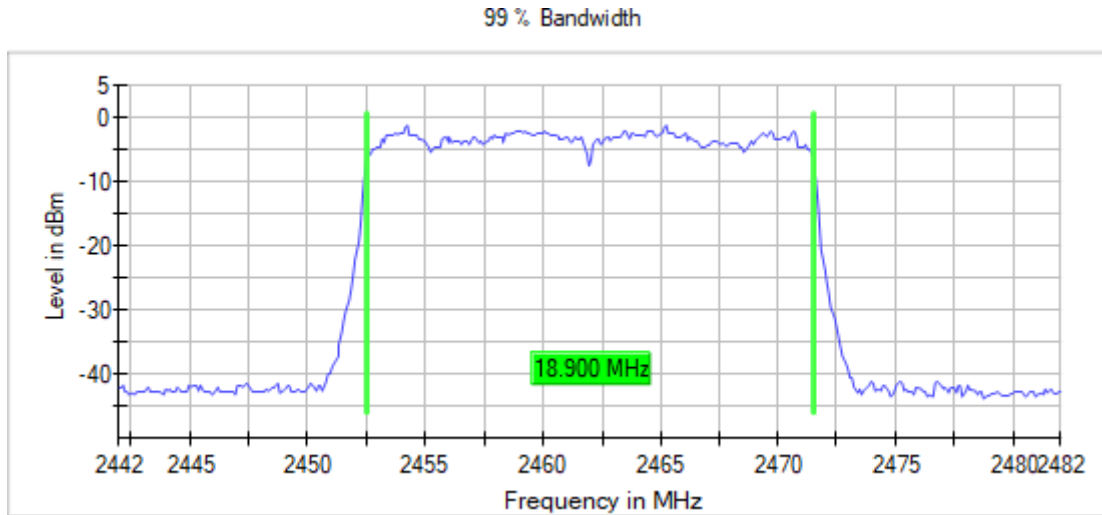
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



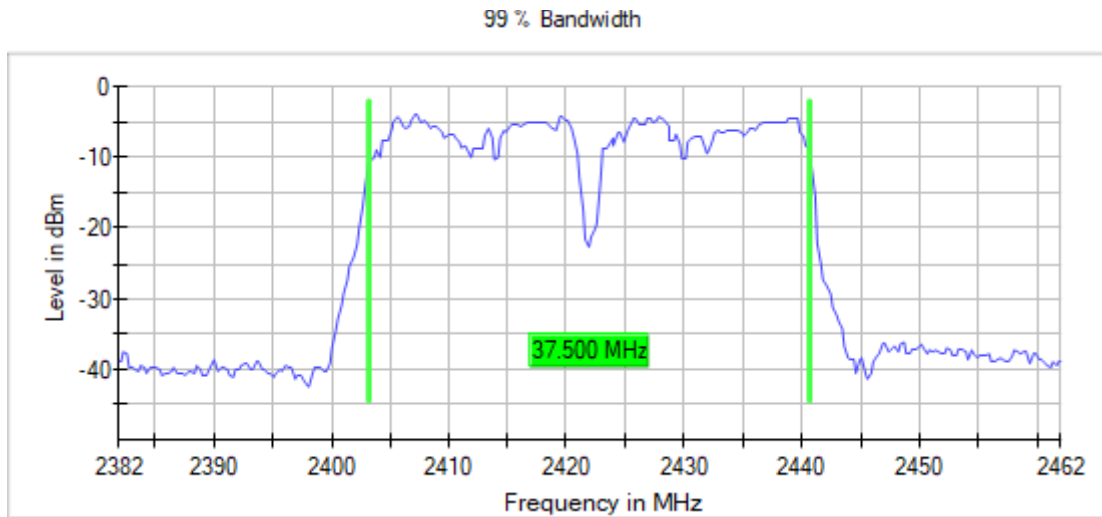
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



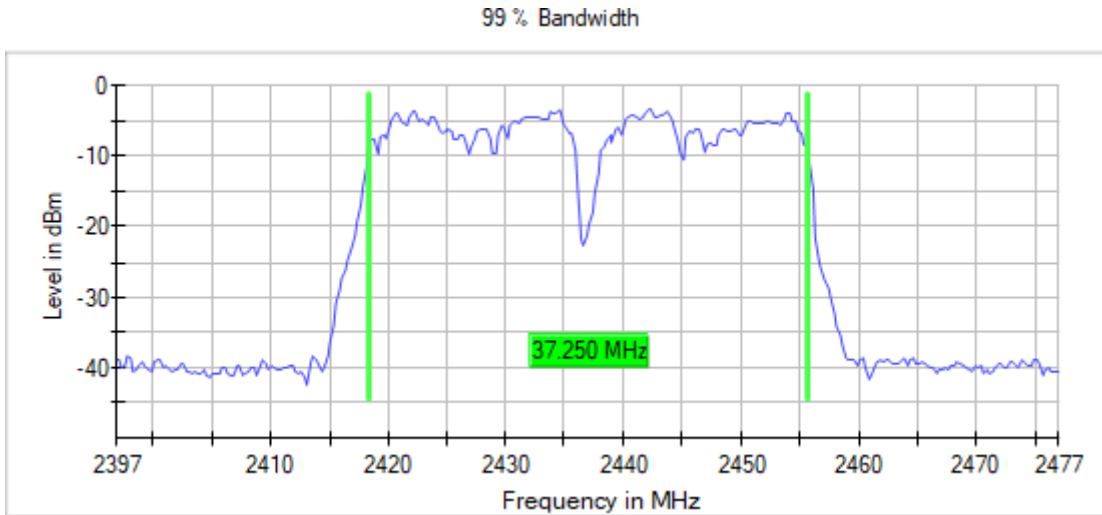
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE40 , Number of Transmission Chains = 1,

Images:



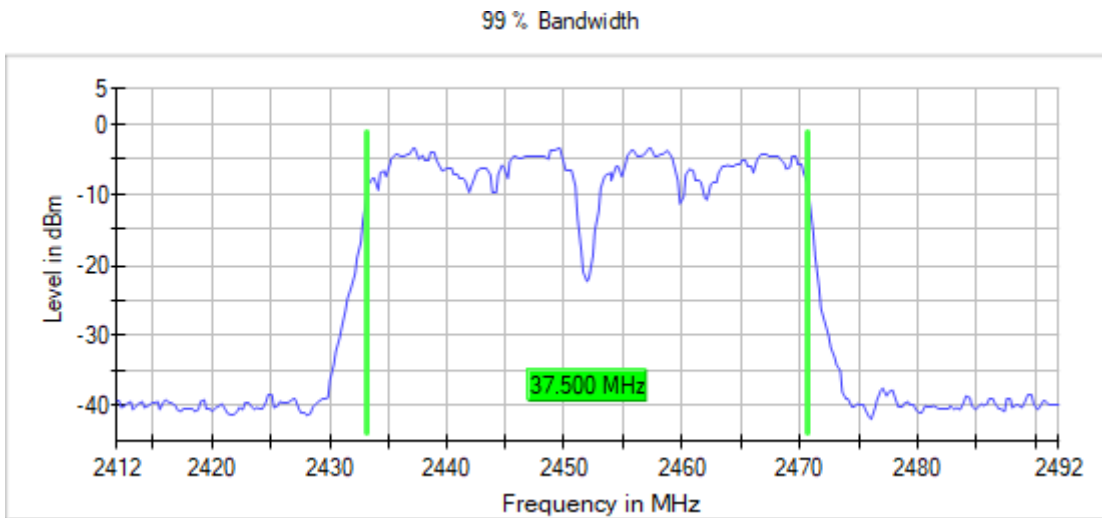
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE40 , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE40 , Number of Transmission Chains = 1,

Images:



## Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.43800 GHz	2.47800 GHz
Stop Frequency	2.40400 GHz	2.44200 GHz	2.48200 GHz
Span	4.000 MHz	4.000 MHz	4.000 MHz
RBW	20.000 kHz	20.000 kHz	20.000 kHz
VBW	100.000 kHz	100.000 kHz	100.000 kHz
SweepPoints	400	400	400
Sweeptime	94.824 µs	94.824 µs	94.824 µs
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	6 / max. 150	6 / max. 150	5 / max. 150
Stable	3 / 3	3 / 3	3 / 3
Max Stable	0.08 dB	0.17 dB	0.15 dB



## Appendix C.3: MIMO

## TEST CASES DETAILS

### RSS-247 5.2 (a) / FCC 15.247 (a) (2) 6 dB Bandwidth

#### Limits

The minimum 6 dB bandwidth shall be at least 500 kHz.

Modulation: 802.11b (DSSS 1 Mbit/s)

#### Results

Freq (MHz)	BW (MHz)	# of Tx Chains	Port	Emission Bandwidth (MHz)
2412.00000				10.00
2437.00000	20	2	1+2	9.50
2462.00000				9.75

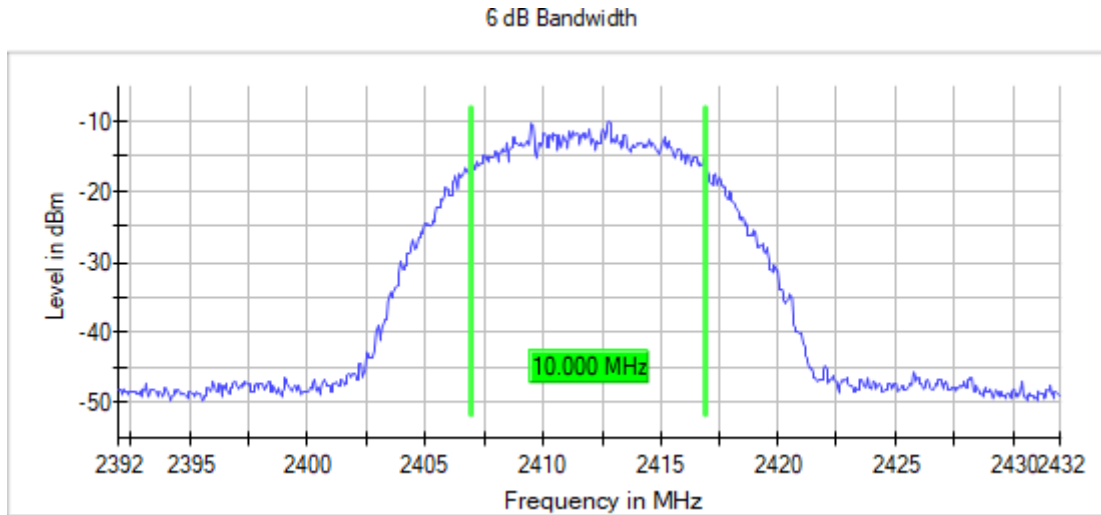
#### Verdict

Pass

**Attachments**

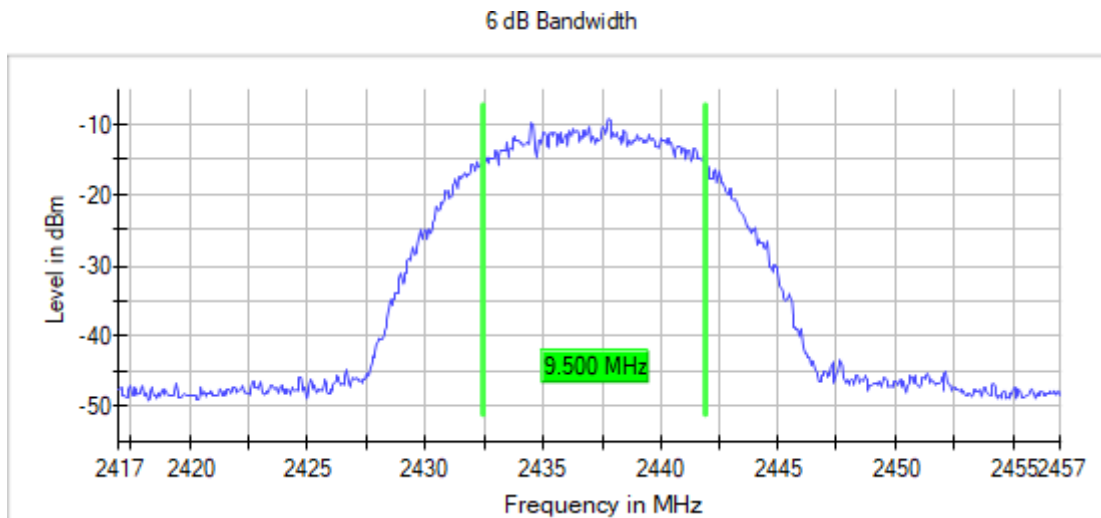
**Frequency MHz = 2412.00000, Bandwidth MHz = 20, Modulation = 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 2,**

**Images:**



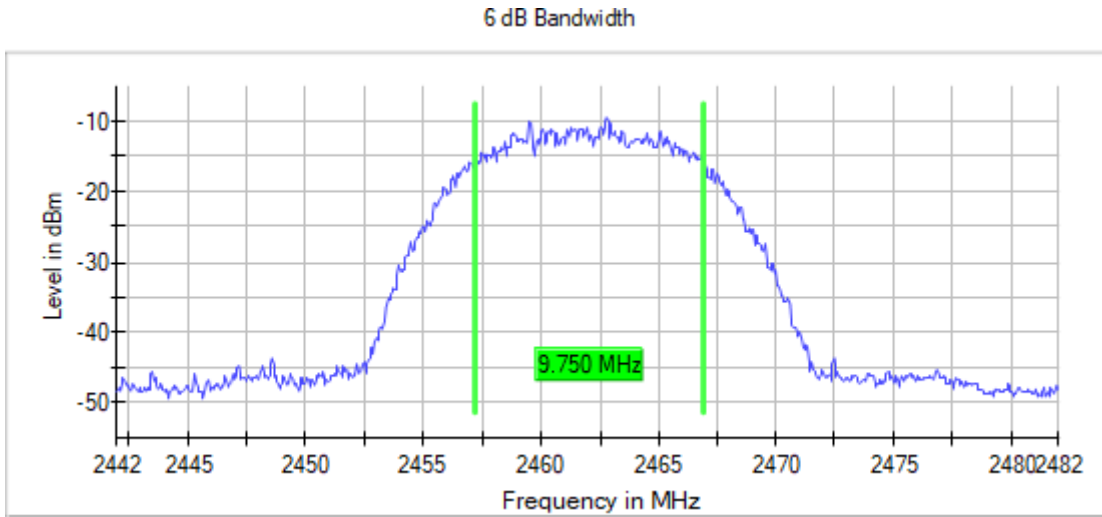
**Frequency MHz = 2437.00000, Bandwidth MHz = 20, Modulation = 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 2,**

**Images:**



**Frequency MHz = 2462.00000, Bandwidth MHz = 20, Modulation = 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 2,**

**Images:**



Modulation: 802.11g (OFDM 6 Mbit/s)

**Results**

Freq (MHz)	BW (MHz)	# of Tx Chains	Port	Emission Bandwidth (MHz)
2412.00000				16.55
2437.00000	20	2	1+2	16.50
2462.00000				16.55

**Verdict**

Pass

**Attachments**

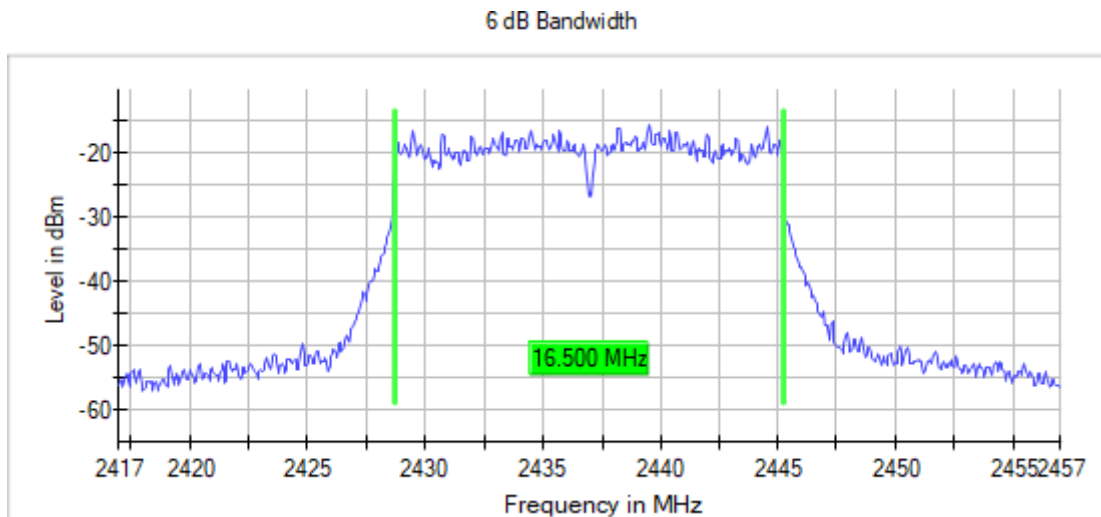
**Frequency MHz = 2412.00000, Bandwidth MHz = 20, Modulation = 802.11g (OFDM 6 Mbit/s), Number of Transmission Chains = 2,**

**Images:**



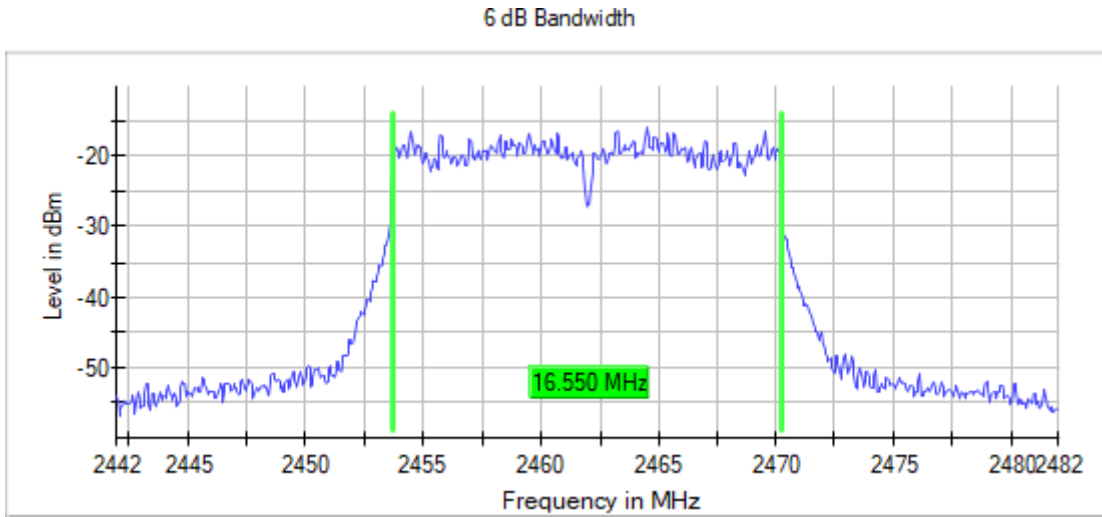
**Frequency MHz = 2437.00000, Bandwidth MHz = 20, Modulation = 802.11g (OFDM 6 Mbit/s), Number of Transmission Chains = 2,**

**Images:**



Frequency MHz = 2462.00000, Bandwidth MHz = 20, Modulation = 802.11g (OFDM 6 Mbit/s), Number of Transmission Chains = 2,

Images:



Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

**Results**

Freq (MHz)	BW (MHz)	# of Tx Chains	Port	Emission Bandwidth (MHz)
2412.00000				17.75
2437.00000	20	2	1+2	17.75
2462.00000				17.75

Modulation: 802.11n HT40 (OFDM MCS0 6.5 Mbit/s)

**Results**

Freq (MHz)	BW (MHz)	# of Tx Chains	Port	Emission Bandwidth (MHz)
2422.00000				36.45
2437.00000	40	2	1+2	36.40
2452.00000				36.40

**Verdict**

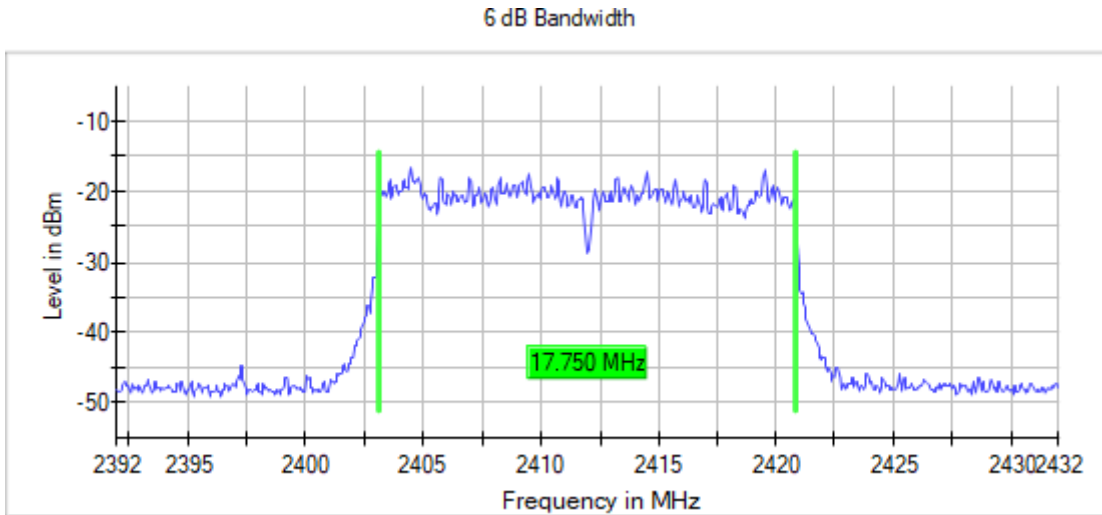
Pass



**Attachments**

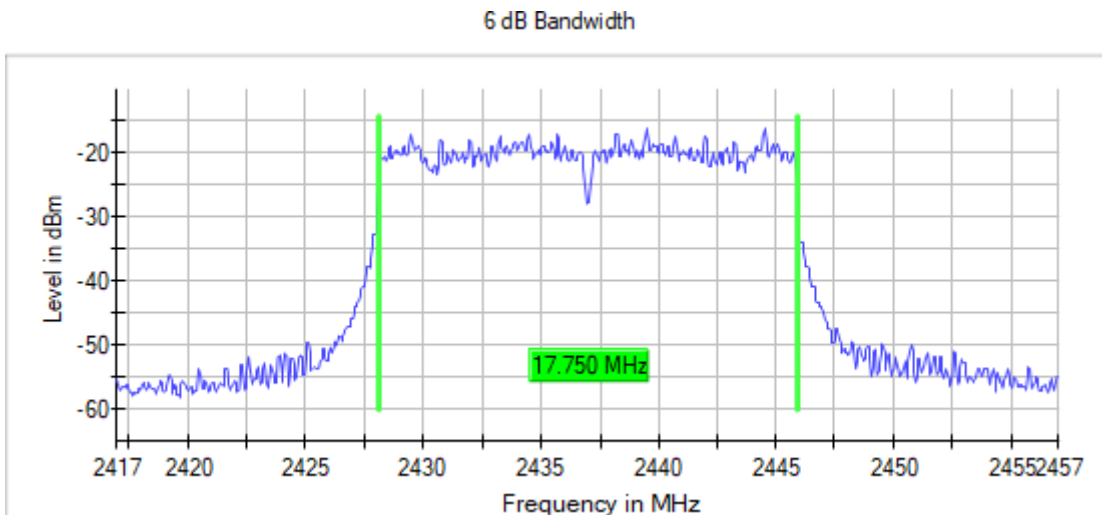
**Frequency MHz = 2412.00000, Bandwidth MHz = 20, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s),  
Number of Transmission Chains = 2,**

**Images:**



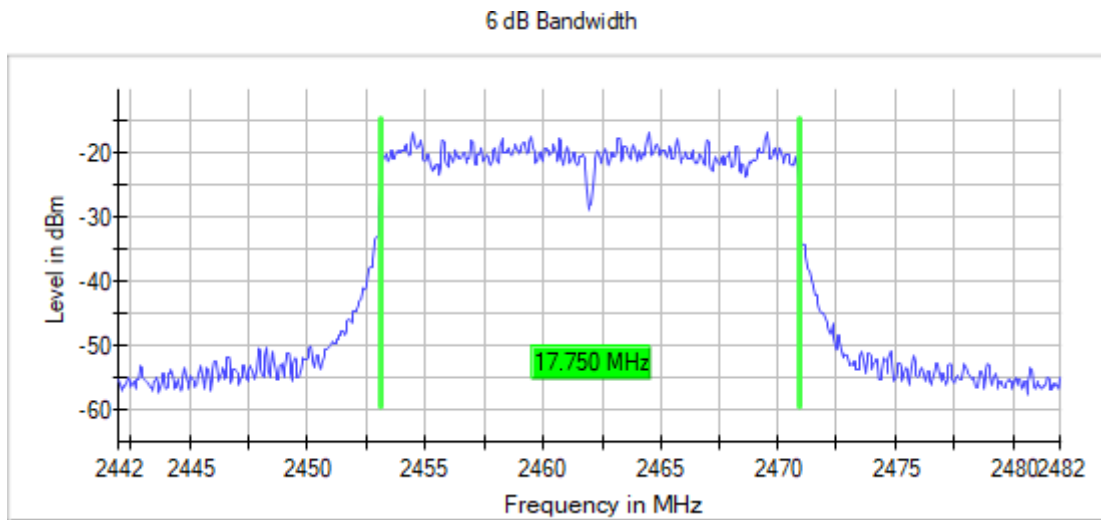
**Frequency MHz = 2437.00000, Bandwidth MHz = 20, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s),  
Number of Transmission Chains = 2,**

**Images:**



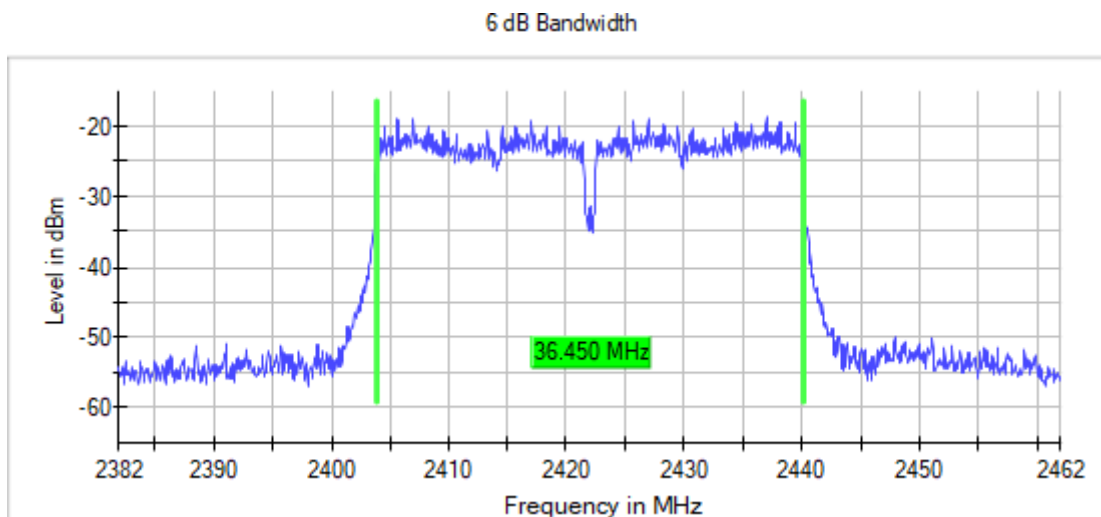
Frequency MHz = 2462.00000, Bandwidth MHz = 20, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s),  
Number of Transmission Chains = 2,

Images:



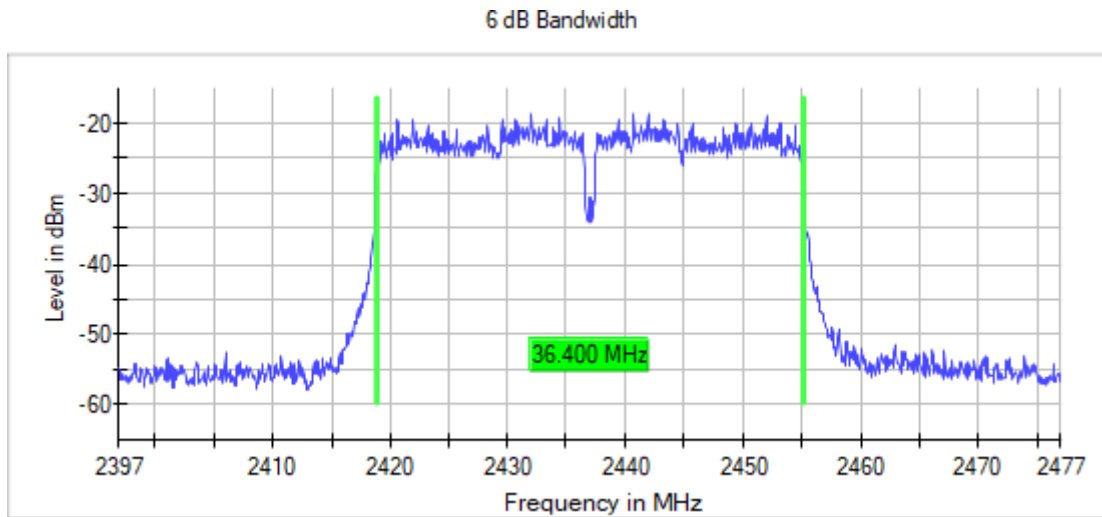
Frequency MHz = 2422.00000, Bandwidth MHz = 40, Modulation = 802.11n HT40 (OFDM MCS0 6.5 Mbit/s),  
Number of Transmission Chains = 2,

Images:



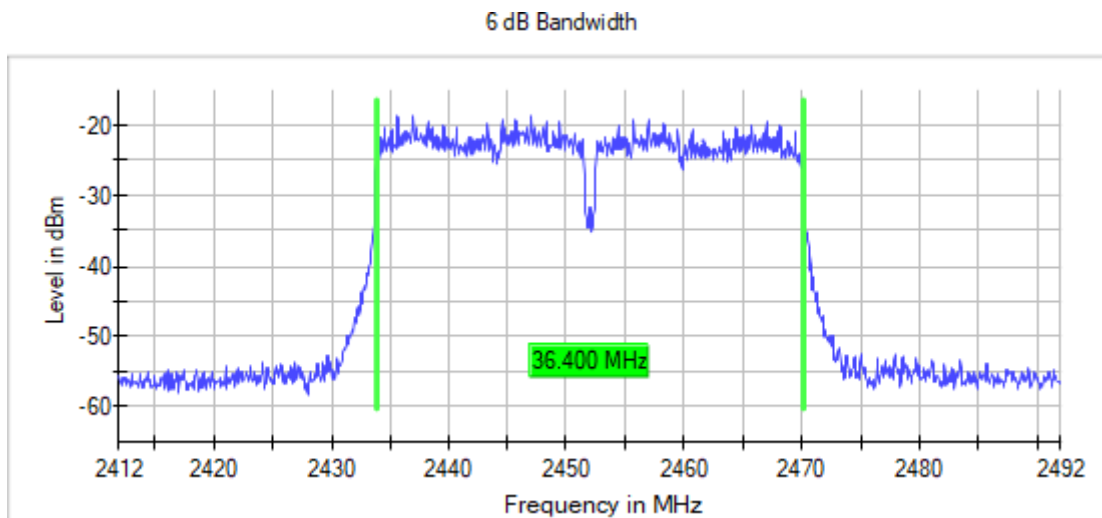
**Frequency MHz = 2437.00000, Bandwidth MHz = 20, Modulation = 802.11n HT40 (OFDM MCS0 6.5 Mbit/s),  
Number of Transmission Chains = 2,**

**Images:**



**Frequency MHz = 2452.00000, Bandwidth MHz = 40, Modulation = 802.11n HT40 (OFDM MCS0 6.5 Mbit/s),  
Number of Transmission Chains = 2,**

**Images:**



Modulation: 802.11ax HE20 Full RU

**Results**

Freq (MHz)	BW (MHz)	Emission Bandwidth (MHz)
2412.00000		18.55
2437.00000	20	18.65
2462.00000		18.50

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	BW (MHz)	Emission Bandwidth (MHz)
2422.00000		35.25
2437.00000	40	36.40
2452.00000		36.40

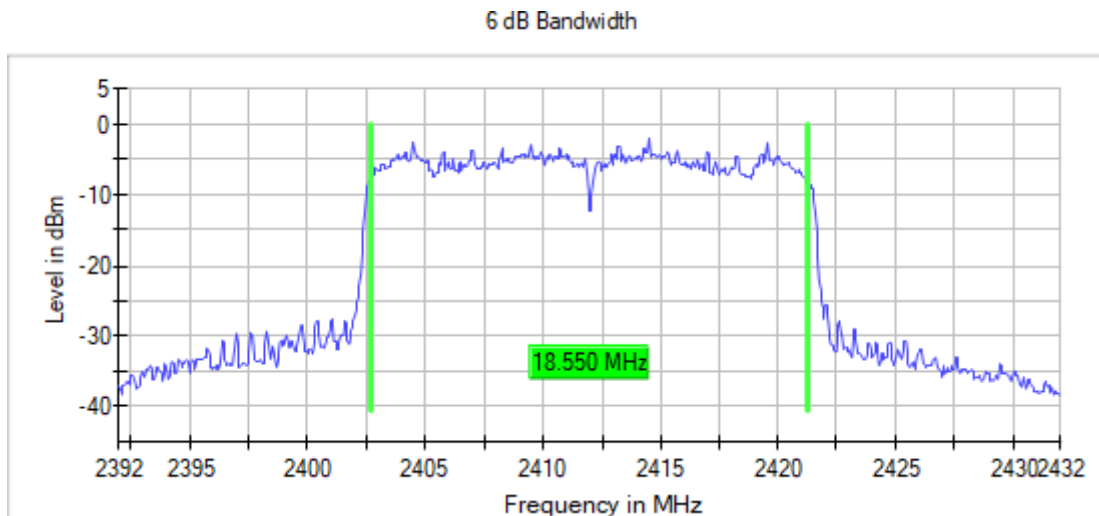
**Verdict**

Pass

**Attachments**

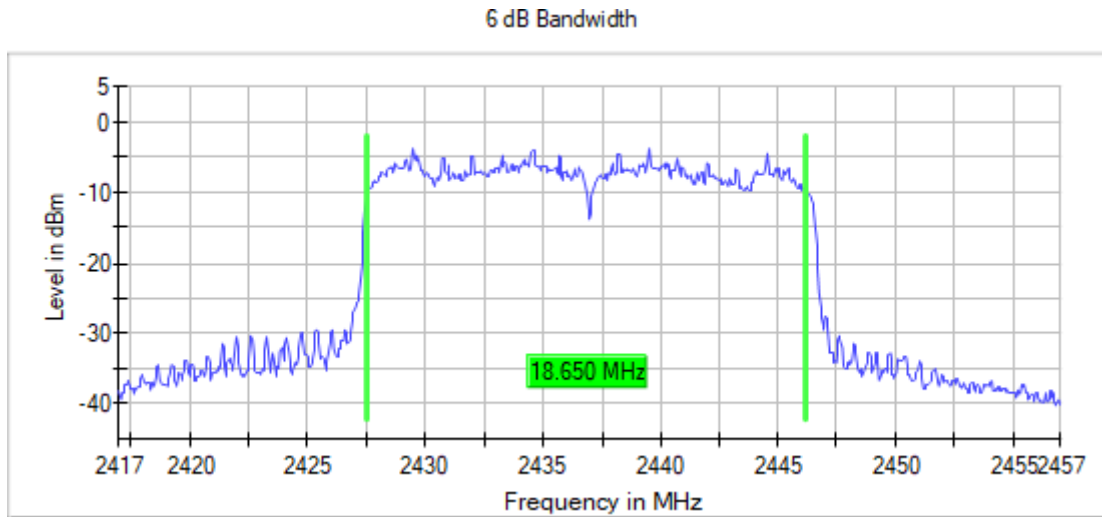
Frequency MHz = 2412.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 2,

**Images:**



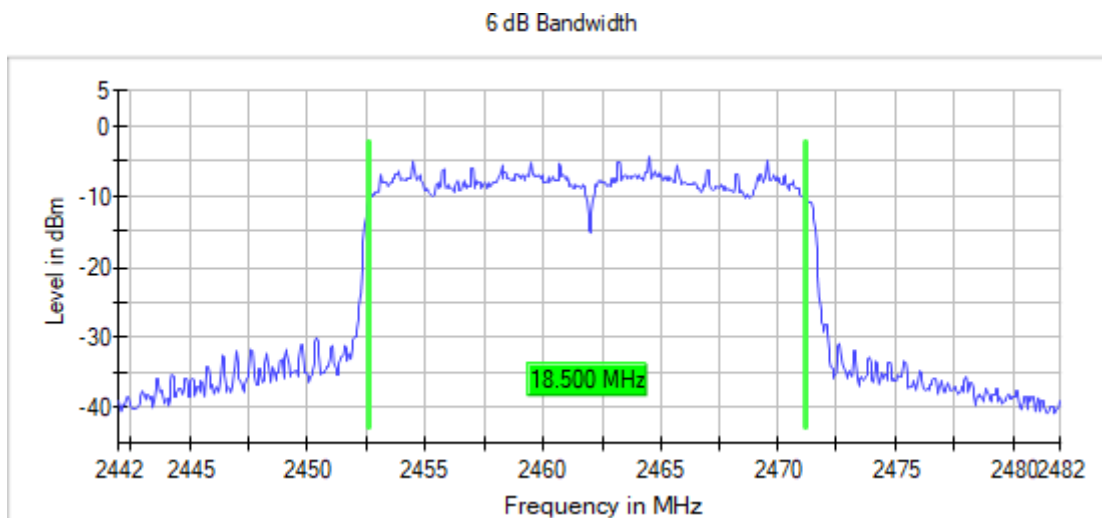
Frequency MHz = 2437.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 2,

Images:



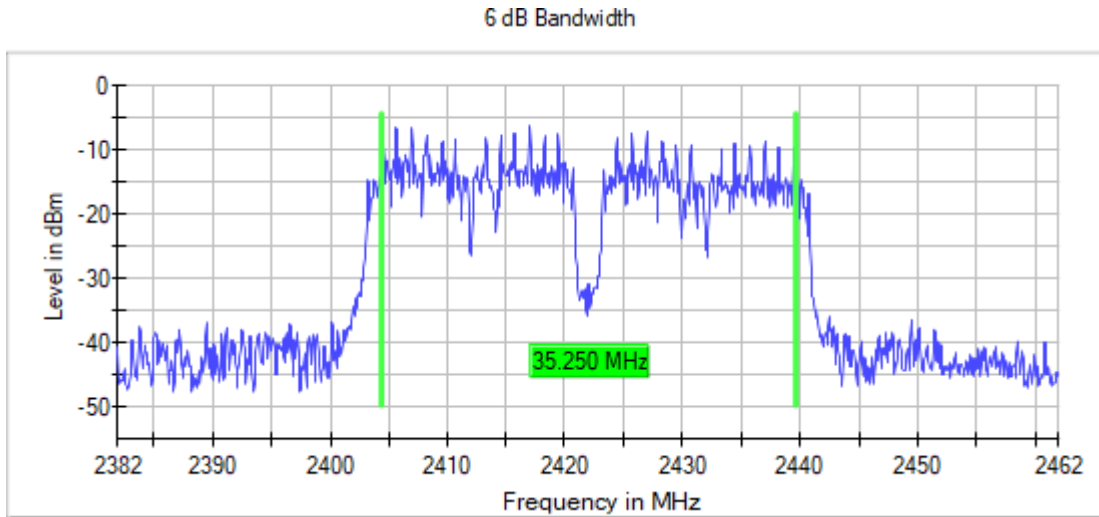
Frequency MHz = 2462.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 2,

Images:



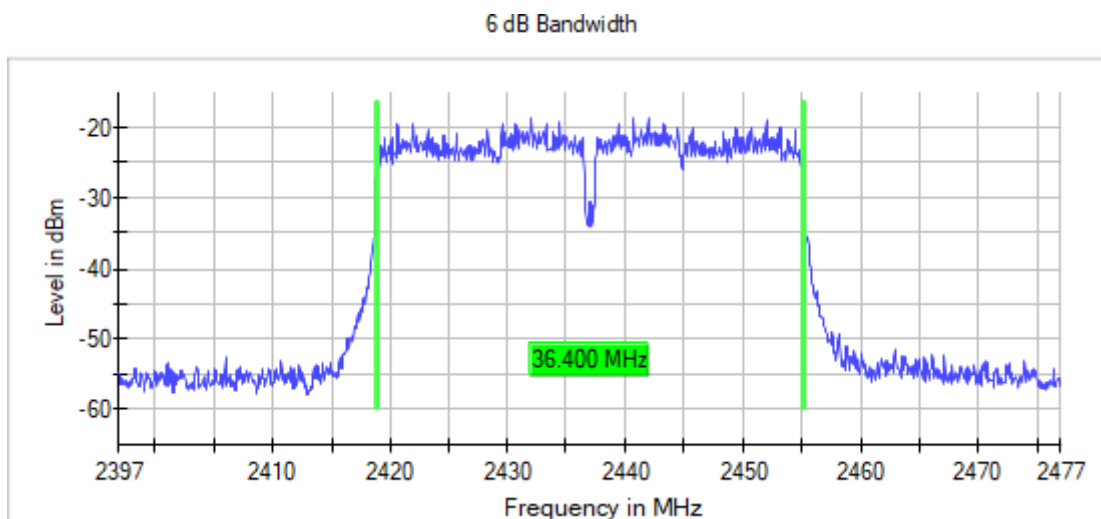
Frequency MHz = 2422.00000, Bandwidth MHz = 40, Modulation = 802.11ax HE40 , Number of Transmission Chains = 2,

Images:



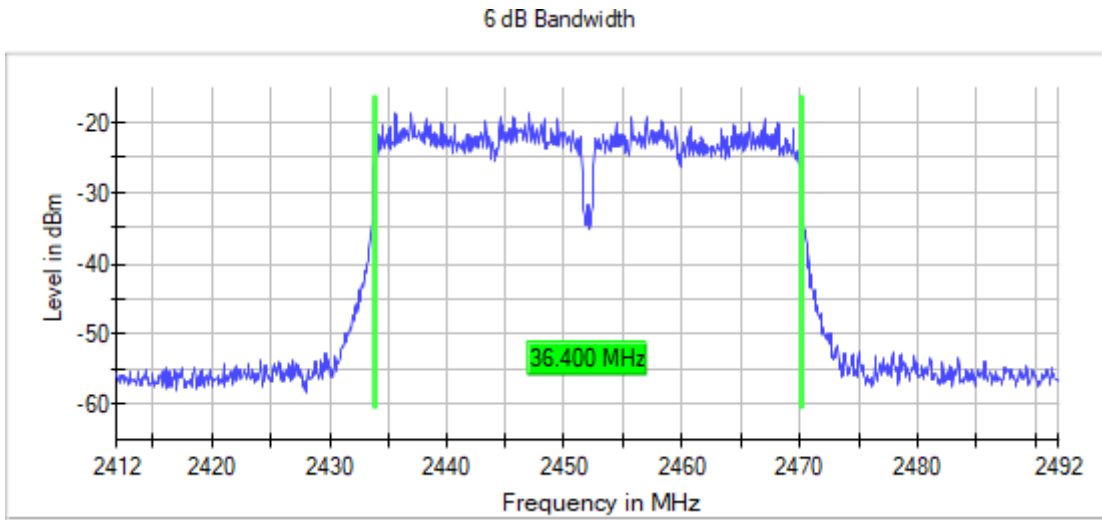
Frequency MHz = 2437.00000, Bandwidth MHz = 40, Modulation = 802.11ax HE40 , Number of Transmission Chains = 2,

Images:



Frequency MHz = 2452.00000, Bandwidth MHz = 40, Modulation = = 802.11ax HE40 , Number of Transmission Chains = 2

Images:



Modulation: 802.11ax HE20 Partial RU

**Results**

Freq (MHz)	BW (MHz)	Emission Bandwidth (MHz)
2412.00000		17.75
2437.00000	20	17.80
2462.00000		18.50

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	BW (MHz)	Emission Bandwidth (MHz)
2422.00000		35.15
2437.00000	40	35.15
2452.00000		35.20

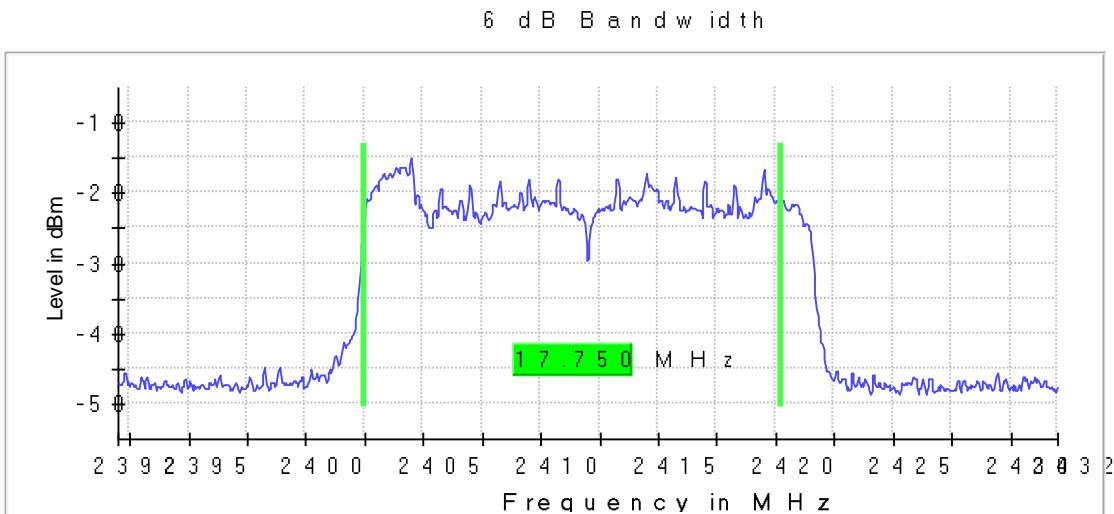
**Verdict**

Pass

**Attachments**

Frequency MHz = 2412.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 2,

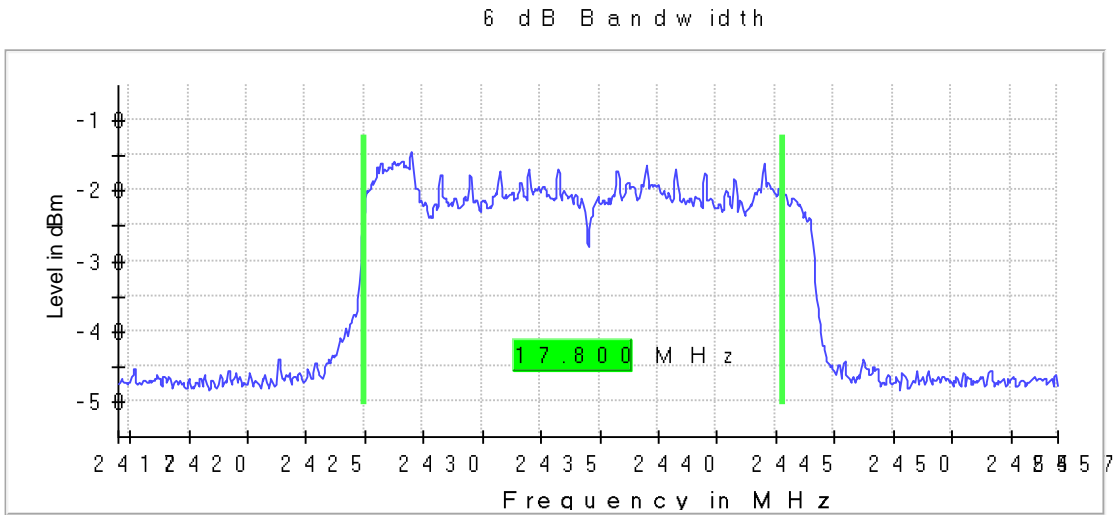
**Images:**





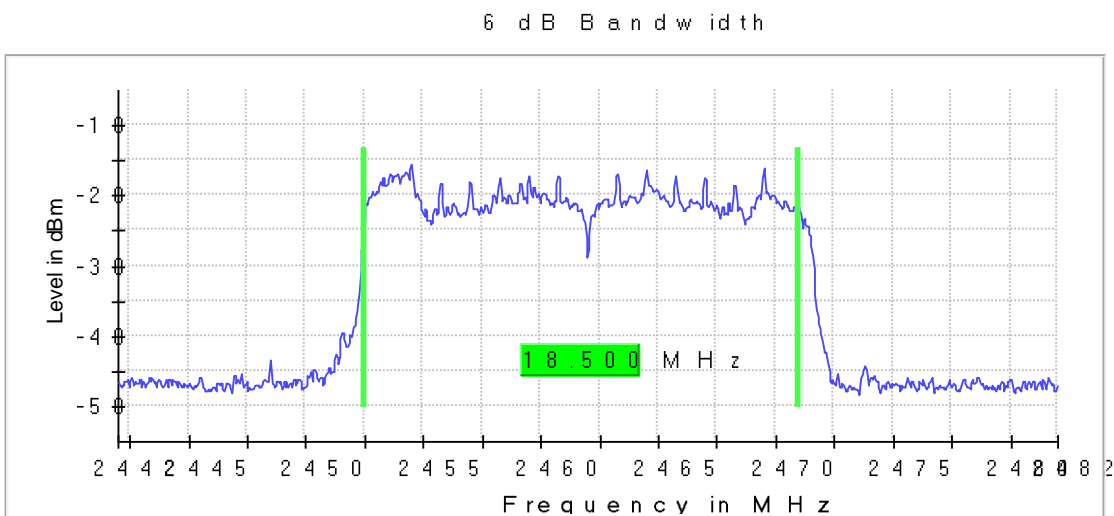
Frequency MHz = 2437.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 2,

Images:



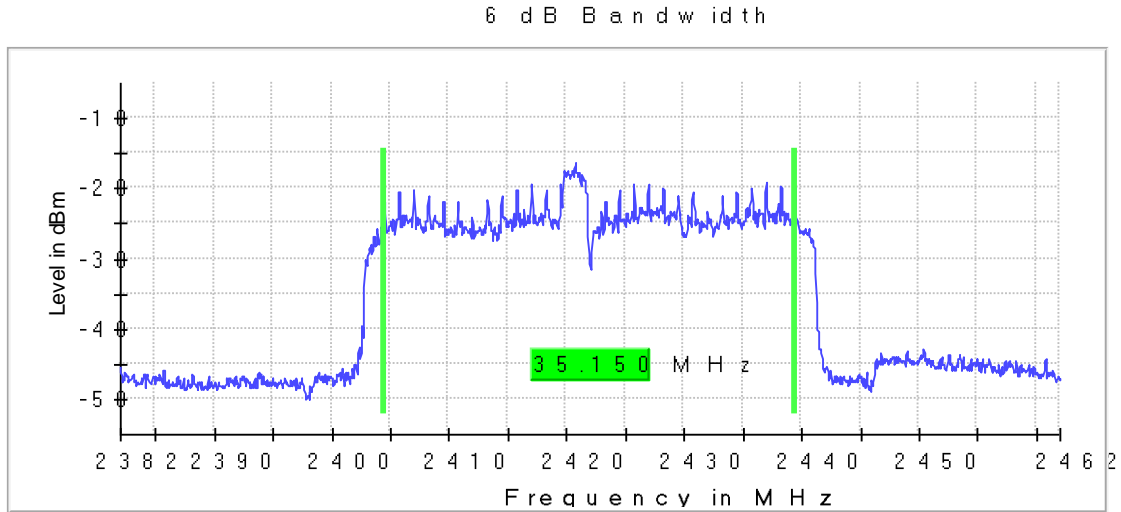
Frequency MHz = 2462.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 2,

Images:



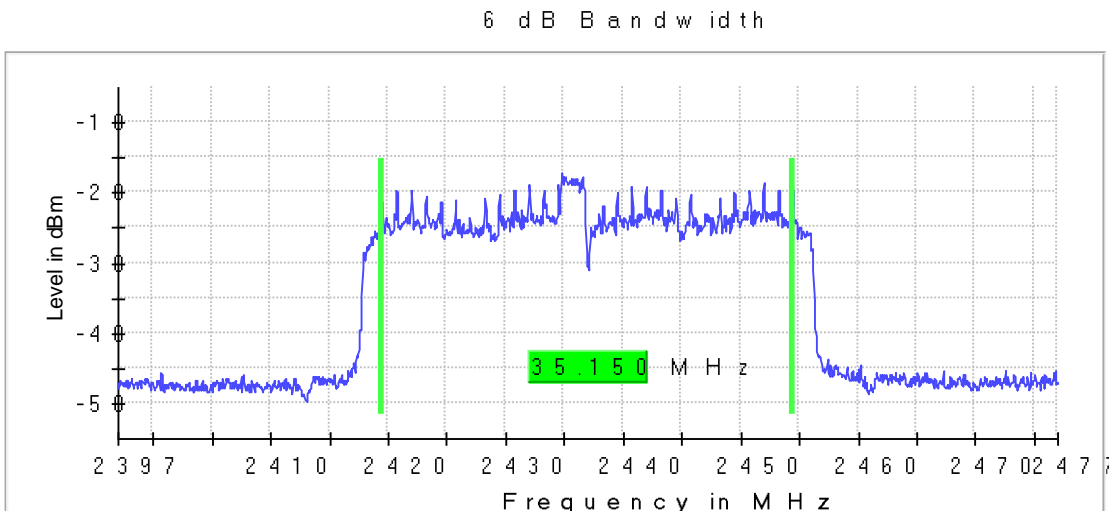
Frequency MHz = 2422.00000, Bandwidth MHz = 40, Modulation = 802.11ax HE40 , Number of Transmission Chains = 2,

Images:



Frequency MHz = 2437.00000, Bandwidth MHz = 40, Modulation = 802.11ax HE40 , Number of Transmission Chains = 2,

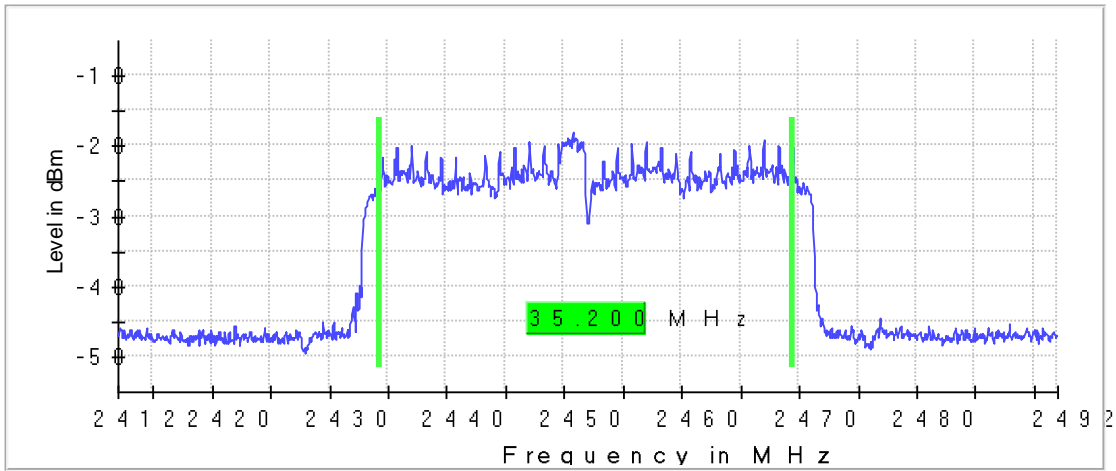
Images:



Frequency MHz = 2452.00000, Bandwidth MHz = 40, Modulation = = 802.11ax HE40 , Number of Transmission Chains = 2

Images:

6 d B B a n d w i d t h



## Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39200	2.41700	2.44200
Stop Frequency	2.43200	2.45700	2.48200
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
SweepPoints	800	800	800
Sweeptime	56.836 $\mu$ s	56.836 $\mu$ s	56.836 $\mu$ s
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.50 dB	0.50 dB	0.50 dB
Run	72 / max.	66 / max.	71 / max.
Stable	5 / 5	5 / 5	5 / 5
Max Stable	0.16 dB	0.23 dB	0.12 dB

## RSS-247 5.2 (b) / FCC 15.247 (e) Power spectral density

### Limits

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

### Notes:

1- The following test results are shown based on KDB 662911 D01 Multiple Transmitter Output v02r01 E) 3) a) (ii) Measure and sum spectral maxima across the outputs as described in section E)2)b).

2- For 2Tx CDD MIMO modes, in accordance with KDB 662911 D01 v02r01 Section F)2)f)i), directional gain was calculated as follows:

• • For power spectral density (PSD) measurements:

$$\text{Directional gain}_{\text{PSD}} = G_{\text{ANT}} + 10 \log(N_{\text{ANT}}/N_{\text{SS}}) \text{ dBi}$$

$$N_{\text{SS}} = 1 \text{ (worst case), } N_{\text{ANT}} = 2, G_{\text{ANT}} = -2.5 \text{ dBi}$$

$$\text{Directional gain}_{\text{PSD}} = -2.5 + 10 \log(2/1) = -2.5 + 10 \log(2) = -2.5 + 3.01 = +0.51 \text{ dBi}$$

$$\text{PSD Antenna Gain MIMO Chain 0 \& 1: } +0.51 \text{ dBi}$$

For MIMO CDD operation modes, the limit should be reduced by the amount in dB the antenna gain exceeds 6 dBi. In this case the limit is not reduced due to the antenna gain calculations is 0.51 dBi.

3- For all operation modes, the antenna gain is less than 6 dBi.

### Results

Modulation: 802.11b

Freq (MHz)	BW (MHz)	PSD (dBm)
2412.00000	20	4.64
2437.00000	20	0.18
2462.00000	20	2.56

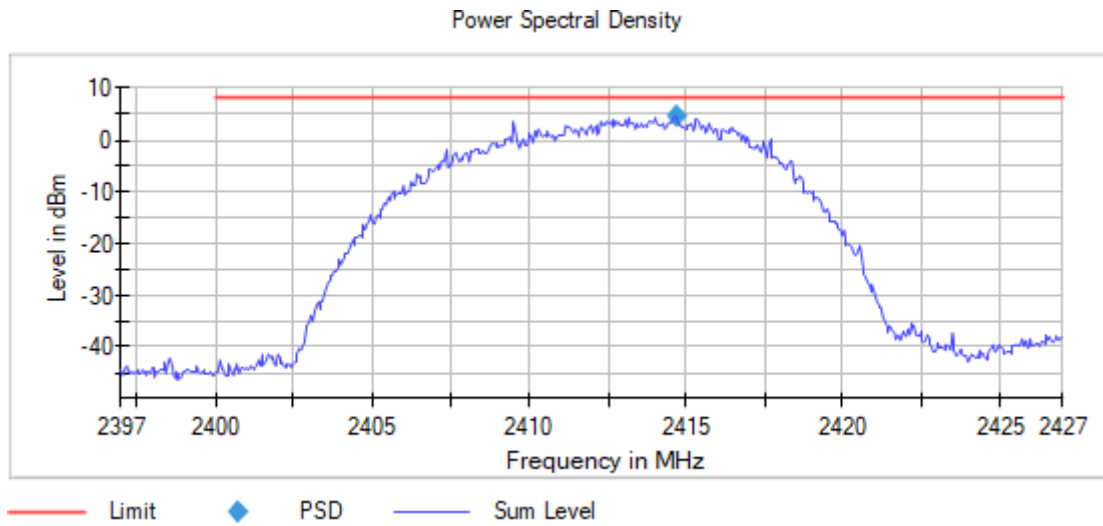
### Verdict

Pass

**Attachments**

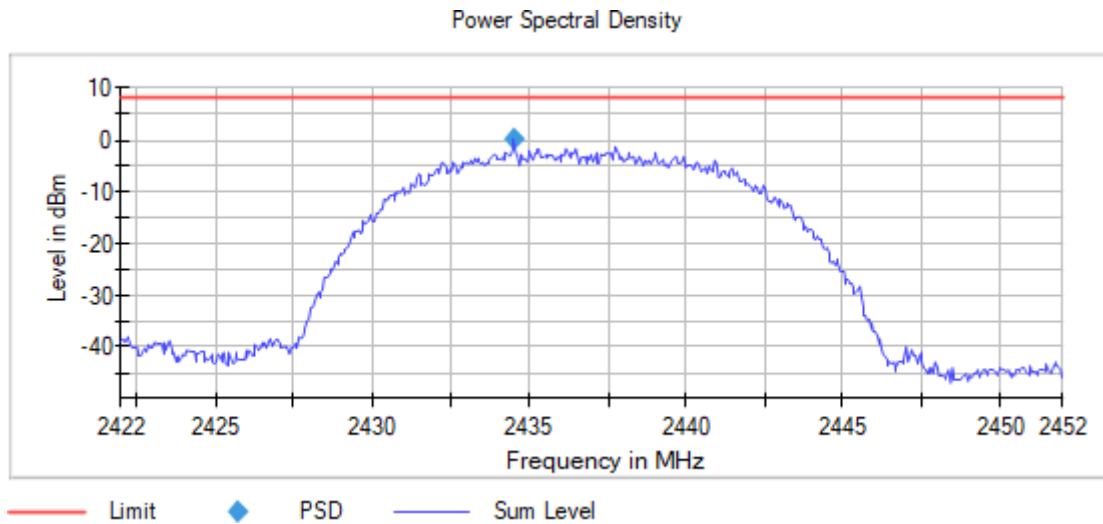
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11b , Number of Transmission Chains = 2,**

**Images:**



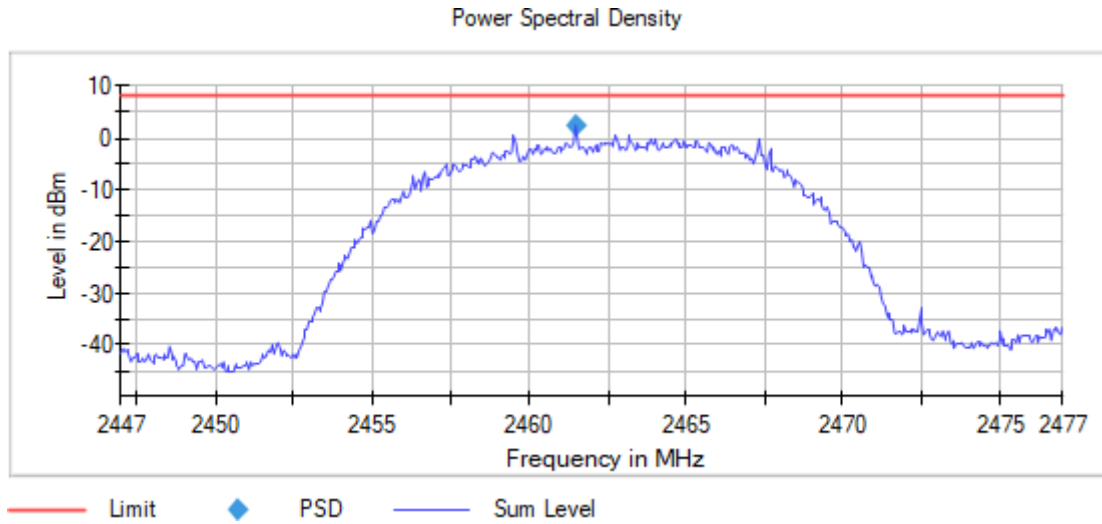
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11b , Number of Transmission Chains = 2,**

**Images:**



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11b , Number of Transmission Chains = 2,

Images:



Modulation: 802.11g  
**Results**

Freq (MHz)	BW (MHz)	PSD (dBm)
2412.00000	20	1.24
2437.00000	20	-4.47
2462.00000	20	-0.30

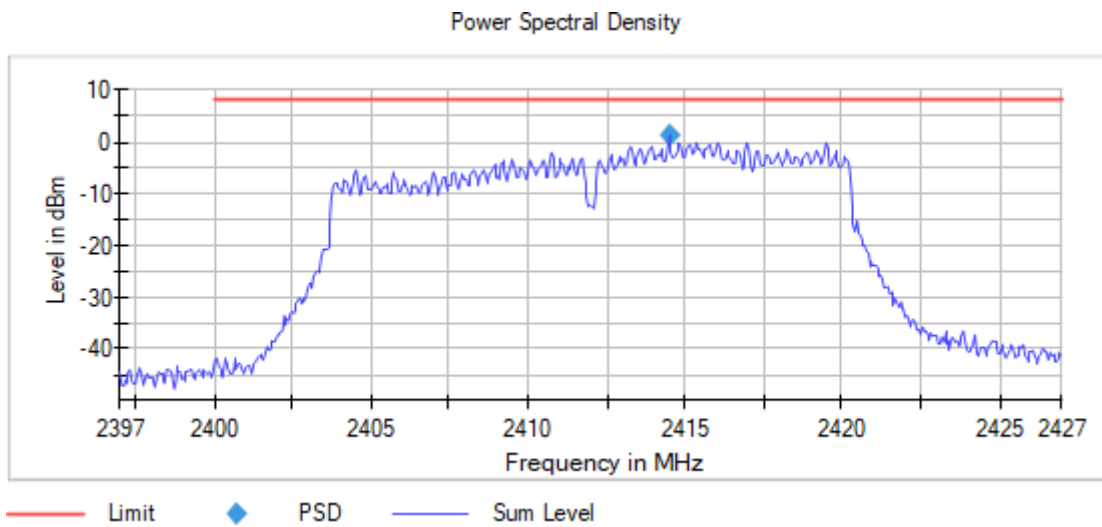
**Verdict**

Pass

**Attachments**

Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11g , Number of Transmission Chains = 2,

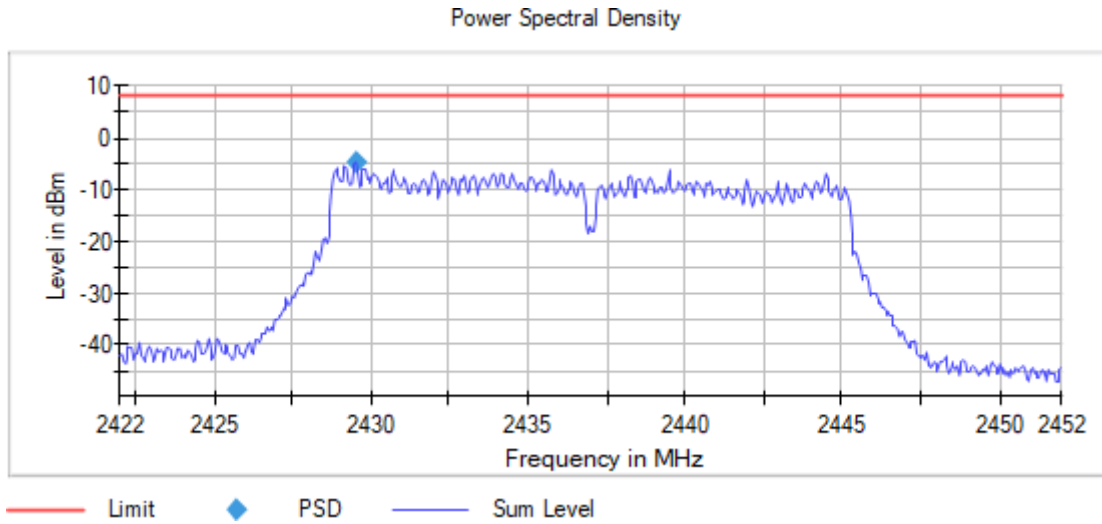
**Images:**





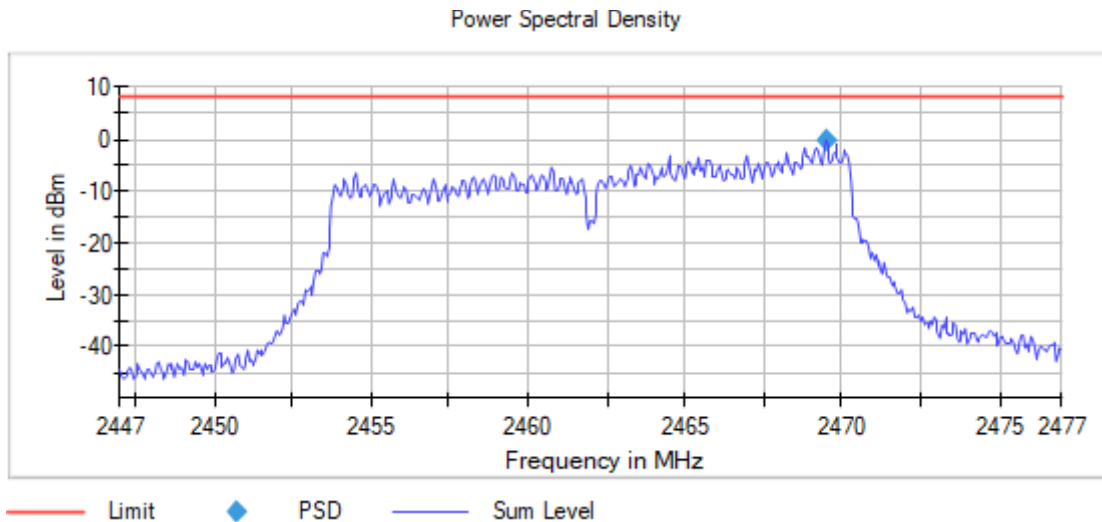
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11g , Number of Transmission Chains = 2,

Images:



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11g , Number of Transmission Chains = 2,

Images:



Modulation: 802.11n20

**Results**

Freq (MHz)	BW (MHz)	PSD (dBm)
2412.00000		-0.54
2437.00000	20	-6.27
2462.00000		-1.72

Modulation: 802.11n40

**Results**

Freq (MHz)	BW (MHz)	PSD (dBm)
2422.00000		-2.21
2437.00000	40	-5.09
2452.00000		-5.29

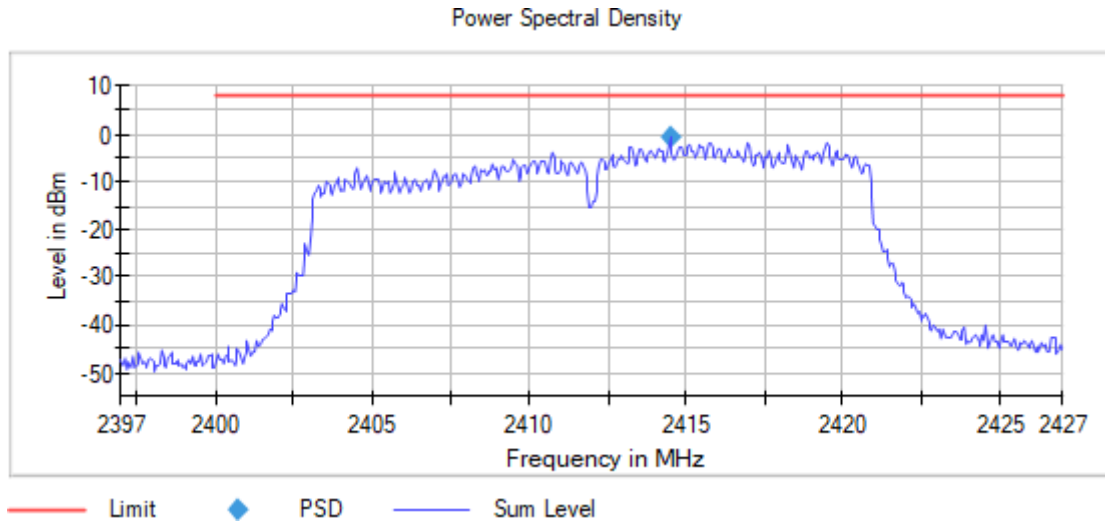
**Verdict**

Pass

**Attachments**

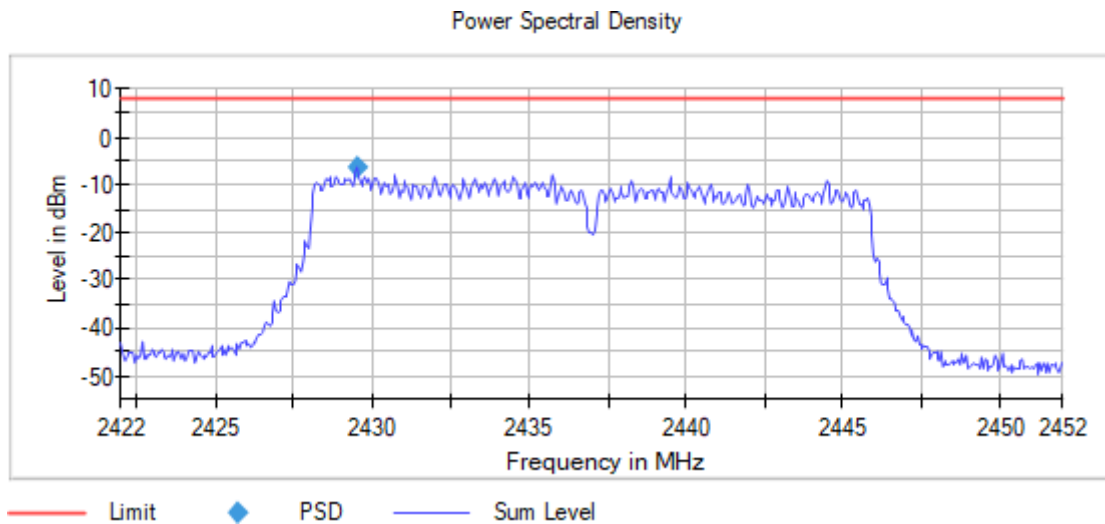
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11n , Number of Transmission Chains = 2,**

**Images:**



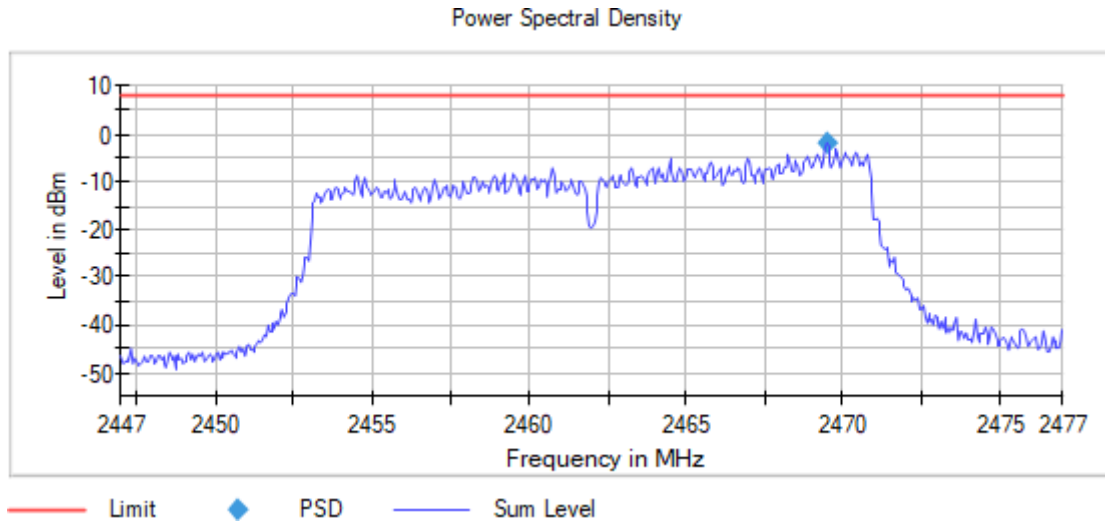
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11n , Number of Transmission Chains = 2,**

**Images:**



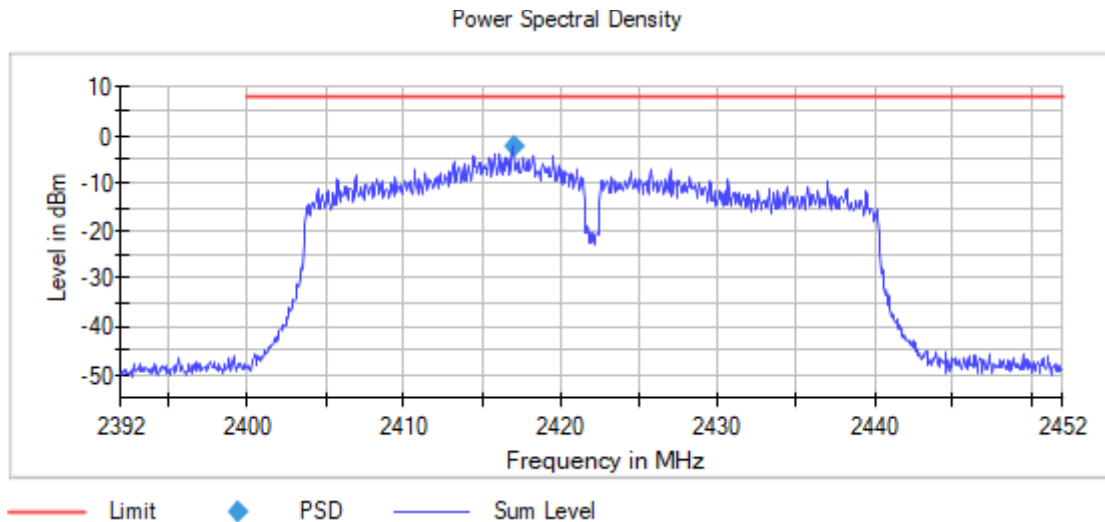
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11n , Number of Transmission Chains = 2,

Images:



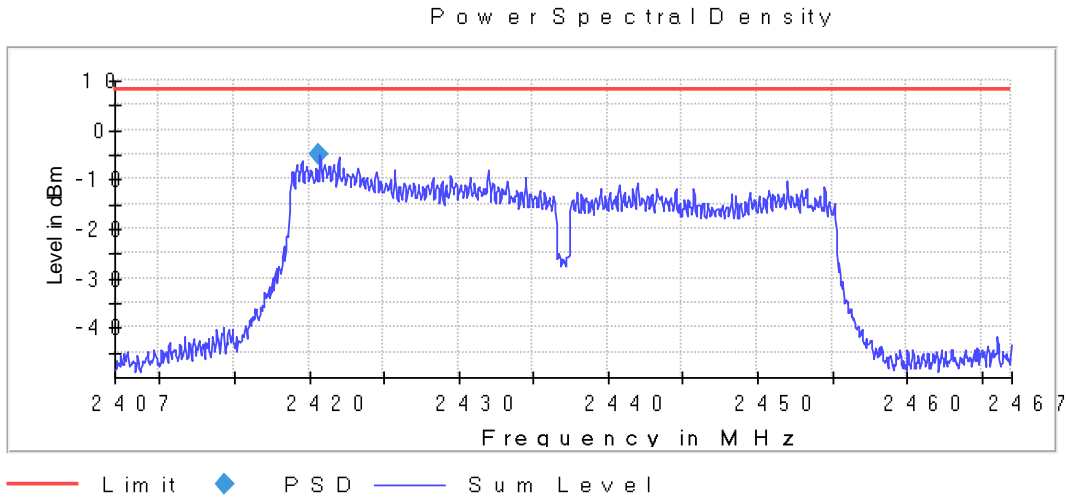
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 2,

Images:



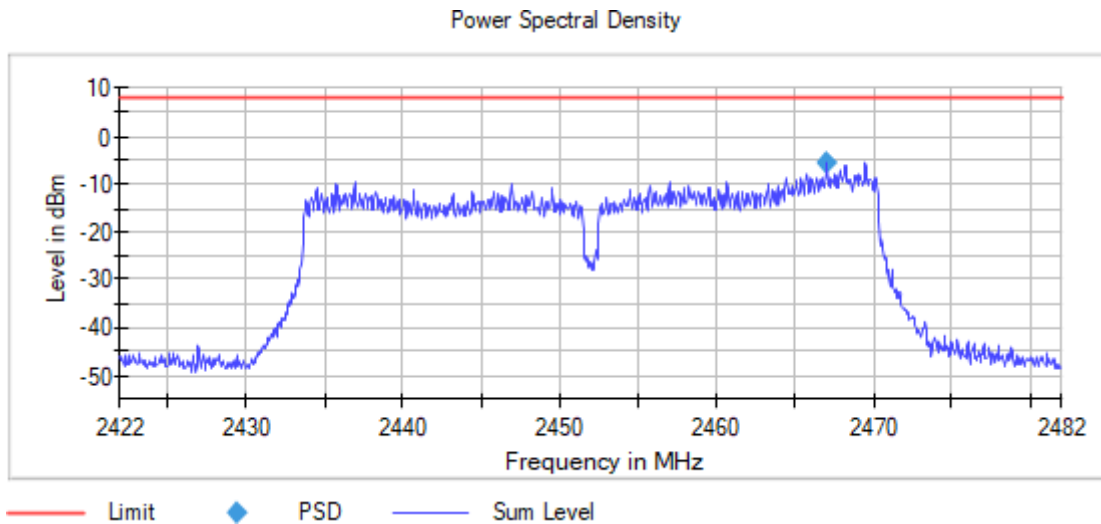
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 2,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 2,

Images:



### Pre-test ax mode RU index

Modulation: 802.11ax HE20

#### Results

RU-Index	BW (MHz)	PSD (dBm)
0		3.9*
4	20	2.8
8		3.6
61		1.8

\*: Worse case

$$\Delta = \text{PSD}_{\text{par}} - \text{PSD}_{\text{full}} = 1.8$$

Modulation: 802.11ax HE40

#### Results

RU-Index	BW (MHz)	PSD (dBm)
0		-0.2
8	40	-0.1*
17		-0.4
65		-0.5
67		-0.3

\*: Worse case

$$\Delta = \text{PSD}_{\text{par}} - \text{PSD}_{\text{full}} = 0.2$$

Modulation: 802.11ax HE20 Full RU

**Results**

Freq (MHz)	BW (MHz)	PSD (dBm)
2412.00000		-2.89
2437.00000	20	-3.95
2462.00000		-3.90

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	BW (MHz)	PSD (dBm)
2422.00000		-6.59
2437.00000	40	-6.90
2452.00000		-7.51

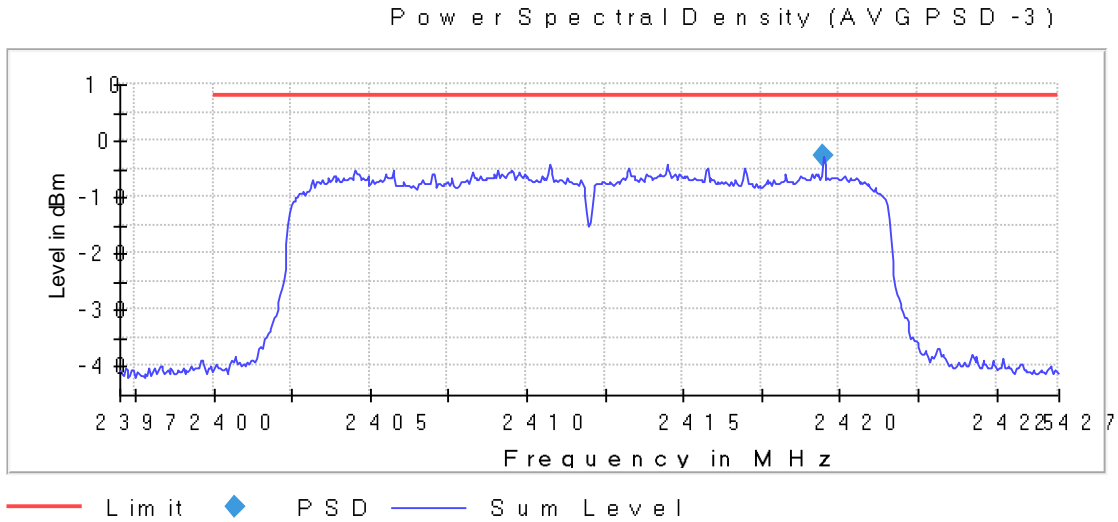
**Verdict**

Pass

**Attachments**

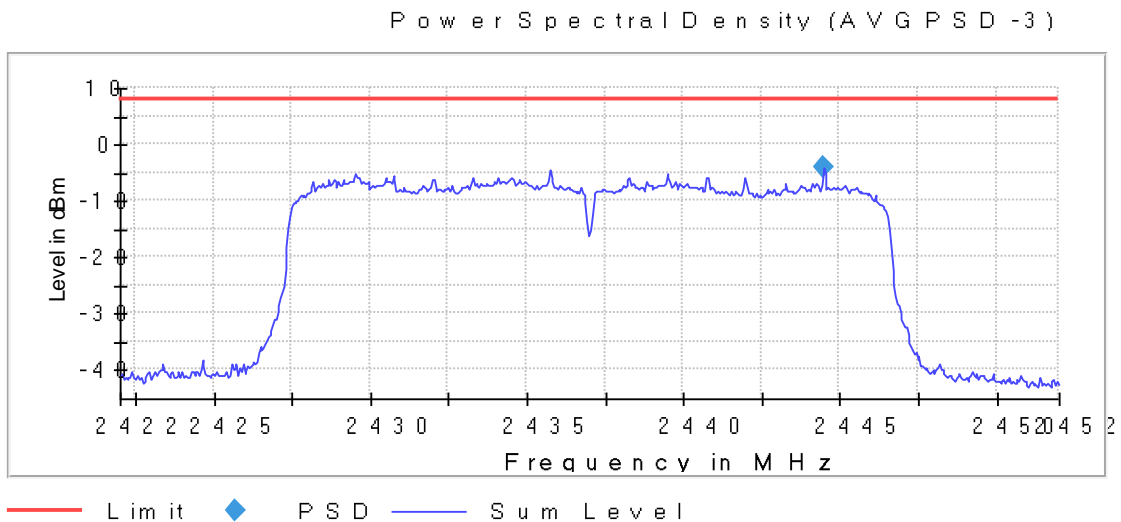
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

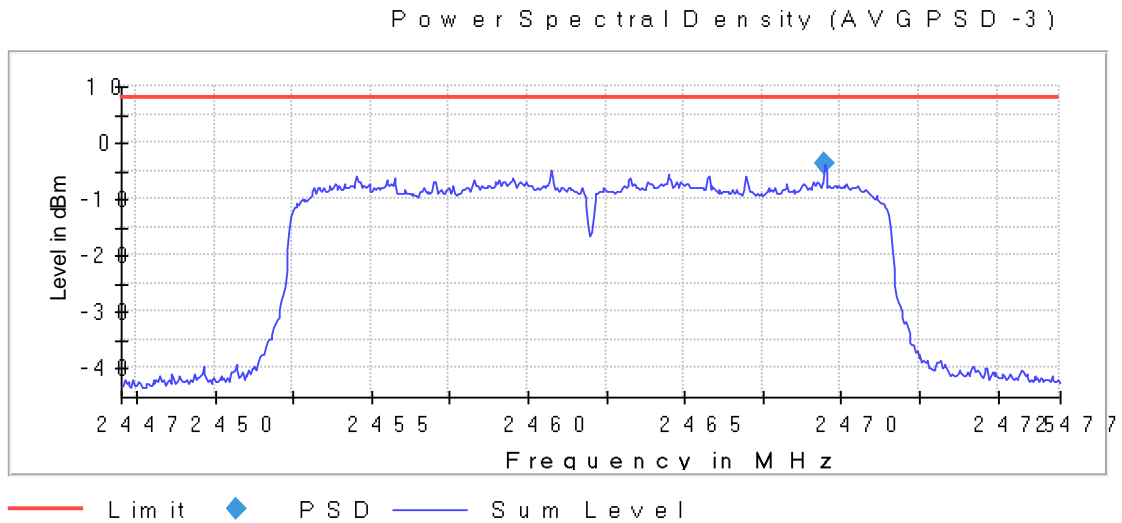
**Images:**





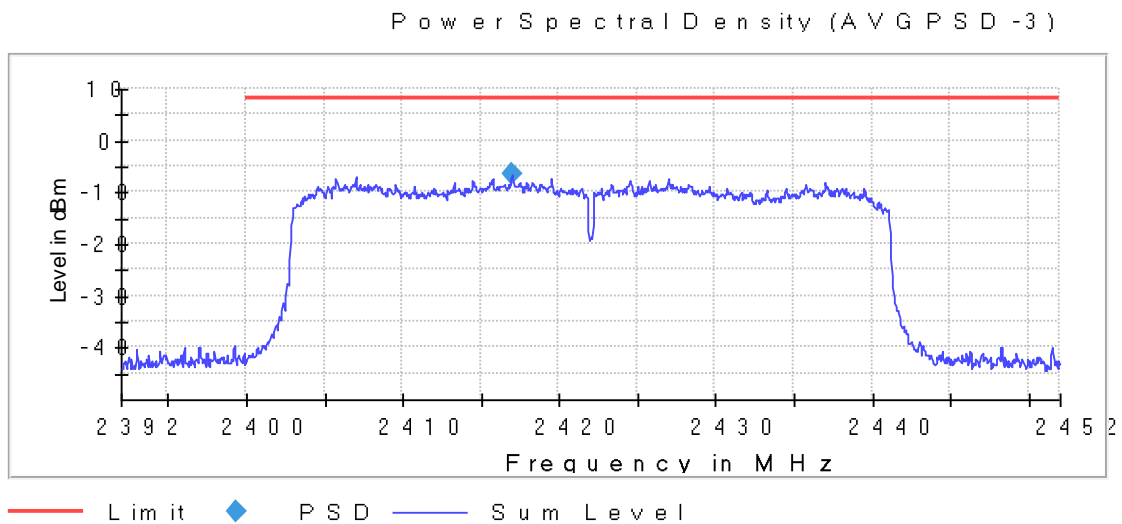
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



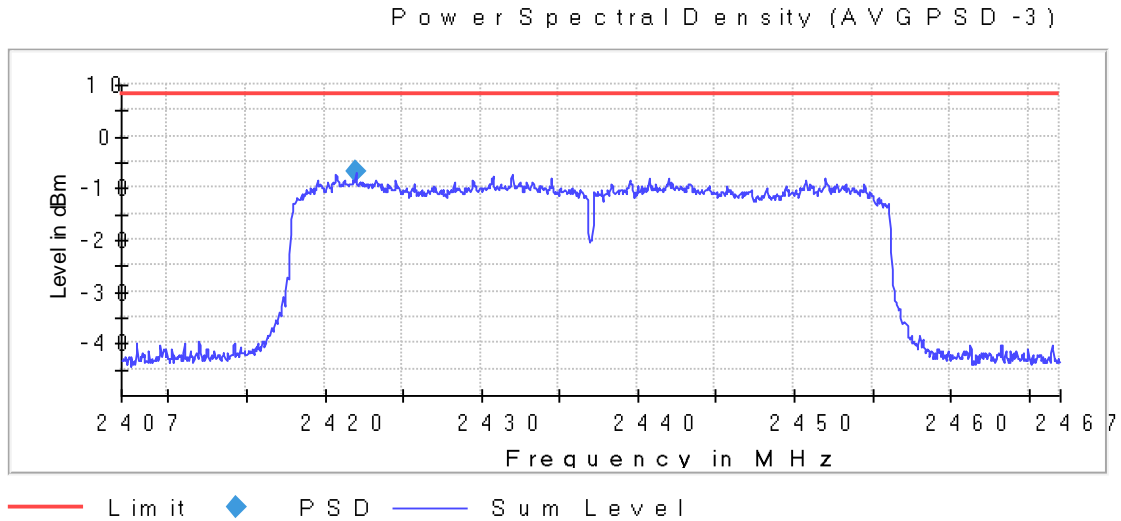
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



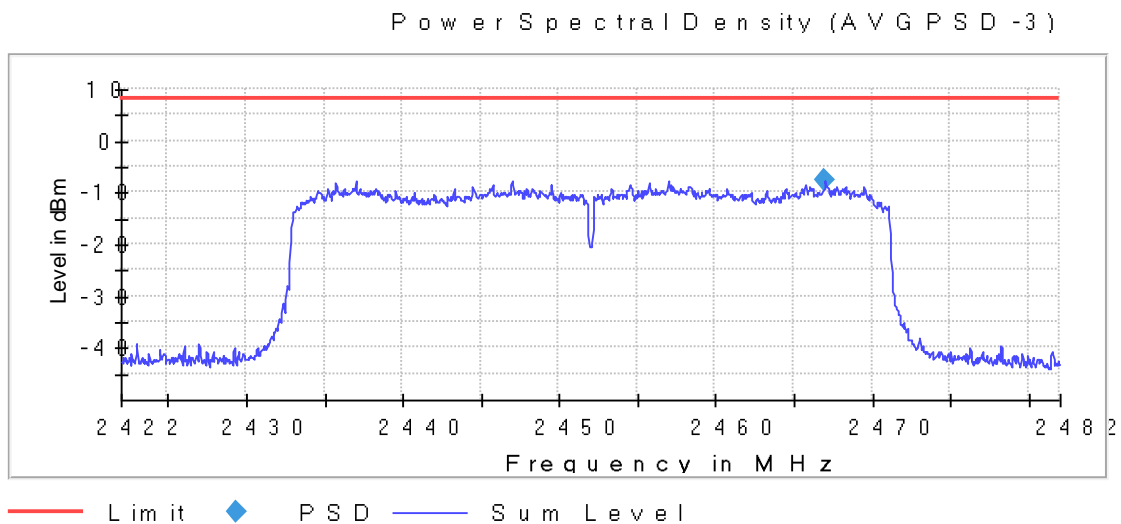
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



### Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39700 GHz	2.42200 GHz	2.44700 GHz
Stop Frequency	2.42700 GHz	2.45200 GHz	2.47700 GHz
Span	30/60.000 MHz	30/60.000 MHz	30/60.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
SweepPoints	600	600	600
Sweeptime	12.000 ms	12.000 ms	12.000 ms
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	RMS	RMS	RMS
SweepCount	5000	5000	5000
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	Sweep	Sweep	Sweep
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.50 dB	0.50 dB	0.50 dB
Run	6 / max. 15	4 / max. 15	6 / max. 15
Stable	1 / 1	1 / 1	1 / 1
Max Stable	0.28 dB	0.49 dB	0.49 dB

Modulation: 802.11ax HE20 Partial RU

**Results**

Freq (MHz)	BW (MHz)	PSD (dBm)
2412.00000		1.88
2437.00000	20	0.71
2462.00000		0.58

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	BW (MHz)	PSD (dBm)
2422.00000		-1.18
2437.00000	40	-1.73
2452.00000		-2.22

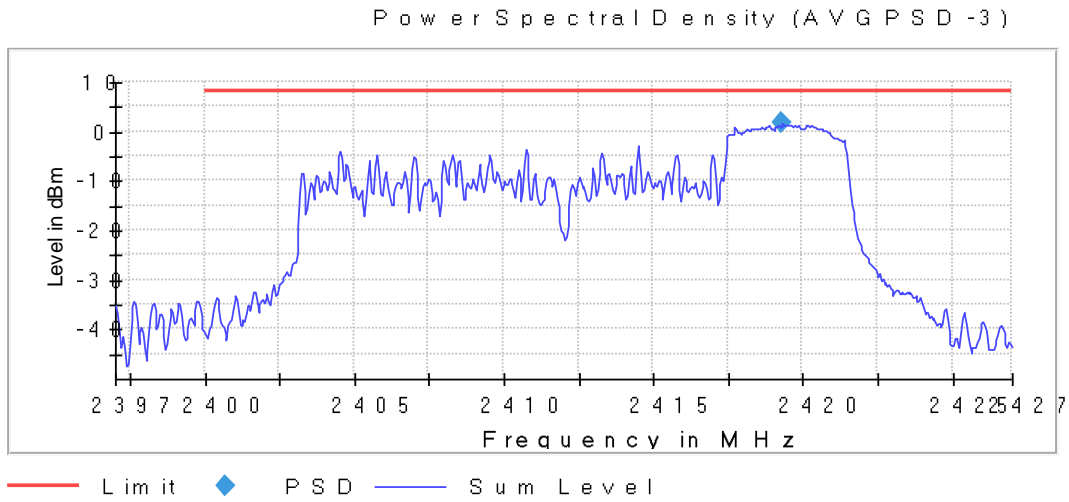
**Verdict**

Pass

**Attachments**

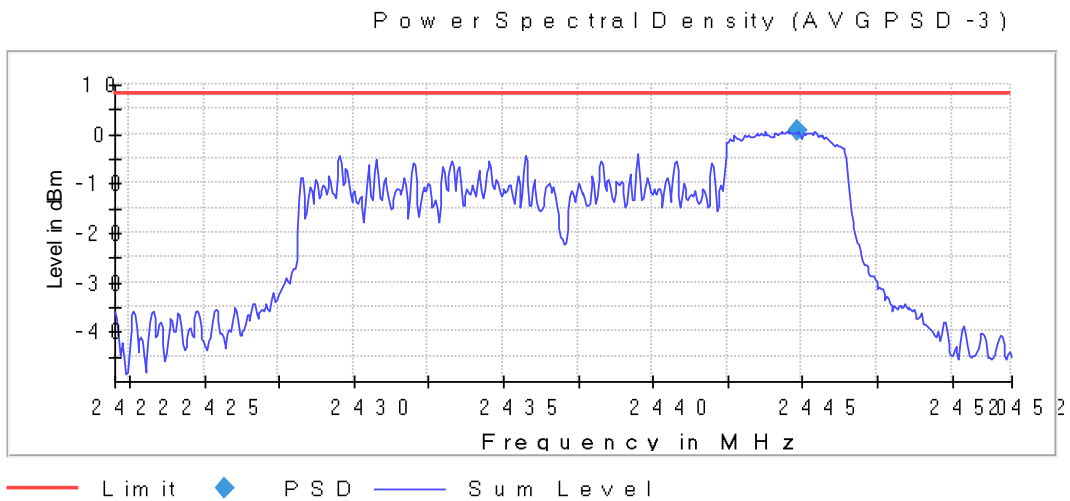
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



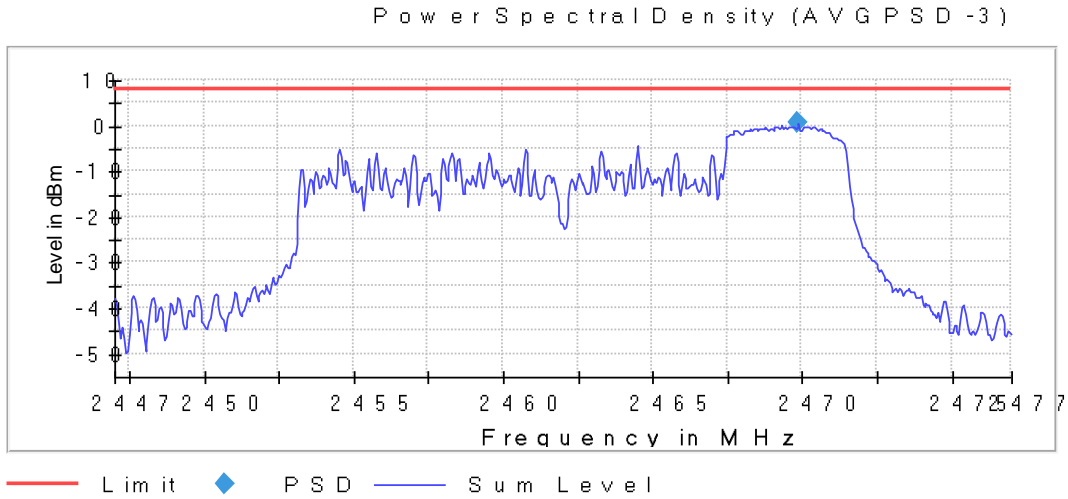
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,**

**Images:**



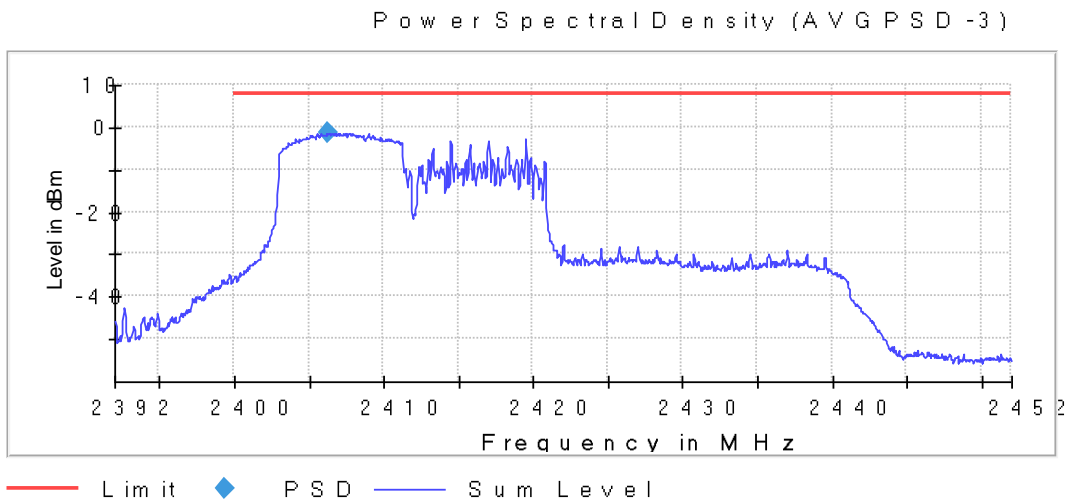
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



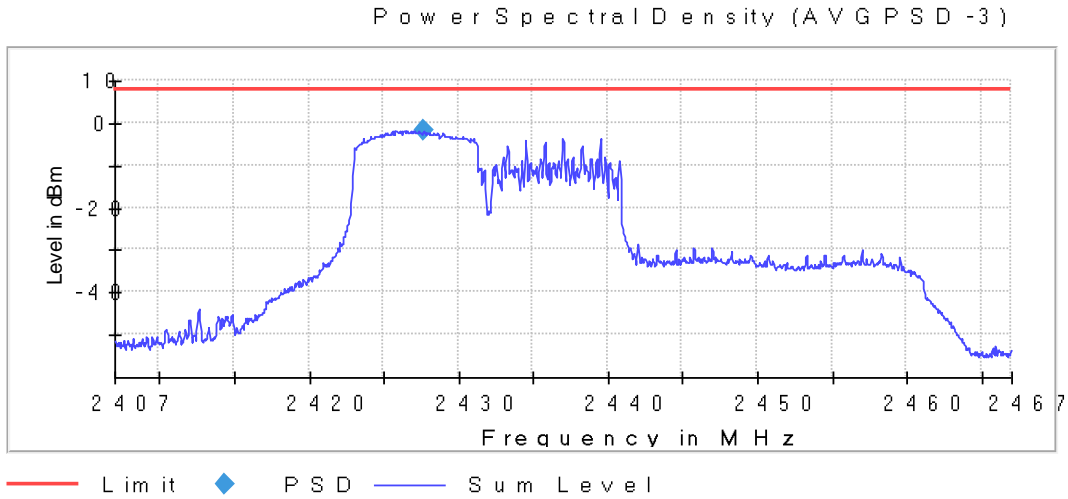
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



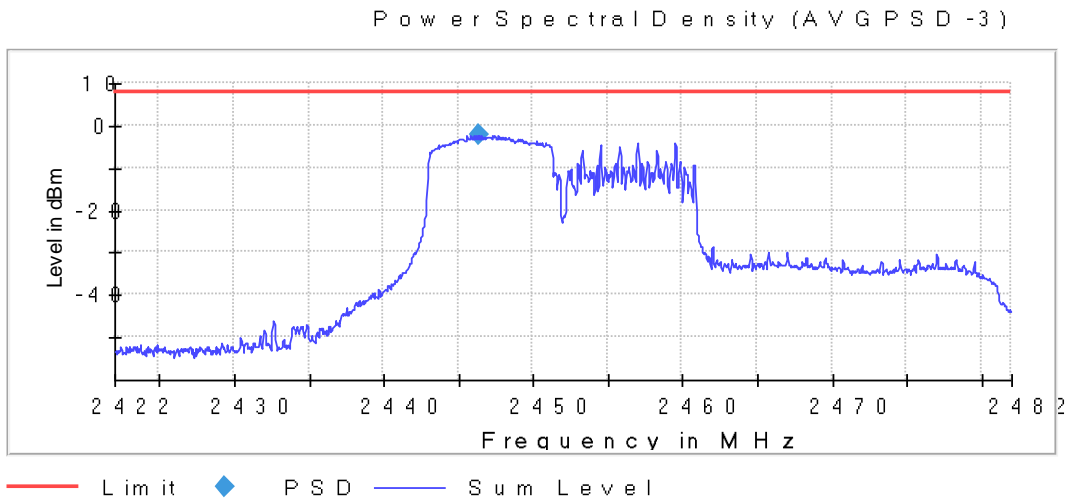
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 , Number of Transmission Chains = 1,

Images:



### Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39700 GHz	2.42200 GHz	2.44700 GHz
Stop Frequency	2.42700 GHz	2.45200 GHz	2.47700 GHz
Span	30/60.000 MHz	30/60.000 MHz	30/60.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
SweepPoints	600	600	600
Sweeptime	12.000 ms	12.000 ms	12.000 ms
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	RMS	RMS	RMS
SweepCount	5000	5000	5000
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	Sweep	Sweep	Sweep
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.50 dB	0.50 dB	0.50 dB
Run	6 / max. 15	4 / max. 15	6 / max. 15
Stable	1 / 1	1 / 1	1 / 1
Max Stable	0.28 dB	0.49 dB	0.49 dB



## RSS-247 5.4 (d) / FCC 15.247 (b) (1) Maximum Average Conducted Output Power

### Limits

For systems using digital modulation in the 2400 -2483.5 MHz band: 1 watt (30 dBm).

The e.i.r.p. shall not exceed 4 W (36 dBm) (RSS-247).

### Note:

- 1- The following test results are shown based on KDB 662911 D01 Multiple Transmitter Output v02r01 E) 1) In-Band Power Measurements.
- 2- The e.i.r.p. levels are calculated by adding the declared maximum antenna gain (dBi).
- 3- For 2Tx CDD MIMO modes, in accordance with KDB 662911 D01 v02r01 Section F)2)f)i), directional gain for power measurements: was calculated as follows:

$$\text{Directional gain POWER} = G_{\text{ANT}} \text{ dBi (N}_{\text{ANT}} < 4)$$

$$\text{Directional gain POWER} = G_{\text{ANT}} = -2.5 \text{ dBi}$$

Power Antenna Gain MIMO Chain 0 & 1: -2.5 dBi

For MIMO CDD operation modes, the limit should be reduced by the amount in dB the antenna gain exceeds 6 dBi. In this case the limit is not reduced due to the antenna gain calculations is -2.5 dBi.

- 4- For all operation modes, the antenna gain is less than 6 dBi.

### Results

Modulation: 802.11b

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2412.00000		11.70
2437.00000	20	12.00
2462.00000		11.50

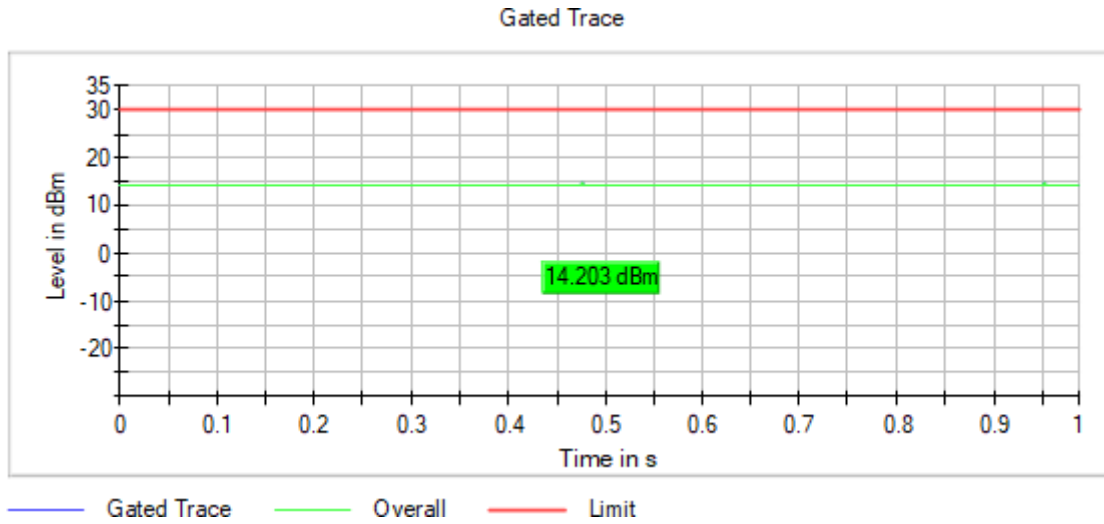
### Verdict

Pass

**Attachments**

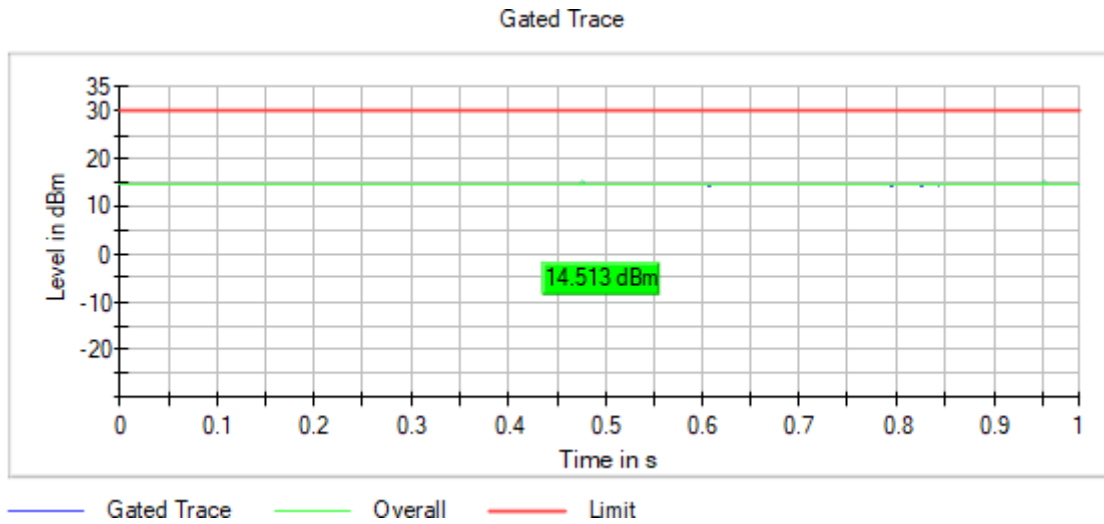
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1, Modulation = 802.11b , Number of Transmission Chains = 2,**

**Images:**



**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1, Modulation = 802.11b , Number of Transmission Chains = 2,**

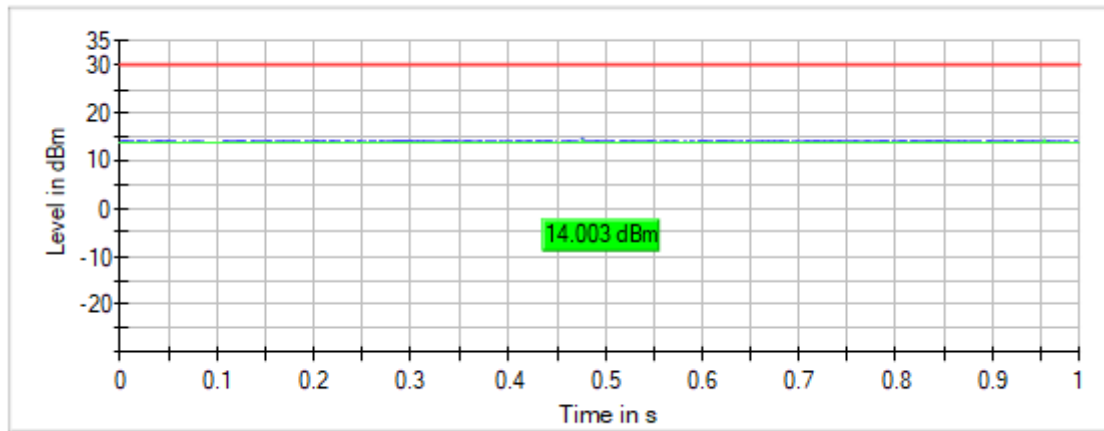
**Images:**



**Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11b , Number of Transmission Chains = 2,**

**Images:**

Gated Trace



— Gated Trace — Overall — Limit

Antenna gain: -2.5 dBi

Modulation: 802.11g

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2412.00000		8.29
2437.00000	20	5.89
2462.00000		8.15

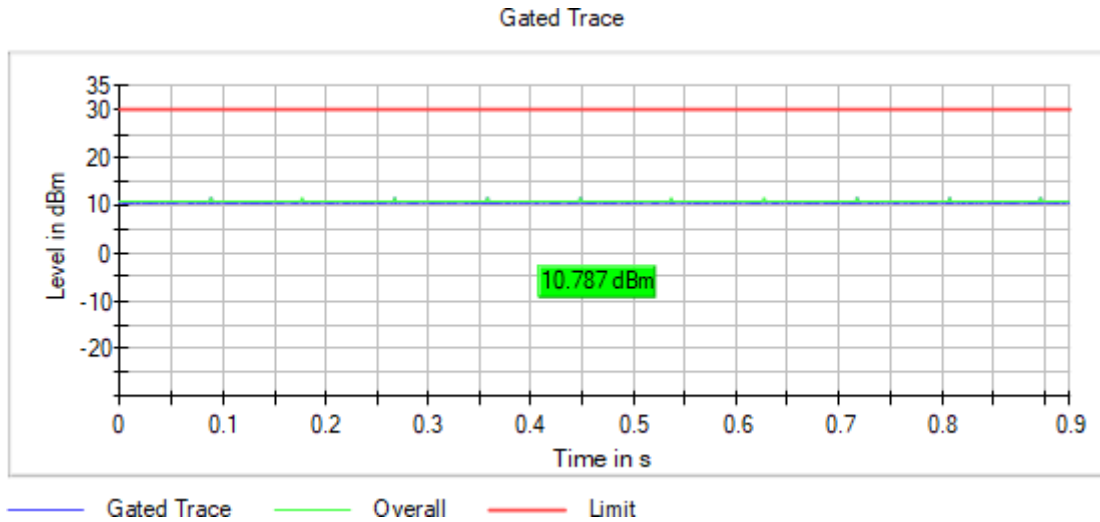
**Verdict**

Pass

**Attachments**

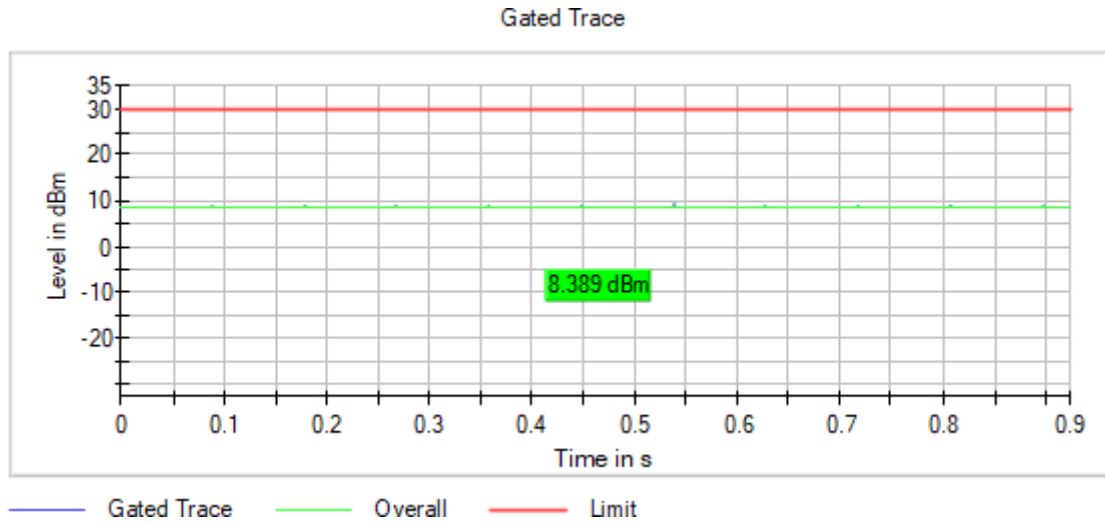
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1, Modulation = 802.11g , Number of Transmission Chains = 2,

**Images:**



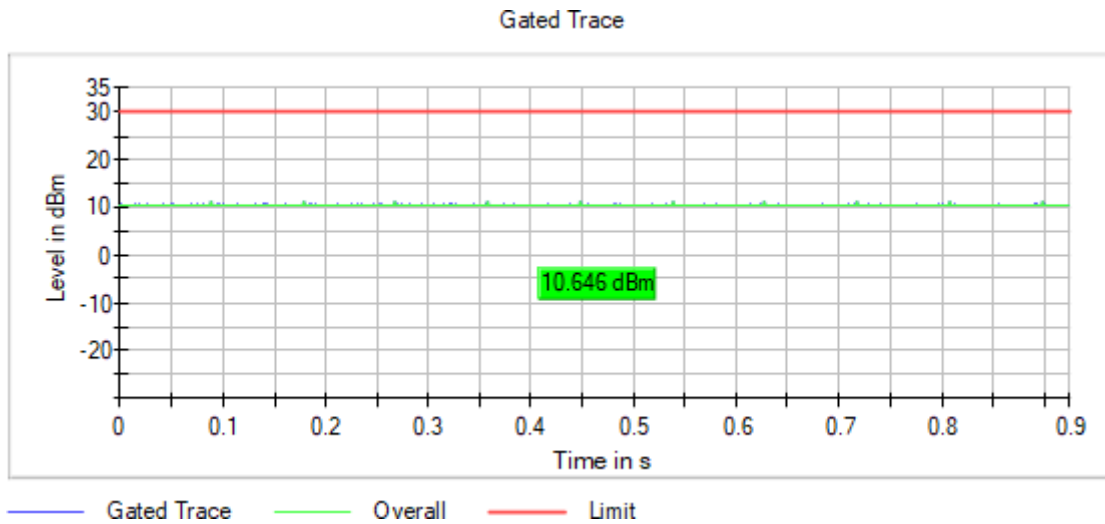
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1,  
Modulation = 802.11g , Number of Transmission Chains = 2,

Images:



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11g , Number of Transmission Chains = 2,

Images:



Antenna gain: -2.5 dBi

Modulation: 802.11n20

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2412.00000	20	6.60
2437.00000		6.85
2462.00000		5.70

Modulation: 802.11n40

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2422.00000	40	7.35
2437.00000		7.37
2452.00000		7.55

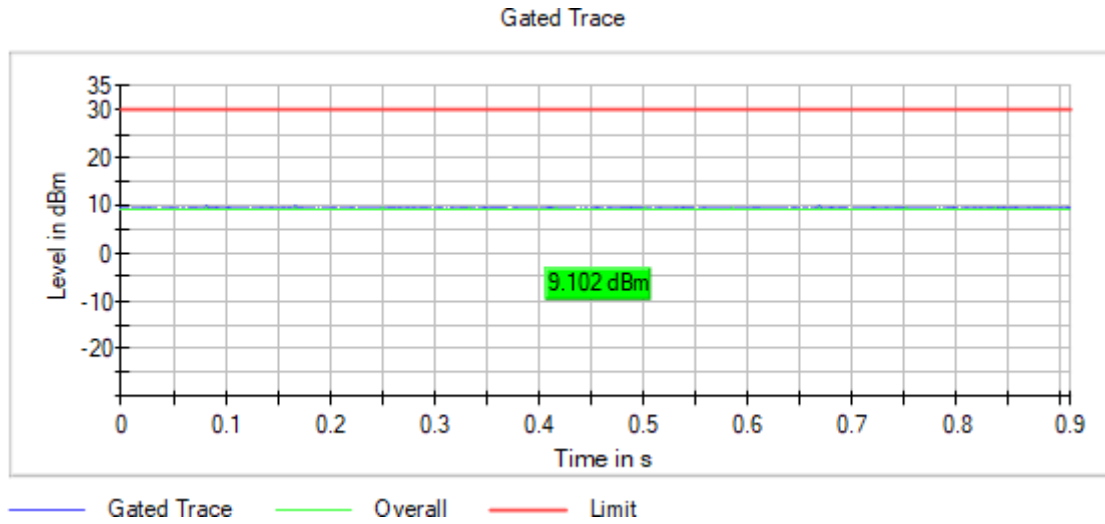
**Verdict**

Pass

**Attachments**

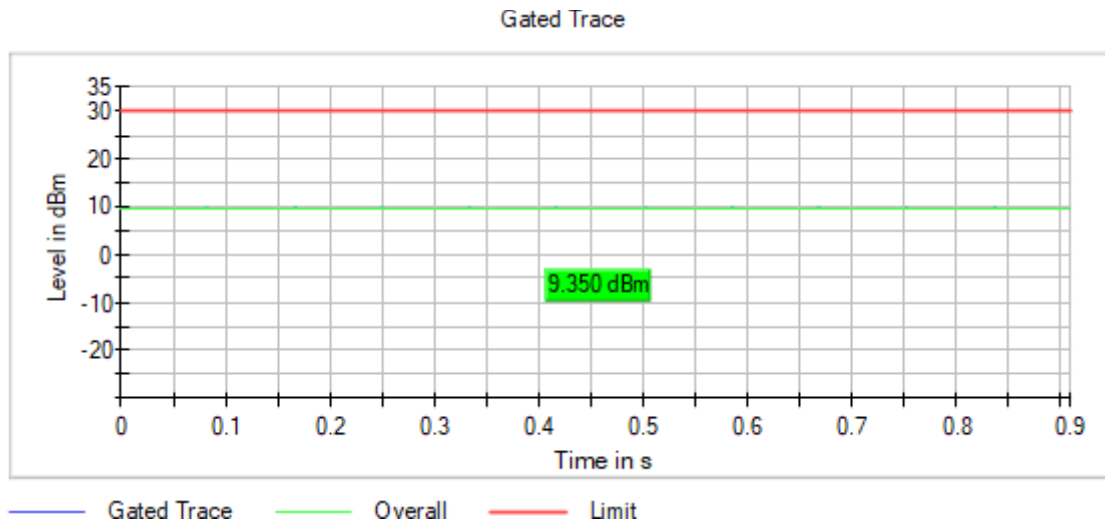
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1, Modulation = 802.11n , Number of Transmission Chains = 2,**

**Images:**



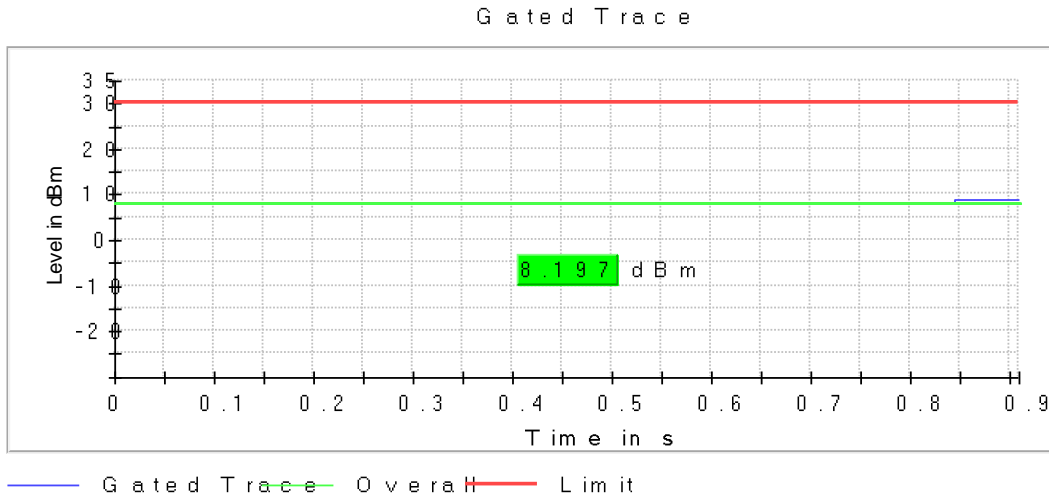
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1, Modulation = 802.11n , Number of Transmission Chains = 2,**

**Images:**



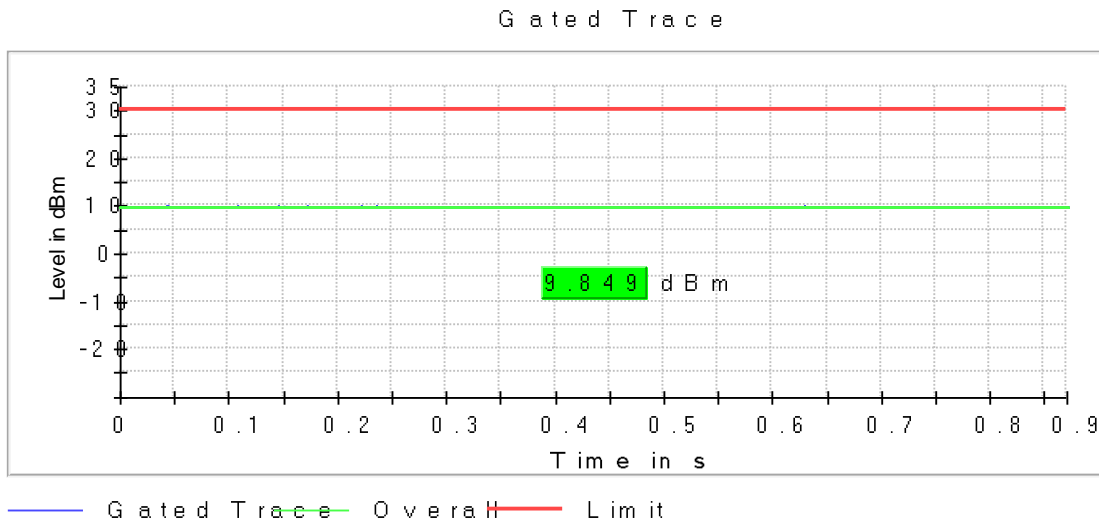
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11n , Number of Transmission Chains = 2,

Images:



Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1,  
Modulation = 802.11n , Number of Transmission Chains = 2,

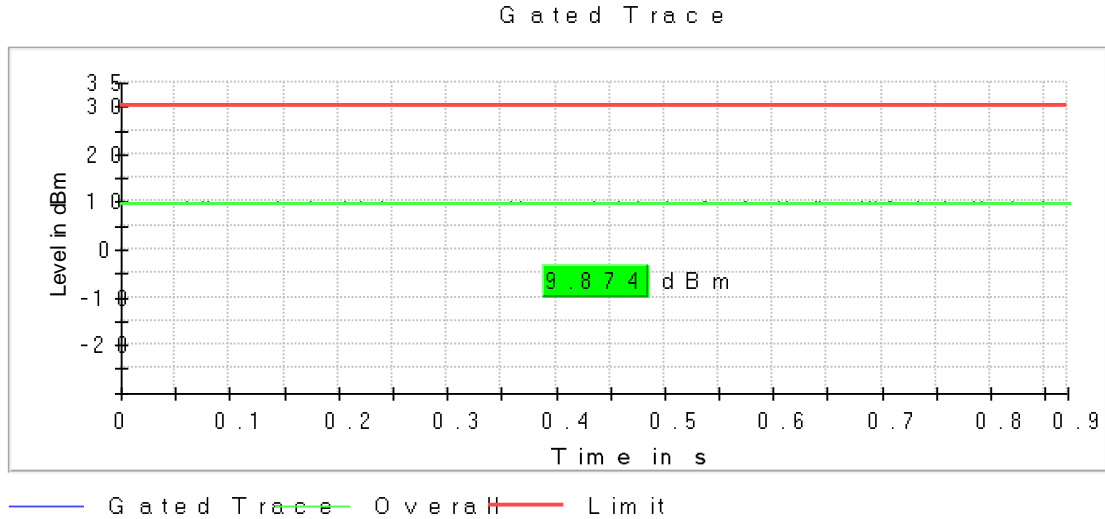
Images:





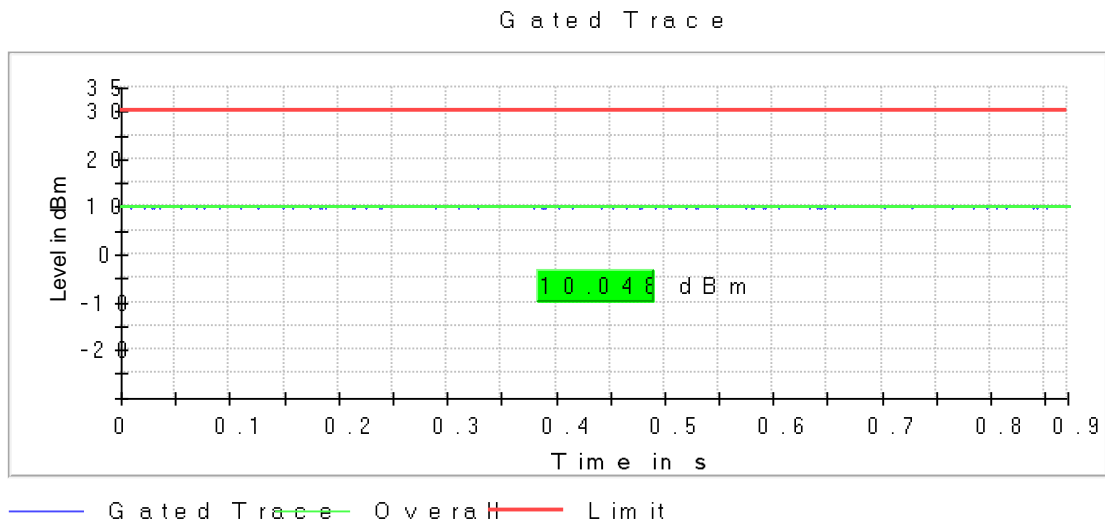
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 2,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 2,

Images:



Antenna gain: -2.5 dBi

Modulation: 802.11ax HE20 – Full RU

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2412.00000	20	9.5
2437.00000		8.9
2462.00000		8.7

Modulation: 802.11ax HE40 – Full RU

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2422.00000	40	9.5
2437.00000		9.1
2452.00000		8.9

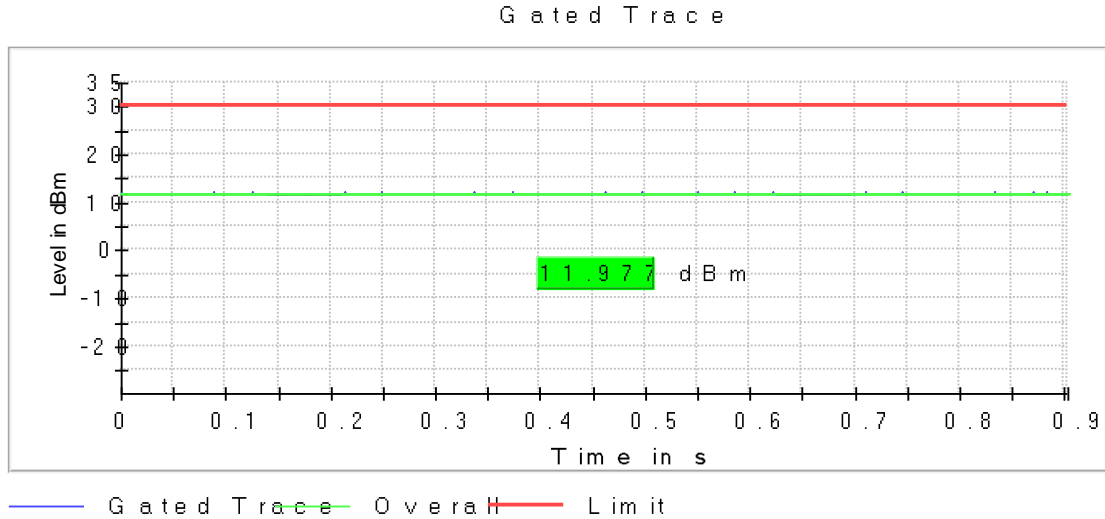
**Verdict**

Pass

**Attachments**

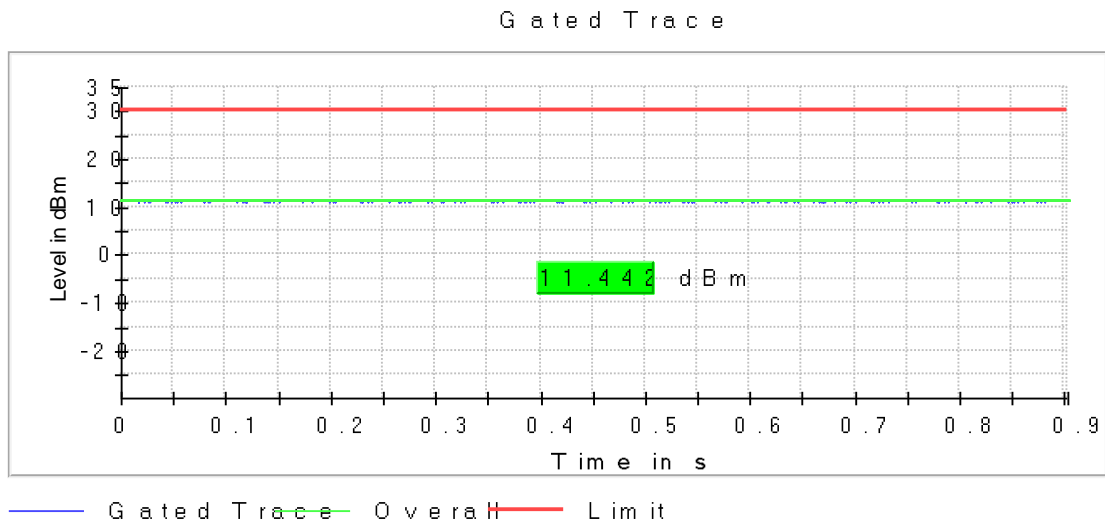
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1, Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,**

**Images:**



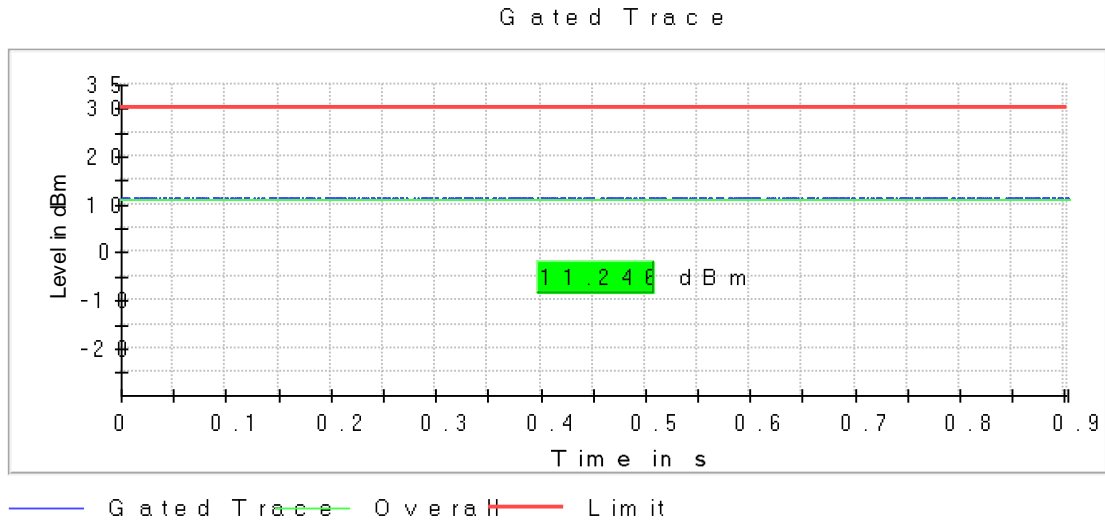
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1, Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,**

**Images:**



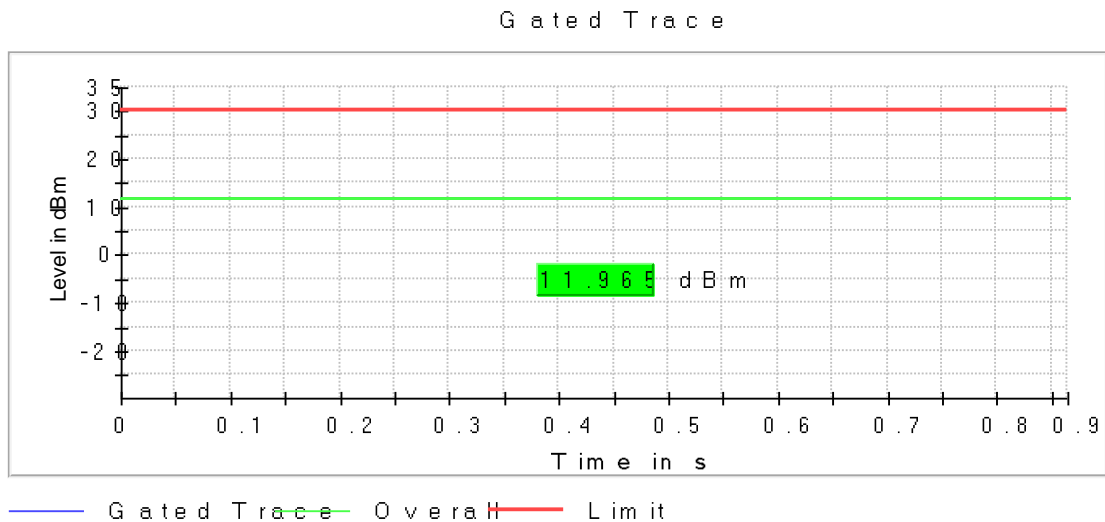
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



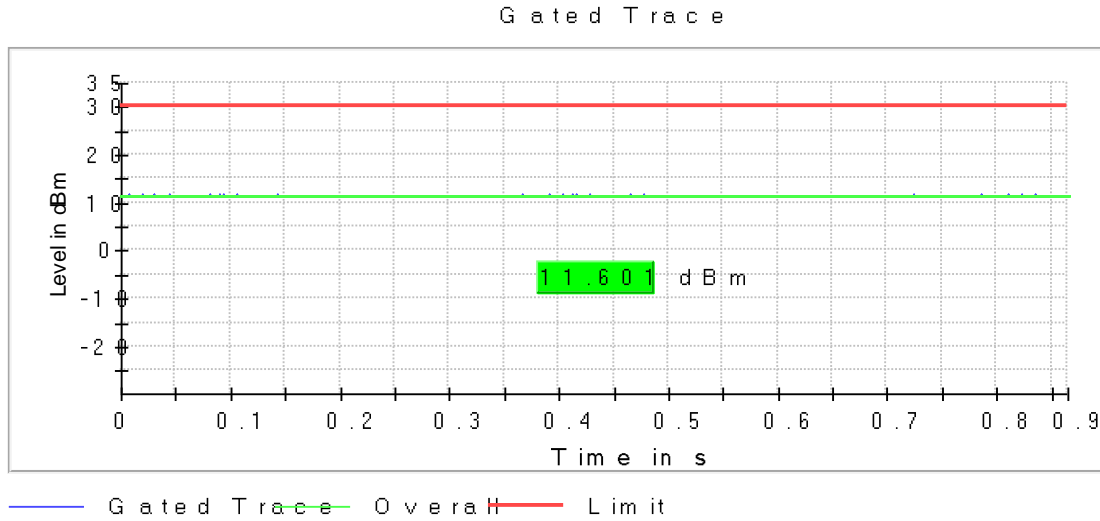
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE SS1 MCS 8, Number of Transmission Chains = 2,

Images:



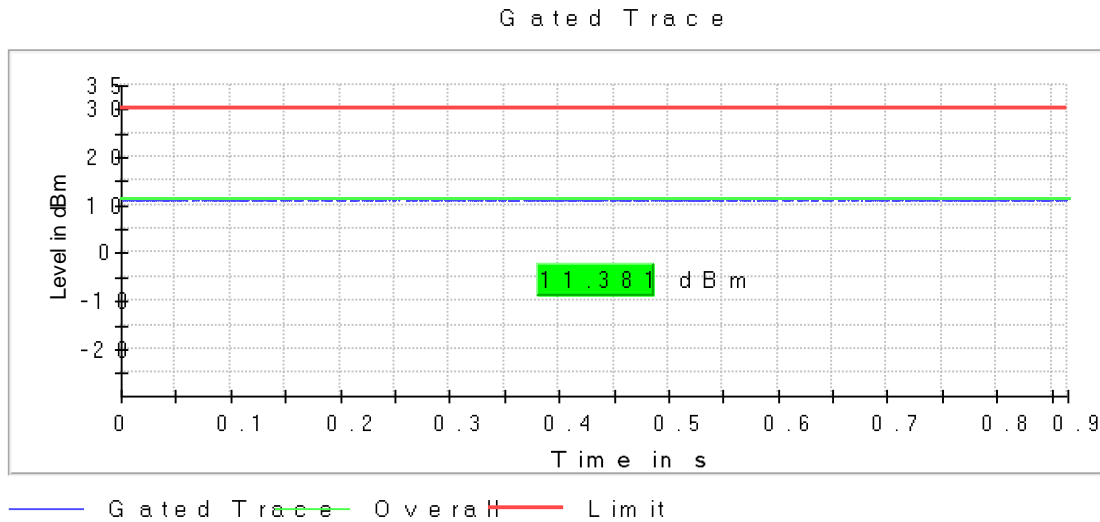
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
 Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
 Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



**OSP PowerMeter settings**

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

Antenna gain: -2.5 dBi

Modulation: 802.11ax HE20 – Partial RU

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2412.00000	20	8.28
2437.00000		7.39
2462.00000		6.91

Modulation: 802.11ax HE40 – Partial RU

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2422.00000	40	8.63
2437.00000		8.25
2452.00000		7.66

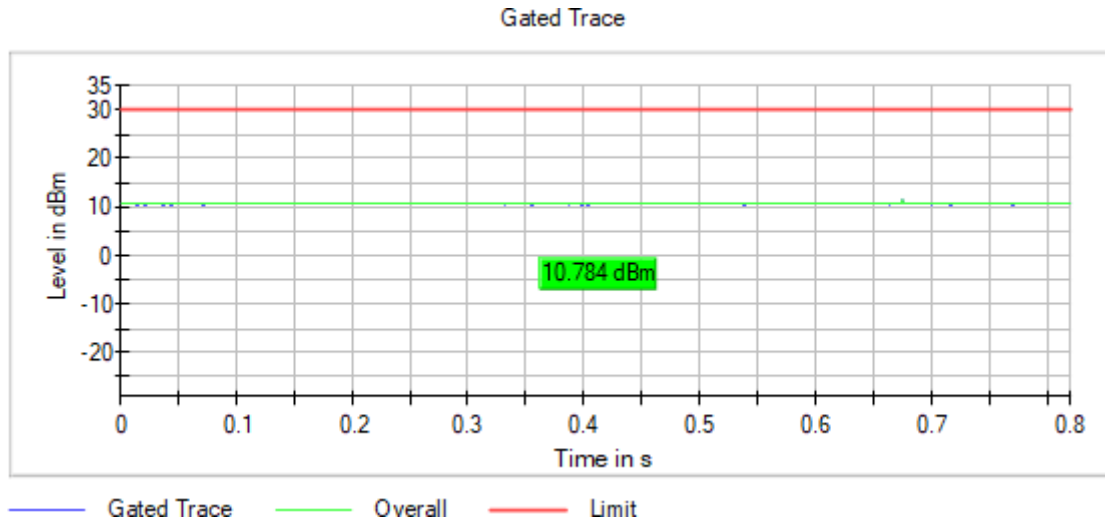
**Verdict**

Pass

**Attachments**

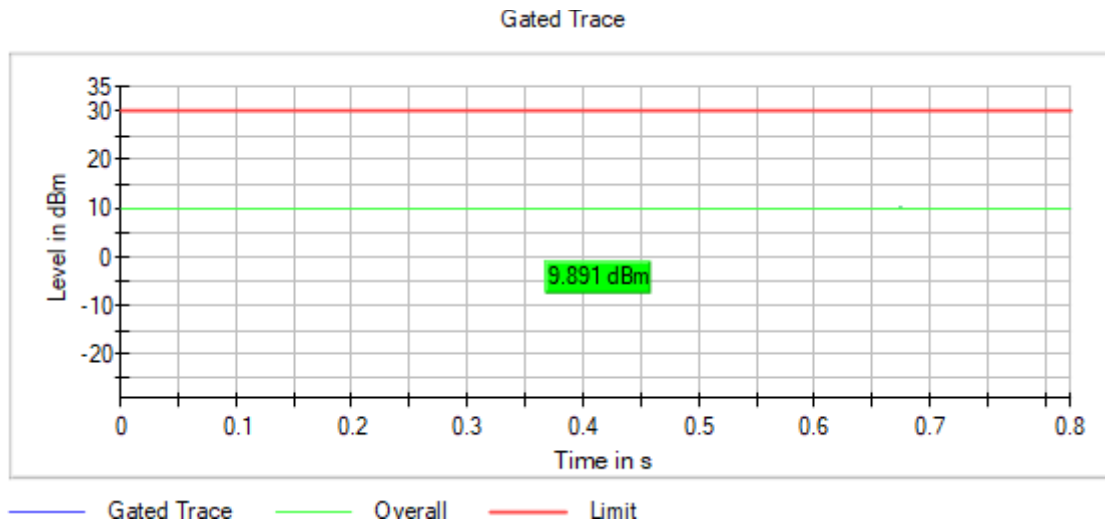
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1, Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,**

**Images:**



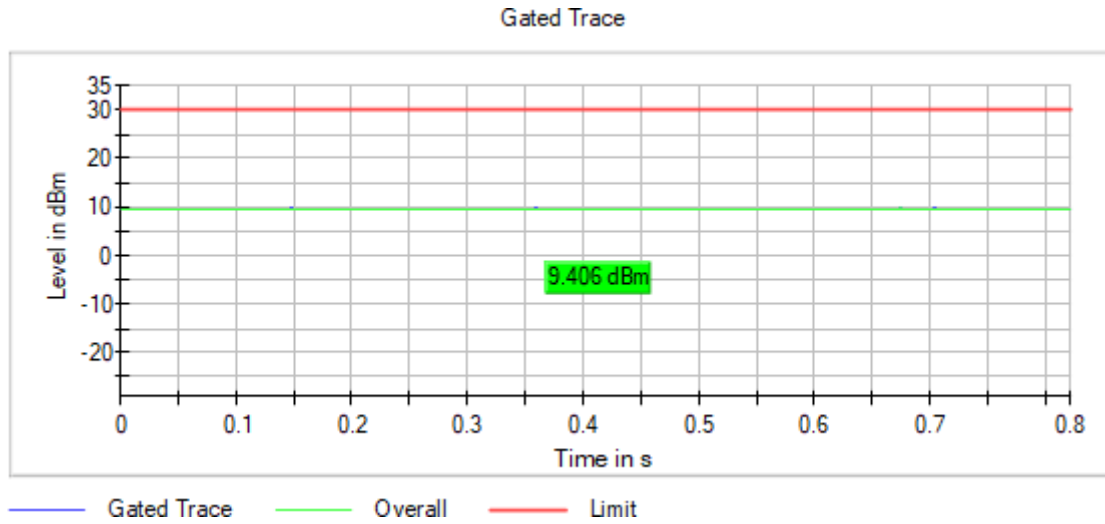
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1, Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,**

**Images:**



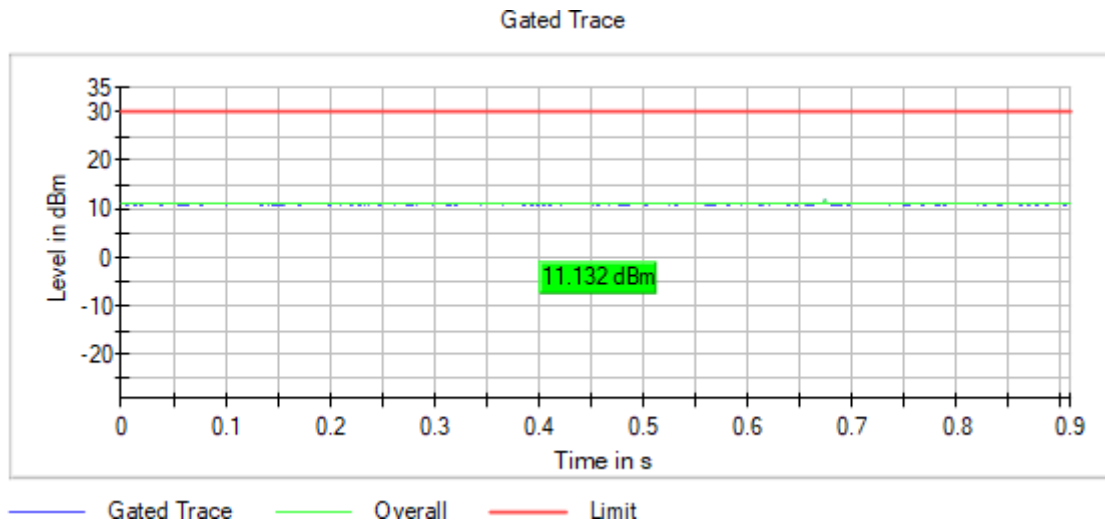
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE SS1 MCS 8, Number of Transmission Chains = 2,

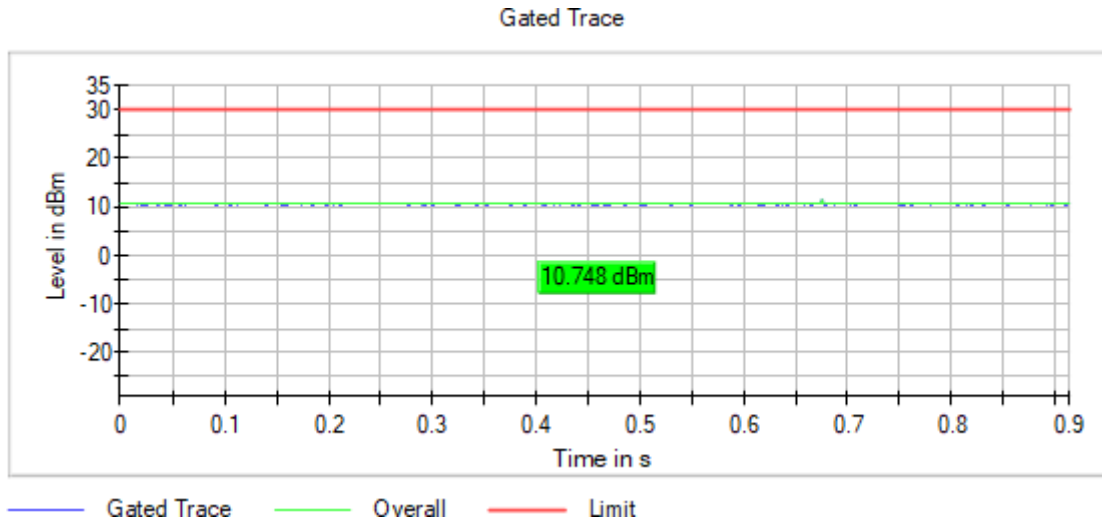
Images:





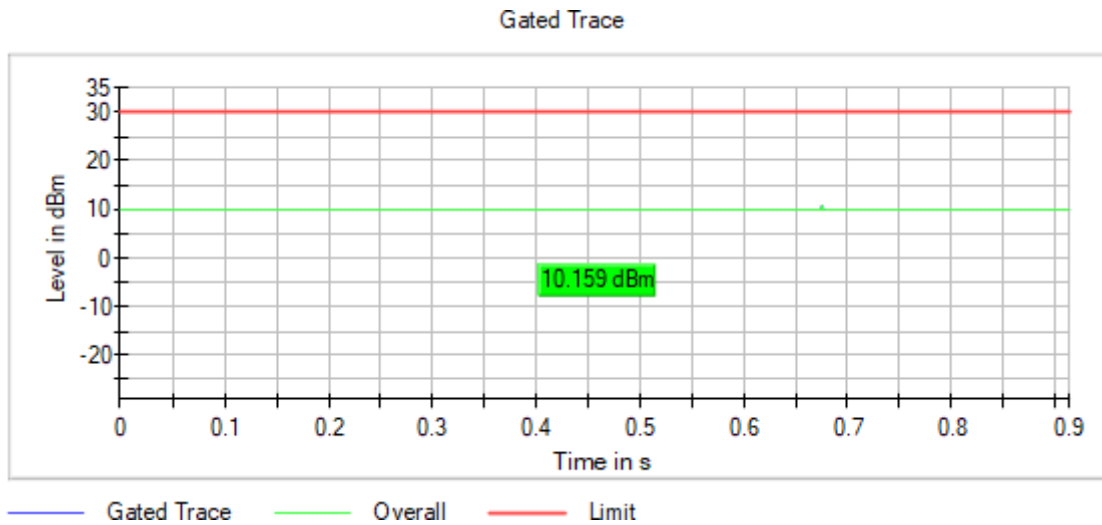
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
 Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
 Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



**OSP PowerMeter settings**

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

**RSS-247 5.5 / FCC 15.247 (d) Band-edge emissions compliance (Transmitter)**

**Limits**

In any 100 kHz bandwidths outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Note: The following test results are shown based on KDB 662911 D01 Multiple Transmitter Output v02r01 E) 3) a) (ii) Measure and sum spectral maxima across the outputs as described in section E)2)b).

Modulation: 802.11b

**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2498.025000	-42.8
20	2399.775000	-42.6
20	2369.225000	-42.7
20	2497.975000	-43.0
20	2310.375000	-42.8
20	2492.025000	-43.0
20	2486.325000	-43.1
20	2311.375000	-42.9
20	2399.825000	-42.9
20	2485.125000	-43.2
20	2398.275000	-42.9
20	2486.375000	-43.2
20	2485.175000	-43.2
20	2355.775000	-42.9
20	2398.225000	-43.0
20	2491.975000	-43.2
20	2487.225000	-43.2
20	2326.175000	-43.0
20	2399.725000	-43.0
20	2483.525000	-43.3
20	2493.425000	-43.3
20	2380.225000	-43.0
20	2371.025000	-43.1
20	2499.175000	-43.3
20	2325.525000	-43.1

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2493.475000	-43.3
20	2486.225000	-43.3
20	2326.225000	-43.1
20	2492.425000	-43.4
20	2397.375000	-43.1

**Verdict**

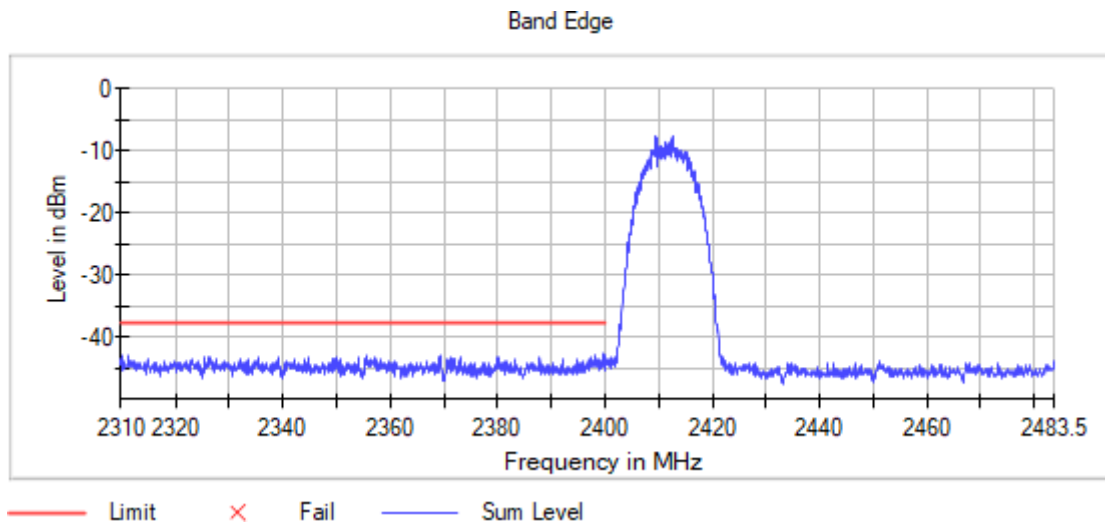
Pass

**Attachments**

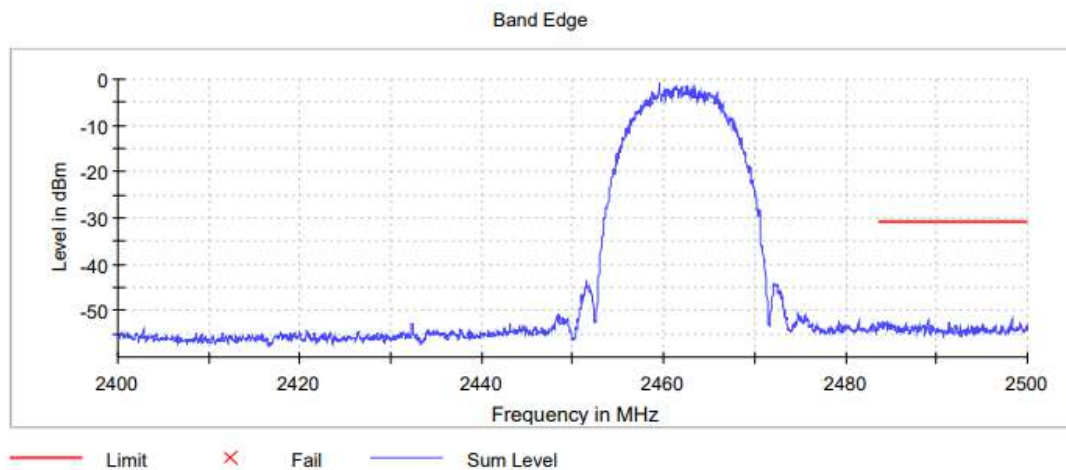
Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11b ,  
 Number of Transmission Chains = 2, Measurement Point = 1,

**Images:**

**Low Channel:**



**High Channel:**



Modulation: 802.11g

**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2399.825000	-44.2
20	2484.325000	-52.4
20	2486.975000	-52.5
20	2399.775000	-44.3
20	2399.325000	-44.6
20	2484.475000	-52.5
20	2399.875000	-44.6
20	2484.375000	-52.6
20	2399.275000	-44.7
20	2487.025000	-52.6
20	2484.525000	-52.6
20	2323.225000	-44.8
20	2323.275000	-45.2
20	2486.925000	-52.7
20	2483.875000	-52.9
20	2394.575000	-45.3
20	2497.825000	-53.0
20	2398.575000	-45.3
20	2483.575000	-53.0
20	2399.375000	-45.3
20	2484.675000	-53.1
20	2396.375000	-45.4
20	2398.625000	-45.4
20	2485.475000	-53.1
20	2394.525000	-45.5
20	2483.825000	-53.1
20	2396.925000	-45.6
20	2497.875000	-53.1
20	2396.325000	-45.6
20	2483.925000	-53.1

**Verdict**

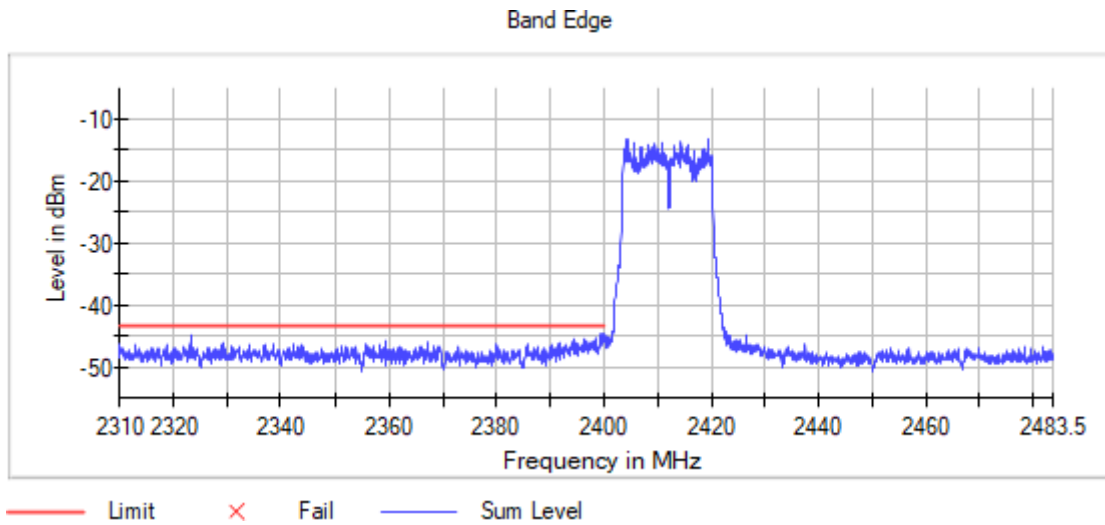
Pass

**Attachments**

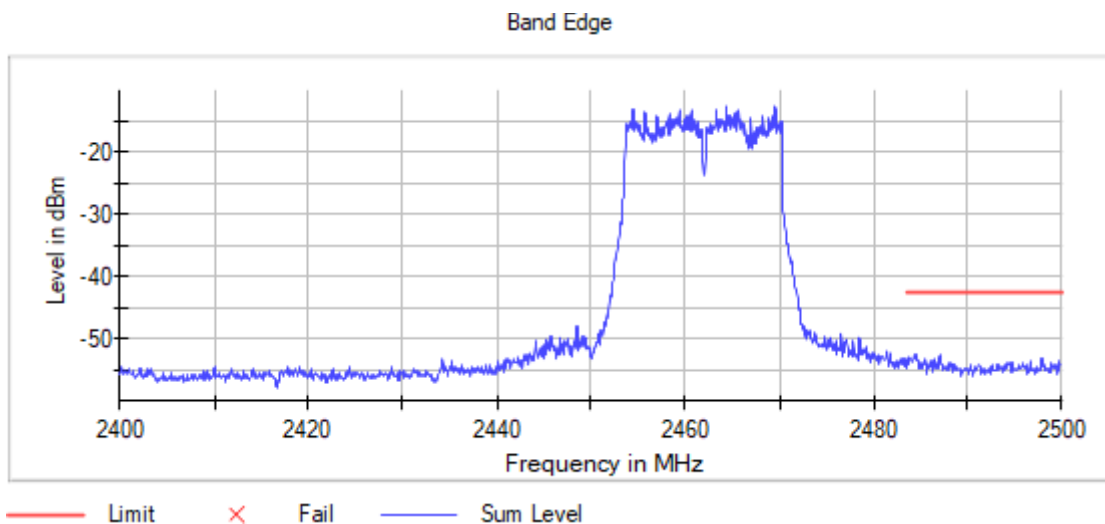
**Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11g ,  
Number of Transmission Chains = 2, Measurement Point = 1,**

**Images:**

**Low Channel:**



**High Channel:**



Modulation: 802.11n

**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2493.275000	-52.2
20	2398.875000	-49.4
20	2398.825000	-49.4
20	2493.225000	-52.4
20	2483.625000	-52.4
20	2396.675000	-50.1
20	2483.575000	-52.5
20	2398.225000	-50.4
20	2396.725000	-50.4
20	2485.025000	-52.7
20	2396.625000	-50.7
20	2485.075000	-52.9
20	2487.475000	-52.9
20	2398.925000	-50.7
20	2398.175000	-50.7
20	2493.325000	-53.0
20	2397.275000	-50.8
20	2483.675000	-53.1
20	2399.425000	-50.8
20	2499.025000	-53.2
20	2397.325000	-50.8
20	2499.075000	-53.2
20	2487.625000	-53.2
20	2399.375000	-51.0
20	2398.775000	-51.2
20	2487.525000	-53.3
20	2399.325000	-51.2
20	2484.475000	-53.4
20	2398.275000	-51.3
20	2485.425000	-53.4

**Verdict**

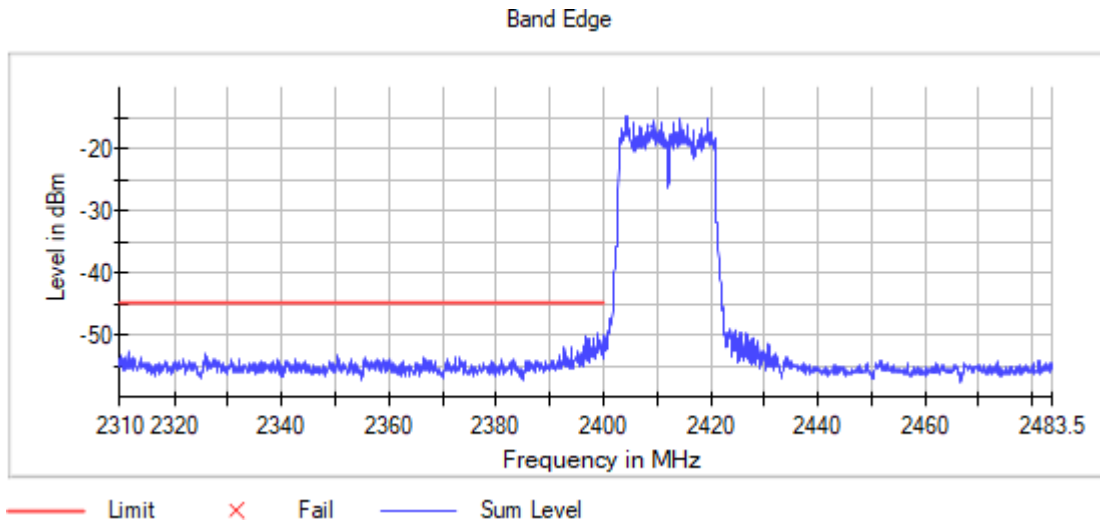
Pass

**Attachments**

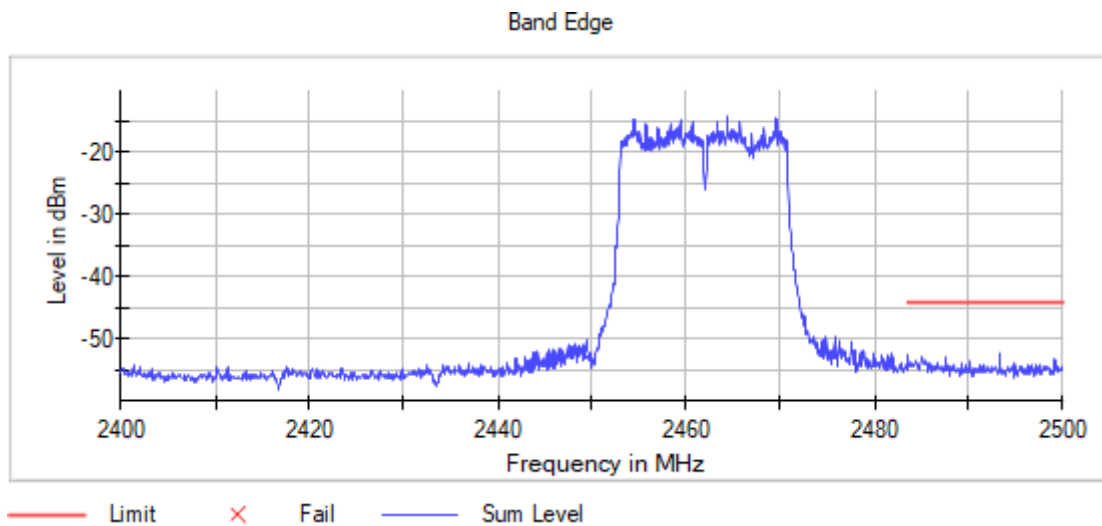
**Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11n ,  
Number of Transmission Chains = 2, Measurement Point = 1,**

**Images:**

**Low Channel:**



**High Channel:**



Modulation: 802.11n HT40

**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
40	2395.275000	-50.2
40	2484.625000	-51.1
40	2395.675000	-50.3
40	2484.575000	-51.2
40	2485.375000	-51.5
40	2395.325000	-50.4
40	2489.875000	-51.5
40	2398.225000	-50.5
40	2395.225000	-50.7
40	2489.925000	-51.5
40	2485.325000	-51.7
40	2398.875000	-50.7
40	2386.075000	-50.7
40	2485.725000	-51.7
40	2386.025000	-50.7
40	2488.925000	-51.9
40	2399.225000	-50.7
40	2485.425000	-52.1
40	2395.625000	-50.8
40	2484.675000	-52.2
40	2398.175000	-50.8
40	2485.675000	-52.2
40	2489.825000	-52.2
40	2397.675000	-50.8
40	2493.925000	-52.3
40	2399.525000	-50.9
40	2485.775000	-52.3
40	2399.675000	-50.9
40	2395.725000	-50.9
40	2484.525000	-52.4

**Verdict**

Pass

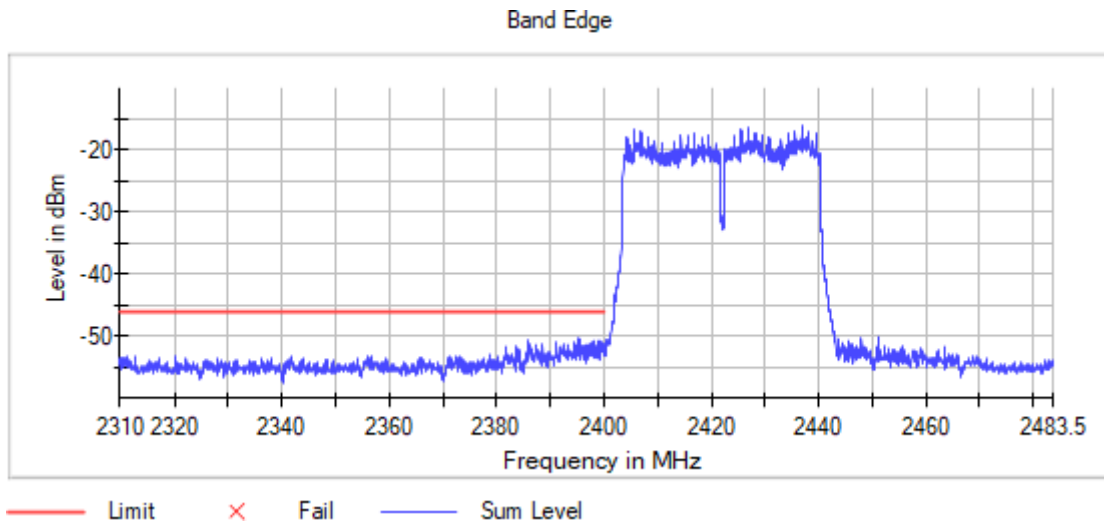


**Attachments**

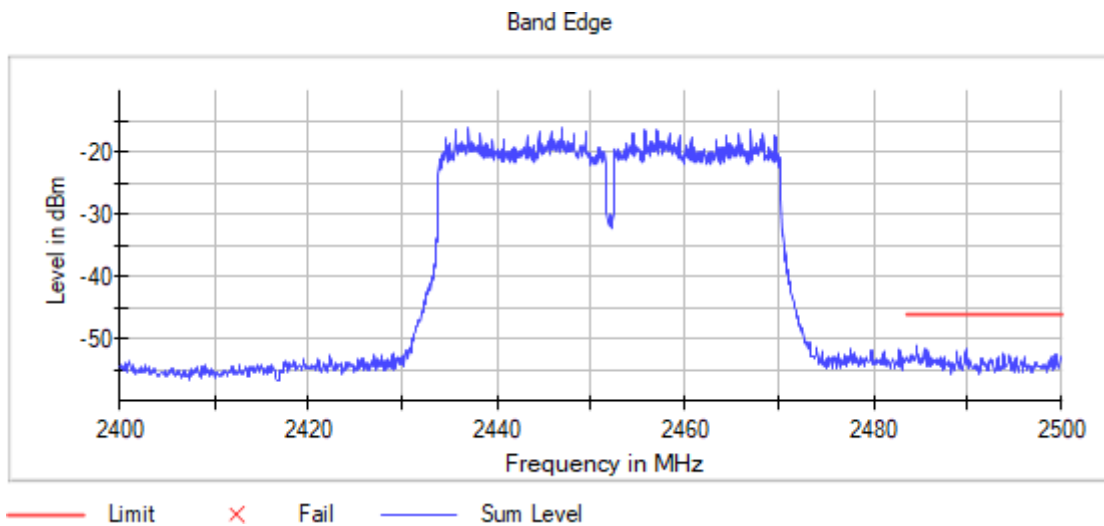
**Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40, Modulation = 802.11n HT40 ,  
Number of Transmission Chains = 2, Measurement Point = 1,**

**Images:**

**Low Channel:**



**High Channel:**



Modulation: 802.11ax HE20 FULL RU  
**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2398.975000	-34.6
20	2398.525000	-34.7
20	2398.925000	-34.7
20	2399.475000	-34.7
20	2398.475000	-34.7
20	2399.425000	-34.8
20	2399.025000	-34.8
20	2399.675000	-34.9
20	2399.625000	-34.9
20	2399.525000	-35.0
20	2398.575000	-35.0
20	2399.775000	-35.0
20	2399.925000	-35.1
20	2398.625000	-35.1
20	2399.725000	-35.1
20	2484.175000	-39.7
20	2484.125000	-39.7
20	2483.725000	-40.3
20	2484.925000	-40.5
20	2483.775000	-40.7
20	2484.875000	-40.8
20	2483.675000	-40.9
20	2483.625000	-40.9
20	2484.675000	-40.9
20	2484.225000	-41.0
20	2484.625000	-41.1
20	2483.975000	-41.3
20	2484.075000	-41.4
20	2483.925000	-41.4
20	2484.025000	-41.4

BW (MHz)	Freq (MHz)	Lvl (dBm)
40	2399.225000	-33.4
40	2396.975000	-33.5
40	2399.275000	-33.6
40	2397.025000	-33.8
40	2396.925000	-34.4
40	2392.975000	-34.5
40	2399.175000	-34.6
40	2391.475000	-34.7
40	2393.025000	-34.8
40	2391.525000	-34.8
40	2394.725000	-35.1
40	2386.225000	-35.2
40	2394.525000	-35.3
40	2394.475000	-35.4
40	2394.775000	-35.5
40	2486.975000	-35.7
40	2487.025000	-36.1
40	2486.925000	-36.2
40	2484.725000	-36.5
40	2484.775000	-36.6
40	2489.225000	-37.0
40	2483.725000	-37.2
40	2489.175000	-37.2
40	2483.775000	-37.4
40	2484.525000	-37.5
40	2484.475000	-37.5
40	2484.825000	-37.6
40	2486.025000	-37.8
40	2485.975000	-37.8
40	2489.275000	-38.0

**Verdict**

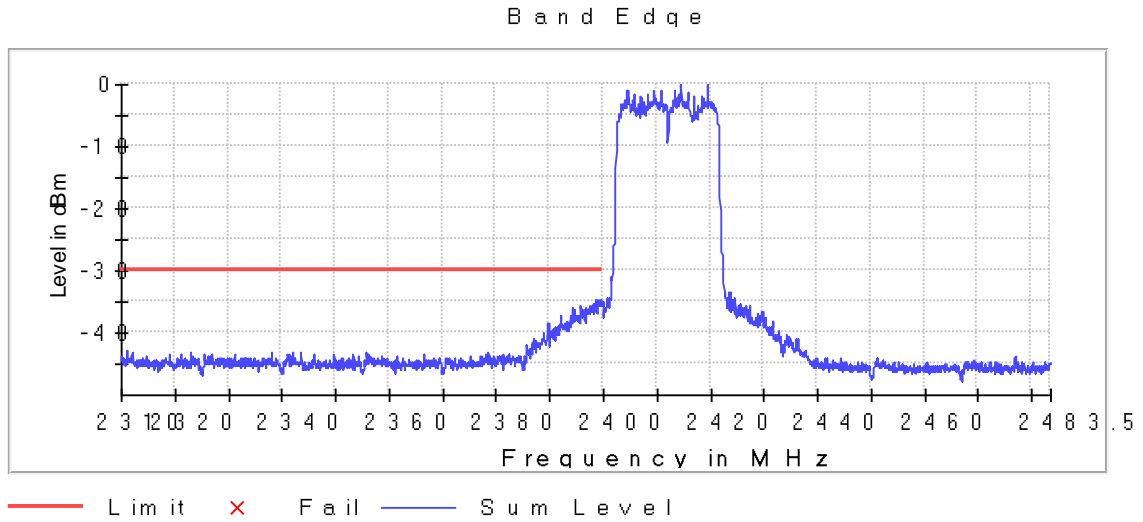
Pass

**Attachments**

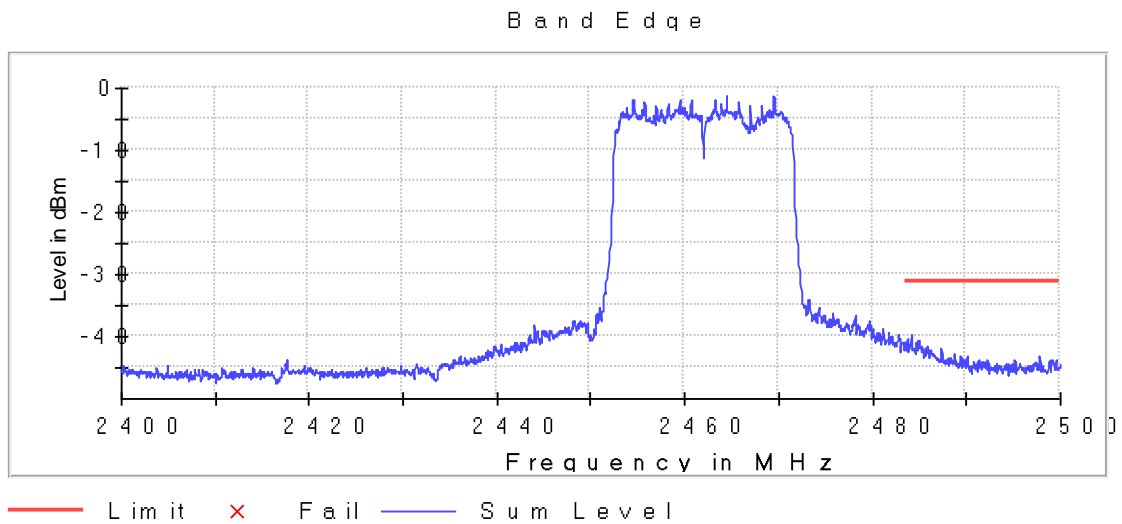
**Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 ,  
Number of Transmission Chains = 1, Measurement Point = 1,**

**Images:**

**Low Channel:**



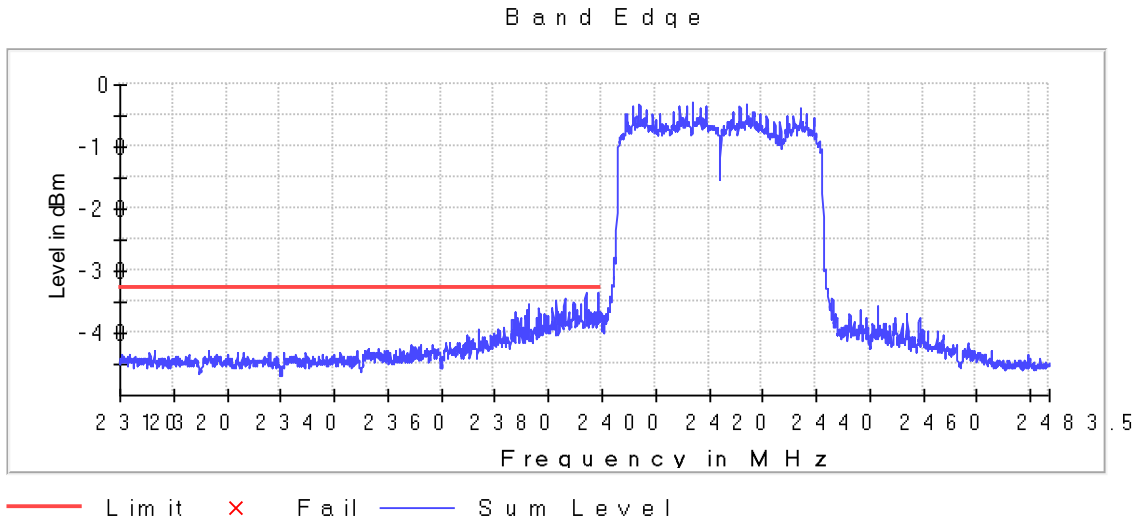
**High Channel:**



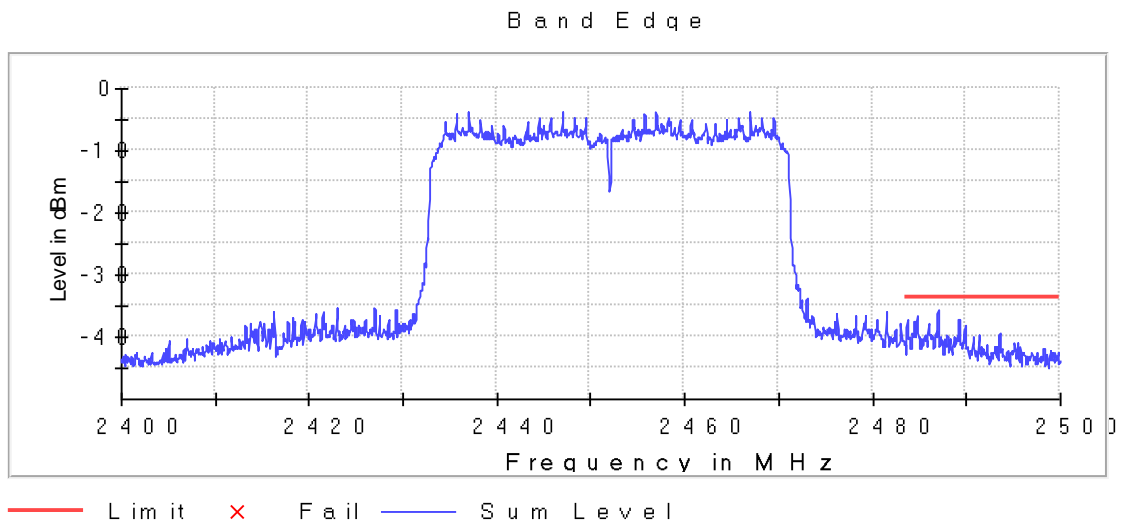
Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40, Modulation = 802.11ax HE20 ,  
Number of Transmission Chains = 1, Measurement Point = 1,

Images:

Low Channel:



High Channel:



Modulation: 802.11ax HE20 Partial RU Extremities

**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2399.775000	-33.2
20	2399.725000	-33.2
20	2396.975000	-33.9
20	2397.025000	-33.9
20	2399.125000	-34.1
20	2399.175000	-34.1
20	2398.875000	-34.2
20	2399.825000	-34.2
20	2398.275000	-34.2
20	2398.225000	-34.3
20	2398.825000	-34.5
20	2398.925000	-34.6
20	2396.375000	-34.8
20	2397.625000	-34.8
20	2399.675000	-34.9
20	2484.775000	-38.3
20	2484.725000	-38.3
20	2485.375000	-38.4
20	2485.425000	-38.4
20	2484.125000	-38.5
20	2484.175000	-38.6
20	2483.875000	-38.7
20	2483.825000	-39.0
20	2484.825000	-39.3
20	2483.925000	-39.4
20	2484.075000	-39.4
20	2483.525000	-39.6
20	2485.475000	-39.6
20	2485.325000	-39.6
20	2484.225000	-40.0

BW (MHz)	Freq (MHz)	Lvl (dBm)
40	2399.975000	-42.0
40	2399.925000	-42.2
40	2399.575000	-42.2
40	2399.875000	-42.3
40	2399.625000	-42.3
40	2399.525000	-42.5
40	2399.675000	-42.6
40	2399.825000	-42.6
40	2399.475000	-42.8
40	2399.725000	-42.9
40	2399.775000	-43.0
40	2399.425000	-43.4
40	2398.275000	-43.4
40	2398.225000	-43.5
40	2399.225000	-43.7
40	2485.725000	-49.7
40	2485.875000	-49.8
40	2485.825000	-49.9
40	2487.375000	-49.9
40	2485.775000	-50.0
40	2483.725000	-50.0
40	2483.825000	-50.0
40	2485.925000	-50.1
40	2483.675000	-50.2
40	2485.475000	-50.3
40	2487.425000	-50.3
40	2487.325000	-50.4
40	2485.525000	-50.4
40	2483.625000	-50.4
40	2483.875000	-50.5

**Verdict**

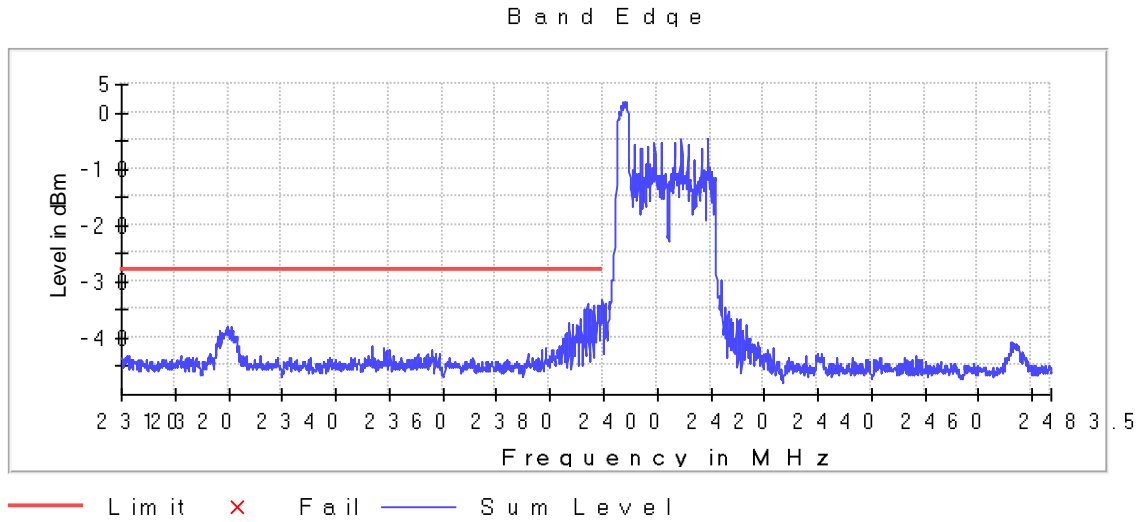
Pass

**Attachments**

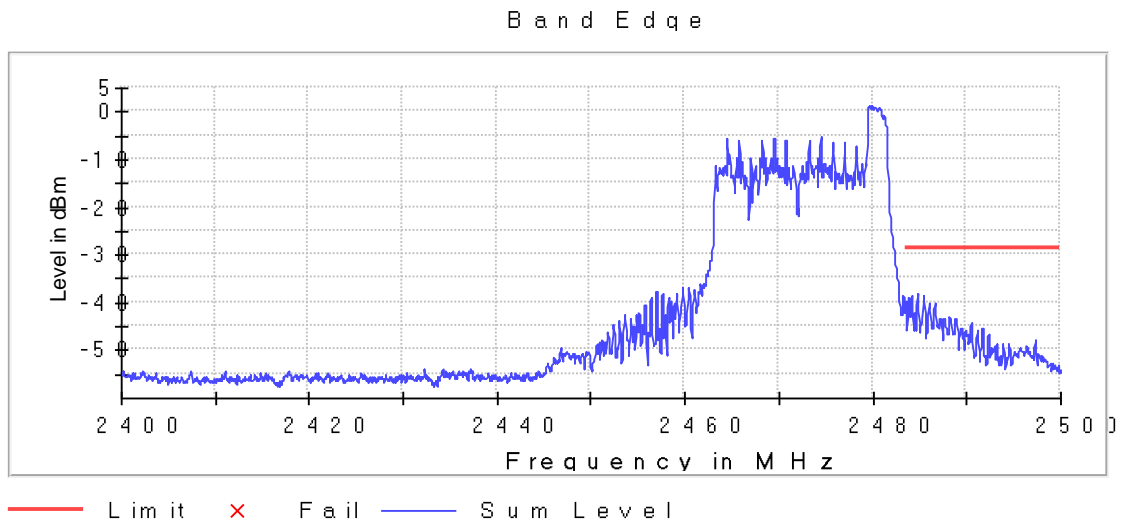
**Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 ,  
Number of Transmission Chains = 1, Measurement Point = 1,**

**Images:**

**Low Channel:**



**High Channel:**

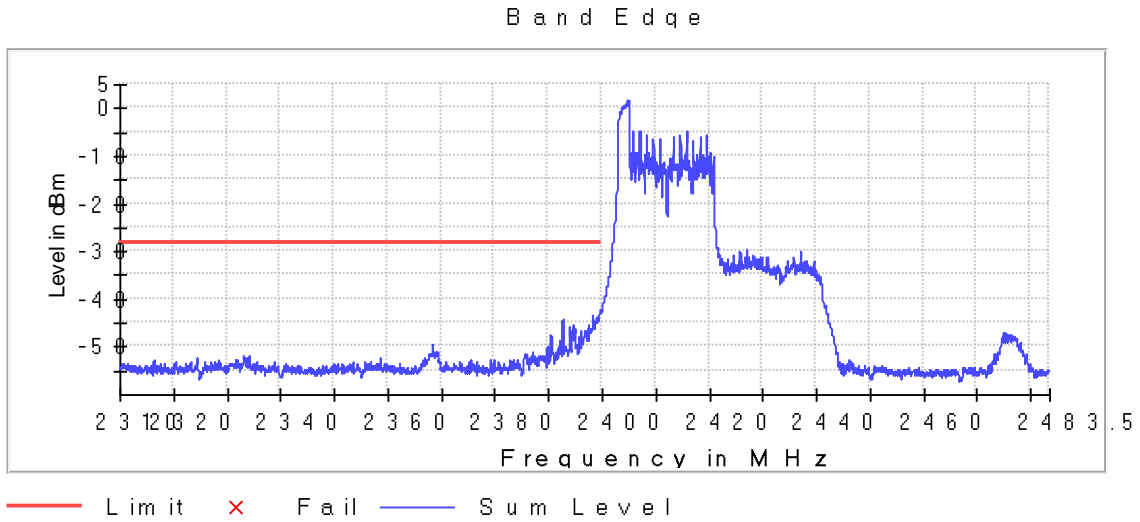




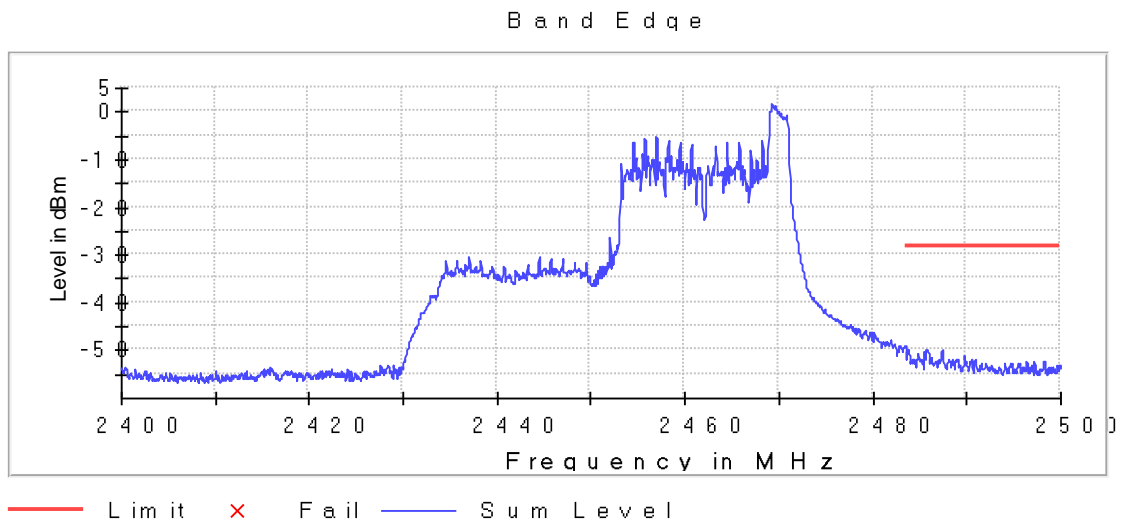
Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40, Modulation = 802.11ax HE20 ,  
Number of Transmission Chains = 1, Measurement Point = 1,

Images:

Low Channel:



High Channel:



Modulation: 802.11ax HE20 Partial RU  
**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2398.225000	-28.8
20	2485.425000	-46.2
20	2398.275000	-28.8
20	2485.375000	-46.3
20	2485.275000	-46.5
20	2399.725000	-29.0
20	2485.475000	-46.6
20	2396.975000	-29.3
20	2399.775000	-29.3
20	2485.325000	-46.6
20	2485.825000	-46.9
20	2397.625000	-29.3
20	2397.025000	-29.3
20	2485.875000	-47.0
20	2399.675000	-29.7
20	2483.875000	-47.0
20	2397.575000	-29.7
20	2484.375000	-47.2
20	2485.225000	-47.3
20	2398.875000	-29.8
20	2397.675000	-29.8
20	2483.825000	-47.3
20	2398.175000	-30.1
20	2484.325000	-47.4
20	2484.225000	-47.5
20	2398.925000	-30.1
20	2484.425000	-47.7
20	2398.825000	-30.2
20	2486.325000	-47.7
20	2396.375000	-30.3

BW (MHz)	Freq (MHz)	Lvl (dBm)
40	2399.475000	-33.1
40	2496.725000	-52.2
40	2399.325000	-33.2
40	2496.325000	-52.3
40	2493.225000	-52.3
40	2399.425000	-33.3
40	2499.175000	-52.3
40	2399.375000	-33.4
40	2498.375000	-52.3
40	2399.675000	-33.5
40	2399.225000	-33.7
40	2492.025000	-52.4
40	2491.075000	-51.9
40	2399.975000	-31.5
40	2399.825000	-31.7
40	2496.375000	-52.0
40	2399.925000	-31.8
40	2498.775000	-52.0
40	2491.125000	-52.0
40	2399.875000	-32.0
40	2499.225000	-52.1
40	2399.775000	-32.3
40	2495.775000	-52.1
40	2399.575000	-32.3
40	2399.625000	-32.6
40	2486.525000	-52.2
40	2399.525000	-32.9
40	2498.825000	-52.2
40	2496.975000	-52.2
40	2399.725000	-33.1

**Verdict**

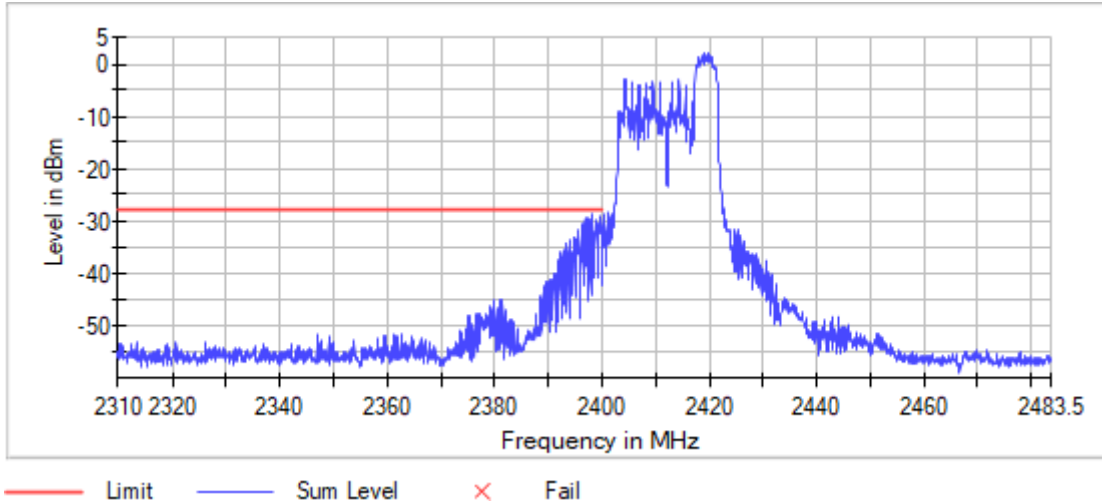
Pass

**Attachments**

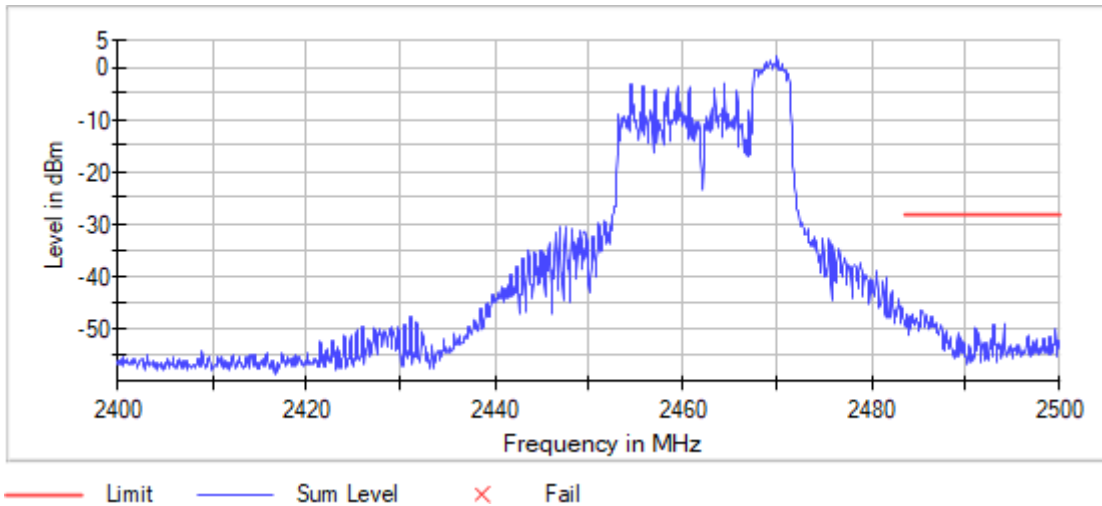
**Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 ,  
Number of Transmission Chains = 1, Measurement Point = 1,**

**Images:**

**Low Channel:**



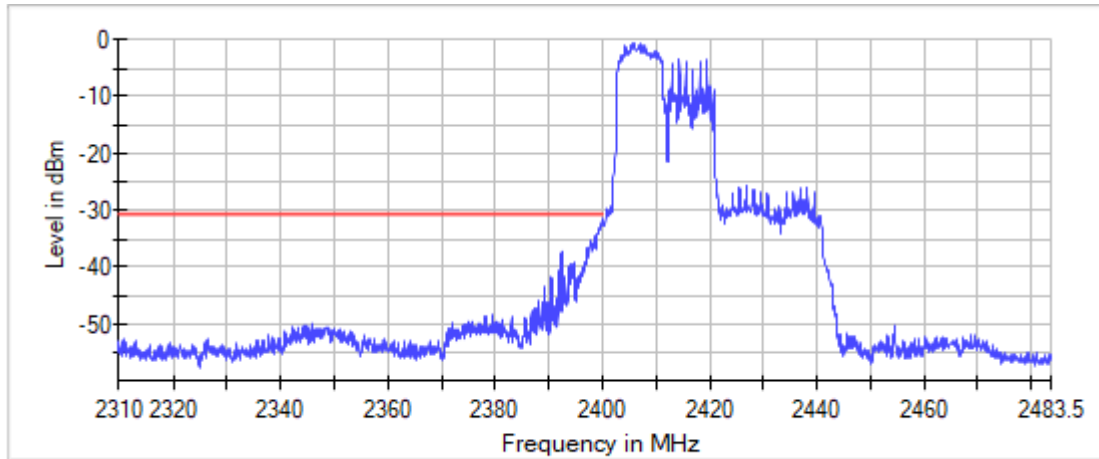
**High Channel:**



Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40, Modulation = 802.11ax HE20 ,  
Number of Transmission Chains = 1, Measurement Point = 1,

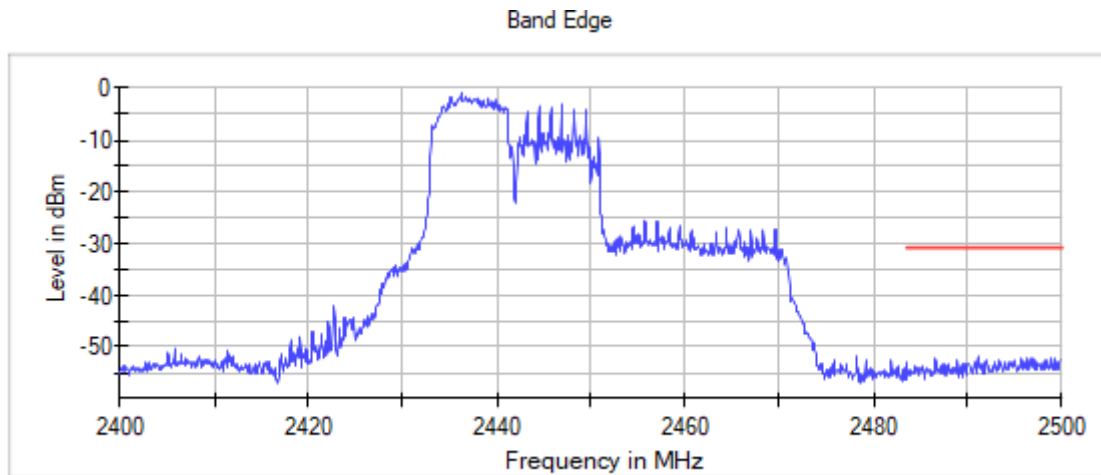
Images:

Low Channel:



— Limit    — Sum Level    × Fail

High Channel:



— Limit    — Sum Level    × Fail

## FCC 2.1049 / 99dBw Occupied Channel Bandwidth 99%

### Limits

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands.

Modulation: 802.11b

### Results

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2412.00000		13.600
2437.00000	20	13.400
2462.00000		13.500

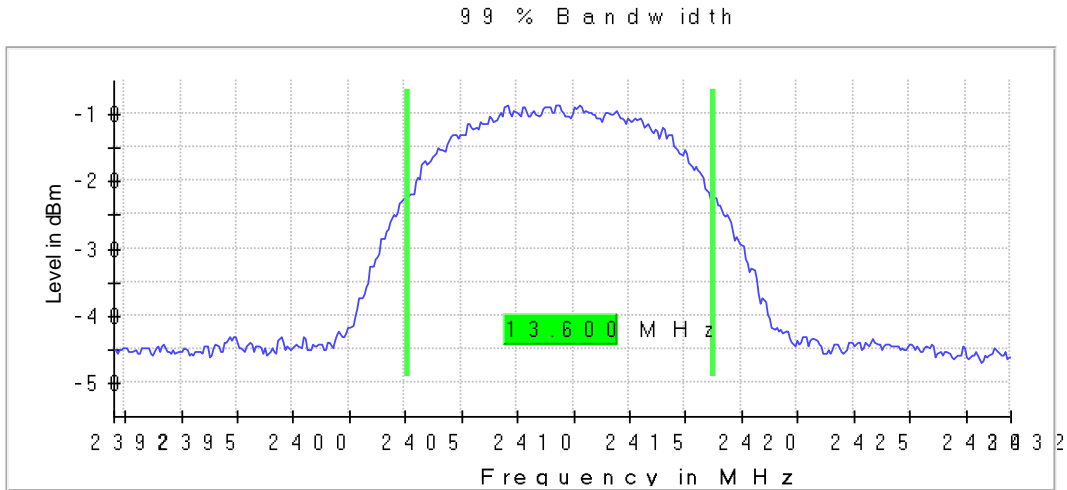
### Verdict

Pass

**Attachments**

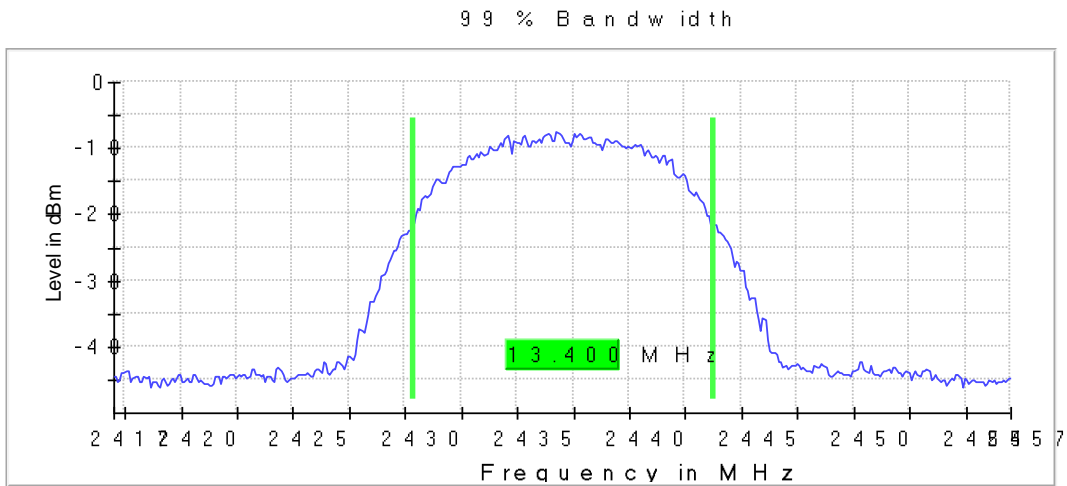
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11b , Number of Transmission Chains = 1**

**Images:**



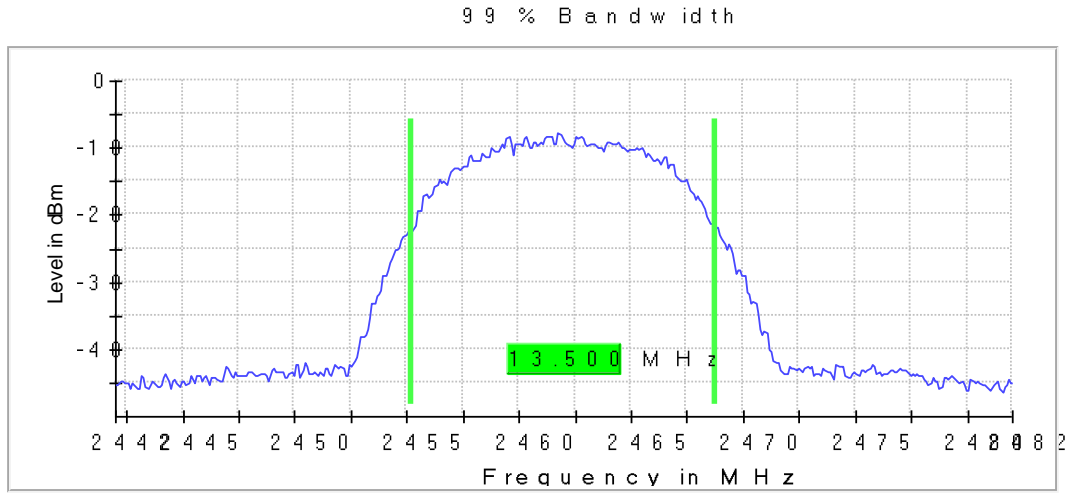
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11b Number of Transmission Chains = 1**

**Images:**



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11b, Number of Transmission Chains = 1

Images:





Modulation: 802.11g  
**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2412.00000	20	16.600
2437.00000	20	16.500
2462.00000	20	16.600

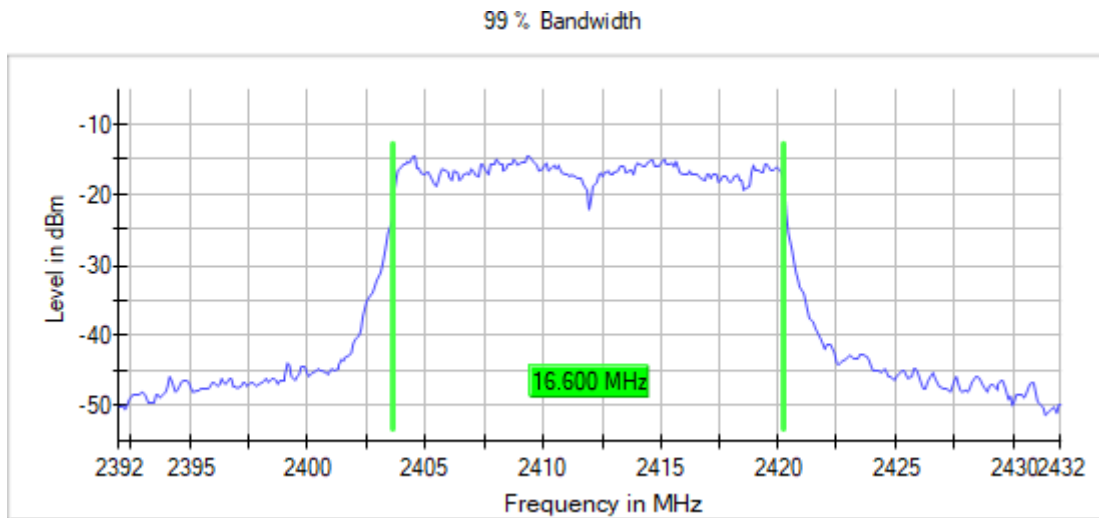
**Verdict**

Pass

**Attachments**

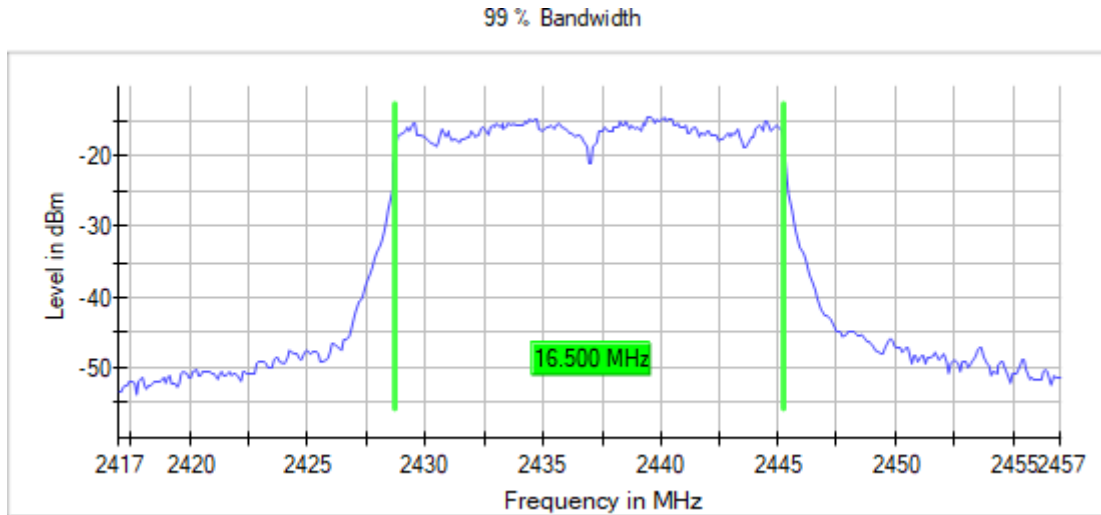
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11g , Number of Transmission Chains = 2,

**Images:**



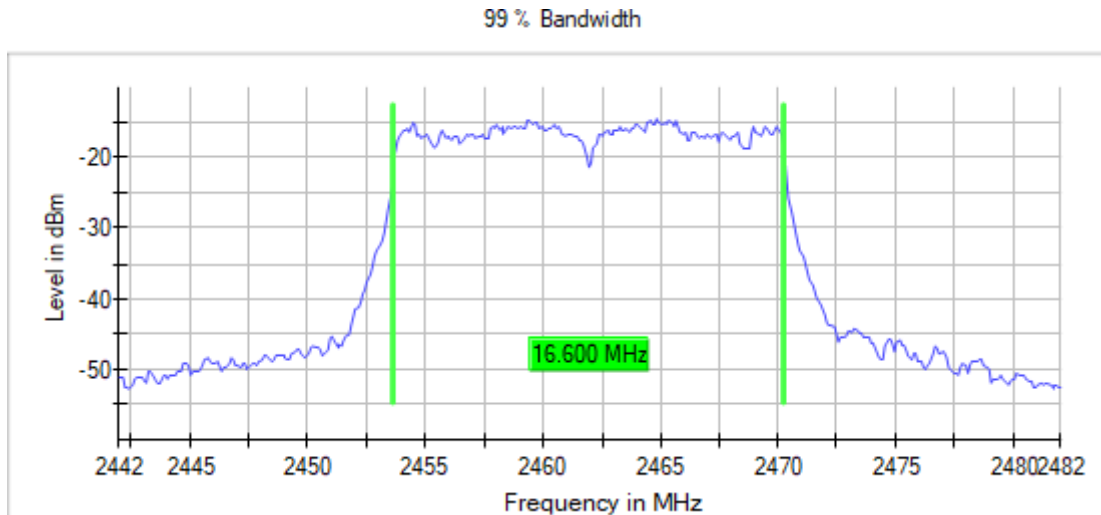
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11g , Number of Transmission Chains = 2,

Images:



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11g , Number of Transmission Chains = 2,

Images:



Modulation: 802.11n20

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2412.00000		17.700
2437.00000	20	17.700
2462.00000		17.700

Modulation: 802.11n40

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2422.00000		36.250
2437.00000	40	36.250
2452.00000		36.250

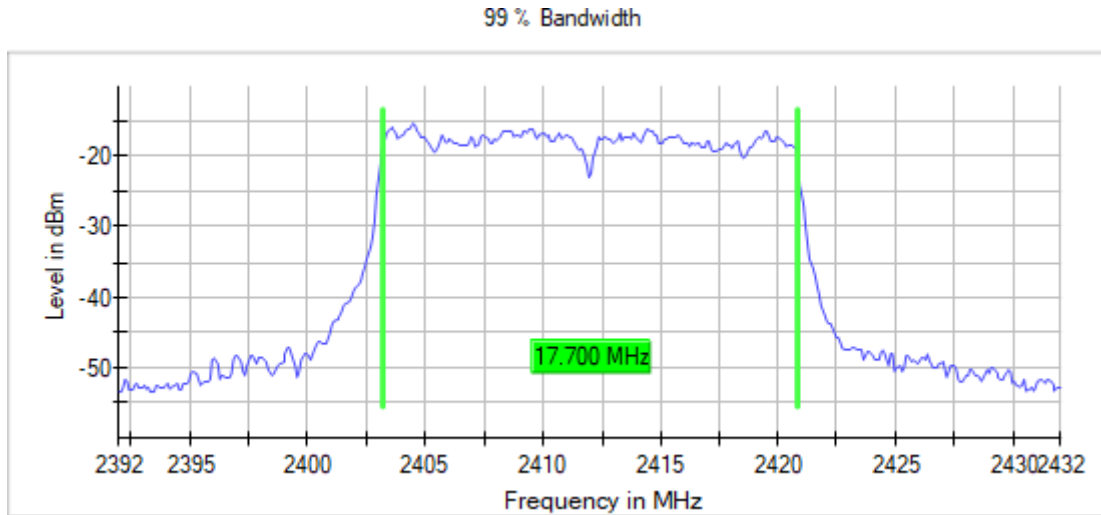
**Verdict**

Pass

**Attachments**

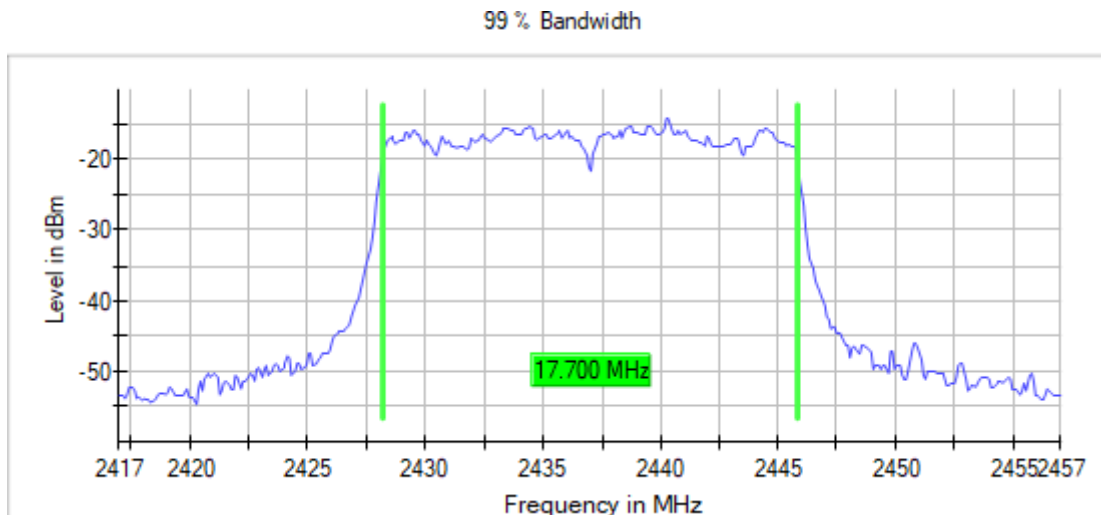
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11n , Number of Transmission Chains = 2,**

**Images:**



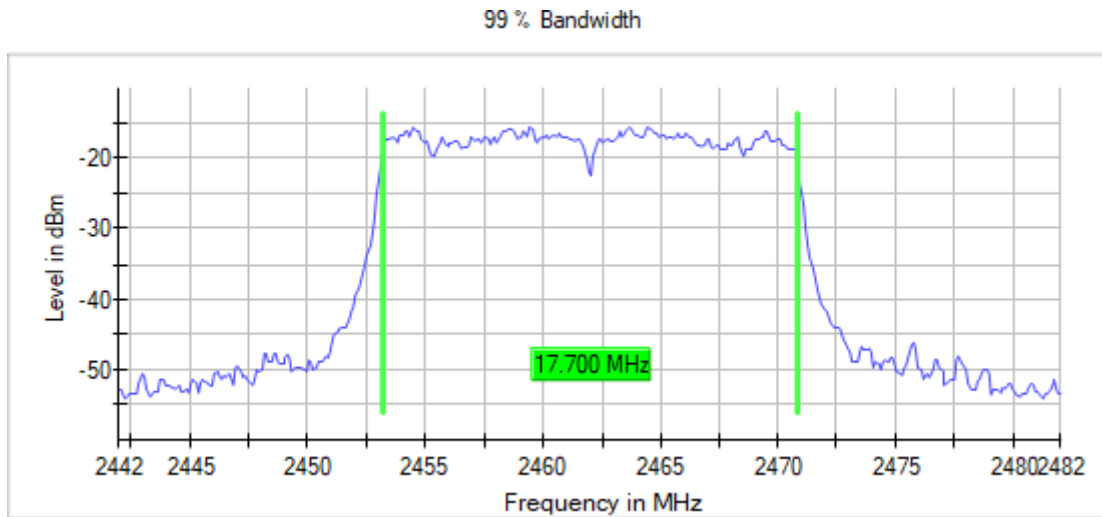
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11n , Number of Transmission Chains = 2,**

**Images:**



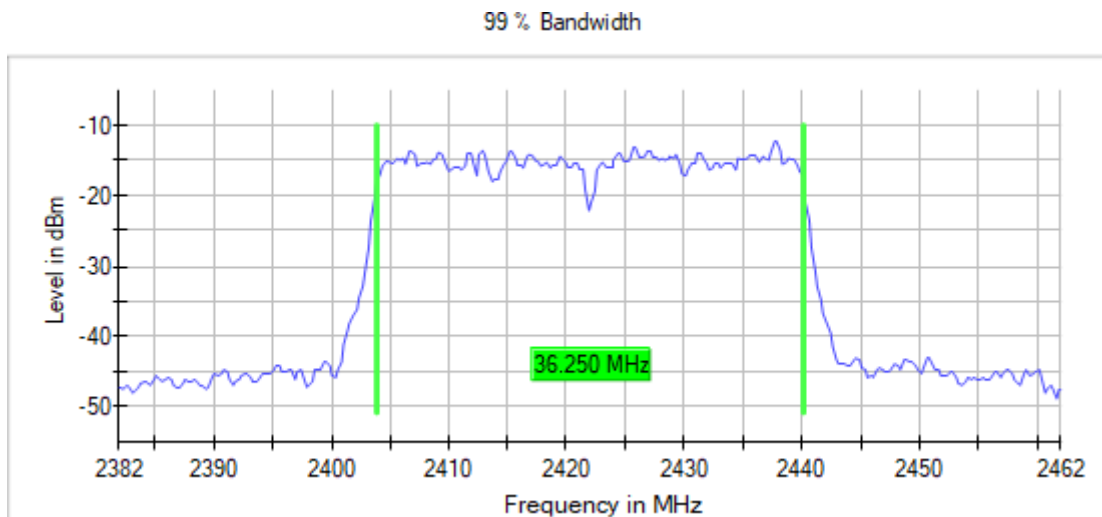
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11n , Number of Transmission Chains = 2,

Images:



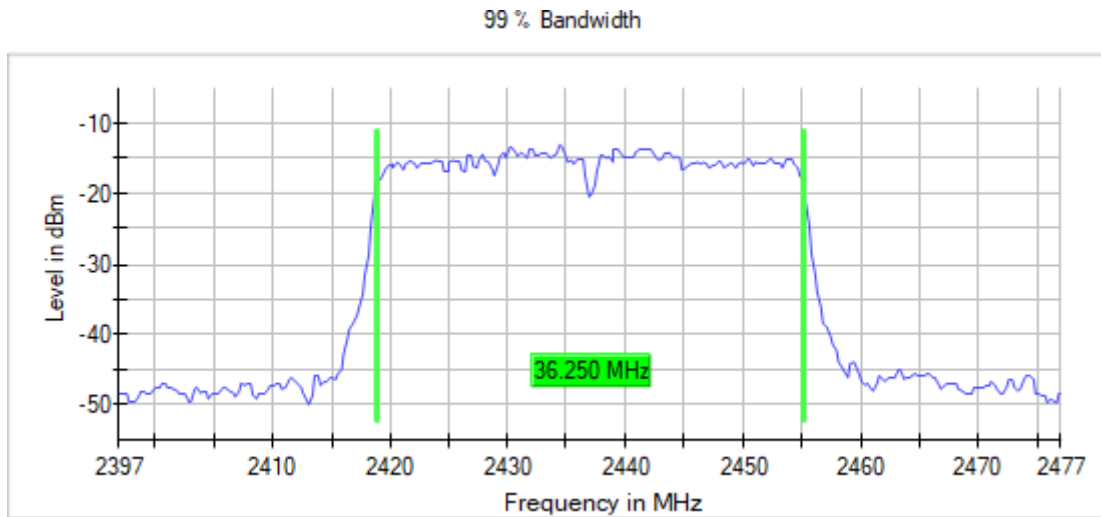
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 2,

Images:



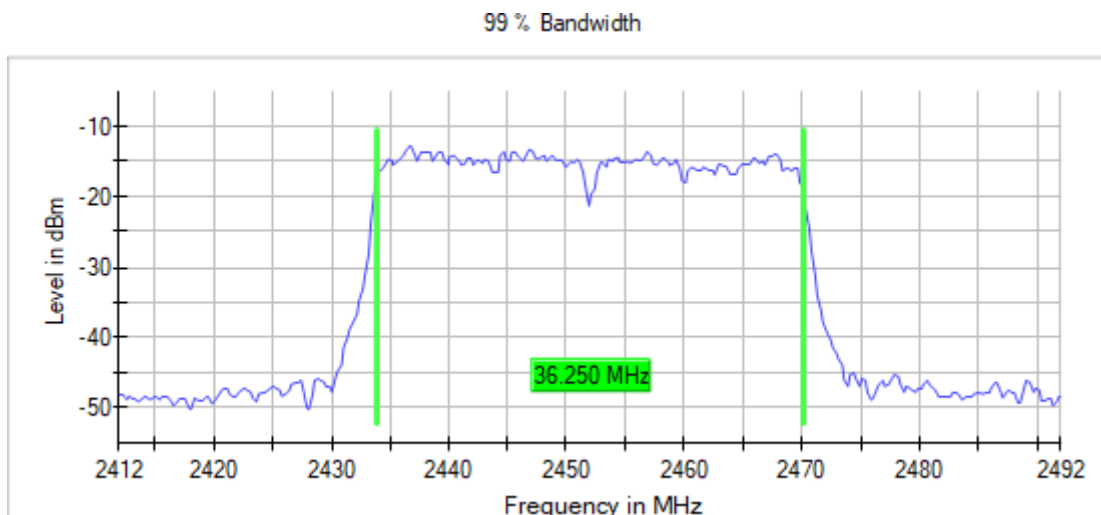
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 2,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11n , Number of Transmission Chains = 2,

Images:



Modulation: 802.11ax HE20 Full RU

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2412.00000		18.900
2437.00000	20	18.900
2462.00000		18.900

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2422.00000		37.500
2437.00000	40	37.500
2452.00000		37.500

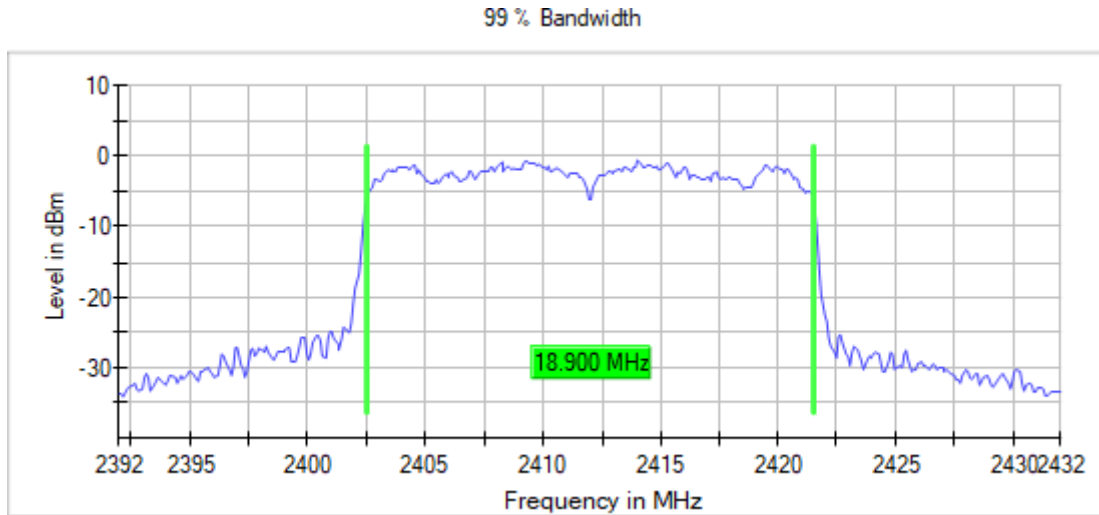
**Verdict**

Pass

**Attachments**

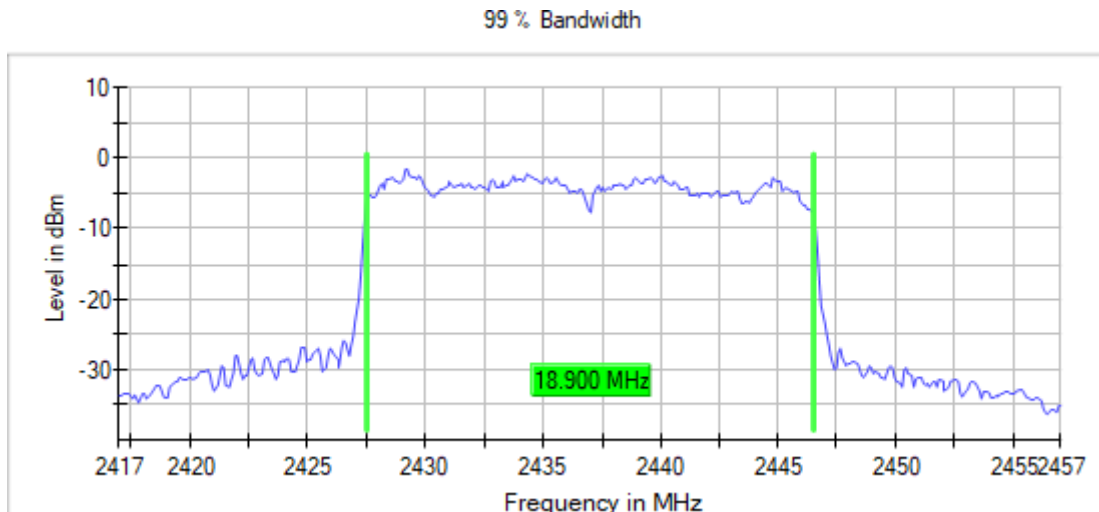
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,**

**Images:**



**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,**

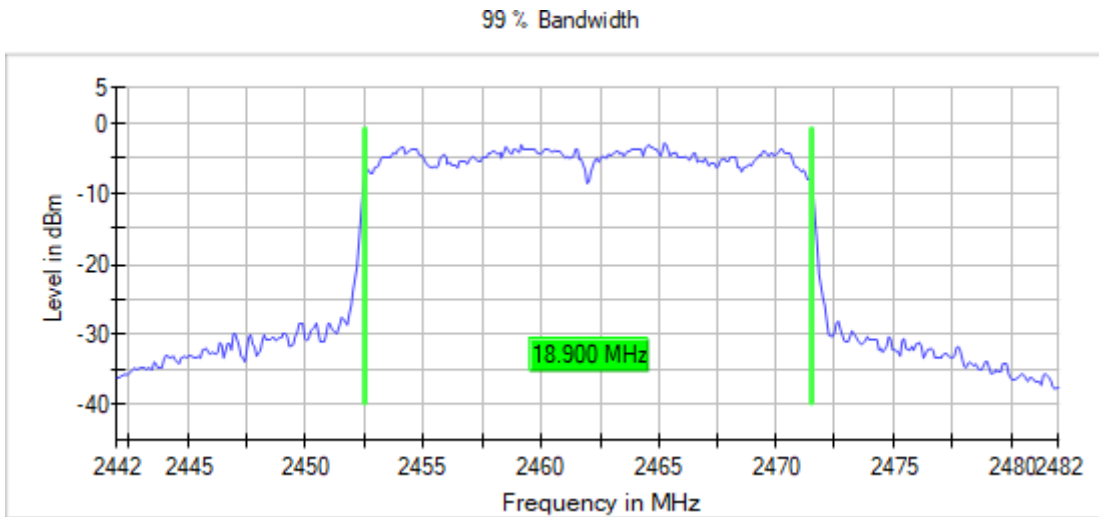
**Images:**





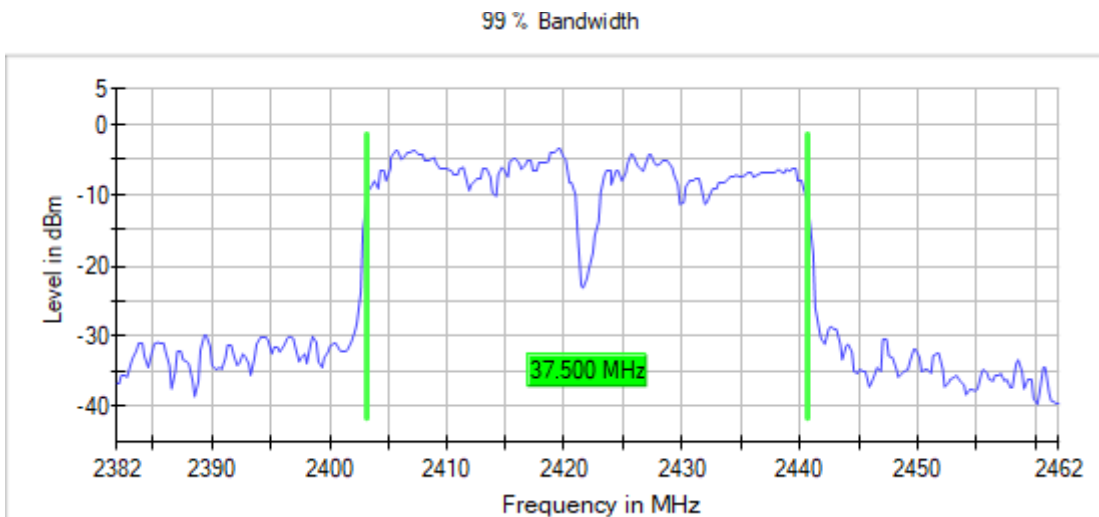
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



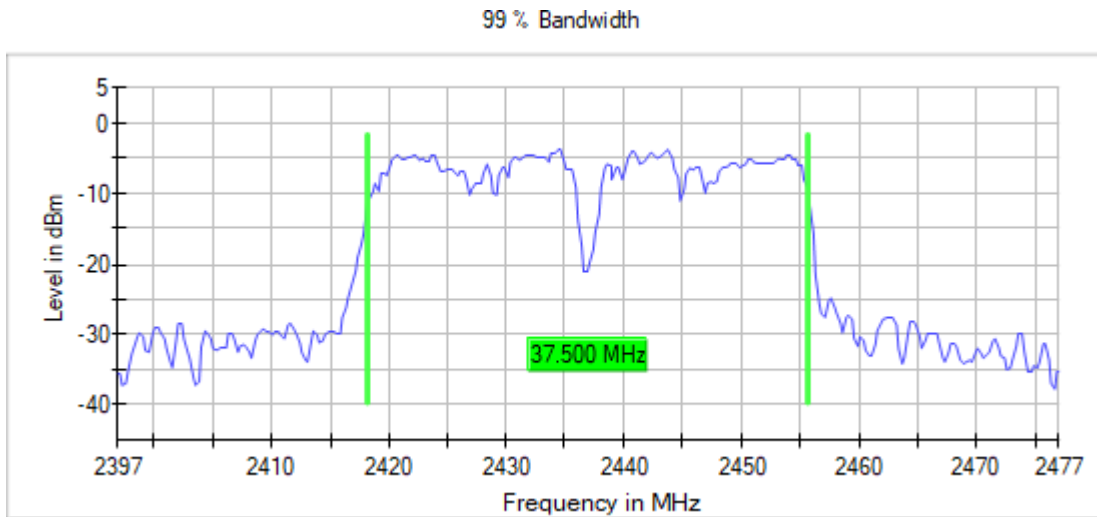
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



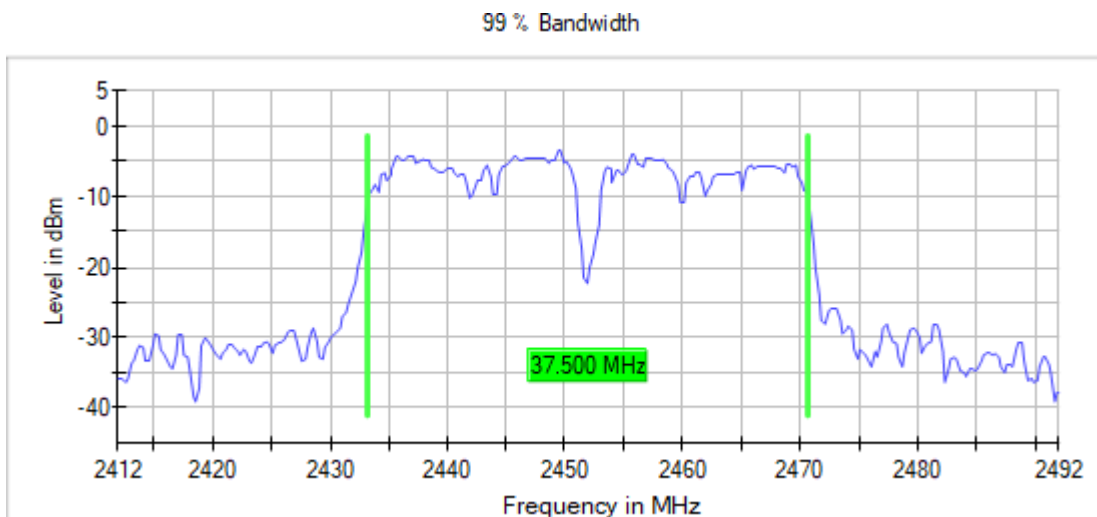
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



Modulation: 802.11ax HE20 Full RU

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2412.00000		19.000
2437.00000	20	19.000
2462.00000		19.000

Modulation: 802.11ax HE40

**Results**

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2422.00000		38.000
2437.00000	40	38.000
2452.00000		37.750

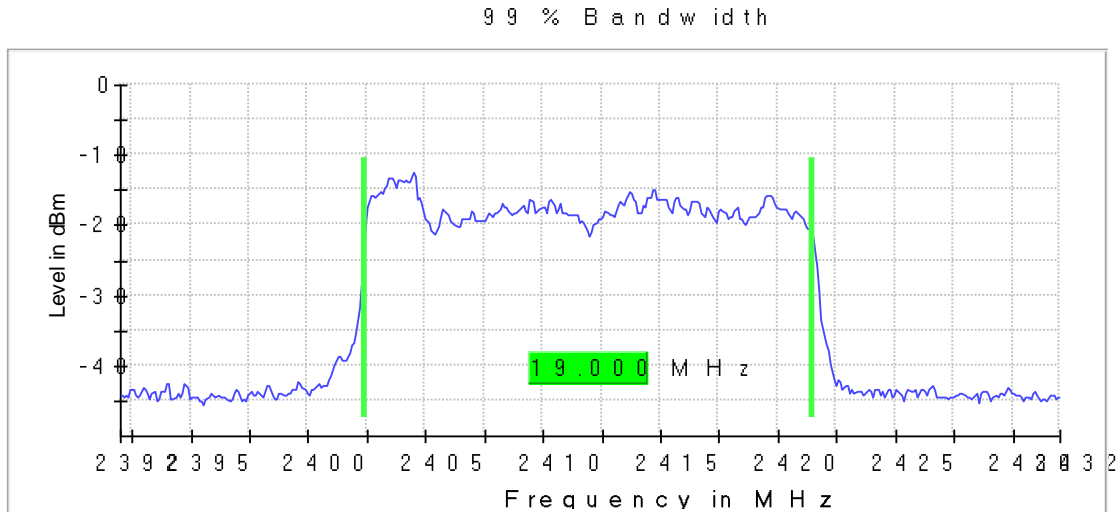
**Verdict**

Pass

**Attachments**

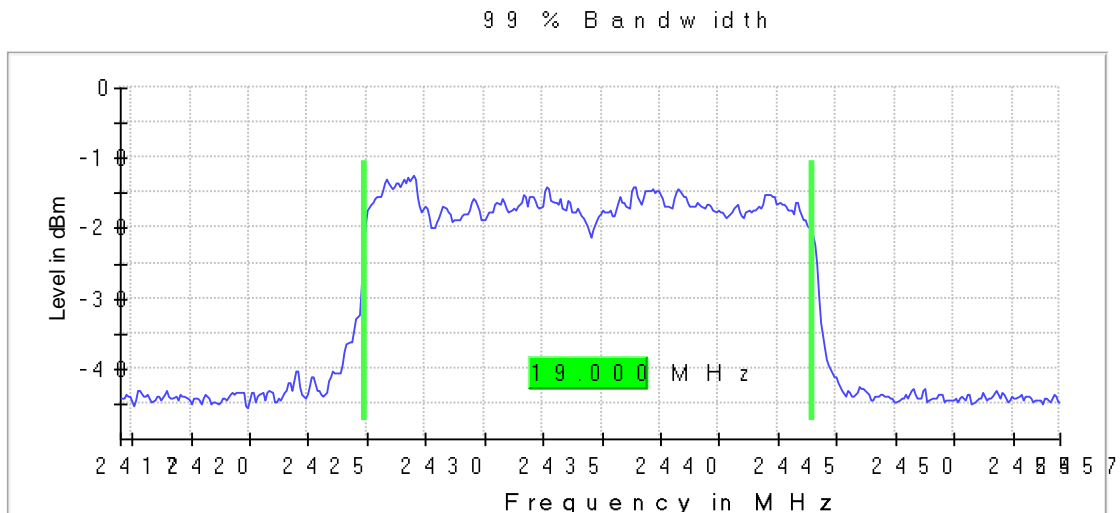
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,**

**Images:**



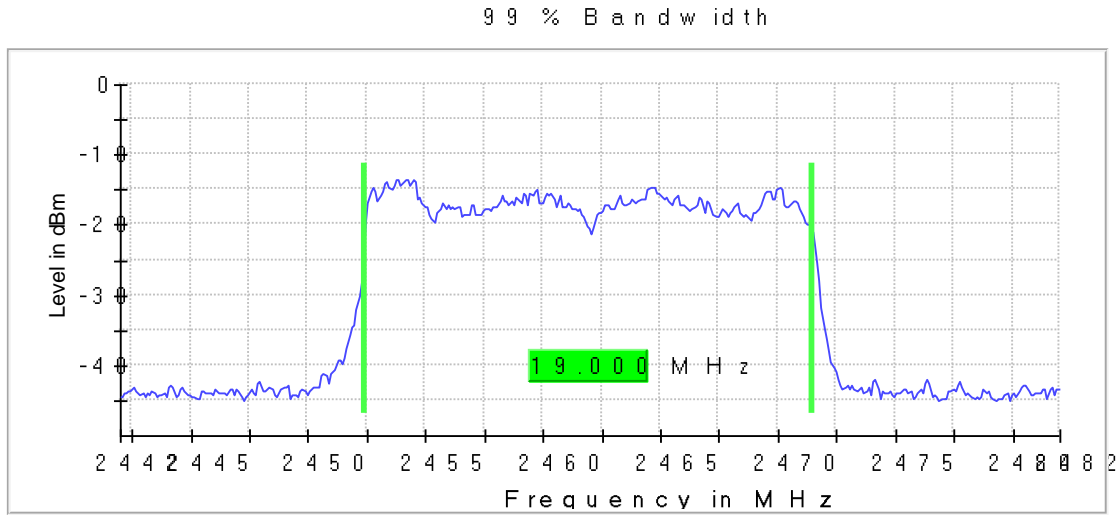
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,**

**Images:**



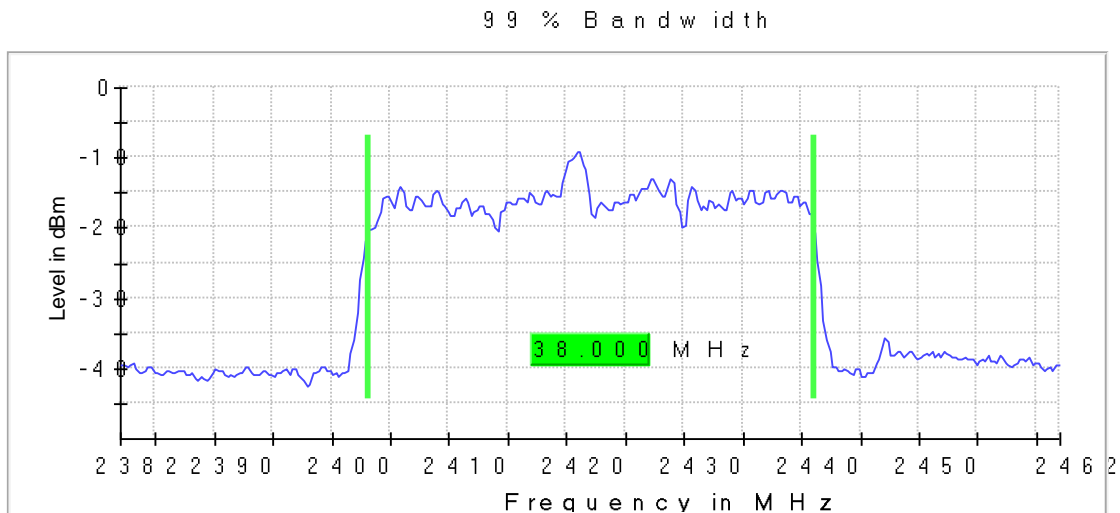
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



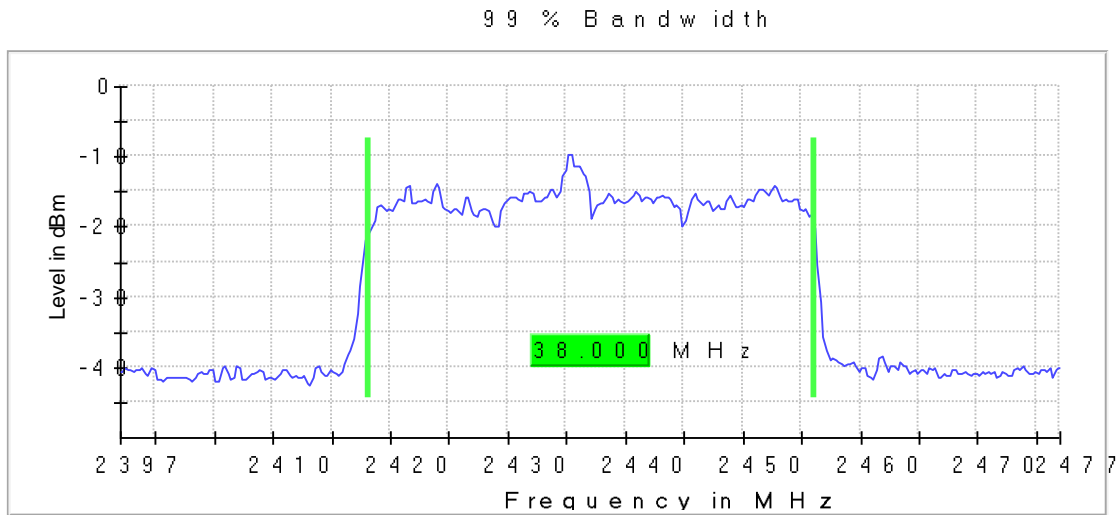
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



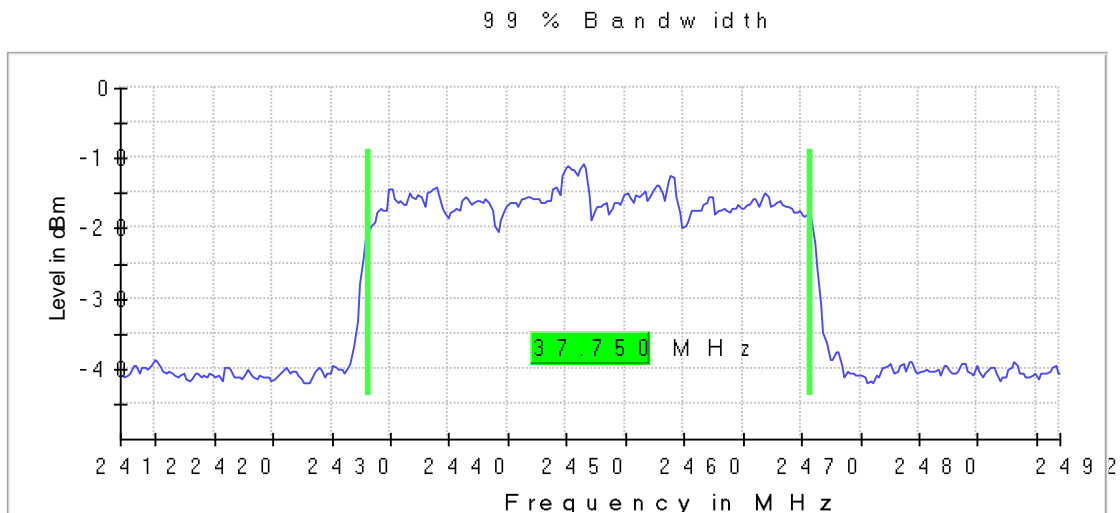
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,**

**Images:**



**Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,**

**Images:**



### Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.43800 GHz	2.47800 GHz
Stop Frequency	2.40400 GHz	2.44200 GHz	2.48200 GHz
Span	4.000 MHz	4.000 MHz	4.000 MHz
RBW	20.000 kHz	20.000 kHz	20.000 kHz
VBW	100.000 kHz	100.000 kHz	100.000 kHz
SweepPoints	400	400	400
Sweeptime	94.824 µs	94.824 µs	94.824 µs
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	6 / max. 150	6 / max. 150	5 / max. 150
Stable	3 / 3	3 / 3	3 / 3
Max Stable	0.08 dB	0.17 dB	0.15 dB

## RSS-247 5.5 / FCC 15.247 (d) EMISSION LIMITATIONS CONDUCTED (TRANSMITTER)

### Limits

In any 100 kHz bandwidth outside the frequency band in which the digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB instead of 20 dB.

Note: The following test results are shown based on KDB 662911 D01 Multiple Transmitter Output v02r01 E) 3) a) (ii) Measure and sum spectral maxima across the outputs as described in section E)2)b).

### Verdict

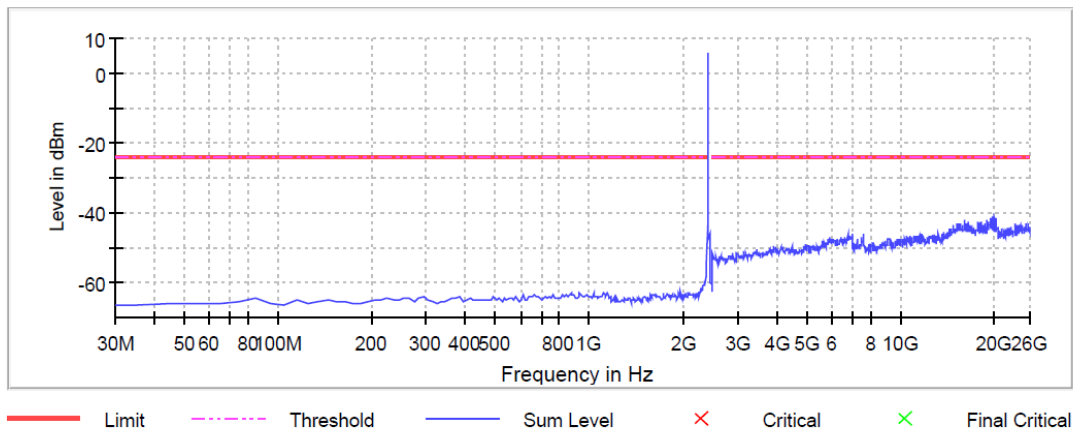
Pass

The following test results shows the worst case in 802.11b mode.

Modulation: 802.11b

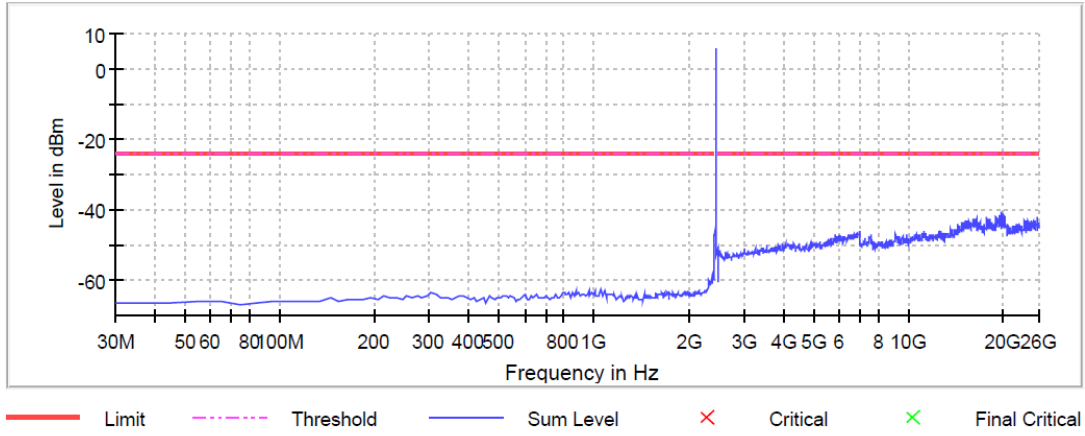
### Results

#### Lowest Channel

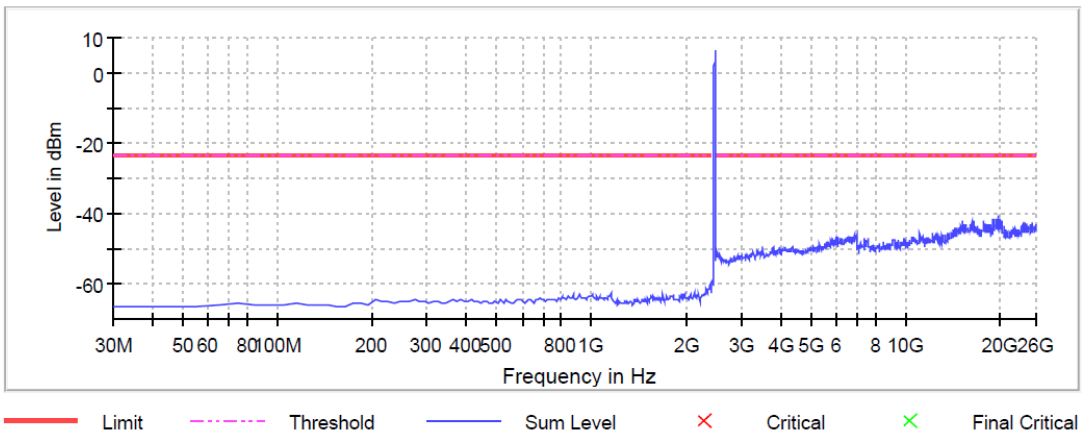




### Middle Channel



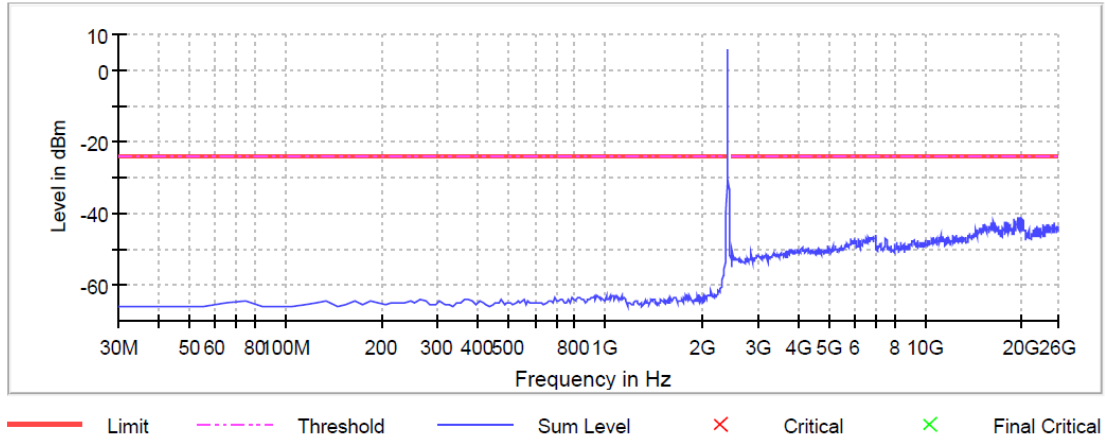
### Highest Channel



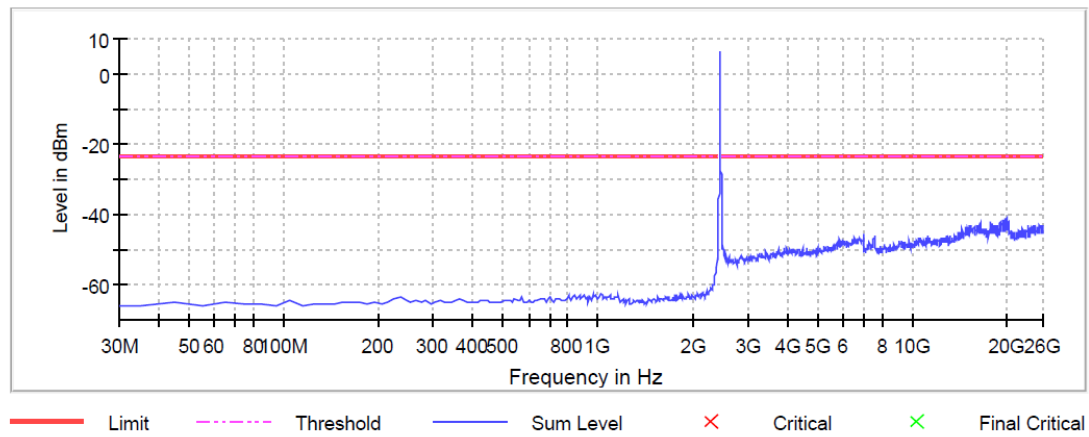
Modulation: 802.11ax 40

### Results

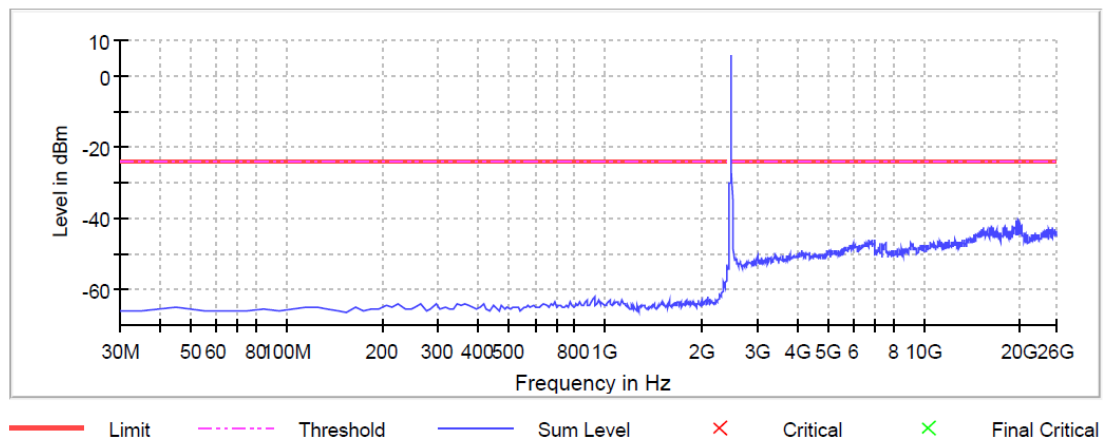
#### Lowest Channel



#### Middle Channel



#### Highest Channel



## RSS-247 5.5 / FCC 15.247 (d) EMISSION LIMITATIONS RADIATED (TRANSMITTER)

### Limits

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c) / RSS-Gen):

Frequency Range (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 25000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

RSS-247. Attenuation below the general field strength limits specified in RSS-Gen is not required

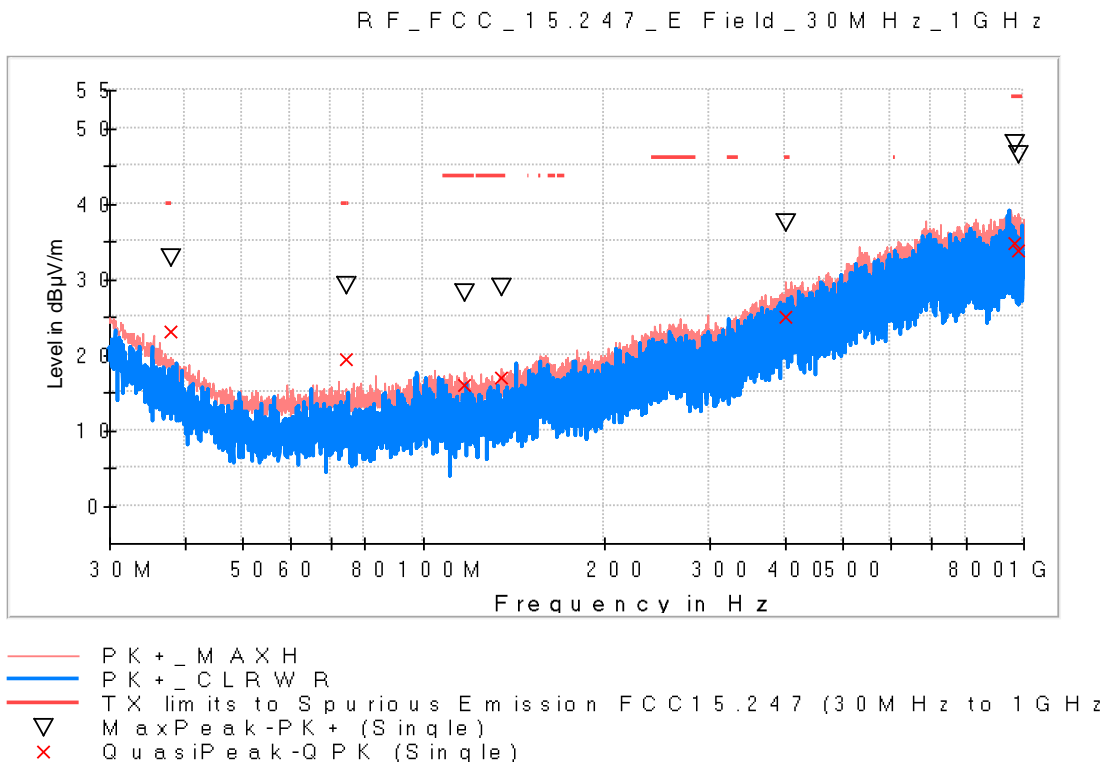
### Verdict

Pass

**Results**

**Frequency range 30 MHz – 1000 MHz**

The spurious emissions below 1 GHz do not depend on the operating channel and mode selected in the EUT.



Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Pol	Margin - QPK (dB)	Limit - QPK (dBµV/m)
37.905500	32.8	23.1	V	16.9	40.0
74.135000	29.2	19.4	V	20.7	40.0
117.203000	28.1	16.0	H	27.6	43.5
135.002500	28.9	17.0	V	26.5	43.5
400.879500	37.6	25.1	H	20.9	46.0
964.692000	47.8	34.8	V	19.2	54.0
978.126500	46.4	33.8	V	20.2	54.0

**Frequency range 1 GHz – 26 GHz**

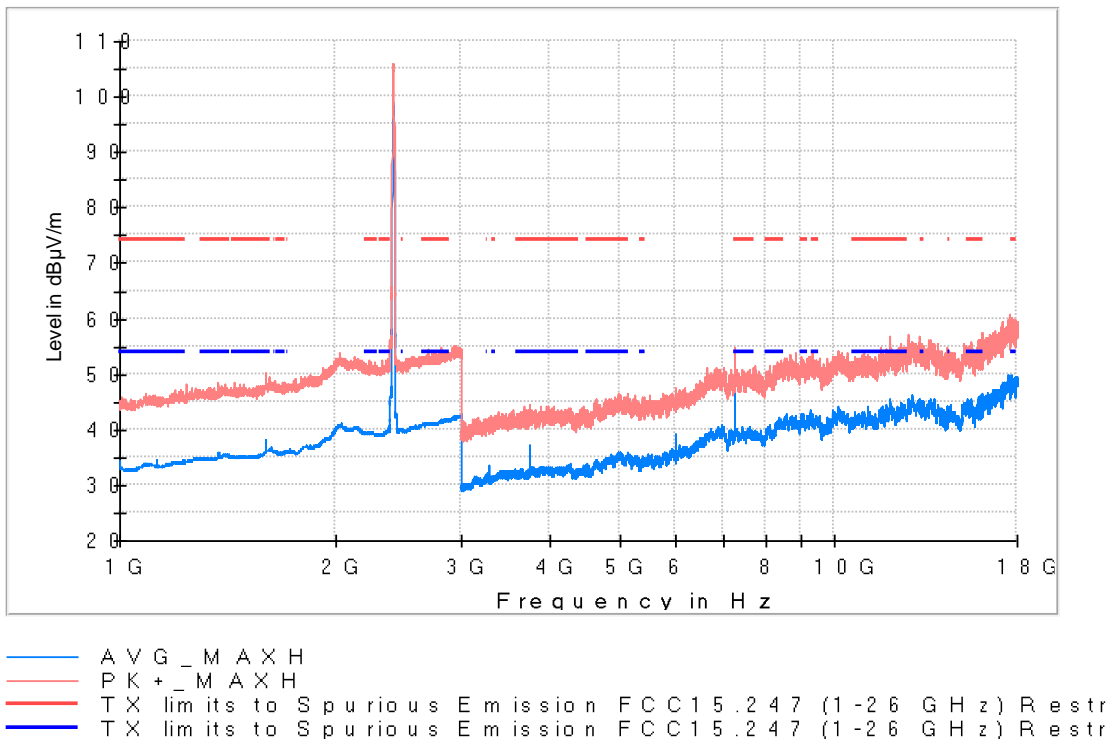
The results for the 802.11b and 802.11g, worst operation modes selected for this range are shown below.

The results in the next tables show the maximum measured levels in the 1-26 GHz range including the restricted bands 2.31-2.39 GHz and 2.4835-2.5 GHz (see next plots). Please see the following results for worst operation mode selected for this range (1 Mbps).

Modulation: 802.11b

**Frequency range: 1 – 18 GHz**

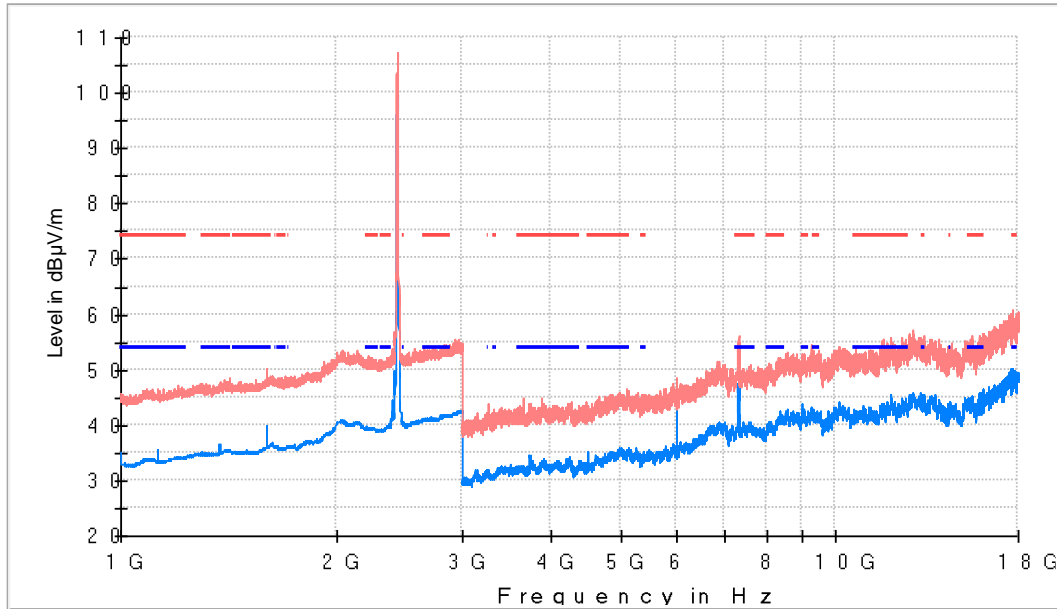
**Lowest Channel**



Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2411.000000	105.4	98.9	V	---	---	Fundamental
3749.500000	44.7	37.1	V	16.9	54.0	
17961.500000	58.0	49.6	V	4.4	54.0	

**Frequency range: 1 – 18 GHz**

**Middle Channel**

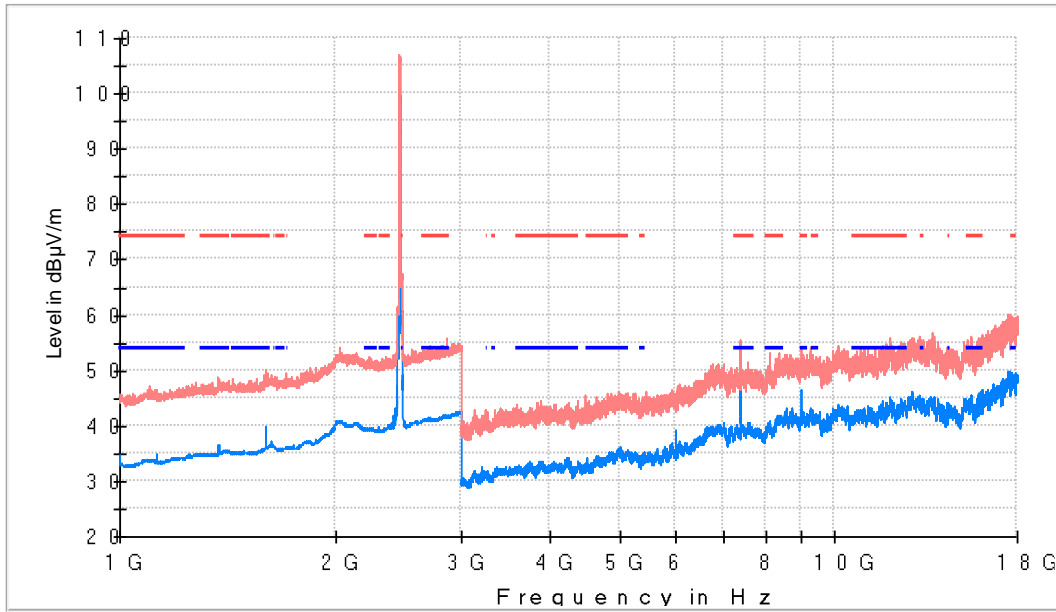


— AVG\_MAXH  
— PK+\_MAXH  
- - - TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr  
- - - TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2437.000000	107.0	99.5	H	---	---	Fundamental
7311.000000	56.1	47.0	H	7.0	54.0	
17813.000000	58.0	49.8	H	4.2	54.0	

**Frequency range: 1 – 18 GHz**

**Highest Channel**

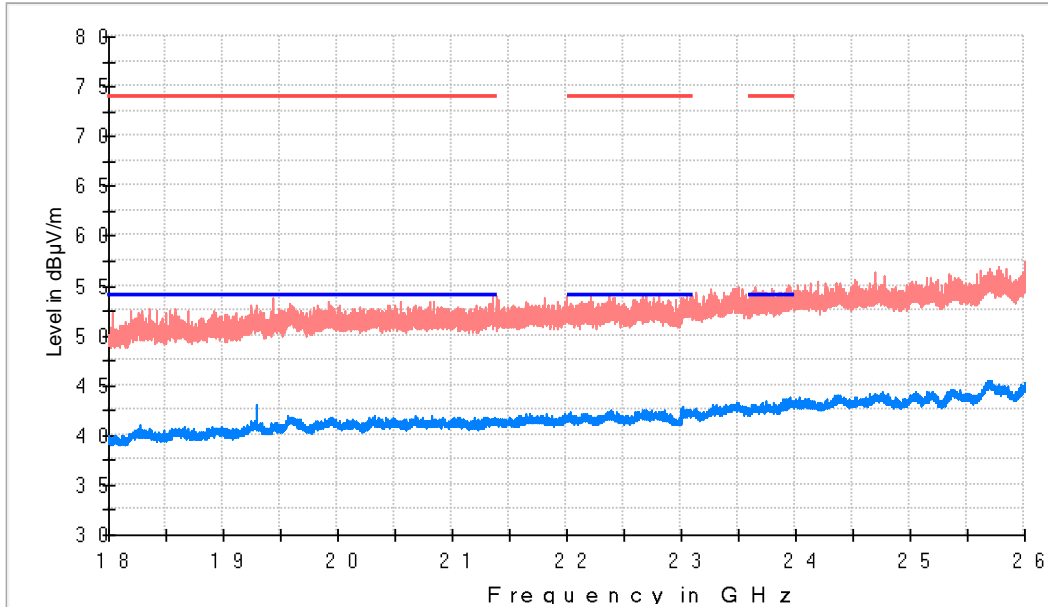


— AVG\_MAXH  
— PK+\_MAXH  
- - - TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr  
- - - TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2461.000000	106.7	100.4	H	---	---	Fundamental
7385.000000	55.7	48.5	H	5.5	54.0	
17940.000000	58.6	49.6	H	4.4	54.0	

**Frequency range 18 - 26 GHz**

**Lowest Channel**



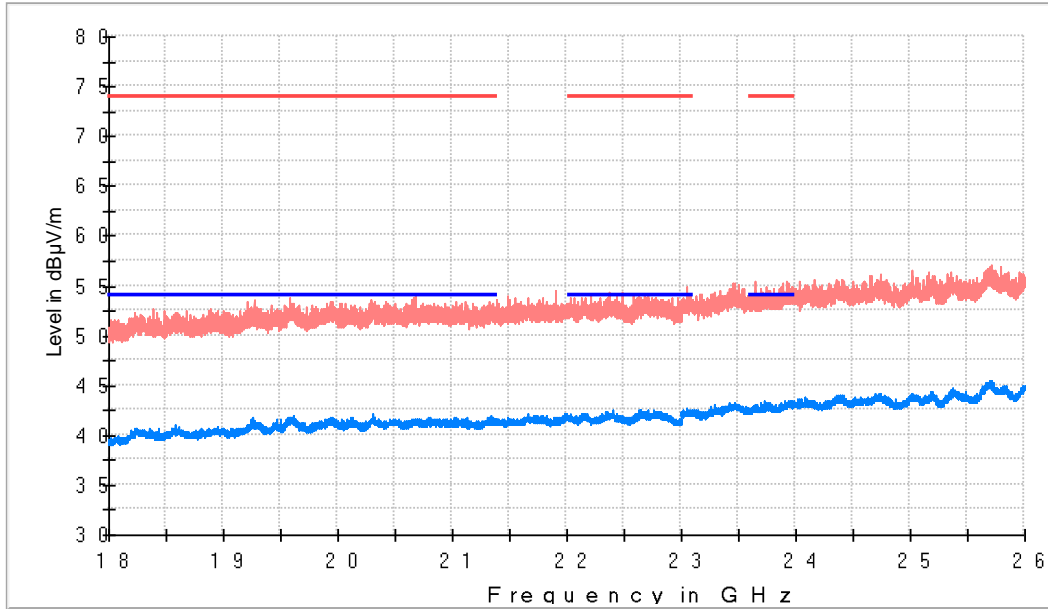
- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr
- TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
19295.500000	51.4	43.2	V	10.8	54.0



**Frequency range 18 - 26 GHz**

**Middle Channel**

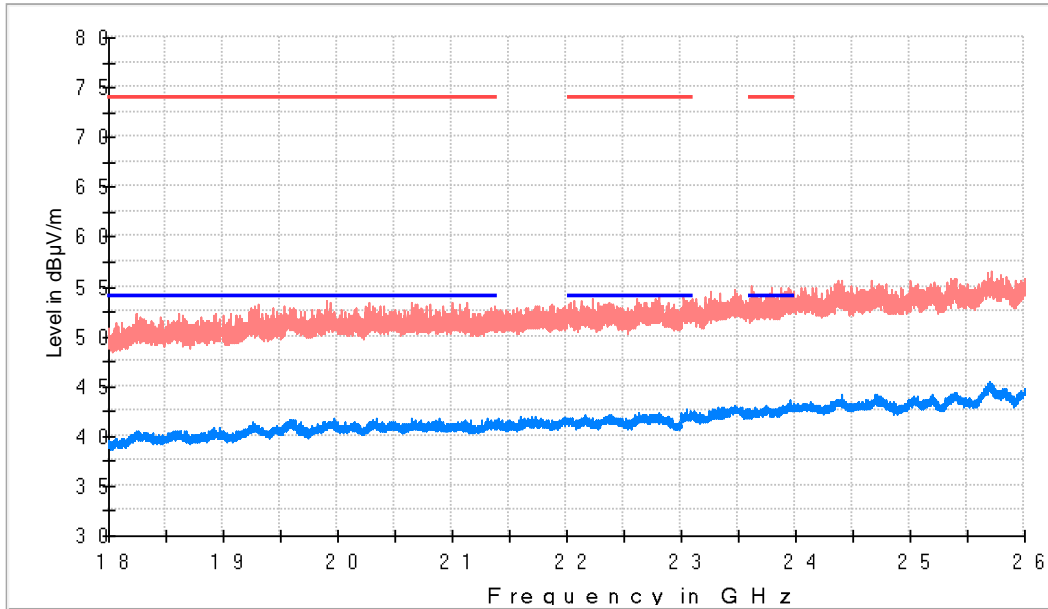


— AVG\_MAXH  
— PK+\_MAXH  
— TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr  
— TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
20309.500000	51.9	42.1	V	11.9	54.0

**Frequency range 18 - 26 GHz**

**Highest Channel**

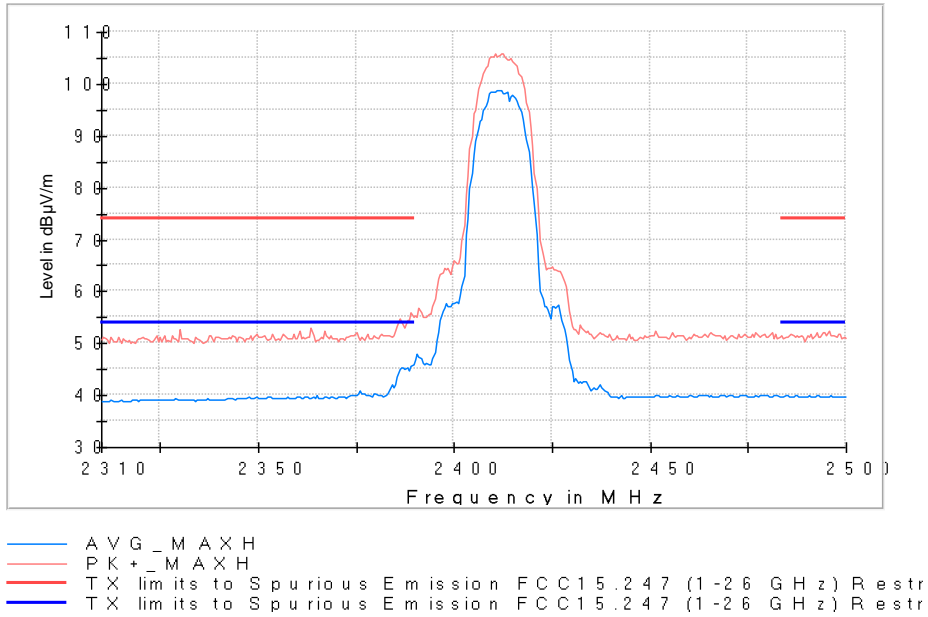


— AVG\_MAXH  
— PK+\_MAXH  
— TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr  
— TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr

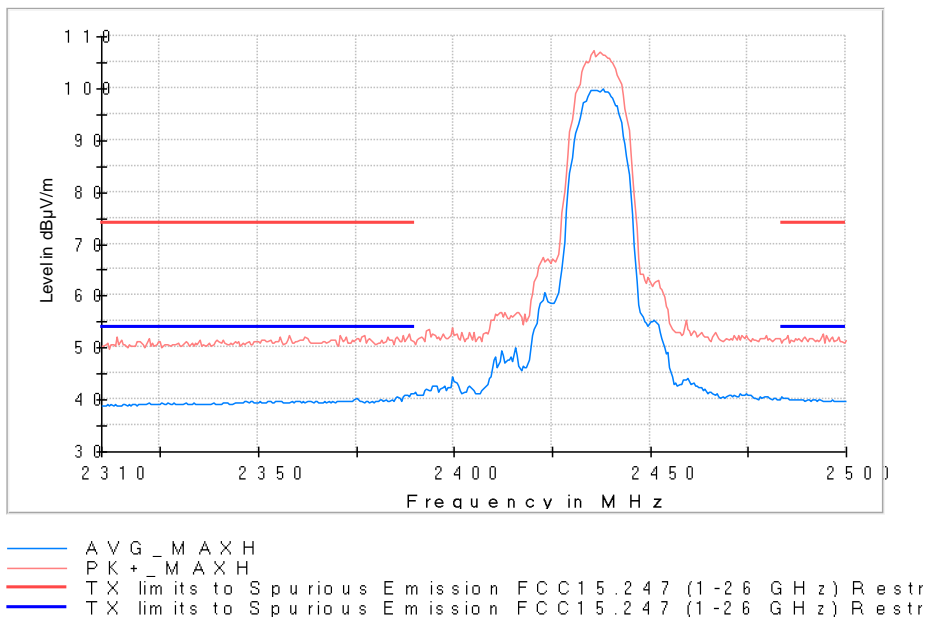
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
23947.000000	53.6	43.6	V	10.4	54.0

## Restricted Bands (2.31 GHz - 2.5 GHz)

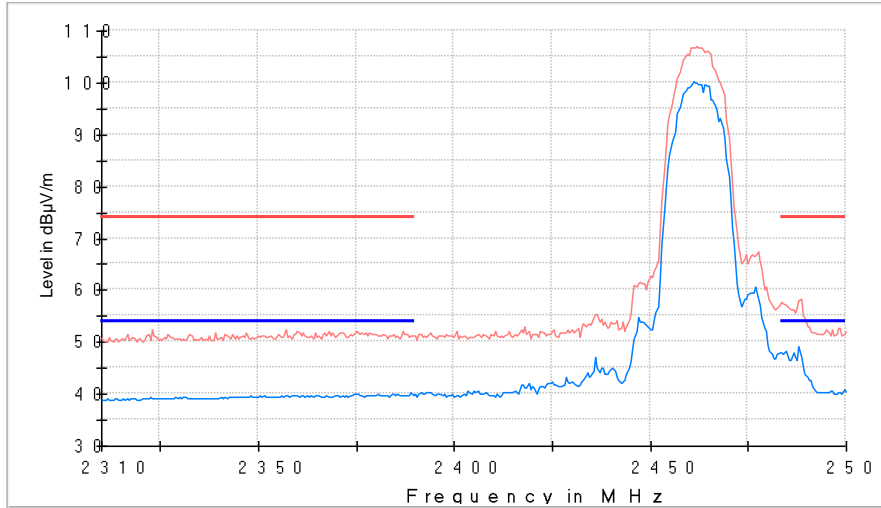
### Lowest Channel



### Middle Channel



### Highest Channel

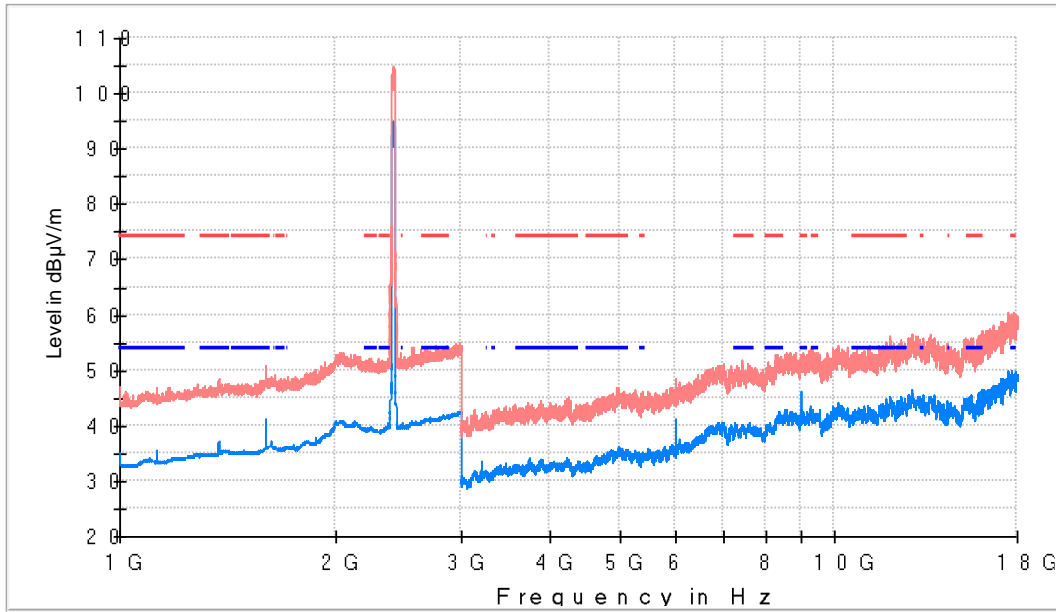


- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr
- TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr

Modulation: 802.11g

**Frequency range 1 - 18 GHz**

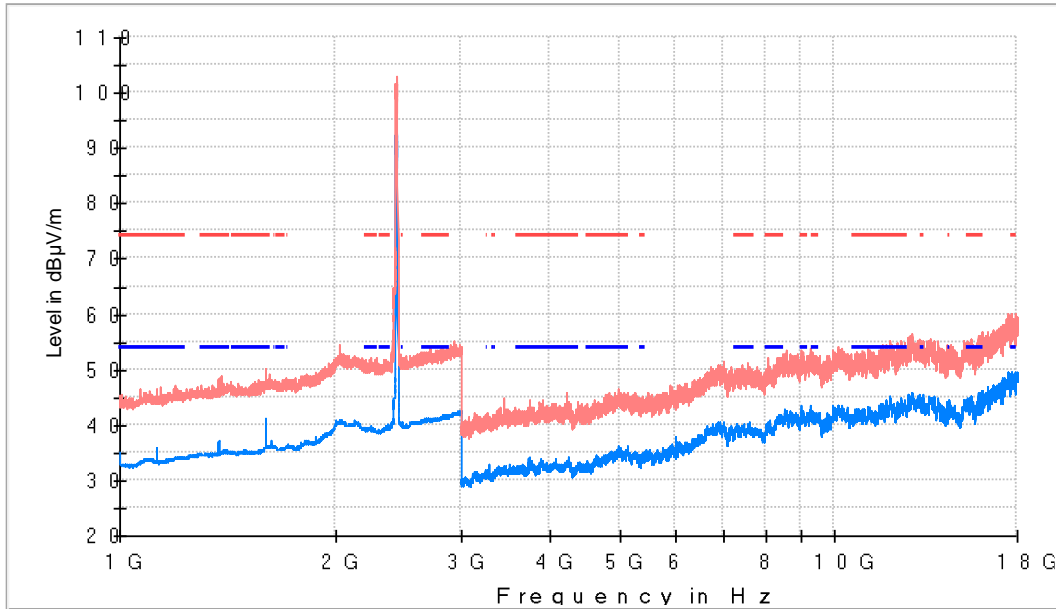
**Lowest Channel**



— AVG\_MAXH  
— PK+\_MAXH  
--- TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr  
--- TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2408.500000	104.8	95.0	H	---	---	Fundamental
17925.000000	58.8	49.7	H	4.3	54.0	

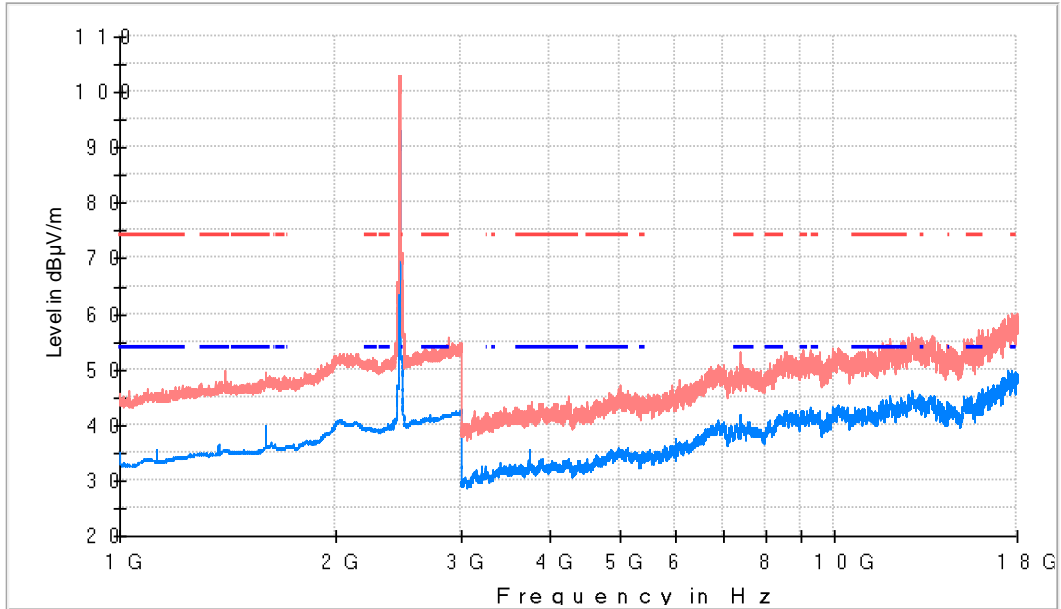
Middle Channel



— AVG\_MAXH  
— PK+\_MAXH  
--- TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr  
--- TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2433.500000	102.3	92.7	H	---	---	Fundamental
17925.000000	57.9	49.6	V	-3.9	54.0	

### Highest Channel

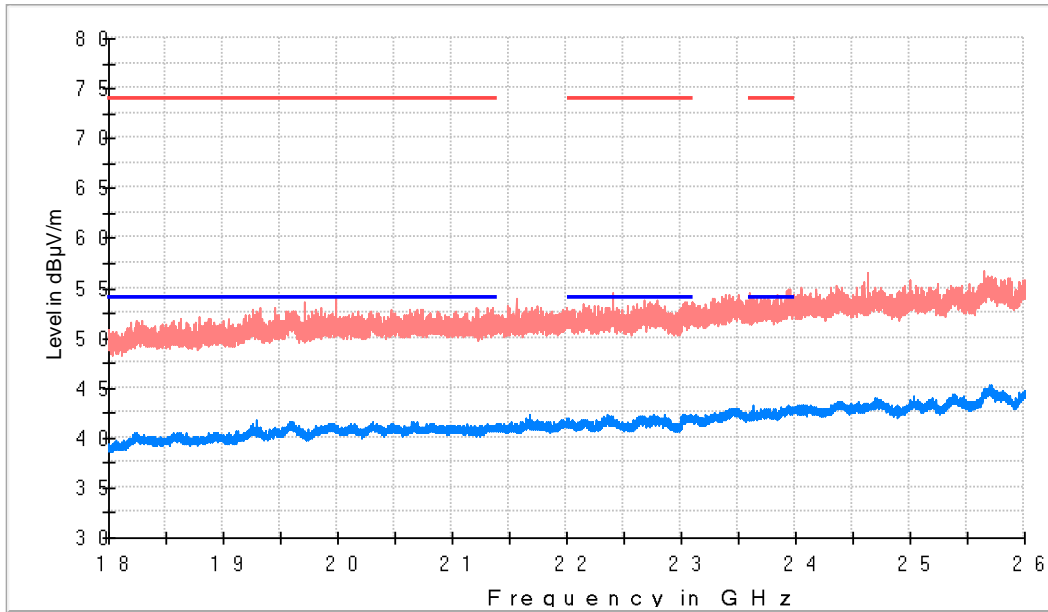


— AVG\_MAXH  
— PK+\_MAXH  
--- TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr  
--- TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	PoI	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2460.000000	102.1	93.2	H	---	---	Fundamental
3750.000000	42.5	35.5	V	11.5	54.0	
17934.500000	58.3	49.4	V	-4.3	54.0	

**Frequency range 18 - 26 GHz**

**Lowest Channel**

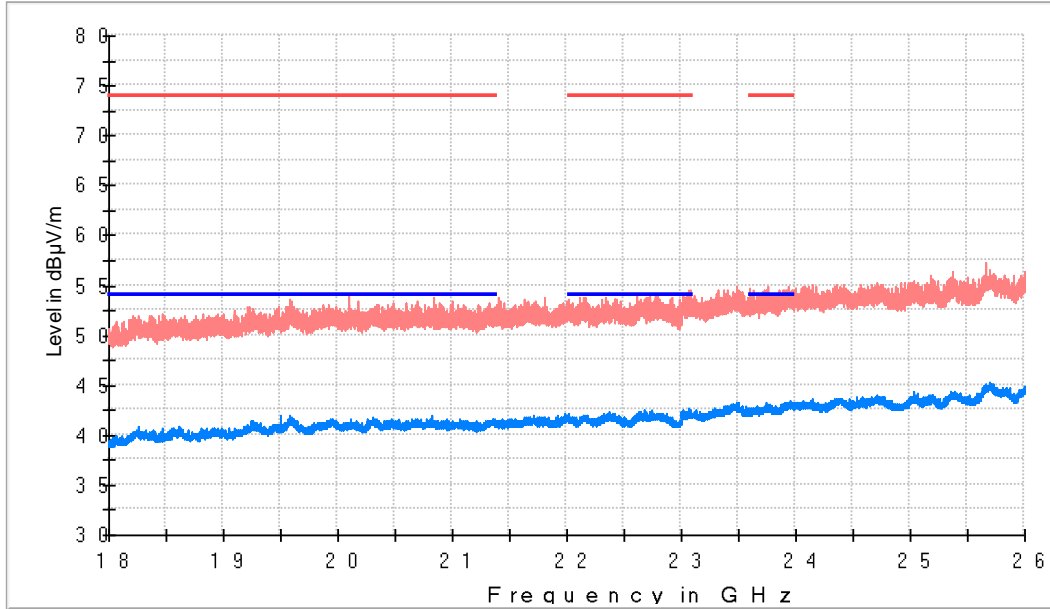


— AVG\_MAXH  
— PK+\_MAXH  
— TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr  
— TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
22855.500000	51.8	42.4	V	11.6	54.0



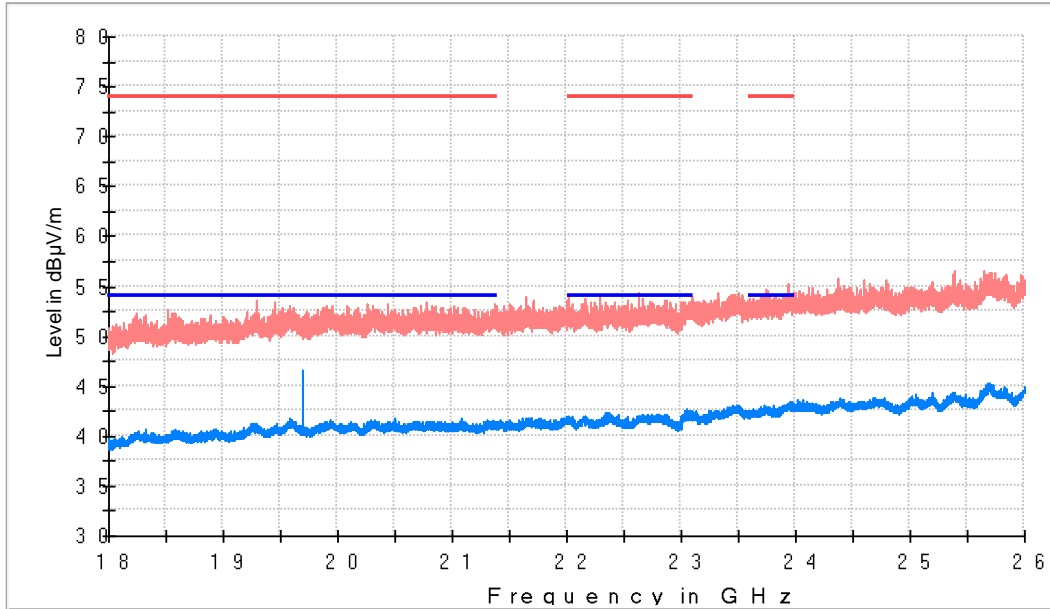
Middle Channel



— AVG\_MAXH  
— PK+\_MAXH  
— TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr  
— TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
23944.500000	53.5	43.4	V	0.5	54.0

Highest Channel

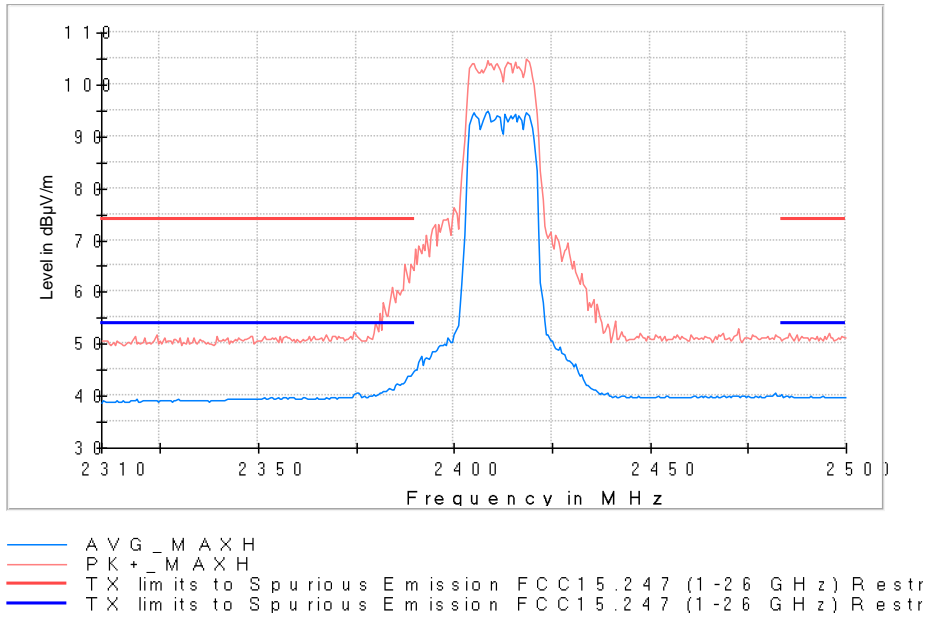


— AVG\_MAXH  
— PK+\_MAXH  
— TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr  
— TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr

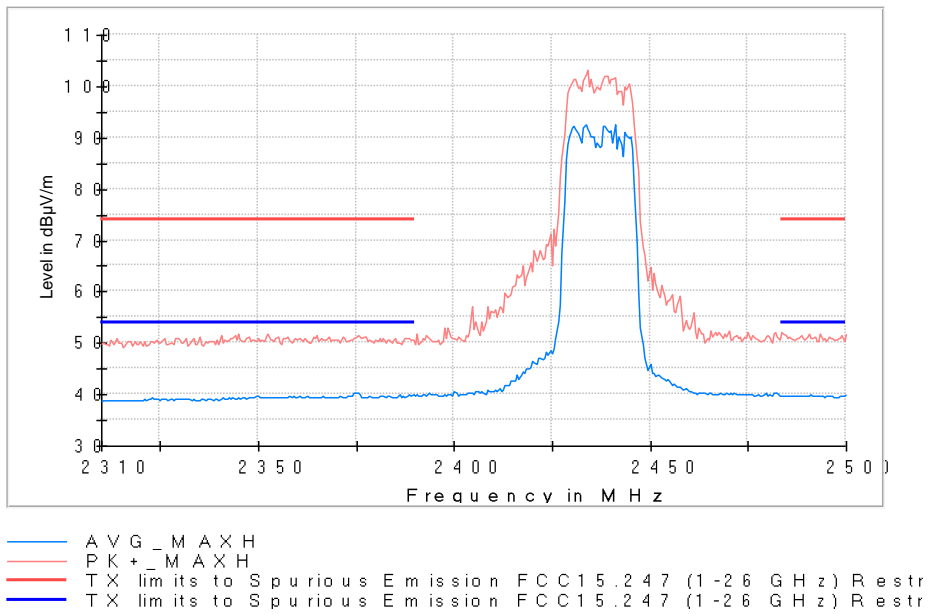
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
19695.500000	52.0	46.6	V	7.4	54.0

### Restricted Bands (2.31 GHz - 2.5 GHz)

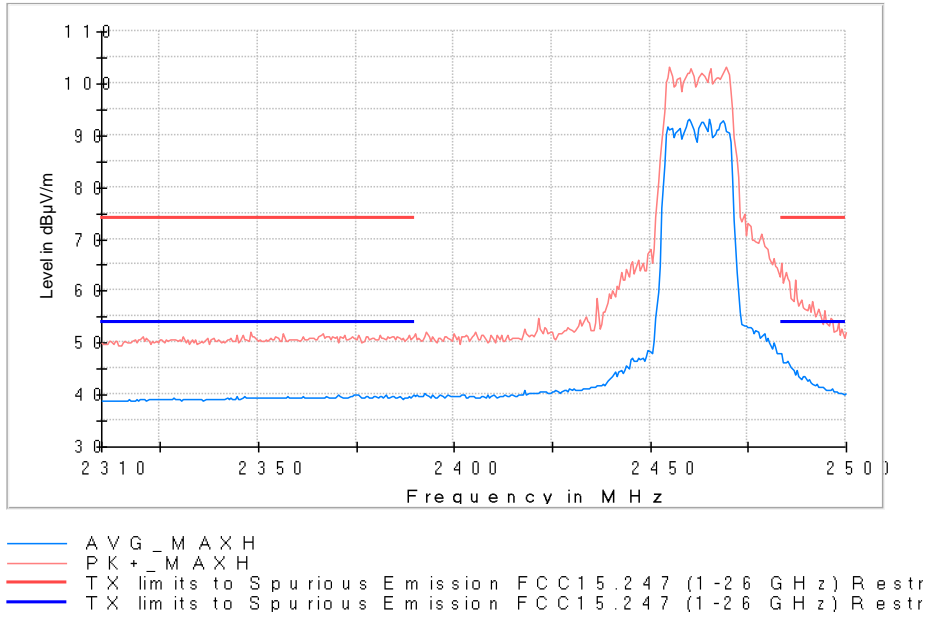
#### Lowest Channel



#### Middle Channel



### Highest Channel

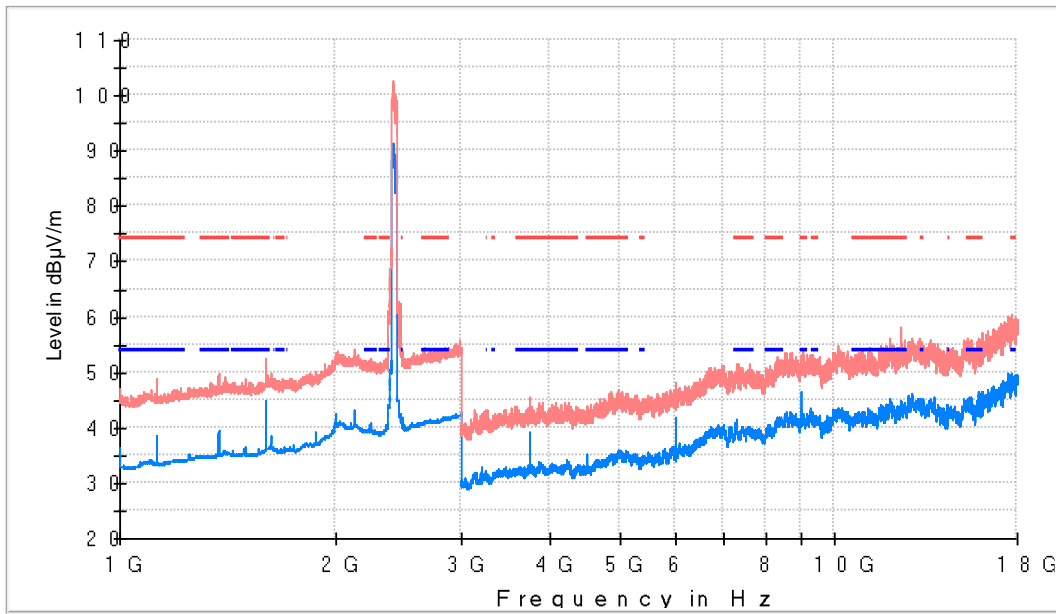


Modulation: 802.11ax HE40

**Results**

**Frequency range 1 - 18 GHz**

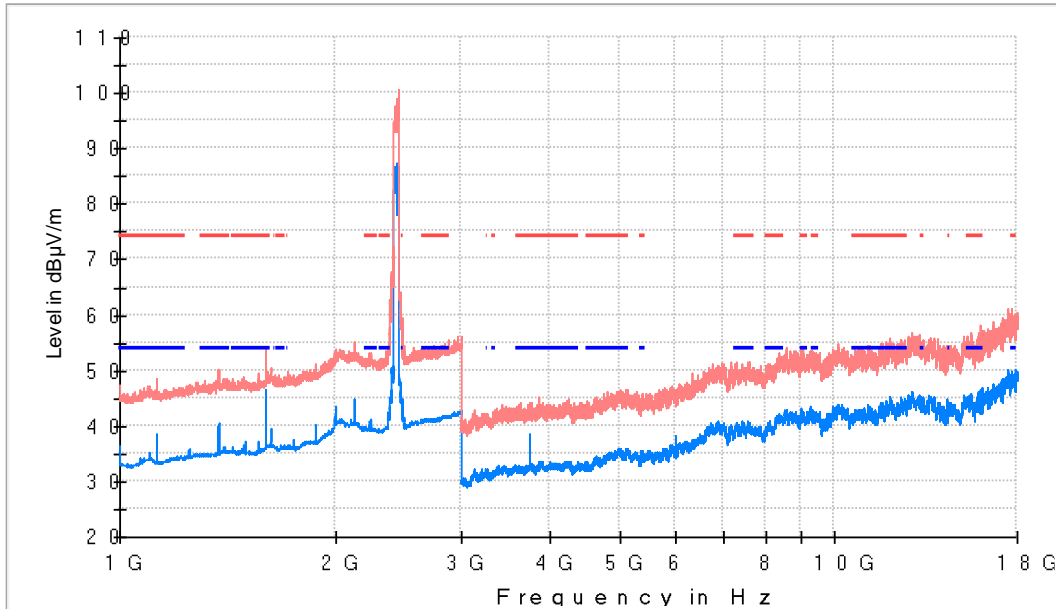
**Lowest Channel**



— AVG\_MAXH  
— PK+\_MAXH  
— TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr  
— TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2416.000000	102.3	91.3	H	---	---	Fundamental
3750.000000	45.5	39.4	V	14.6	54.0	
17924.500000	58.5	49.5	V	4.5	54.0	

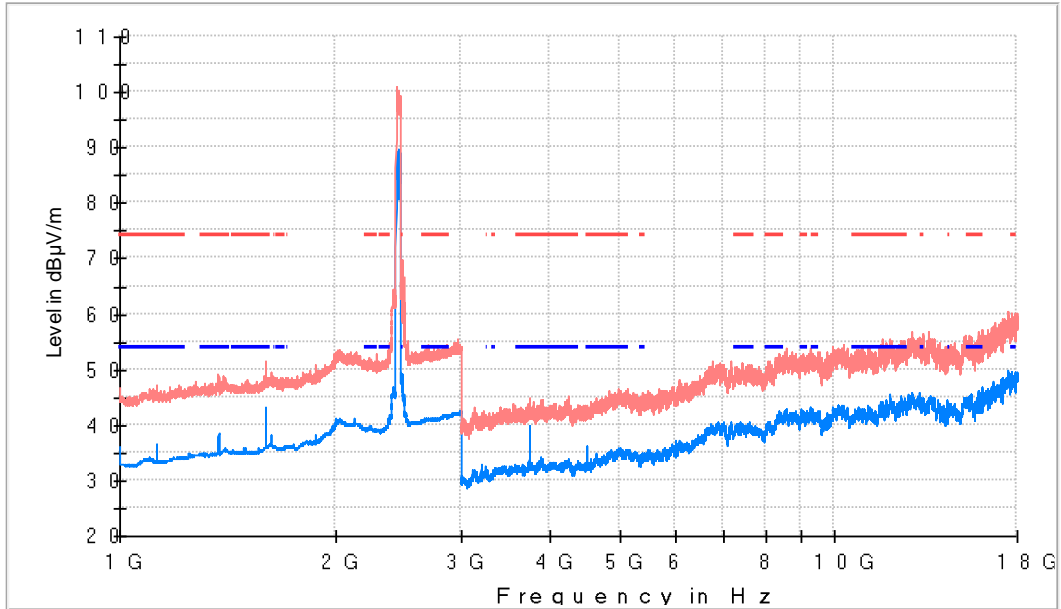
Middle Channel



— AVG\_MAXH  
— PK+\_MAXH  
- - - TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr  
- - - TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2441.000000	97.8	87.4	H	---	---	Fundamental
3750.000000	44.0	38.6	V	10.0	54.0	
17930.000000	59.3	50.1	V	-5.3	54.0	

### Highest Channel

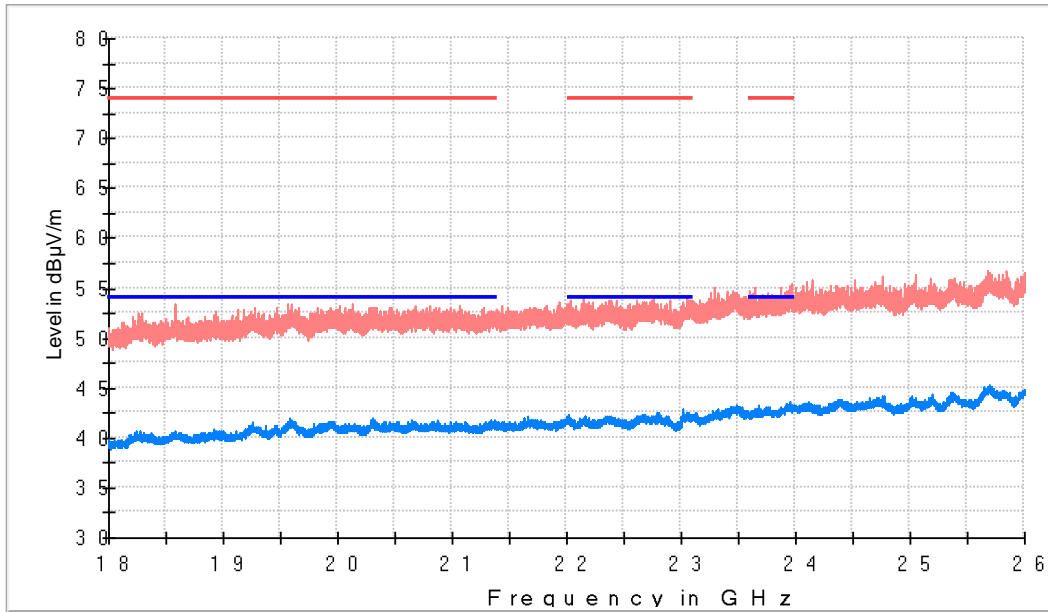


— AVG\_MAXH  
— PK+\_MAXH  
--- TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr  
--- TX limits to Spurious Emission FCC15.247 (1-2.6 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	PoI	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
2454.500000	98.8	89.7	H	---	---	Fundamental
3750.000000	44.1	39.8	V	14.2	54.0	
17932.000000	59.4	49.6	H	4.4	54.0	

**Frequency range 18 - 26 GHz**

**Lowest Channel**

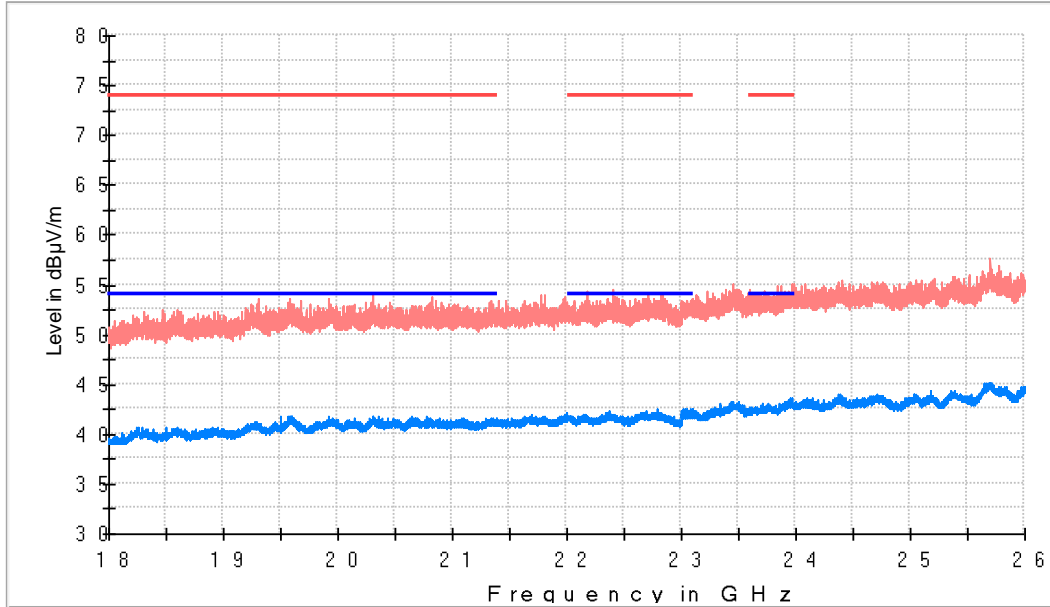


— AVG\_MAXH  
— PK+\_MAXH  
— TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr  
— TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restr

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
23953.000000	53.9	43.6	V	10.4	54.0



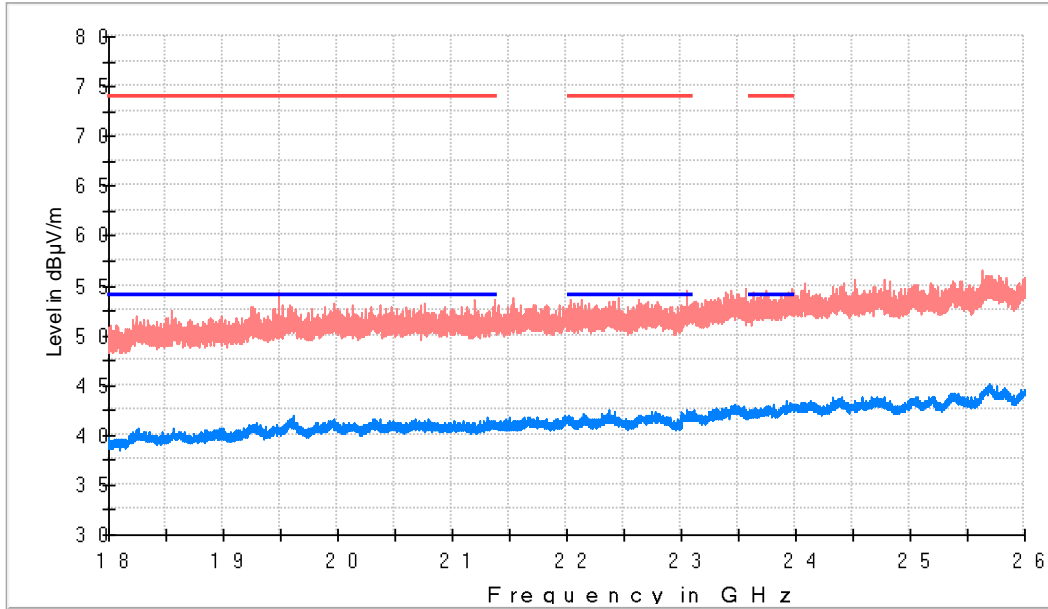
**Middle Channel**



— A V G \_ M A X H  
— P K + \_ M A X H  
— T X lim its to S purious E m ission F C C 1 5 . 2 4 7 ( 1 - 2 6 G H z ) R e s t r  
— T X lim its to S purious E m ission F C C 1 5 . 2 4 7 ( 1 - 2 6 G H z ) R e s t r

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
23949.000000	53.9	43.6	H	10.4	54.0

### Highest Channel

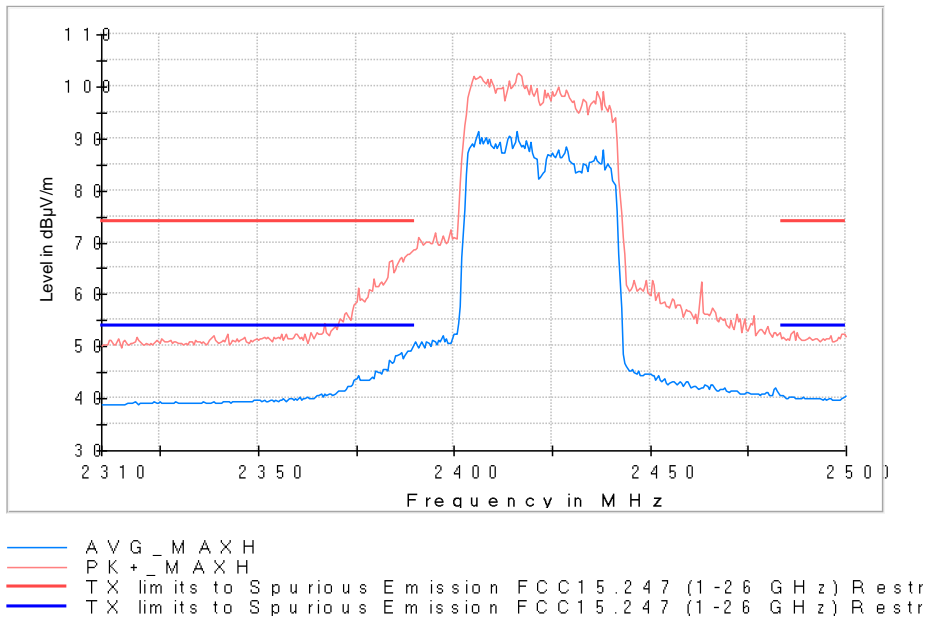


— A V G \_ M A X H  
— P K + \_ M A X H  
— T X lim its to S p u r i o u s E m i s s i o n F C C 1 5 . 2 4 7 ( 1 - 2 6 G H z ) R e s t r  
— T X lim its to S p u r i o u s E m i s s i o n F C C 1 5 . 2 4 7 ( 1 - 2 6 G H z ) R e s t r

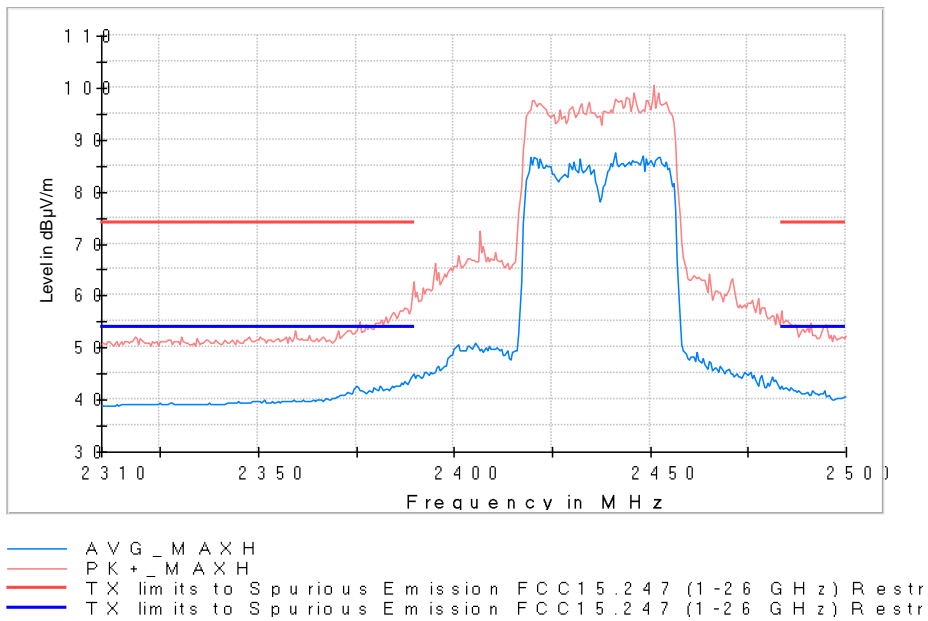
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
23925.500000	53.2	43.5	V	10.5	54.0

### Restricted Bands (2.31 GHz - 2.5 GHz)

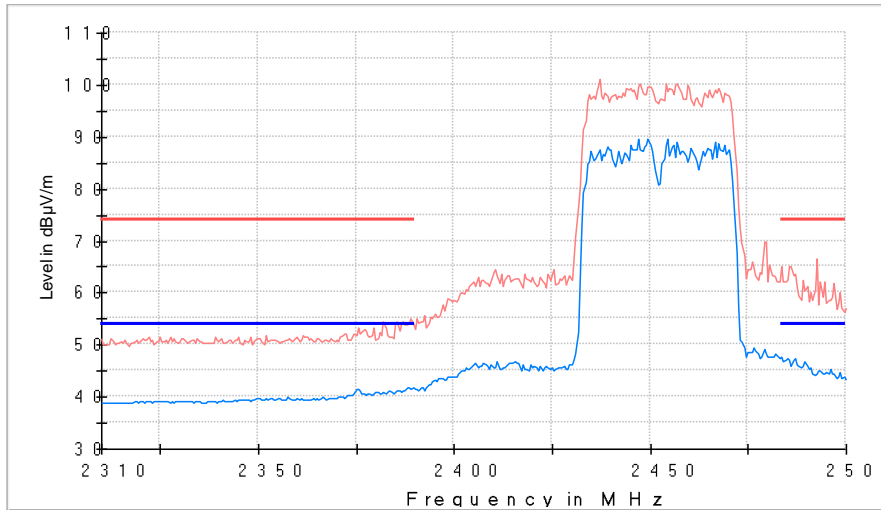
#### Lowest Channel



#### Middle Channel



### Highest Channel



— A V G \_ M A X H  
— P K + \_ M A X H  
— T X lim its to S purious E m ission F C C 1 5 . 2 4 7 ( 1 - 2 6 G H z ) R e str  
— T X lim its to S purious E m ission F C C 1 5 . 2 4 7 ( 1 - 2 6 G H z ) R e str

Subrange	Step Size	Detectors	Bandwidth
30 MHz - 1 GHz	48.5 kHz	PK+; QPK	100 kHz
1 GHz - 7 GHz	500 kHz	PK+ ; AVG	1 MHz
7 GHz - 18 GHz	500 kHz	PK+ ; AVG	1 MHz
18 GHz - 40 GHz	500 kHz	PK+ ; AVG	1 MHz

## Appendix C.4: Beamforming

### RSS-247 5.2 (a) / FCC 15.247 (a) (2) 6 dB Bandwidth

#### Limits

The minimum 6 dB bandwidth shall be at least 500 kHz.

Modulation: 802.11ax HE20 Beamforming

#### Results

Freq (MHz)	BW (MHz)	6dB BW (MHz)
2412.00000		17.350
2437.00000	20	17.050
2462.00000		16.650

Modulation: 802.11ax HE40 Beamforming

#### Results

Freq (MHz)	BW (MHz)	6dB BW (MHz)
2422.00000		36.050
2437.00000	40	35.750
2452.00000		36.450

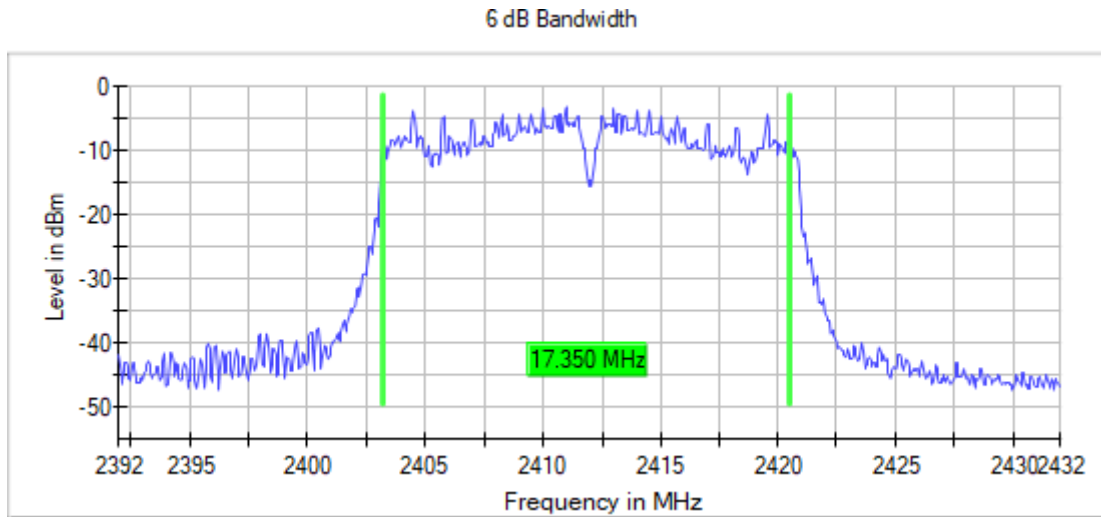
#### Verdict

Pass

**Attachments**

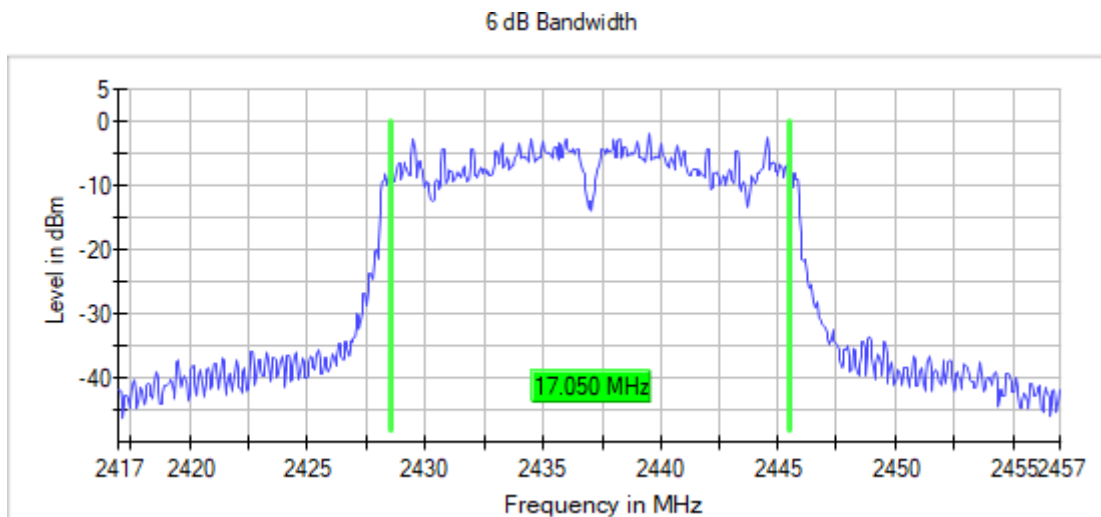
**Frequency MHz = 2412.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,**

**Images:**



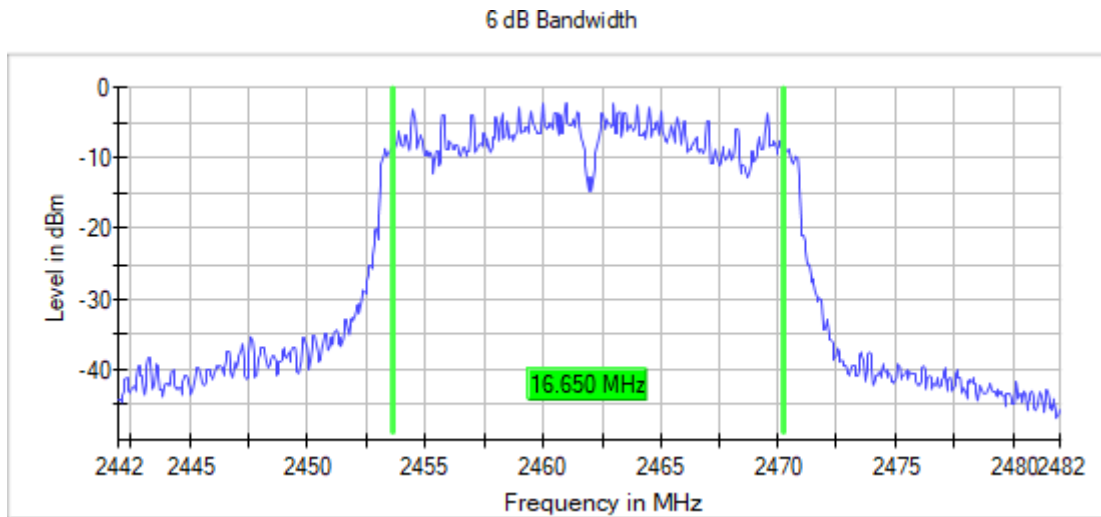
**Frequency MHz = 2437.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,**

**Images:**



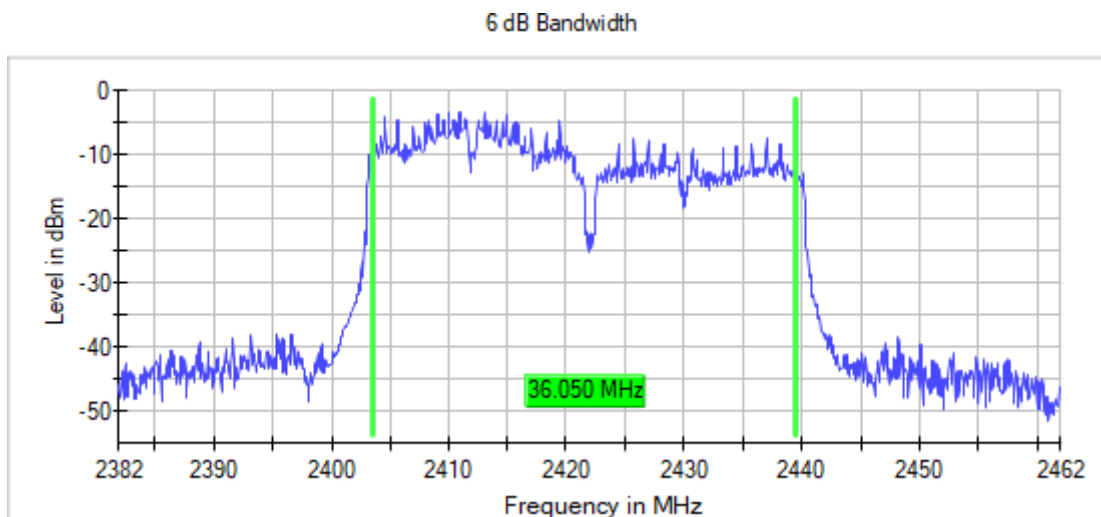
Frequency MHz = 2462.00000, Bandwidth MHz = 20, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



Frequency MHz = 2462.00000, Bandwidth MHz = 40, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

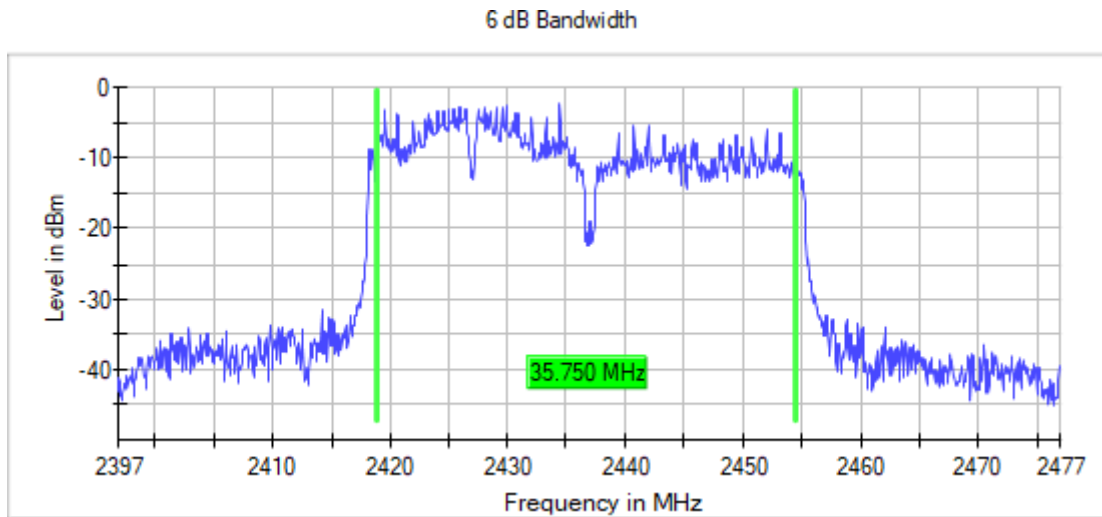
Images:





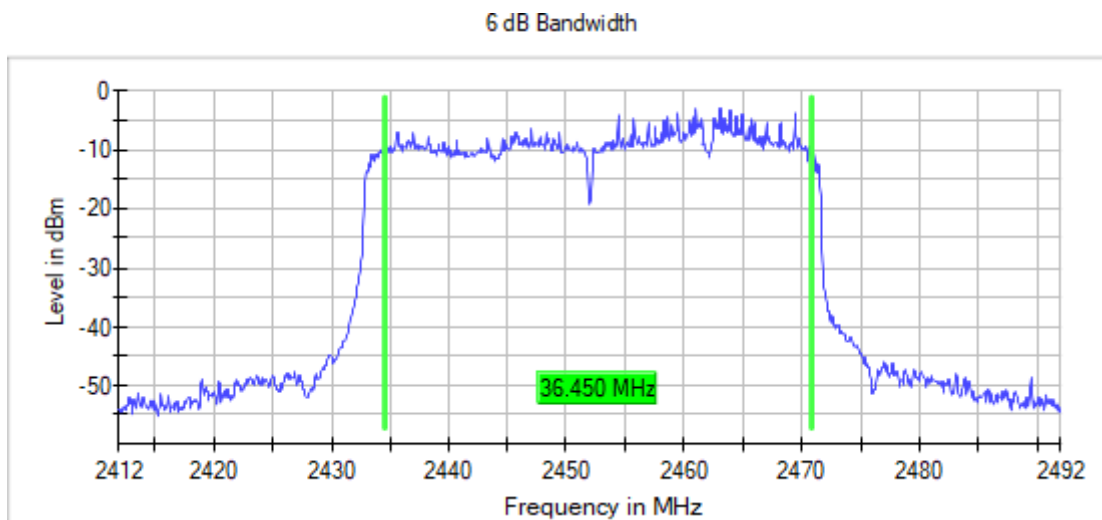
Frequency MHz = 2437.00000, Bandwidth MHz = 40, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



Frequency MHz = 2452.00000, Bandwidth MHz = 40, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



## Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39200 GHz	2.41700 GHz	2.44200 GHz
Stop Frequency	2.43200 GHz	2.45700 GHz	2.48200 GHz
Span	40/80.000 MHz	40/80.000 MHz	40/80.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
SweepPoints	800	800	800
SweepTime	56.836 $\mu$ s	56.836 $\mu$ s	56.836 $\mu$ s
Reference Level	10.000 dBm	0.000 dBm	0.000 dBm
Attenuation	30.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
SweepType	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.50 dB	0.50 dB	0.50 dB
Run	67 / max. 150	54 / max. 150	72 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.16 dB	0.01 dB	0.18 dB

### RSS-247 5.2 (b) / FCC 15.247 (e) Power spectral density

#### Limits

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Note: The following test results are shown based on KDB 662911 D01 Multiple Transmitter Output v02r01 E) 3) a) (ii) Measure and sum spectral maxima across the outputs as described in section E)2)b).

Modulation: 802.11ax HE20 Beamforming

#### Results

Freq (MHz)	BW (MHz)	PSD (dBm)
2412.00000		-1.16
2437.00000	20	0.96
2462.00000		0.56

Modulation: 802.11ax HE40 Beamforming

#### Results

Freq (MHz)	BW (MHz)	PSD (dBm)
2422.00000		-1.20
2437.00000	40	0.72
2452.00000		-0.94

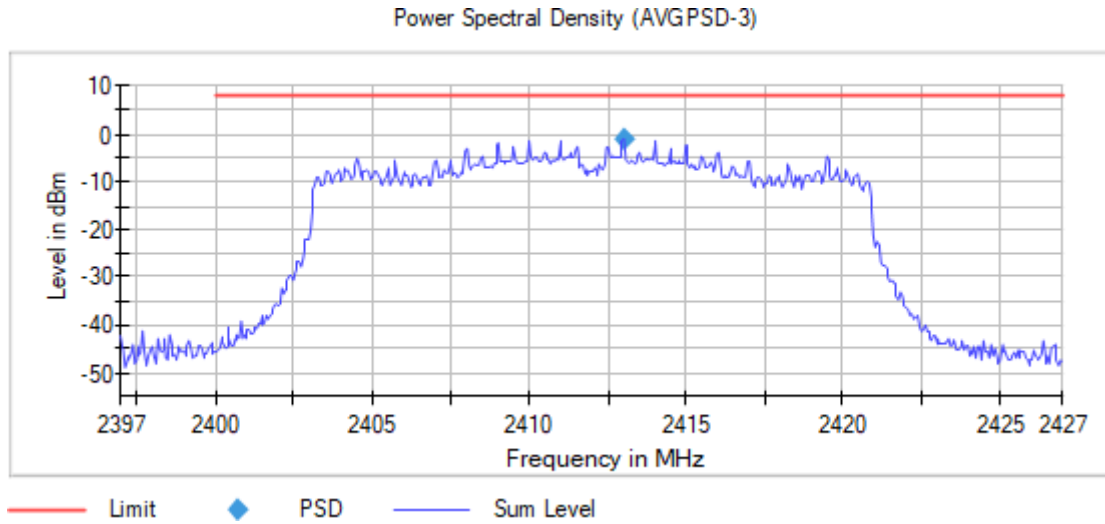
#### Verdict

Pass

**Attachments**

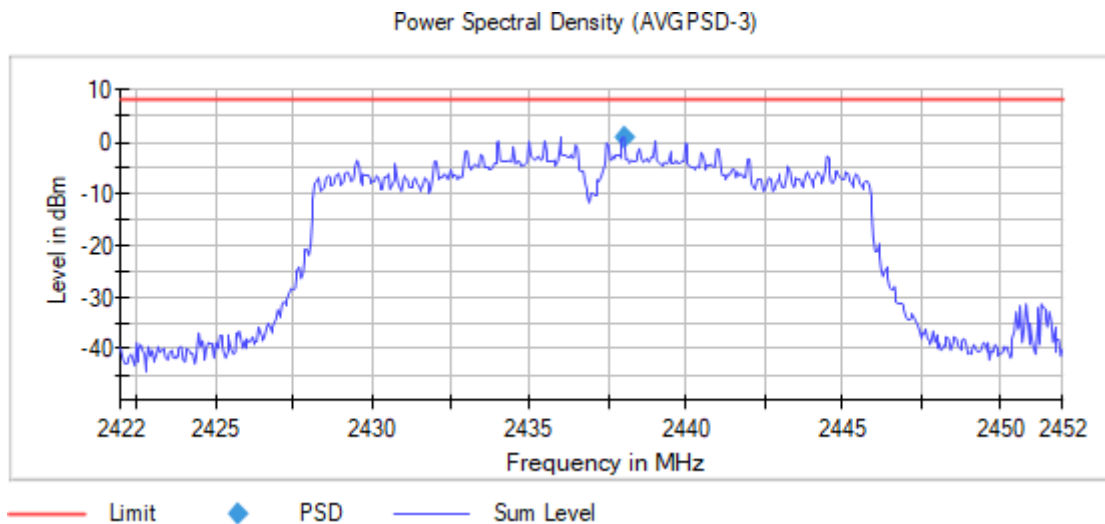
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,**

**Images:**



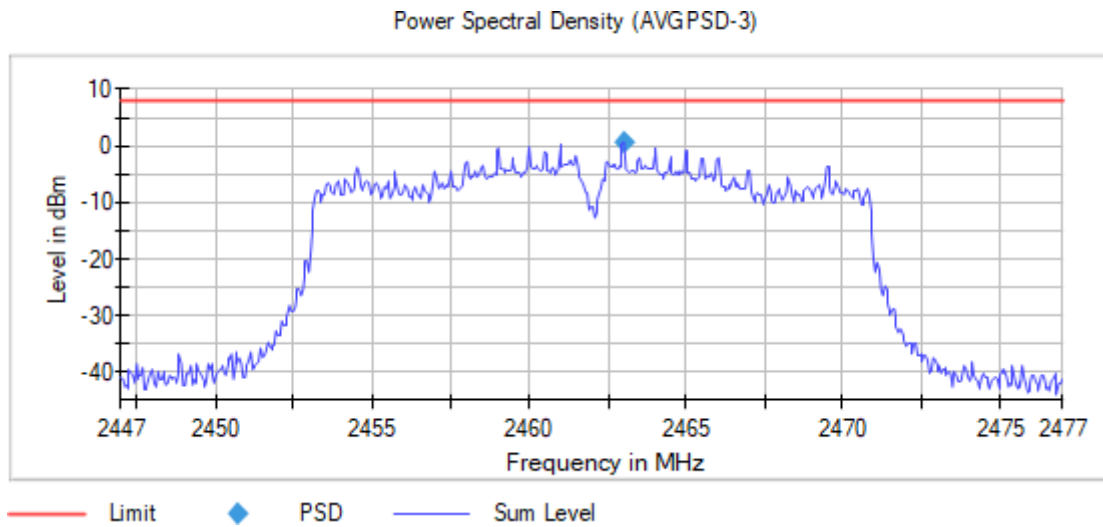
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,**

**Images:**



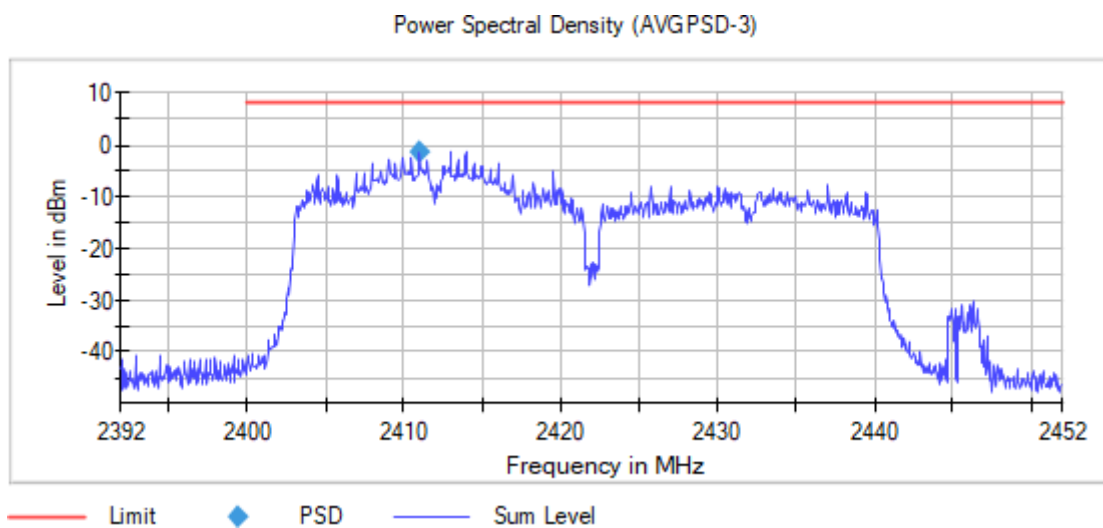
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



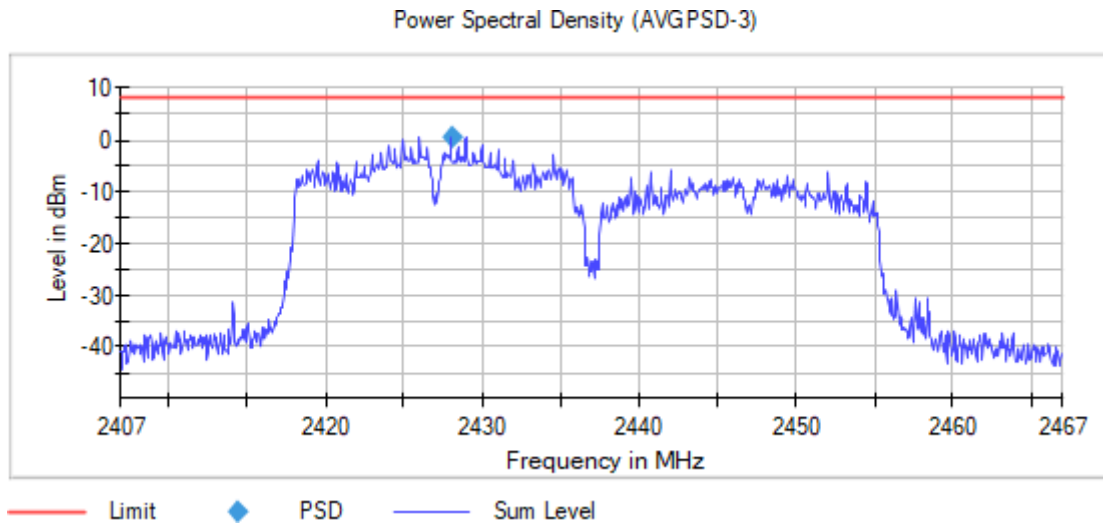
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



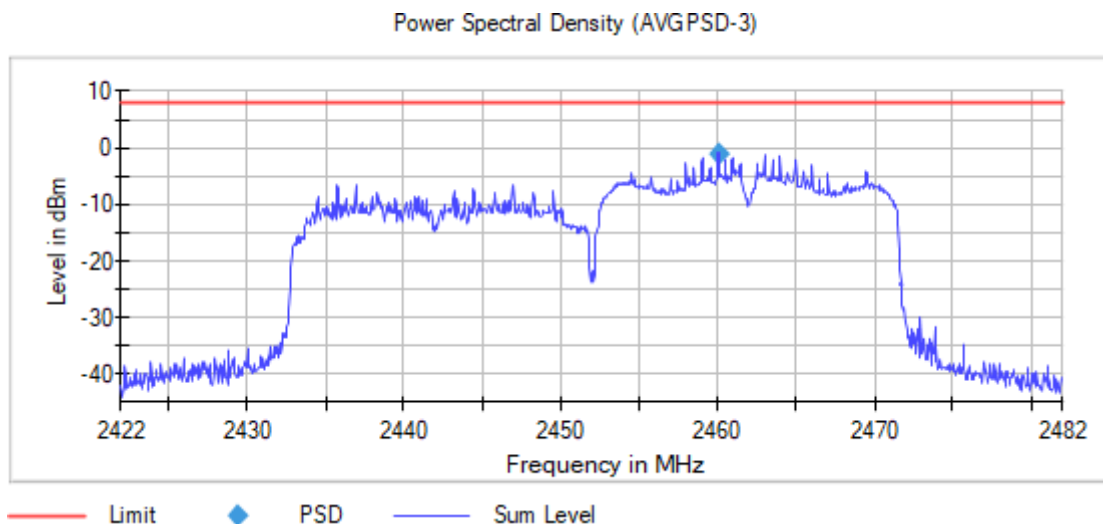
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



### Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39700 GHz	2.42200 GHz	2.44700 GHz
Stop Frequency	2.42700 GHz	2.45200 GHz	2.47700 GHz
Span	30/60.000 MHz	30/60.000 MHz	30/60.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
SweepPoints	600	600	600
Sweeptime	12.000 ms	12.000 ms	12.000 ms
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	RMS	RMS	RMS
SweepCount	5000	5000	5000
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	Sweep	Sweep	Sweep
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.50 dB	0.50 dB	0.50 dB
Run	6 / max. 15	4 / max. 15	6 / max. 15
Stable	1 / 1	1 / 1	1 / 1
Max Stable	0.28 dB	0.49 dB	0.49 dB

**RSS-247 5.4 (d) / FCC 15.247 (b) (1) Maximum Average Conducted Output Power**

**Limits**

For systems using digital modulation in the 2400 -2483.5 MHz band: 1 watt (30 dBm).

The e.i.r.p. shall not exceed 4 W (36 dBm) (RSS-247).

Note: The following test results are shown based on KDB 662911 D01 Multiple Transmitter Output v02r01 E)  
 1) In-Band Power Measurements.

As Per KDB 662911 D01 Multiple Transmitter Output v02r01, the directional gain for 2 TX antennas are calculated as follows:

Directional Gain = Antenna gain + 10log(N<sub>ANT</sub>)

Maximum declared antenna gain: -2.5 dBi

Directional gain: 0.5 dBi

Modulation: 802.11ax HE20 Beamforming

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2412.00000	20	9.55
2437.00000		11.45
2462.00000		11.14

Modulation: 802.11ax HE40 Beamforming

**Results**

Freq (MHz)	BW (MHz)	E.I.R.P. (dBm)
2422.00000	40	9.44
2437.00000		11.24
2452.00000		10.88

**Verdict**

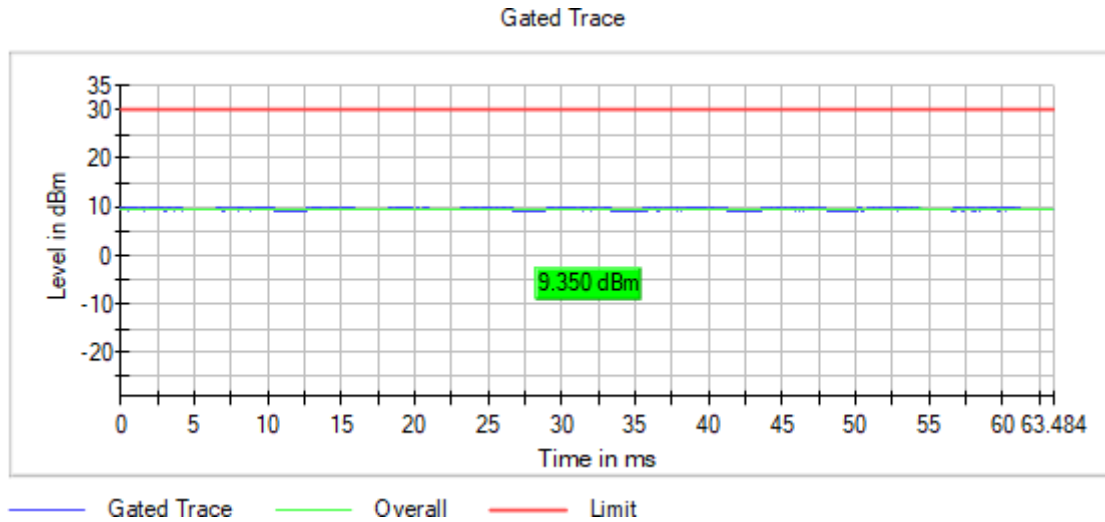
Pass



**Attachments**

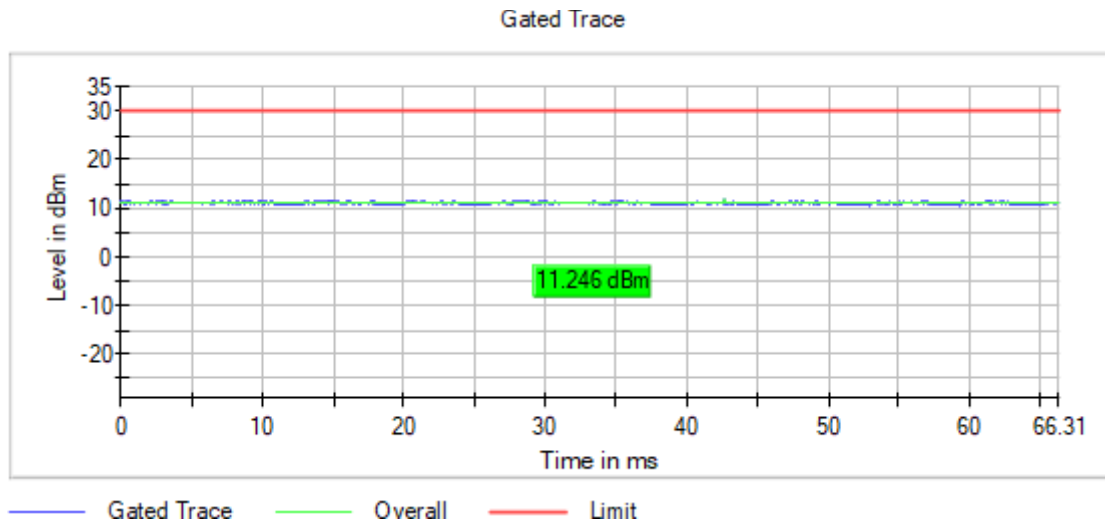
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,**

**Images:**



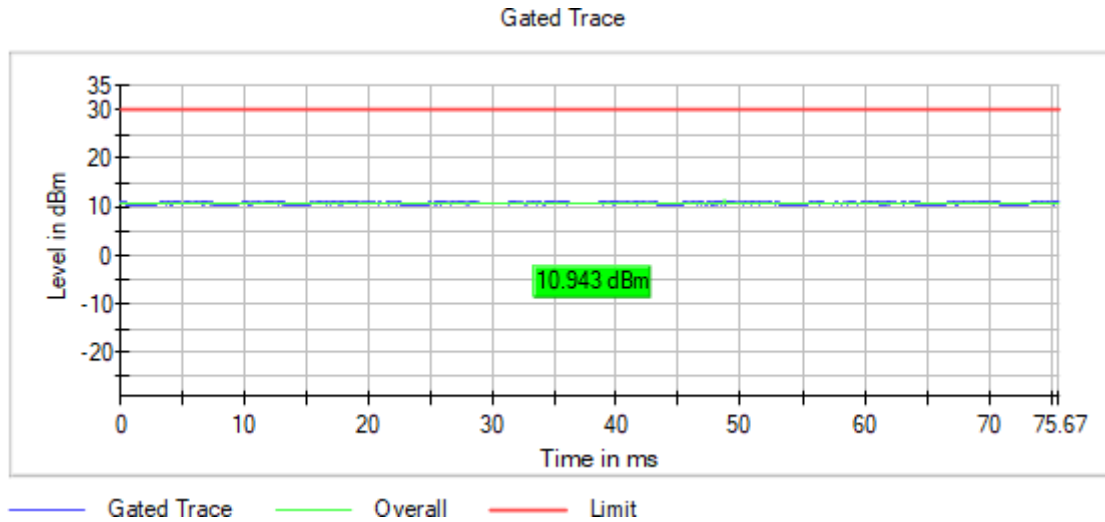
**Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,**

**Images:**



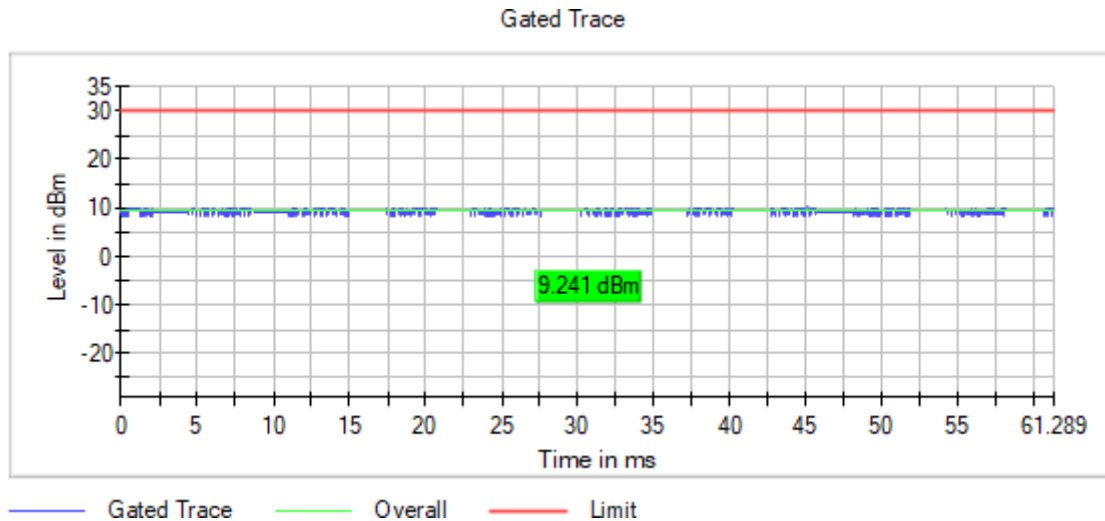
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



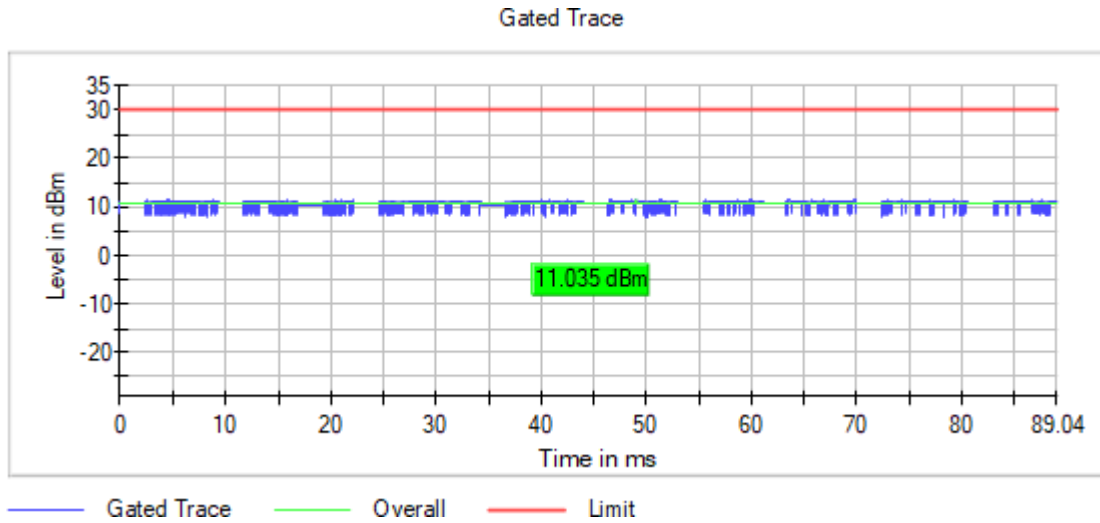
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 1,  
Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



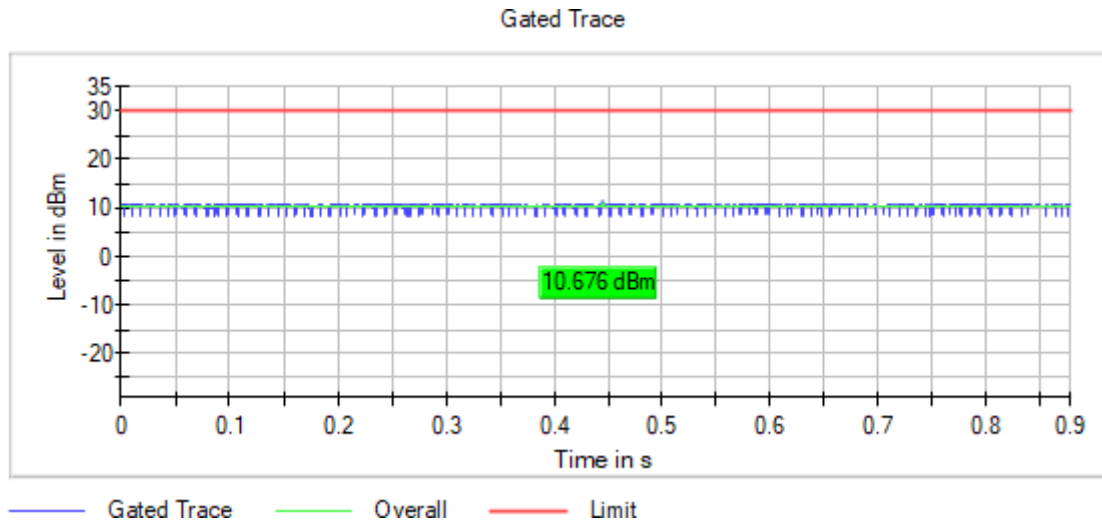
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
 Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
 Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



**OSP PowerMeter settings**

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

**RSS-247 5.5 / FCC 15.247 (d) Band-edge emissions compliance (Transmitter)**

**Limits**

In any 100 kHz bandwidths outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Note: The following test results are shown based on KDB 662911 D01 Multiple Transmitter Output v02r01 E) 3) a) (ii) Measure and sum spectral maxima across the outputs as described in section E)2)b).

Modulation: 802.11ax Beamforming

**Results**

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2483.625000	-47.9
20	2399.975000	-50.5
20	2359.925000	-50.9
20	2483.675000	-48.3
20	2385.825000	-51.0
20	2483.575000	-49.0
20	2490.775000	-49.5
20	2396.625000	-51.1
20	2359.875000	-51.1
20	2490.875000	-49.9
20	2396.575000	-51.1
20	2490.725000	-50.0
20	2490.825000	-50.3
20	2342.775000	-51.1
20	2396.675000	-51.1
20	2490.925000	-50.3
20	2486.775000	-50.6
20	2310.775000	-51.1
20	2484.075000	-50.6
20	2310.825000	-51.3
20	2399.375000	-51.3
20	2486.825000	-50.7
20	2311.925000	-51.3
20	2491.075000	-51.0
20	2342.725000	-51.3
20	2490.625000	-51.1

BW (MHz)	Freq (MHz)	Lvl (dBm)
20	2491.025000	-51.1
20	2399.725000	-51.3
20	2490.675000	-51.1
20	2399.825000	-51.3
40	2485.375000	-41.6
40	2341.375000	-51.2
40	2485.425000	-41.8
40	2394.775000	-51.2
40	2483.975000	-41.9
40	2385.875000	-51.3
40	2483.875000	-41.9
40	2385.925000	-51.3
40	2484.175000	-42.1
40	2392.925000	-51.3
40	2485.325000	-42.1
40	2392.775000	-51.4
40	2388.125000	-51.4
40	2484.125000	-42.2
40	2483.575000	-42.2
40	2394.525000	-51.4
40	2395.025000	-51.5
40	2484.775000	-42.2
40	2484.425000	-40.7
40	2358.725000	-50.6
40	2358.675000	-50.8
40	2483.625000	-41.0
40	2484.375000	-41.0
40	2389.675000	-50.9
40	2392.975000	-51.1
40	2483.675000	-41.0
40	2483.925000	-41.2

**Verdict**

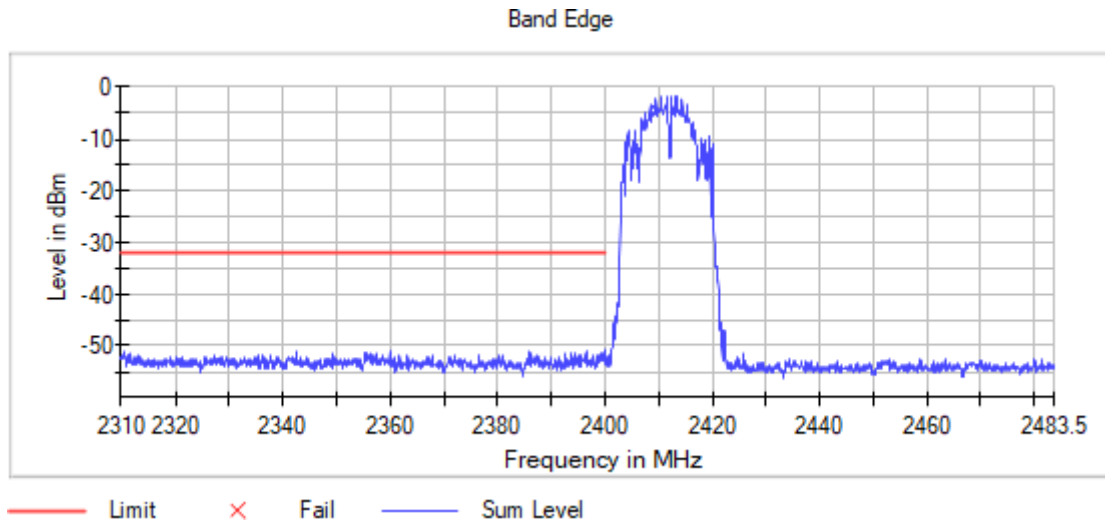
Pass

**Attachments**

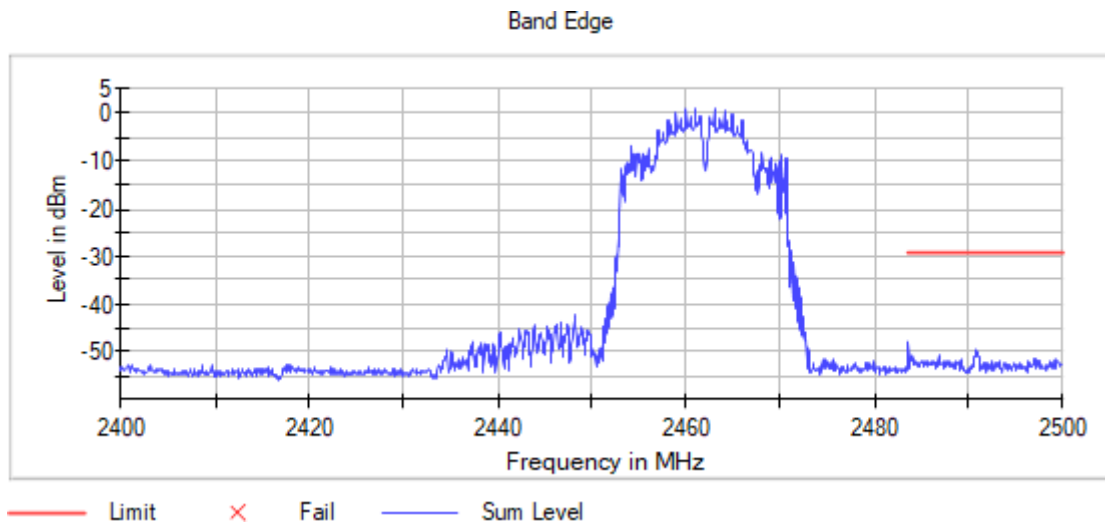
**Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2, Measurement Point = 1,**

**Images:**

**Low Channel:**



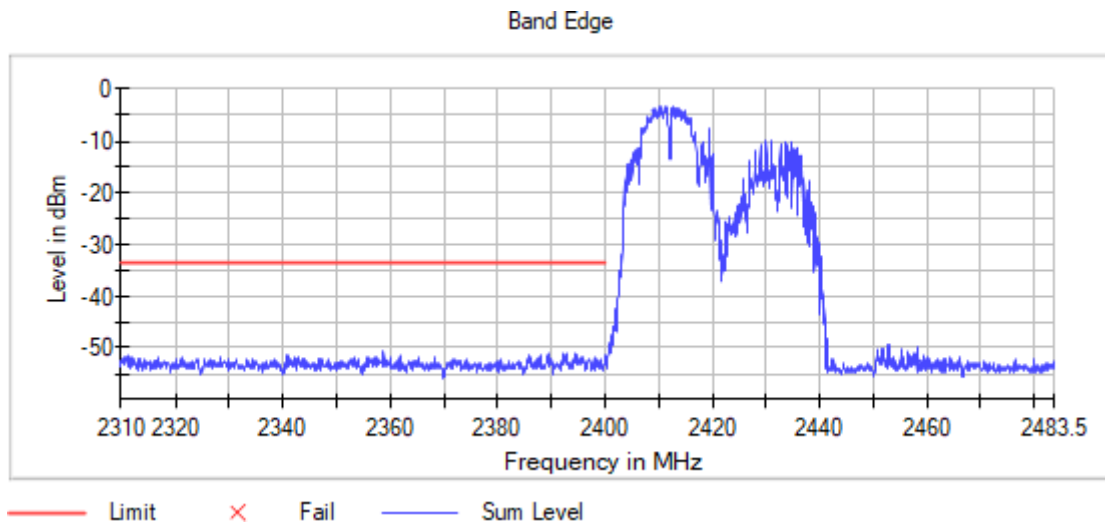
**High Channel:**



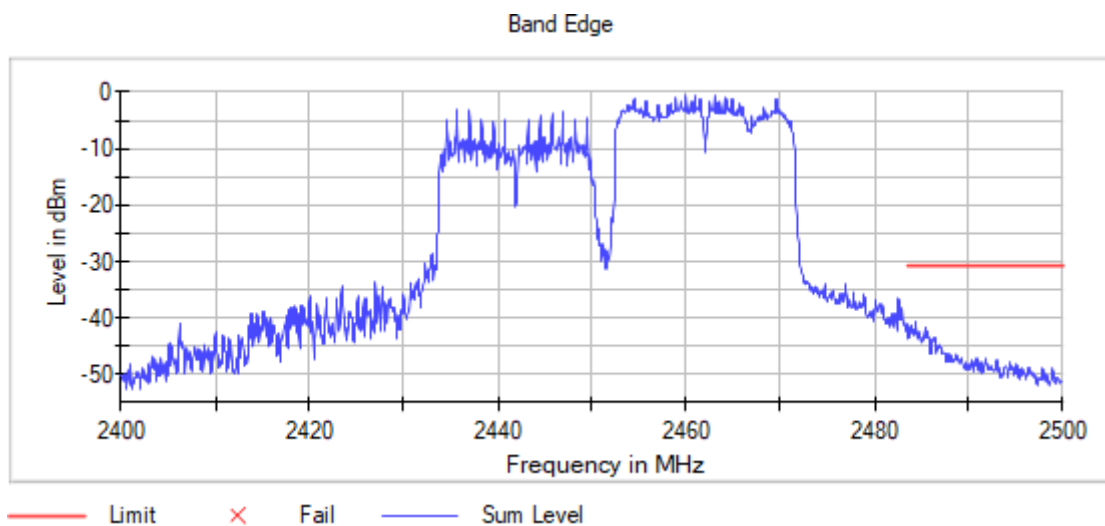
Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40, Modulation = 802.11ax HE40 Beamforming, Number of Transmission Chains = 2, Measurement Point = 1,

Images:

Low Channel:



High Channel:



## FCC 2.1049 / 99dBw Occupied Channel Bandwidth 99%

### Limits

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands.

Modulation: 802.11ax HE20 Beamforming

### Results

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2412.00000		16.200
2437.00000	20	16.300
2462.00000		16.600

Modulation: 802.11ax HE40 Beamforming

### Results

Freq (MHz)	BW (MHz)	Occ Ch BW (MHz)
2422.00000		37.500
2437.00000	40	37.500
2452.00000		36.750

### Verdict

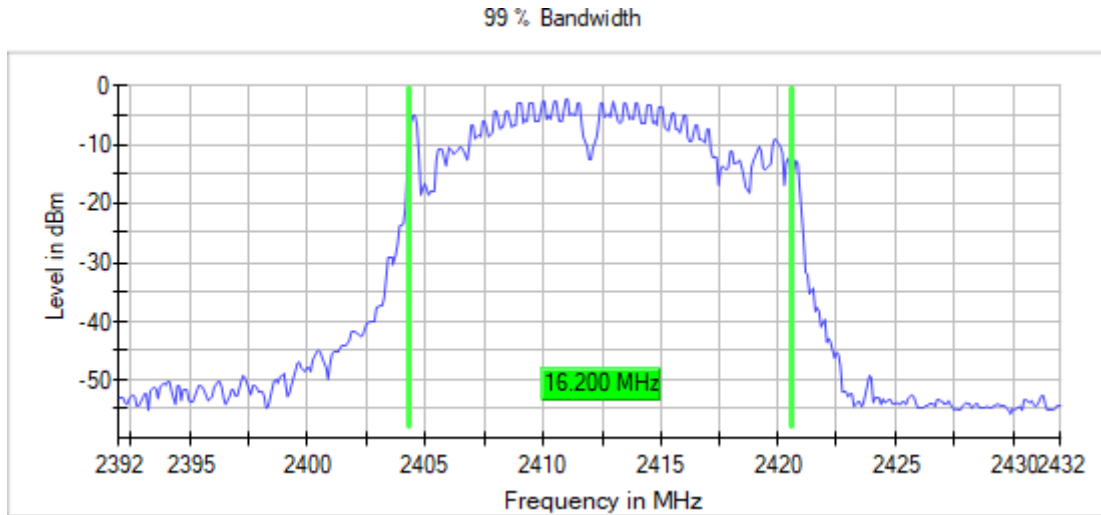
Pass



**Attachments**

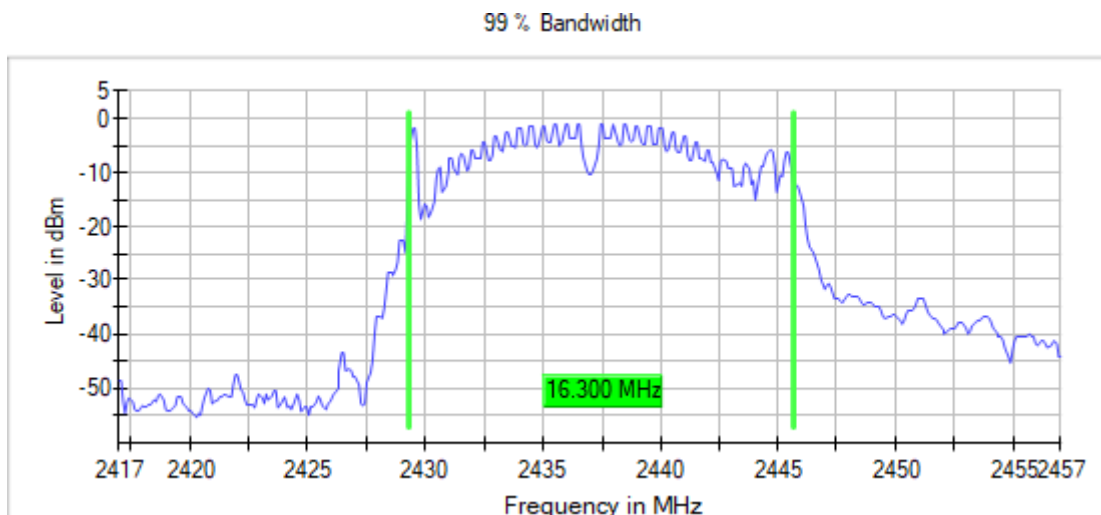
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,**

**Images:**



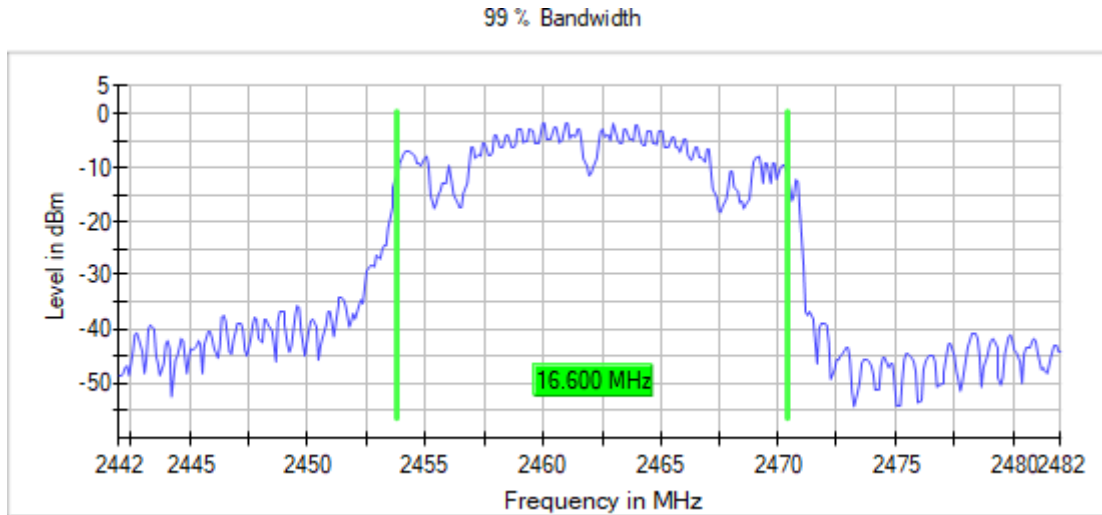
**Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20, Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,**

**Images:**



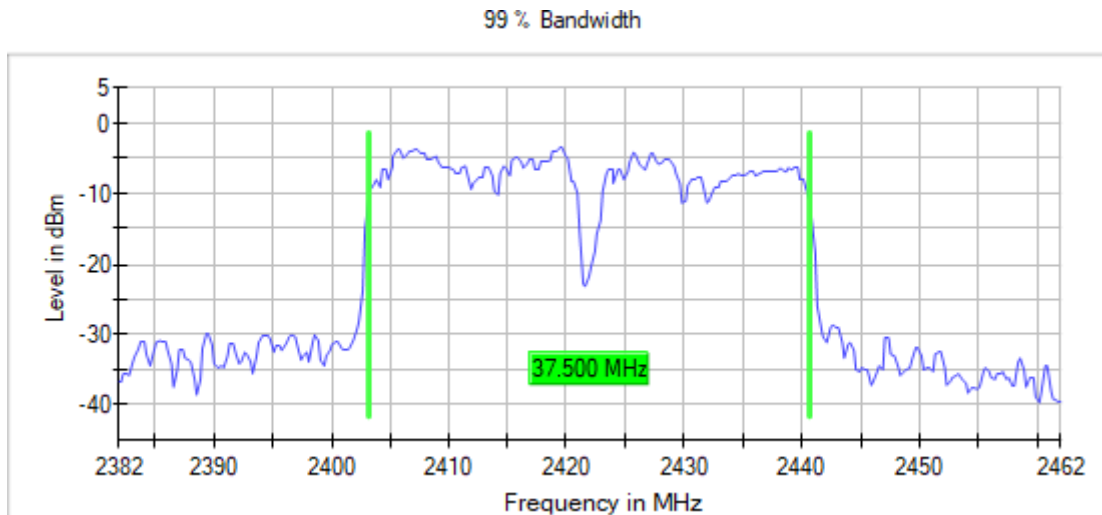
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,  
Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



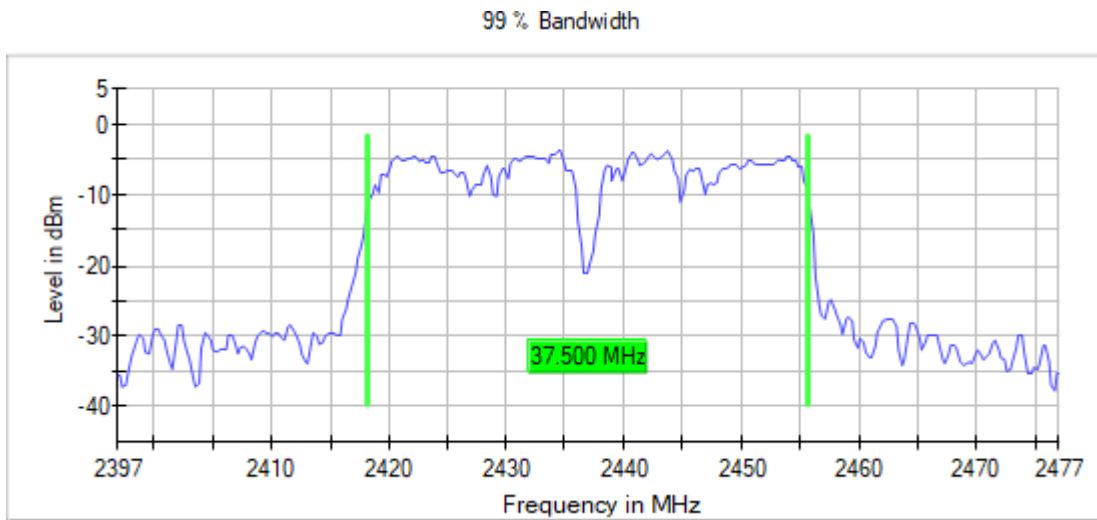
Frequency MHz = 2422.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE40 Beamforming, Number of Transmission Chains = 2,

Images:



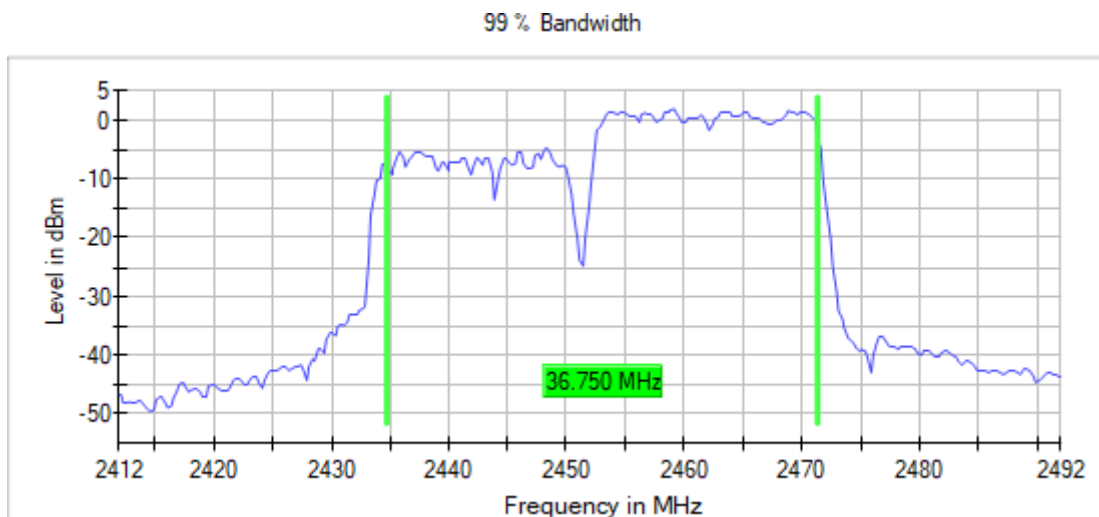
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE SS1 MCS 8 (OFDM MCS8), Number of Transmission Chains = 2,

Images:



Frequency MHz = 2452.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 40,  
Modulation = 802.11ax HE20 Beamforming, Number of Transmission Chains = 2,

Images:



### Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.43800 GHz	2.47800 GHz
Stop Frequency	2.40400 GHz	2.44200 GHz	2.48200 GHz
Span	4.000 MHz	4.000 MHz	4.000 MHz
RBW	20.000 kHz	20.000 kHz	20.000 kHz
VBW	100.000 kHz	100.000 kHz	100.000 kHz
SweepPoints	400	400	400
Sweeptime	94.824 µs	94.824 µs	94.824 µs
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweeptype	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	6 / max. 150	6 / max. 150	5 / max. 150
Stable	3 / 3	3 / 3	3 / 3
Max Stable	0.08 dB	0.17 dB	0.15 dB