

#### 4.3 Emissions in restricted frequency bands VE

ERDICT:	PASS
---------	------

Restricted Bands of oper	ation of FCC			
Frequency	Frequency	Frequency	Frequency	
(MHz) (MHz)		(MHz)	(GHz)	
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15	
0.495 - 0.505	16.69475 –16.69525	608 – 614	5.35 – 5.46	
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75	
4.125 – 4.128	25.5 - 25.67	1300 – 1427	8.025 - 8.5	
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 - 9.2	
4.20725 - 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5	
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7	
6.26775 - 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4	
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5	
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2	
8.362 - 8.366	156.52475 - 156.52525	2483.5 – 2500	17.7 – 21.4	
8.37625 - 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12	
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 - 24.0	
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8	
12.51975-12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5	
12.57675-12.57725	322 – 335.4	3600 - 4400		
13.36 – 13.41				
Restricted Bands of oper	ation for IC			
0.090 - 0.110	13.36 - 13.41	960 - 1427	9.0 - 9.2	
0.495 - 0.505	16.42 - 16.423	1435 - 1626.5	9.3 - 9.5	
2.1735 - 2.1905	16.69475 - 16.69525	1645.5 - 1646.5	10.6 - 12.7	
3.020 - 3.026	16.80425 - 16.80475	1660 - 1710	13.25 - 13.4	
4.125 - 4.128	25.5 - 25.67	1718.8 - 1722.2	14.47 - 14.5	
4.17725 - 4.17775	37.5 - 38.25	2200 - 2300	15.35 - 16.2	
4.20725 - 4.20775	73 - 74.6	2310 - 2390	17.7 - 21.4	
5.677 - 5.683	74.8 - 75.2	2483.5 - 2500	22.01 - 23.12	
6.215 - 6.218	108 - 138	2655 - 2900	23.6 - 24.0	
6.26775 - 6.26825	149.9 - 150.05	3260 - 3267	31.2 - 31.8	
6.31175 - 6.31225	156.52475 - 156.52525	3332 - 3339	36.43 - 36.5	
8.291 - 8.294	156.7 - 156.9	3345.8 - 3358	Above 38.6	
8.362 - 8.366	162.0125 - 167.17	3500 - 4400		
8.37625 - 8.38675	167.72 - 173.2	4500 - 5150		
8.41425 - 8.41475	240 - 285	5350 - 5460		
12.29 - 12.293	322 - 335.4	7250 - 7750		
12.51975 - 12.52025	399.9 - 410	8025 - 8500		
12.57675 - 12.57725	608 - 614			

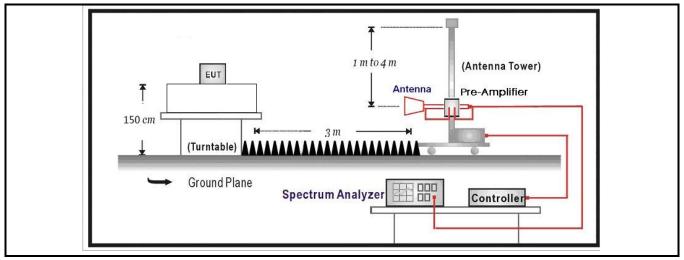


Restricted Band Emission	is Limit		
Frequency (MHz)	Field strength (μV/m)	Field strength (dBµV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 <sub>(Note 1)</sub>
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	<b>3</b> (Note 2)
216 - 960	200	46	<b>3</b> (Note 2)
Above 960	500	54	<b>3</b> (Note 2)

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

# Test Configuration





# Performed measurements

Port under test	Enclo	Enclosure port				
Test method applied		Conducted measurement				
	Radiated measurement					
Test setup	Refer to the Annex 3 for test setup photo(s).					
Operating mode(s) used	Mode	Mode 1				
Remark						



Model	EMK401
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 b
Test voltage	5Vdc

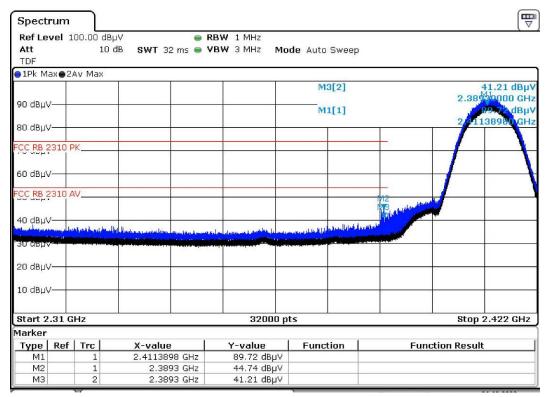
#### ₽ Spectrum Ref Level 100.00 dBµV RBW 1 MHz 10 dB SWT 32 ms 👄 VBW 3 MHz Att Mode Auto Sweep TDF ∋1Pk Max⊜2Av Max M3[2] Bµ\ 900000 90 dBµV-M1[1] 102.07 0 41138980 ( 80 dBµV-CC RB 2310 PK 60 dBµV-CC RB 2310 AV 40 dBµV-SO dBUV 20 dBµV-10 dBµV-Start 2.31 GHz 32000 pts Stop 2.422 GHz Marker **Y-value** 102.07 dBµV Type | Ref | Trc X-value Function **Function Result** 2.4113898 GHz M1 M2 1 2.39 GHz 43.80 dBµV ΜЗ 2 2.39 GHz 42.15 dBµV

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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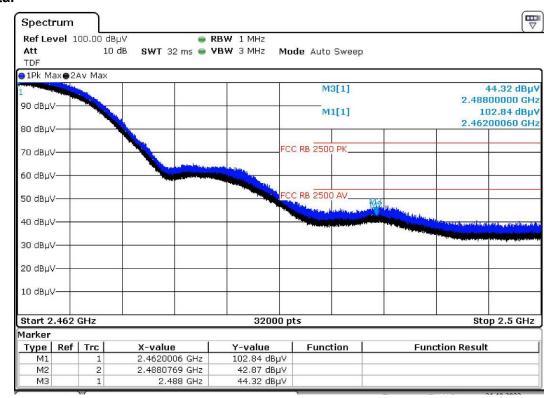
### Vertical



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



Model	EMK401
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 b
Test voltage	5Vdc

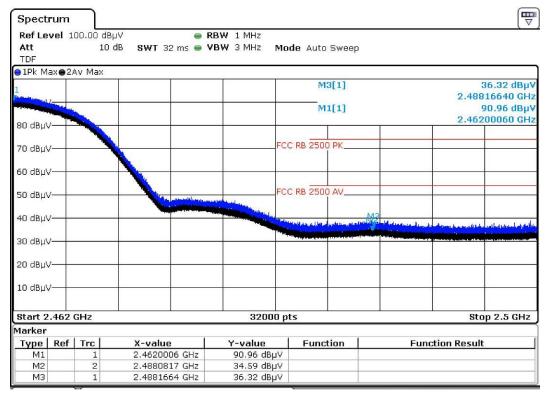


Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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# Vertical



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



Model	EMK401
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 g
Test voltage	5Vdc

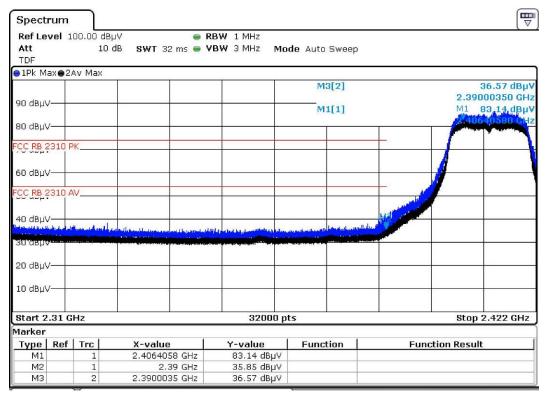
Spectrum						
Ref Level 1 Att TDF		Вµ∨ — — — — — — — — — — — — — — — — — — —	RBW 1 MHz VBW 3 MHz Moo	<b>de</b> Auto Sweep		
●1Pk Max●2	Av Max					
90 dBµV				M3[2]		52 24 dBµ 242000 350 dBµ 95.59 dBµ
	NZ					2.40640580 GH
FCC RB 2310 F	·K				ME	
FCC RB 2310 4	W					
40 dBuV	anna anna	tere it is the state of the sta	a start and a s	معمد الم الدي		
30 dBµV					5	
20 dBµV						
10 dBµV						
Start 2.31 G	Hz		32000 pt	ts	1	Stop 2.422 GHz
Marker						
Type Ref M1	Trc	X-value 2.4064058 GHz	Y-value	Function	Fund	ction Result
M1 M2 M3	1 1 2	2.4064058 GH2 2.39 GHz 2.3900035 GHz	95.59 dBµV 53.55 dBµV 52.24 dBµV			

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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### Vertical



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



Model	EMK401
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 g
Test voltage	5Vdc

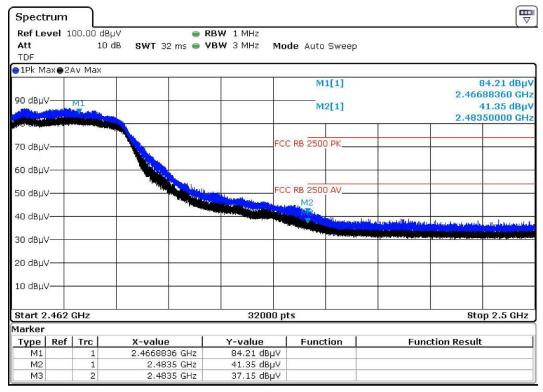
#### Spectrum Ref Level 100.00 dBµV RBW 1 MHz Att 10 dB SWT 32 ms 👄 VBW 3 MHz Mode Auto Sweep TDF ⊜1Pk Max⊜2Av Max M1[1] 94.27 dBµV 2.46688360 GH M2[1] 55.88 dBuV 2.48350000 GHz 80 dBµV-CC RB 2500 PK 70 dBµV-60 dBµV-A CC RB 2500 AV 50 dBµV-40 dBµV-30 dBµV-20 dBµV-10 dBµV-Start 2.462 GHz 32000 pts Stop 2.5 GHz Marker Function Function Result Type | Ref | Trc X-value Y-value 2.4668836 GHz 94.27 dBµV M1 1 55.88 dBµV M2 2.4835 GHz ΜЗ 2.4835 GHz 51.68 dBµV 2

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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# Vertical



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



Model	EMK401
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 n20
Test voltage	5Vdc

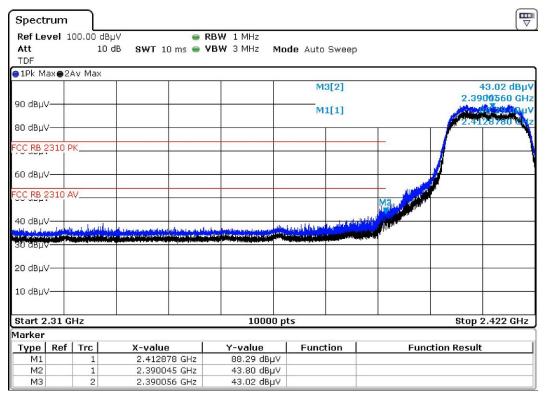
Spect	rum									
Att TDF	Second Collection and Collection			● RBW 1 M ● VBW 3 M		<b>de</b> Auto	Sweep			``````````````````````````````````````
⊖1Pk M	axe2.	Av Max								
						IVE	3[2]		120	51-96 08µv
90 dBµ\						M	1[1]		1	94.89 dBbV
80 dBu\									2.4	128780 GH2
									1	
FCC RB 2	2310 F	РК				_				
60 dBµ\	,							M3	-	
FCC RB 2	2310 A	W_								
00 400.										
47 dBuy	(Lawnin the	147 117 TURN	ningi ana ang ini at pulan ini 1900 ang Ang ini pulang kana ang katalan ang a		and the second	and the state of a second	A LANGE			-
						ang pangang pangang pangang Pangang pangang				
30 dBµ\										
20 dBµ\	/									
10 dBµ\										
Start 2	.31 G	Hz			10000 pt	ts			Sto	2.422 GHz
Marker										
Туре	Ref	Trc	X-value	Y-va		Func	tion	Fur	iction Resu	ılt
M1 M2		1	2.412878 G		89 dBµV					
M2 M3		1	2.390045 G 2.390078 G		34 dBµV 96 dBµV					
			2,350010 G	12   JI.1	o dob t					00.44.0000

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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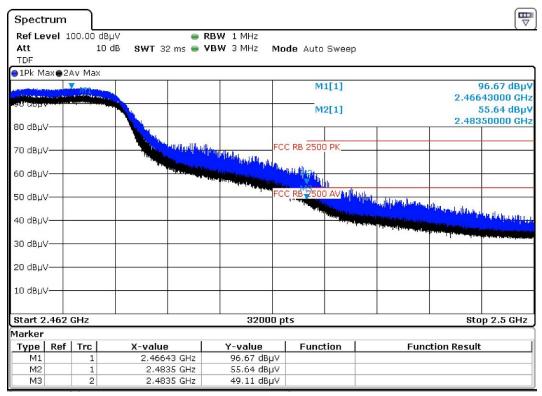
### Vertical



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



Model	EMK401
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 n20
Test voltage	5Vdc

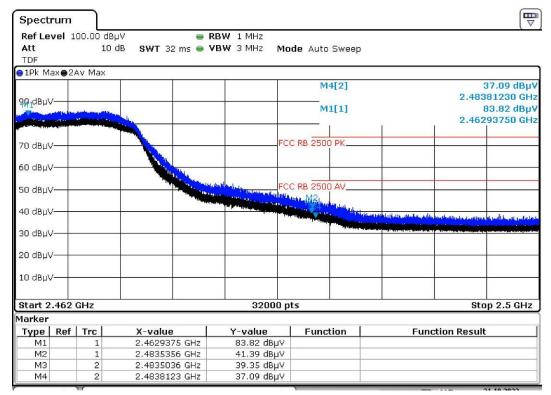


Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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# Vertical



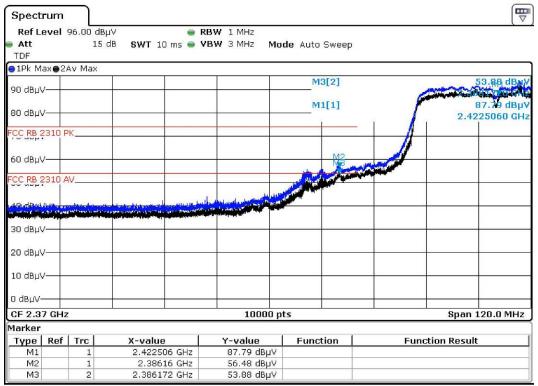
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



Model	EMK401
Operation Mode (worst case)	Mode 1 @2422 MHz, IEEE 802.11 n40
Test voltage	5Vdc

# Results

# Horizontal

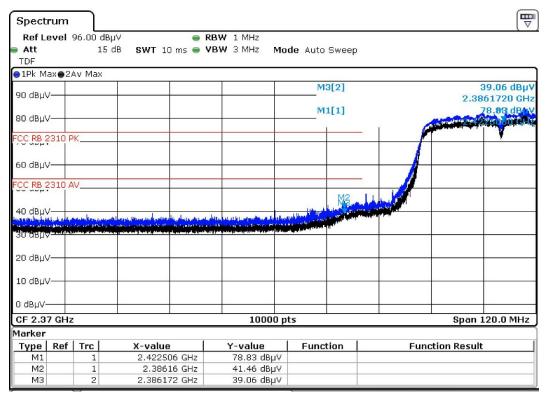


Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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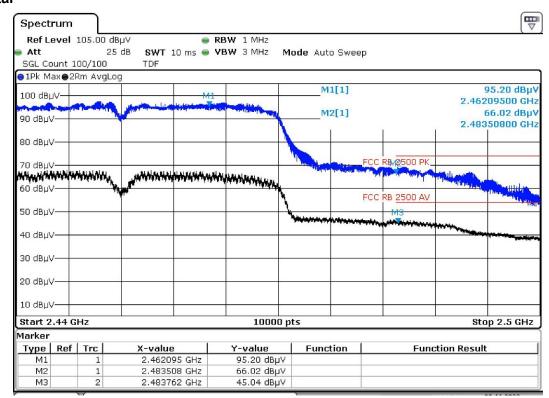
# Vertical



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



Model	EMK401
Operation Mode (worst case)	Mode 1 @2452 MHz, IEEE 802.11 n40
Test voltage	5Vdc

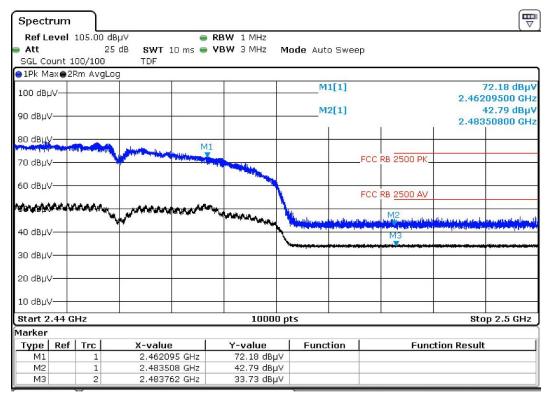


Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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### Vertical



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



Model	EMK401
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 ax20
Test voltage	5Vdc

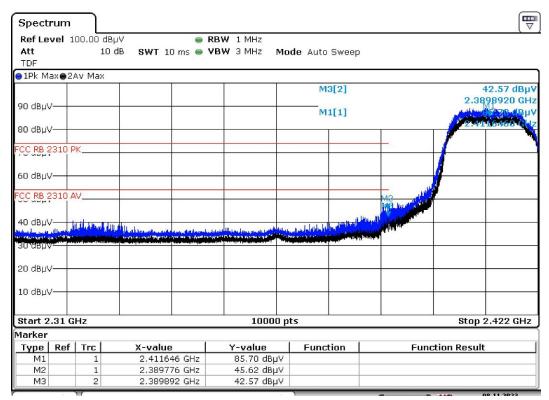
Spect	rum									
Ref Le Att TDF	vel 1			_	RBW 1 MHz VBW 3 MHz	Mode Auto	Sweep			
⊖1Pk M	ax <b>e</b> 2	Av Max	<							
90 dBµ	-						3[2] 1[1]		and the second s	18.35 dBµV 94.22 dBµ2 16460 GHz
80 dBµ'									1 2.11	10100 0112
FCCRB	2310	РК							//	
60 dBµʻ	-							M2	/	
FCC RB	2310/	4V								
40. dBu)	Variation of					a tan bar ang sa	Lall All			
30 dBµ	cella davia.		Difference of the protocol of freedown the firm							
20 dBµʻ	v-+									
10 dBµ՝	-			_						
Start 2	2.31 0	Hz			1000	0 pts			Stop :	2.422 GHz
Marker										
Туре	Ref		X-val		Y-value	Func	tion	Fun	ction Result	
M1		1		1646 GHz	94.22 dB					
M2 M3		1		9787 GHz 9915 GHz	53.05 dB 48.35 dB					

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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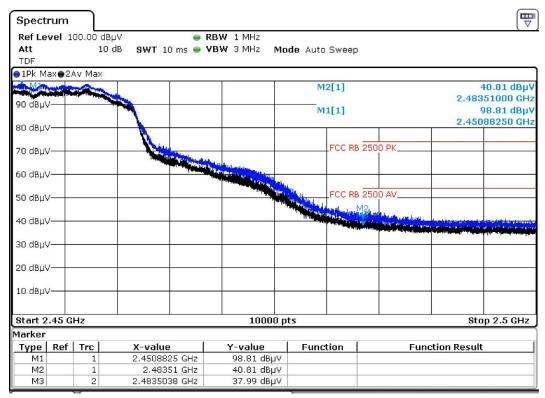
### Vertical



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



Model	EMK401
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 n20
Test voltage	5Vdc

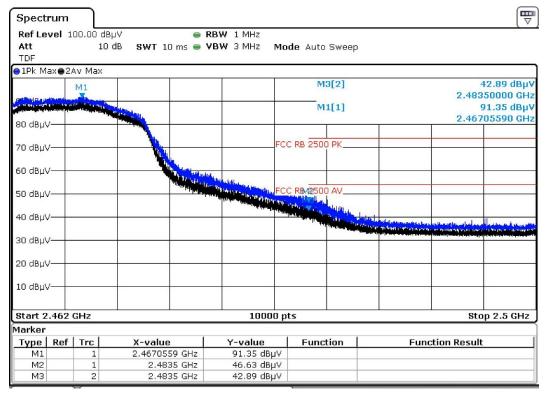


Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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# Vertical



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



Model	EMK401
Operation Mode (worst case)	Mode 1 @2422 MHz, IEEE 802.11 n40
Test voltage	5Vdc

# Results

# Horizontal

Spectrum									E
Ref Level 3	100.00	dBµV		RBW 1 MHz					,
Att		5. <b>•</b>	32 ms 🔵 '	<b>VBW</b> 3 MHz	Mode Auto	Sweep			
SGL Count :	100/100	) TDF							
●1Pk Max●2	AV AVQ	Loq							
					M	3[2]		_	46.33 dB <u>µ\</u>
									returnit in the state
90 dBµV					M	1[1]		1	93.65 dBµ\
80 dBuV								2.420	043030 GH
FCC RB 2310 I	PK							<u>//</u>	
/							IVIZ	1 11000	, 179 1411 1411 1411 1411 1411 179 141 141 141 141 141 141 141 141 141 14
60 dBµV							A CONTRACTOR OF	a particular of	detain a second
					May 1	and and an		1	
FCC RB 2310 /	AV				Martin Contraction		M3		
					Mary Market			line.	
40 dBuV	a state the links	alisa da pasta di gan inad	and the state				and the second second		
وي المارية ومعاملاتهم والمالة		and a state of the	and the second second	direct and the second se					
30 dBµV									
*****									
20 dBµV									
10 dBµV					-				
Start 2.31 0	GHz		1	3200	0 pts			Stop	2.422 GHz
Marker								-	
Type   Ref	Trc	X-valı	ie I	Y-value	Funct	tion	Func	tion Result	t
M1	1		303 GHz	93.65 dB					
M2	1		2.39 GHz	64.60 dB					
M3	2	2.390	007 GHz	46.33 dB	γμν				
1	1				D	eady		444	08.11.2023
						0007			19:18:11

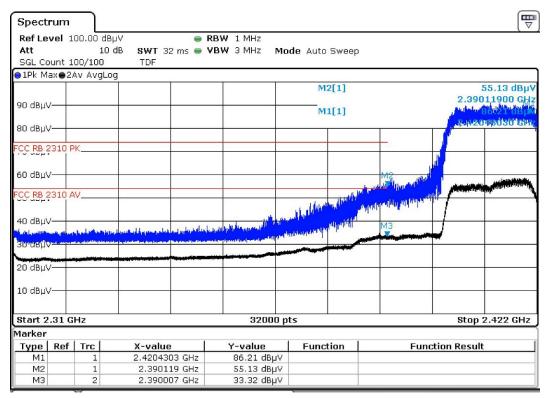
Date: 8.NOV.2023 19:18:10

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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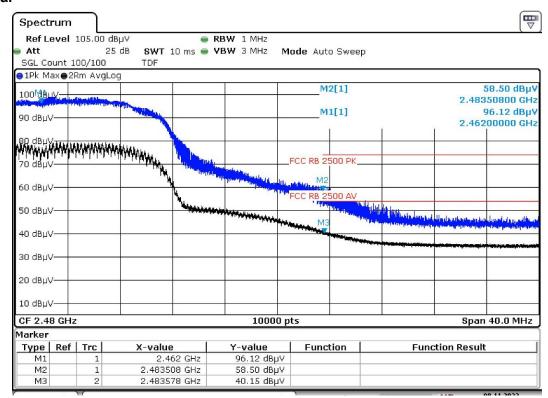
### Vertical



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



Model	EMK401
Operation Mode (worst case)	Mode 1 @2452 MHz, IEEE 802.11 n40
Test voltage	5Vdc

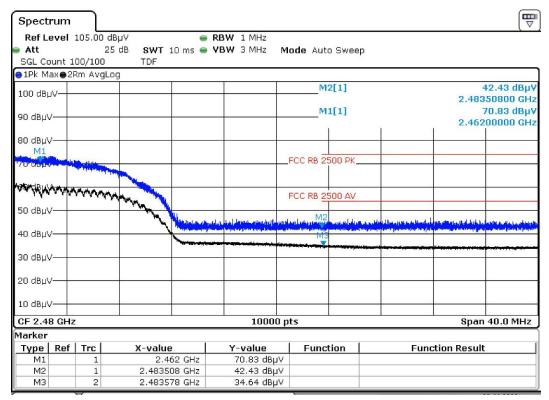


Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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# Vertical



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)



# 4.4 Band Edge

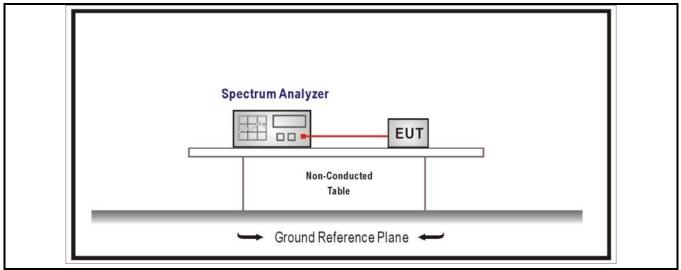
# VERDICT: PASS

Standard	FCC Part 15 Subpart C Parag	FCC Part 15 Subpart C Paragraph 15.247(d)				
RF Output pow	ver (Detection methods)	Limit(dB)				
RF Output po	wer(Average detector)	30dBc(Note1)				
RF Output	power(PK detector)	20dBc(Note2)				

then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at by LEast 30 dB relative to the maximum in-band peak PSD by LEvel in 100 kHz (i.e., 30 dBc).

Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at by least 20 dB relative to the maximum in-band peak PSD by level in 100 kHz (i.e., 20 dBc).

# Test Configuration



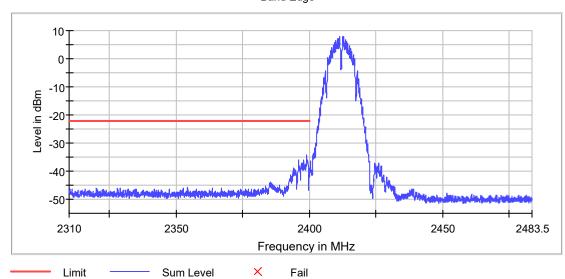
### Performed measurements

Port under test	Anter	Antenna port		
Test method applied	$\square$	Conducted measurement		
	Radiated measurement			
Test setup	Refer to the Annex 3 for test setup photo(s).			
Operating mode(s) used	Mode	Mode 1		
Remark				



# IEEE 802.11 b Results @2412 MHz

Band Edge



### Inband Peak

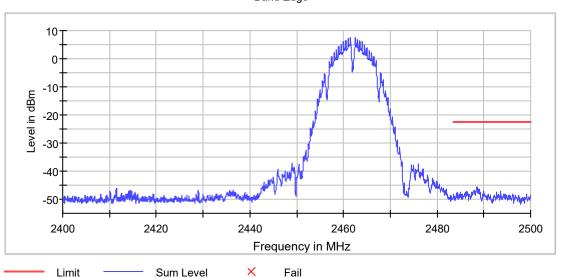
Frequency	Level
(MHz)	(dBm)
2412.0000	8.0

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2399.025000	-34.2	12.2	-22.0	PASS
2398.975000	-34.7	12.6	-22.0	PASS
2398.925000	-35.9	13.8	-22.0	PASS
2395.975000	-36.0	14.0	-22.0	PASS
2397.975000	-36.2	14.2	-22.0	PASS
2399.475000	-36.2	14.2	-22.0	PASS
2398.025000	-36.4	14.4	-22.0	PASS
2399.525000	-36.5	14.4	-22.0	PASS
2399.075000	-36.5	14.5	-22.0	PASS
2399.225000	-36.6	14.5	-22.0	PASS
2399.275000	-36.6	14.6	-22.0	PASS
2399.125000	-36.6	14.6	-22.0	PASS
2396.025000	-36.7	14.7	-22.0	PASS
2399.175000	-36.9	14.8	-22.0	PASS
2396.975000	-37.1	15.0	-22.0	PASS



# IEEE 802.11 b Results @2462 MHz

Band Edge



# Inband Peak

Frequency	Level
(MHz)	(dBm)
2462.0000	7.6

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2488.625000	-45.7	23.2	-22.4	PASS
2488.475000	-45.9	23.4	-22.4	PASS
2488.575000	-46.0	23.5	-22.4	PASS
2488.525000	-46.1	23.6	-22.4	PASS
2488.975000	-46.3	23.9	-22.4	PASS
2488.925000	-46.5	24.1	-22.4	PASS
2488.375000	-46.7	24.2	-22.4	PASS
2488.425000	-46.9	24.4	-22.4	PASS
2487.925000	-46.9	24.5	-22.4	PASS
2489.025000	-47.0	24.5	-22.4	PASS
2486.325000	-47.0	24.6	-22.4	PASS
2487.775000	-47.0	24.6	-22.4	PASS
2488.825000	-47.0	24.6	-22.4	PASS
2487.875000	-47.1	24.6	-22.4	PASS
2489.975000	-47.1	24.7	-22.4	PASS



# IEEE 802.11 g Results @2412 MHz

Band Edge 5 باولاراريها 0 -10 Level in dBm -20 -30 -40 -50 2350 2400 2450 2310 2483.5 Frequency in MHz

Limit — Sum Level × Fail

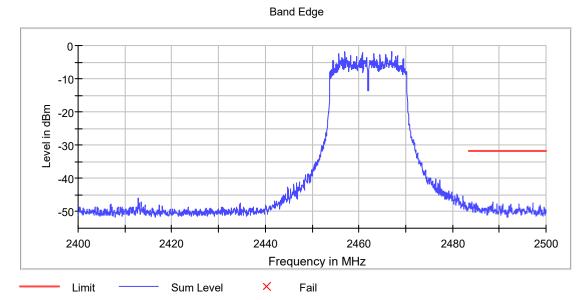
### Inband Peak

Frequency	Level
(MHz)	(dBm)
2412.0000	2.8

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2399.975000	-29.2	1.9	-27.2	PASS
2399.925000	-29.2	2.0	-27.2	PASS
2398.575000	-29.4	2.2	-27.2	PASS
2398.625000	-29.4	2.2	-27.2	PASS
2398.525000	-29.7	2.5	-27.2	PASS
2399.475000	-29.9	2.7	-27.2	PASS
2399.525000	-30.1	2.9	-27.2	PASS
2399.875000	-30.4	3.2	-27.2	PASS
2399.825000	-30.6	3.4	-27.2	PASS
2399.275000	-30.7	3.5	-27.2	PASS
2399.225000	-30.7	3.5	-27.2	PASS
2399.775000	-30.8	3.6	-27.2	PASS
2399.125000	-30.8	3.6	-27.2	PASS
2399.175000	-30.8	3.6	-27.2	PASS
2399.725000	-31.0	3.8	-27.2	PASS



# IEEE 802.11 g Results @2462 MHz



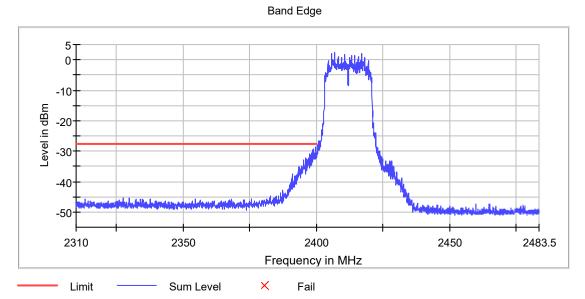
### Inband Peak

Frequency	Level
(MHz)	(dBm)
2462.0000	-1.7

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2488.625000	-47.1	15.3	-31.7	PASS
2484.175000	-47.2	15.5	-31.7	PASS
2483.725000	-47.3	15.6	-31.7	PASS
2483.675000	-47.3	15.6	-31.7	PASS
2483.525000	-47.4	15.6	-31.7	PASS
2497.175000	-47.5	15.7	-31.7	PASS
2488.675000	-47.5	15.8	-31.7	PASS
2485.075000	-47.5	15.8	-31.7	PASS
2485.025000	-47.6	15.8	-31.7	PASS
2497.225000	-47.6	15.9	-31.7	PASS
2483.575000	-47.7	15.9	-31.7	PASS
2494.225000	-47.7	16.0	-31.7	PASS
2490.775000	-47.7	16.0	-31.7	PASS
2488.575000	-47.8	16.1	-31.7	PASS
2484.625000	-47.8	16.1	-31.7	PASS



# IEEE 802.11 n20 Results @2412 MHz



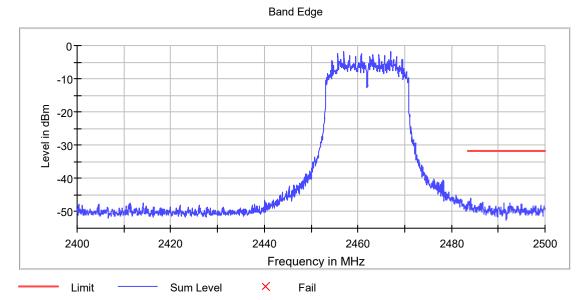
### Inband Peak

Frequency	Level
(MHz)	(dBm)
2412.0000	2.5

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2399.775000	-28.5	1.0	-27.5	PASS
2399.875000	-28.8	1.2	-27.5	PASS
2399.825000	-28.9	1.3	-27.5	PASS
2399.925000	-28.9	1.4	-27.5	PASS
2398.875000	-29.1	1.6	-27.5	PASS
2399.725000	-29.4	1.9	-27.5	PASS
2398.825000	-29.6	2.0	-27.5	PASS
2398.575000	-29.6	2.1	-27.5	PASS
2398.925000	-29.8	2.2	-27.5	PASS
2398.525000	-29.9	2.3	-27.5	PASS
2398.625000	-30.1	2.6	-27.5	PASS
2399.125000	-30.5	2.9	-27.5	PASS
2399.475000	-30.6	3.1	-27.5	PASS
2399.175000	-30.6	3.1	-27.5	PASS
2398.225000	-30.6	3.1	-27.5	PASS



# IEEE 802.11 n20 Results @2462 MHz



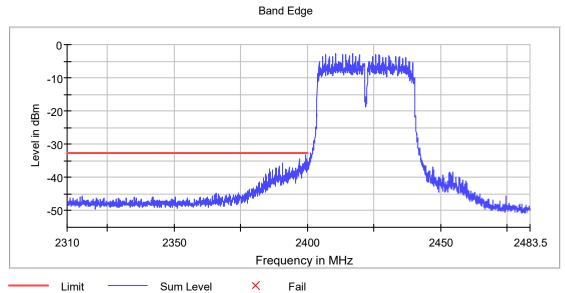
### Inband Peak

Frequency	Level
(MHz)	(dBm)
2462.0000	-1.4

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2484.075000	-46.0	14.1	-31.9	PASS
2484.125000	-46.2	14.4	-31.9	PASS
2483.825000	-47.0	15.1	-31.9	PASS
2486.625000	-47.1	15.2	-31.9	PASS
2483.525000	-47.1	15.2	-31.9	PASS
2486.225000	-47.3	15.5	-31.9	PASS
2483.725000	-47.3	15.5	-31.9	PASS
2483.875000	-47.3	15.5	-31.9	PASS
2492.475000	-47.4	15.6	-31.9	PASS
2483.775000	-47.5	15.6	-31.9	PASS
2483.575000	-47.5	15.7	-31.9	PASS
2484.025000	-47.5	15.7	-31.9	PASS
2491.225000	-47.5	15.7	-31.9	PASS
2492.525000	-47.6	15.8	-31.9	PASS
2491.175000	-47.7	15.8	-31.9	PASS



# IEEE 802.11 n40 Results @2422 MHz



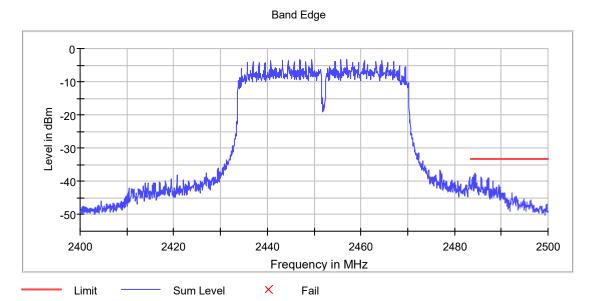
# Inband Peak

Frequency	Level
(MHz)	(dBm)
2422.0000	-2.8

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2399.475000	-33.3	0.6	-32.8	PASS
2399.525000	-34.2	1.5	-32.8	PASS
2399.425000	-34.4	1.6	-32.8	PASS
2399.875000	-34.5	1.7	-32.8	PASS
2397.025000	-34.5	1.8	-32.8	PASS
2399.825000	-34.7	1.9	-32.8	PASS
2399.925000	-34.7	1.9	-32.8	PASS
2396.975000	-34.7	1.9	-32.8	PASS
2399.775000	-35.2	2.5	-32.8	PASS
2399.975000	-35.4	2.7	-32.8	PASS
2399.575000	-35.5	2.7	-32.8	PASS
2398.825000	-35.5	2.7	-32.8	PASS
2399.175000	-35.5	2.8	-32.8	PASS
2390.725000	-35.8	3.0	-32.8	PASS
2398.275000	-35.8	3.1	-32.8	PASS



# IEEE 802.11 n20 Results @2462 MHz



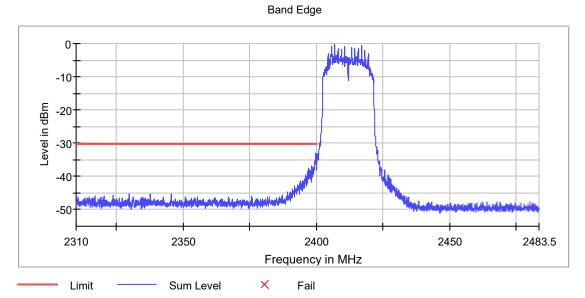
### Inband Peak

Frequency	Level	
(MHz)	(dBm)	
2452.0000	-3.3	

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2484.475000	-37.5	4.2	-33.3	PASS
2484.525000	-37.9	4.7	-33.3	PASS
2484.425000	-38.1	4.8	-33.3	PASS
2484.225000	-38.1	4.9	-33.3	PASS
2484.275000	-38.3	5.0	-33.3	PASS
2485.725000	-38.7	5.4	-33.3	PASS
2483.875000	-38.7	5.4	-33.3	PASS
2485.675000	-38.9	5.7	-33.3	PASS
2483.925000	-39.0	5.7	-33.3	PASS
2487.225000	-39.0	5.8	-33.3	PASS
2487.275000	-39.1	5.8	-33.3	PASS
2485.775000	-39.4	6.2	-33.3	PASS
2484.575000	-39.5	6.2	-33.3	PASS
2484.175000	-39.6	6.3	-33.3	PASS
2483.825000	-39.7	6.4	-33.3	PASS



# IEEE 802.11 ax20 Results @2412 MHz



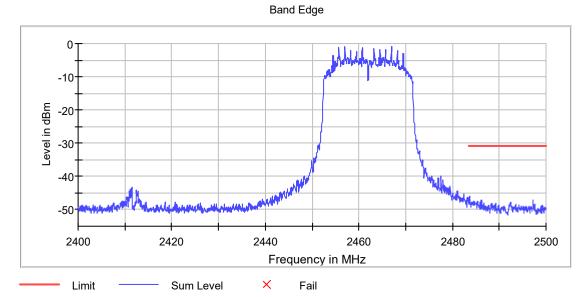
#### Inband Peak

Frequency	Level
(MHz)	(dBm)
2412.0000	-0.3

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2399.925000	-33.1	2.8	-30.3	PASS
2399.975000	-33.4	3.1	-30.3	PASS
2399.875000	-33.7	3.4	-30.3	PASS
2399.825000	-35.1	4.9	-30.3	PASS
2399.725000	-35.1	4.9	-30.3	PASS
2399.675000	-35.1	4.9	-30.3	PASS
2399.575000	-35.4	5.1	-30.3	PASS
2399.525000	-35.4	5.2	-30.3	PASS
2399.775000	-35.9	5.6	-30.3	PASS
2399.625000	-36.2	5.9	-30.3	PASS
2399.475000	-36.4	6.1	-30.3	PASS
2399.225000	-36.9	6.6	-30.3	PASS
2399.275000	-36.9	6.6	-30.3	PASS
2398.375000	-37.0	6.7	-30.3	PASS
2398.325000	-37.0	6.8	-30.3	PASS



# IEEE 802.11 ax20 Results @2462 MHz



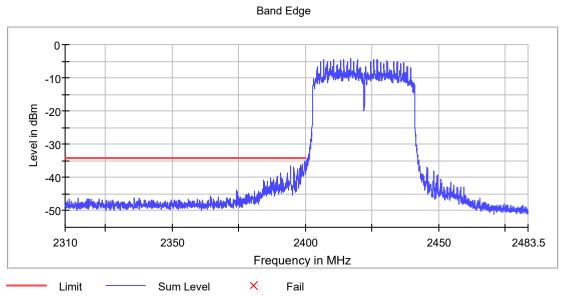
#### **Inband Peak**

Frequency	Level
(MHz)	(dBm)
2462.0000	-0.8

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2483.625000	-46.1	15.3	-30.8	PASS
2483.575000	-46.5	15.7	-30.8	PASS
2483.525000	-47.0	16.2	-30.8	PASS
2486.225000	-47.0	16.2	-30.8	PASS
2497.225000	-47.1	16.3	-30.8	PASS
2486.175000	-47.2	16.4	-30.8	PASS
2483.775000	-47.2	16.4	-30.8	PASS
2483.825000	-47.3	16.5	-30.8	PASS
2484.575000	-47.3	16.5	-30.8	PASS
2485.375000	-47.5	16.7	-30.8	PASS
2483.675000	-47.6	16.8	-30.8	PASS
2484.325000	-47.7	16.9	-30.8	PASS
2485.325000	-47.7	16.9	-30.8	PASS
2497.175000	-47.8	17.0	-30.8	PASS
2484.175000	-47.8	17.0	-30.8	PASS



# IEEE 802.11 ax40 Results @2422 MHz



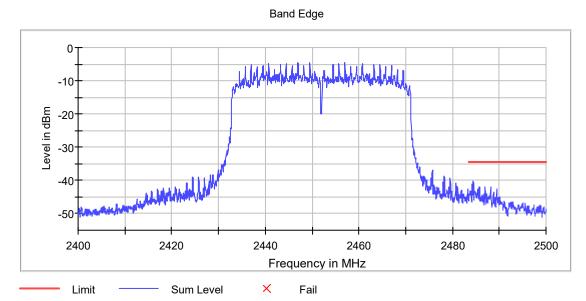
## Inband Peak

Frequency	Level
(MHz)	(dBm)
2422.0000	-4.2

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2399.875000	-34.9	0.7	-34.2	PASS
2399.925000	-35.0	0.8	-34.2	PASS
2399.975000	-35.8	1.6	-34.2	PASS
2398.875000	-35.9	1.7	-34.2	PASS
2399.825000	-35.9	1.7	-34.2	PASS
2399.725000	-36.0	1.8	-34.2	PASS
2399.775000	-36.1	1.9	-34.2	PASS
2399.625000	-36.2	2.0	-34.2	PASS
2398.925000	-36.3	2.1	-34.2	PASS
2398.225000	-36.4	2.2	-34.2	PASS
2398.825000	-36.4	2.2	-34.2	PASS
2398.275000	-36.5	2.3	-34.2	PASS
2399.675000	-36.5	2.3	-34.2	PASS
2394.525000	-36.5	2.3	-34.2	PASS
2394.475000	-36.7	2.5	-34.2	PASS



# IEEE 802.11 ax20 Results @2462 MHz



#### Inband Peak

Frequency	Level
(MHz)	(dBm)
2452.0000	-4.5

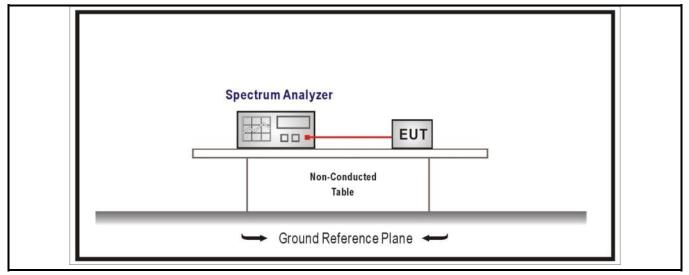
Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2484.475000	-40.1	5.6	-34.5	PASS
2484.525000	-40.7	6.2	-34.5	PASS
2484.225000	-41.1	6.6	-34.5	PASS
2484.425000	-41.4	6.9	-34.5	PASS
2484.275000	-41.4	6.9	-34.5	PASS
2488.225000	-41.9	7.4	-34.5	PASS
2485.725000	-41.9	7.4	-34.5	PASS
2486.975000	-41.9	7.5	-34.5	PASS
2488.175000	-42.0	7.5	-34.5	PASS
2485.775000	-42.0	7.5	-34.5	PASS
2488.275000	-42.1	7.6	-34.5	PASS
2487.025000	-42.3	7.9	-34.5	PASS
2485.375000	-42.5	8.0	-34.5	PASS
2486.925000	-42.5	8.0	-34.5	PASS
2485.425000	-42.6	8.1	-34.5	PASS



# 4.5 Duty cycle

VERDICT: PASS

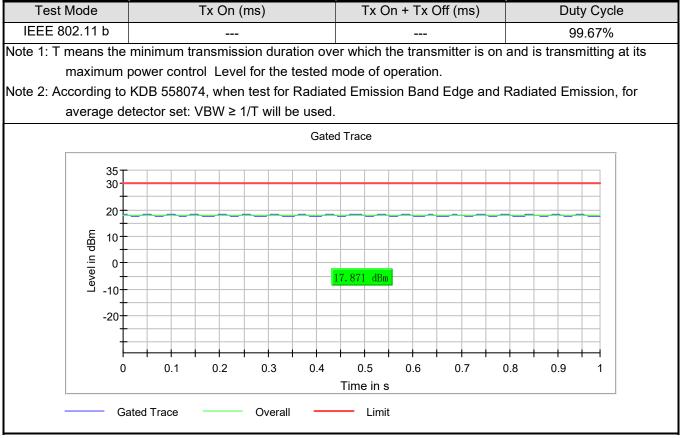
**Test Configuration** 



## Performed measurements

Port under test	Antenna port	
Test method applied	Conducted measurement	
		Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark		

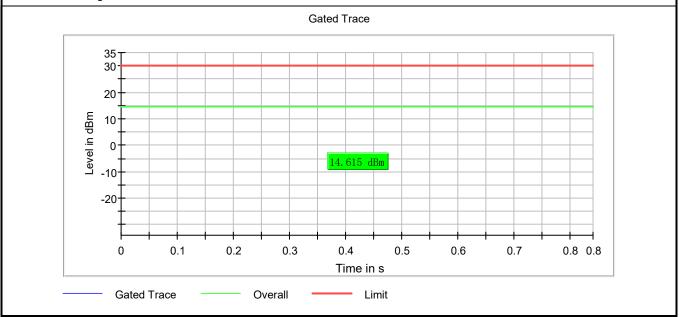




Test Mode	Tx On (ms)	Tx On + Tx Off (ms)	Duty Cycle
IEEE 802.11 g			94.143%
Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its			

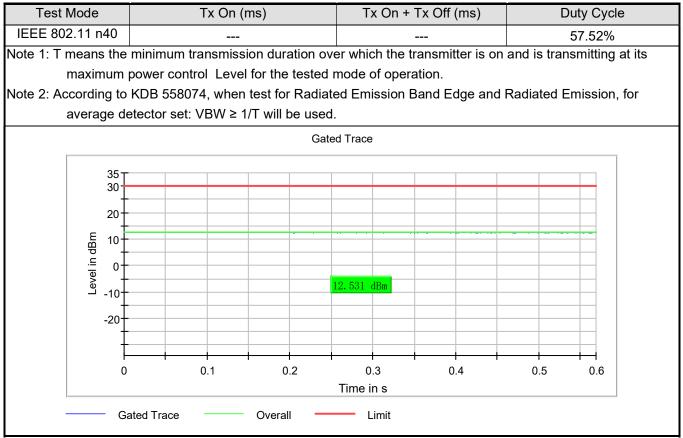
maximum power control Level for the tested mode of operation.

Note 2: According to KDB 558074, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ≥ 1/T will be used.

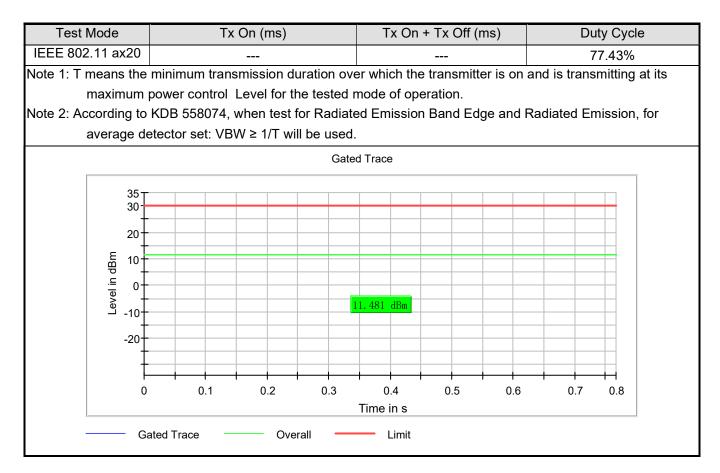


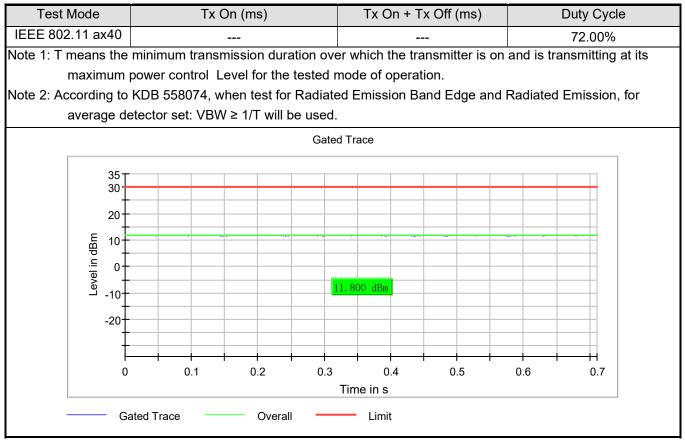










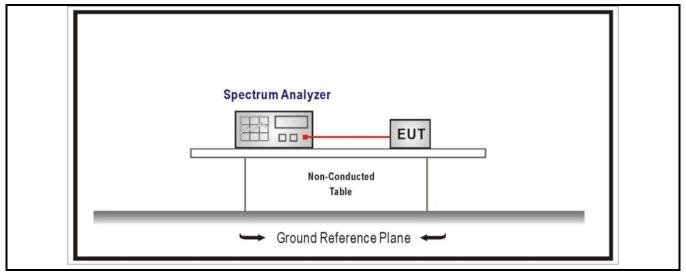




# 4.6 DTS Bandwidth VERDICT: PASS

Standard	FCC Part 15 Subpart C Paragraph 15.247 (a)(2)	
Systems using digital modulat shall be at by least 500 kHz	ion techniques operate in the 2400-2483.5 MHz .The minimum 6 dB bandwidth	

## Test Configuration



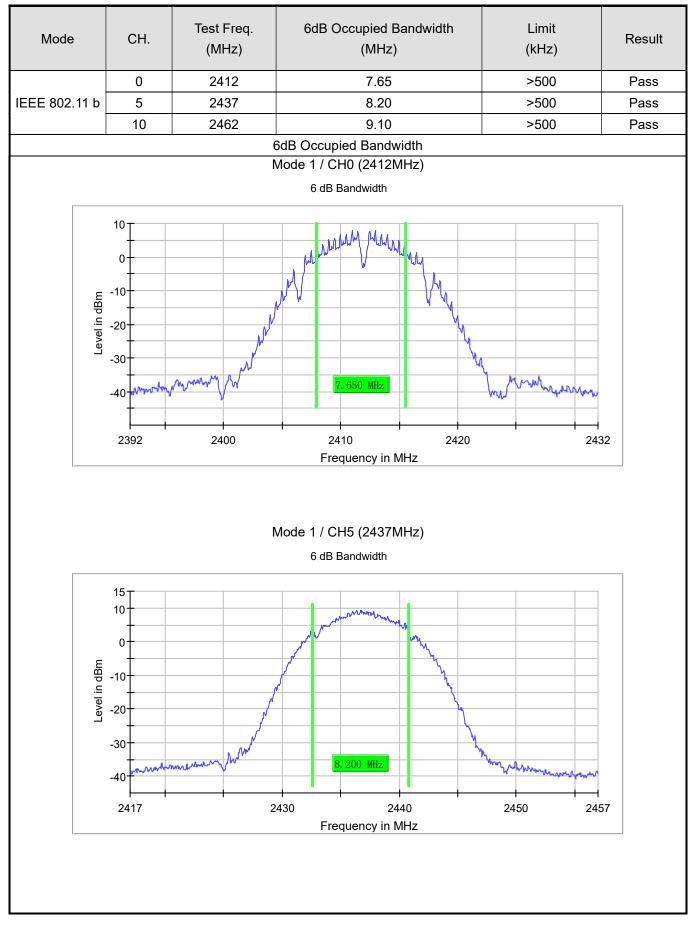
## Performed measurements

Port under test	Antenna port	
Test method applied	Conducted measurement	
	Radiated measurement	
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark		

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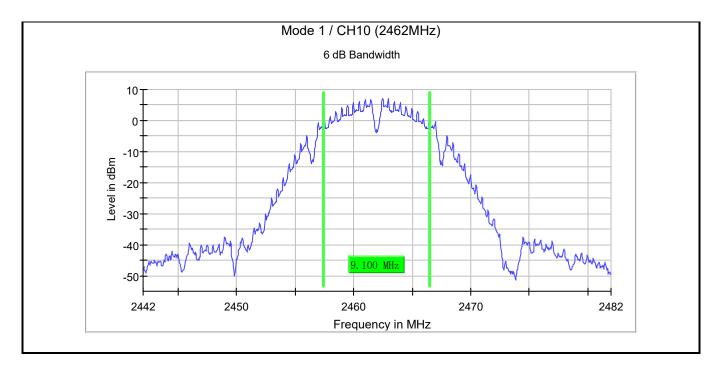


# Results

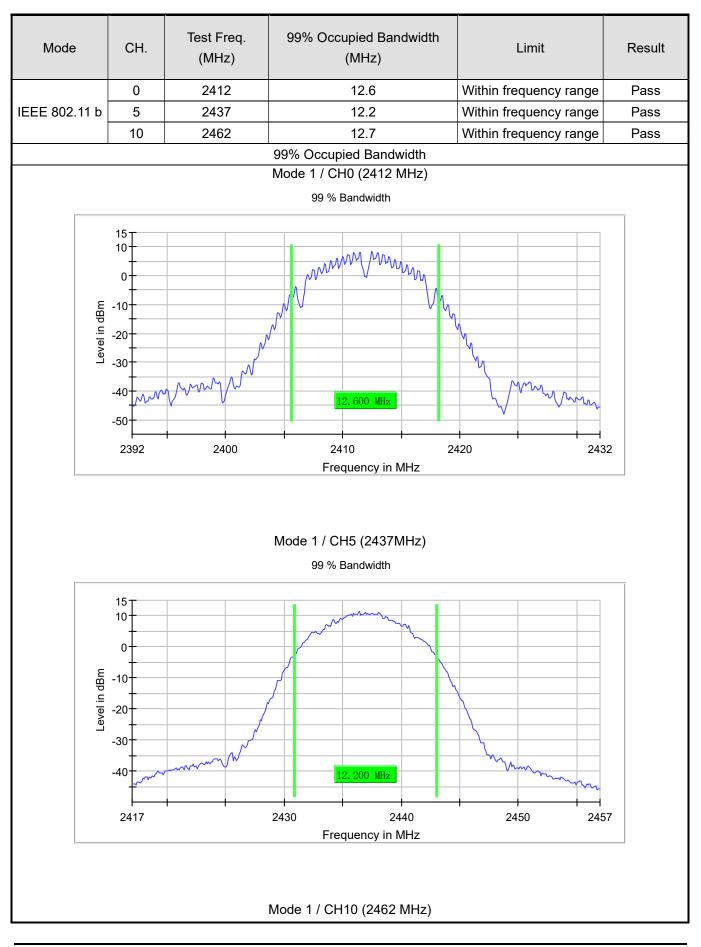


Report no.: 4909379.59



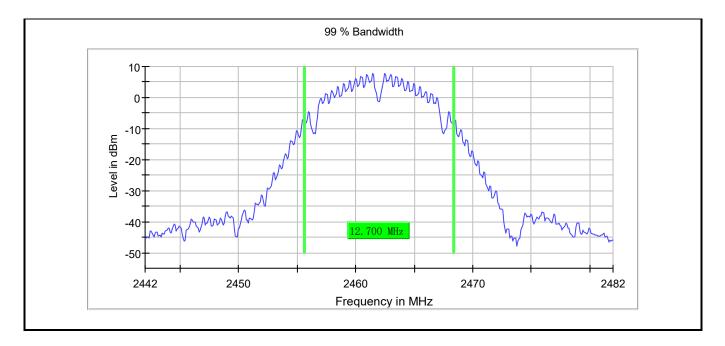




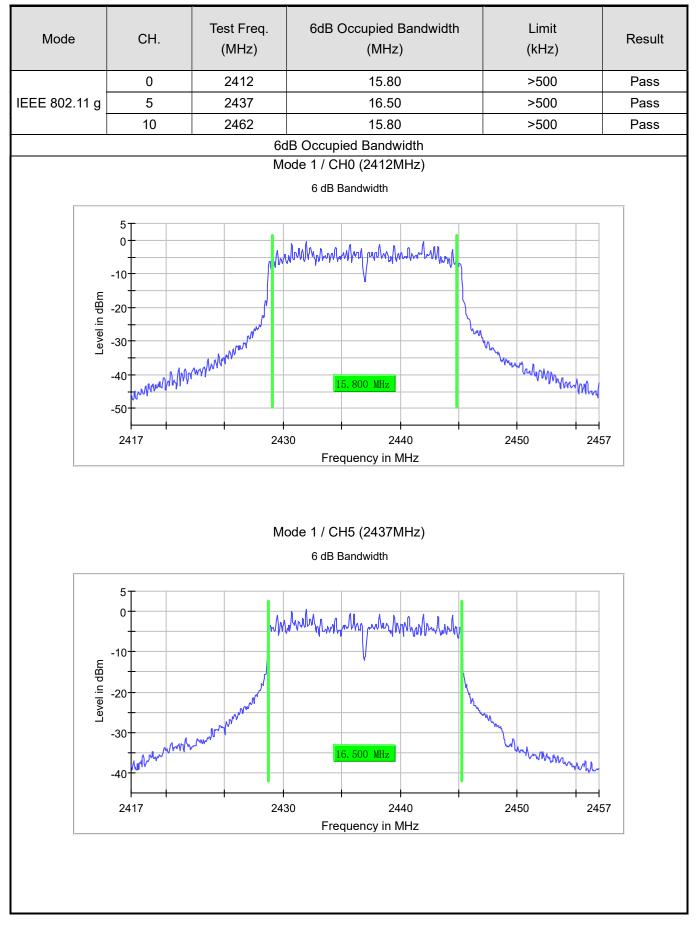


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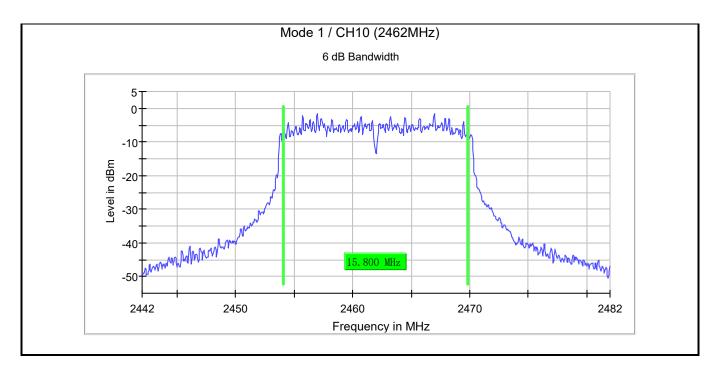




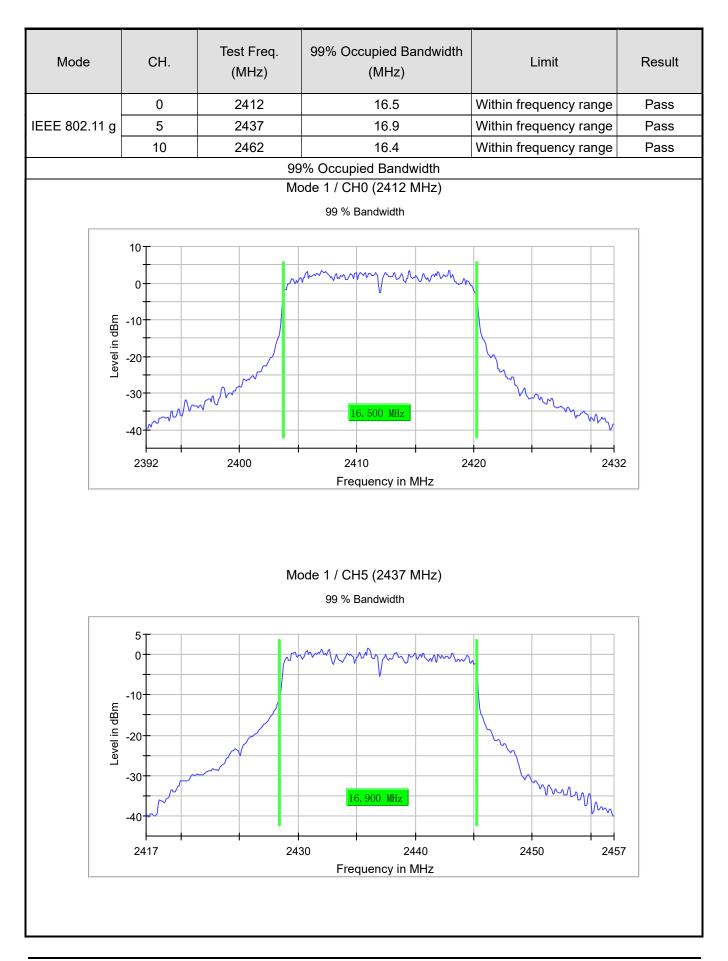


Report no.: 4909379.59

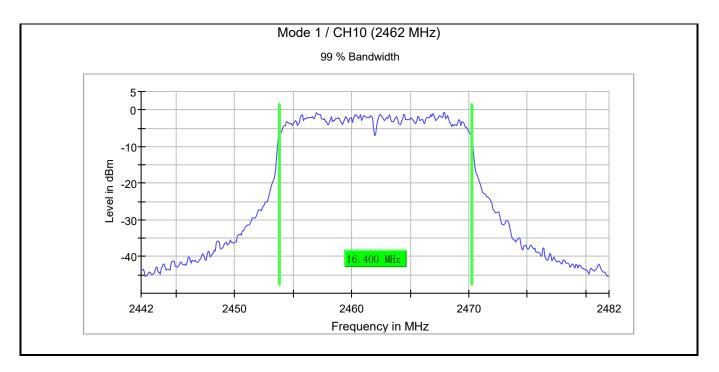




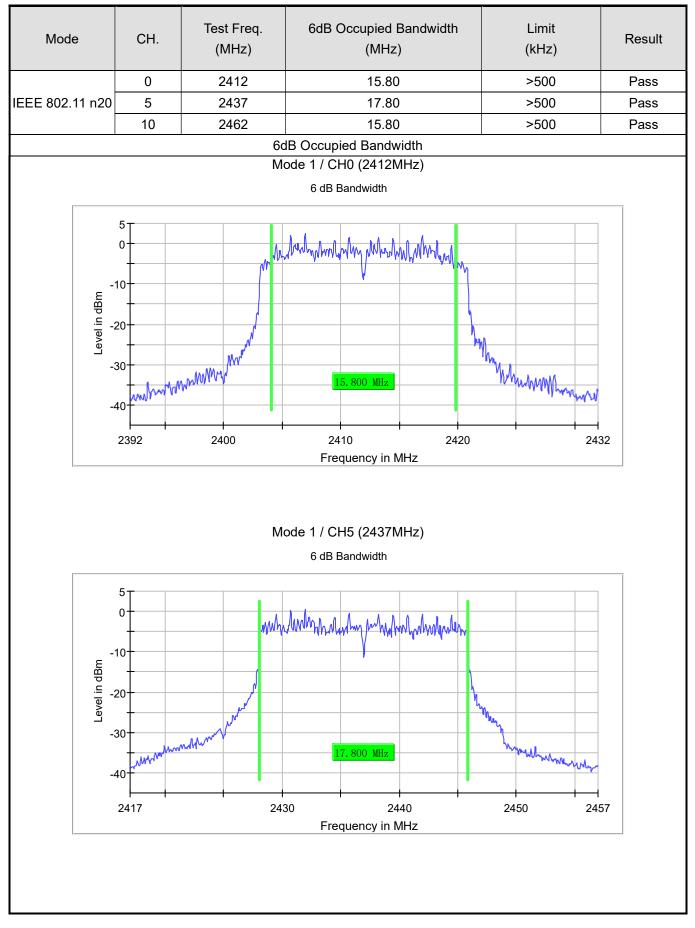






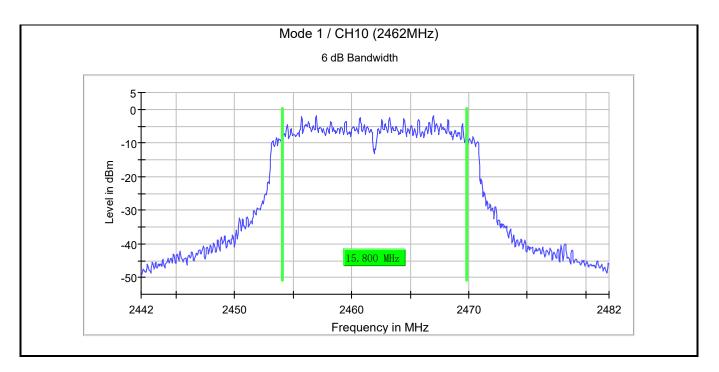




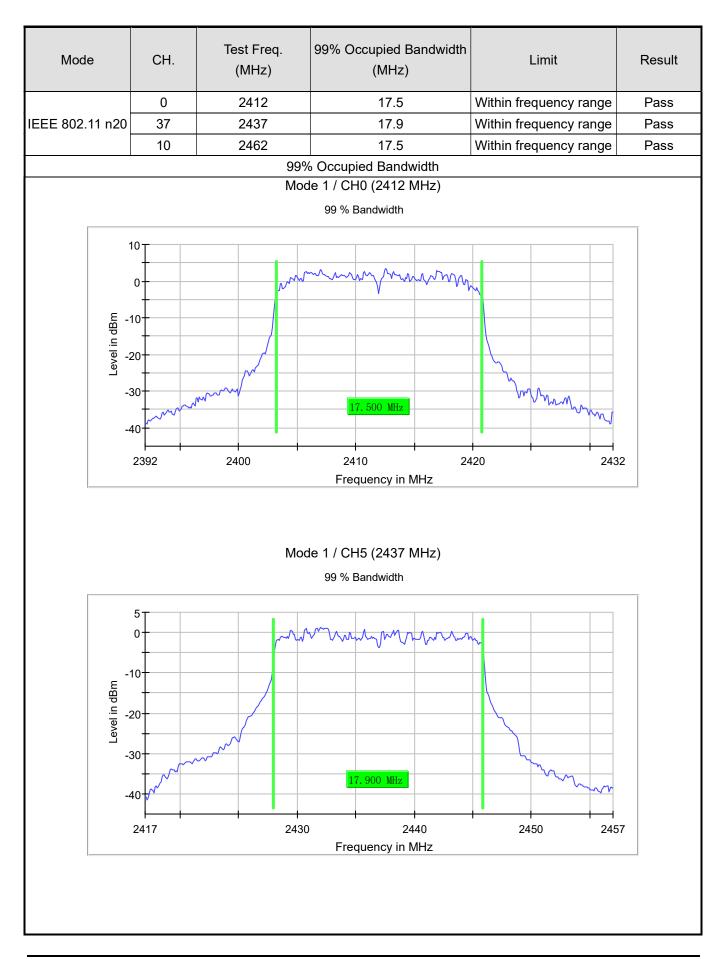


Report no.: 4909379.59

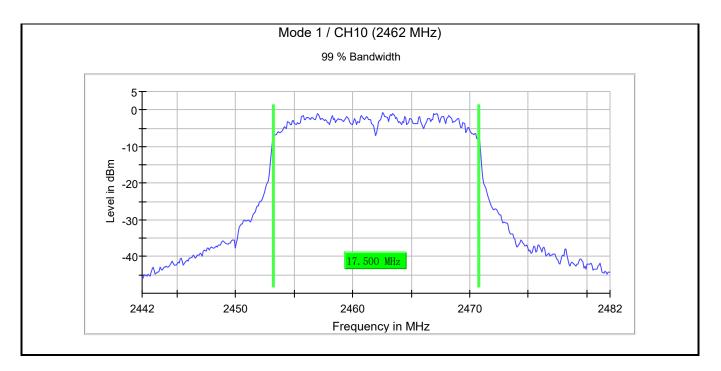




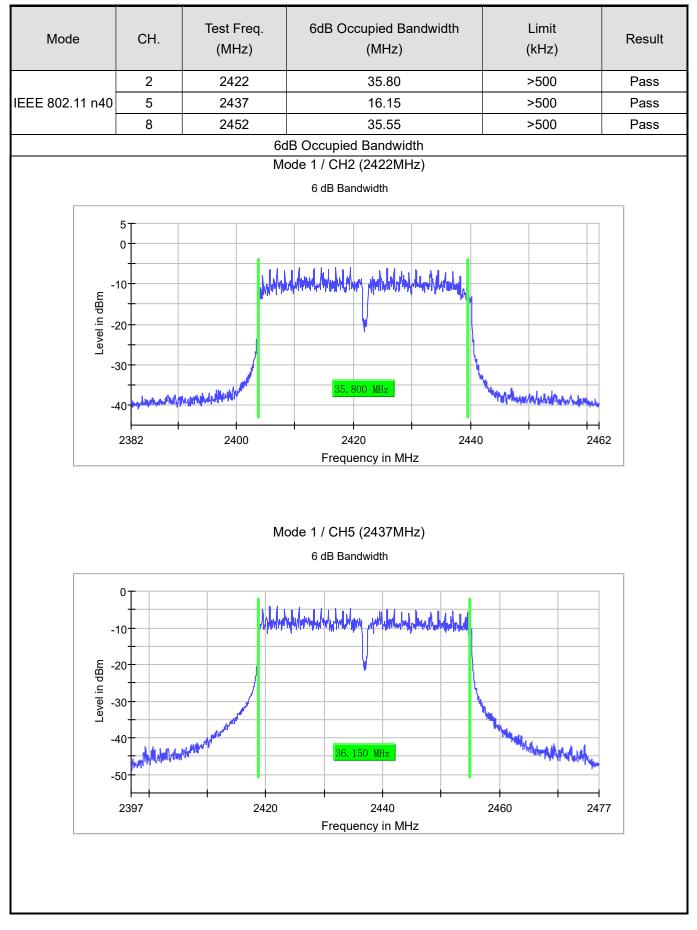




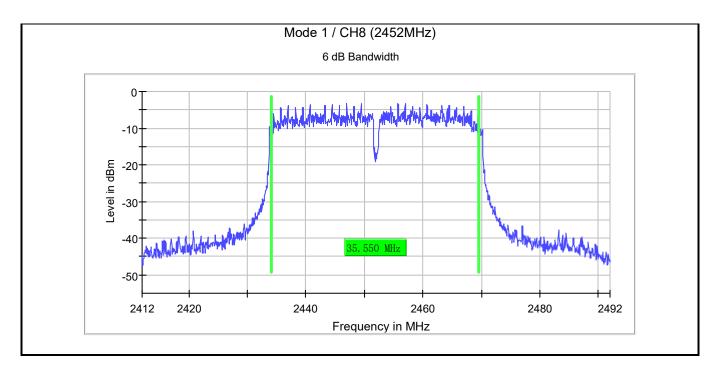




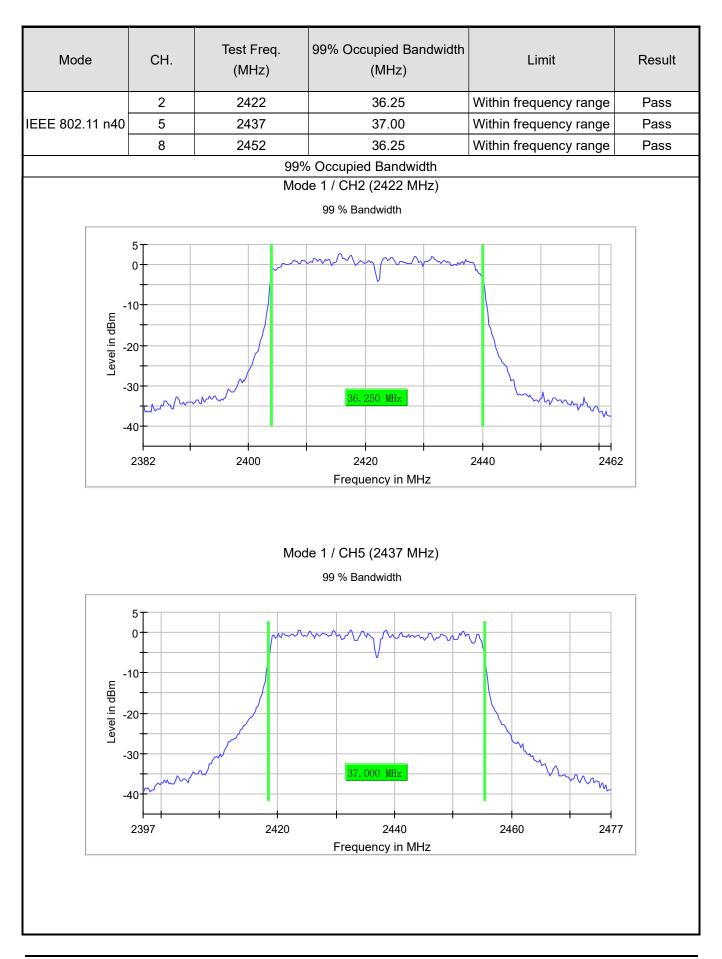




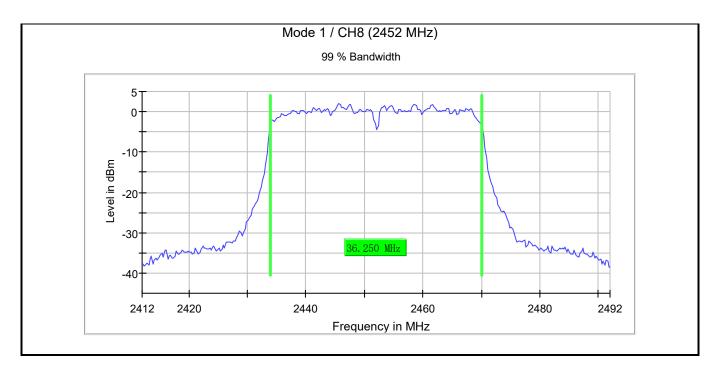




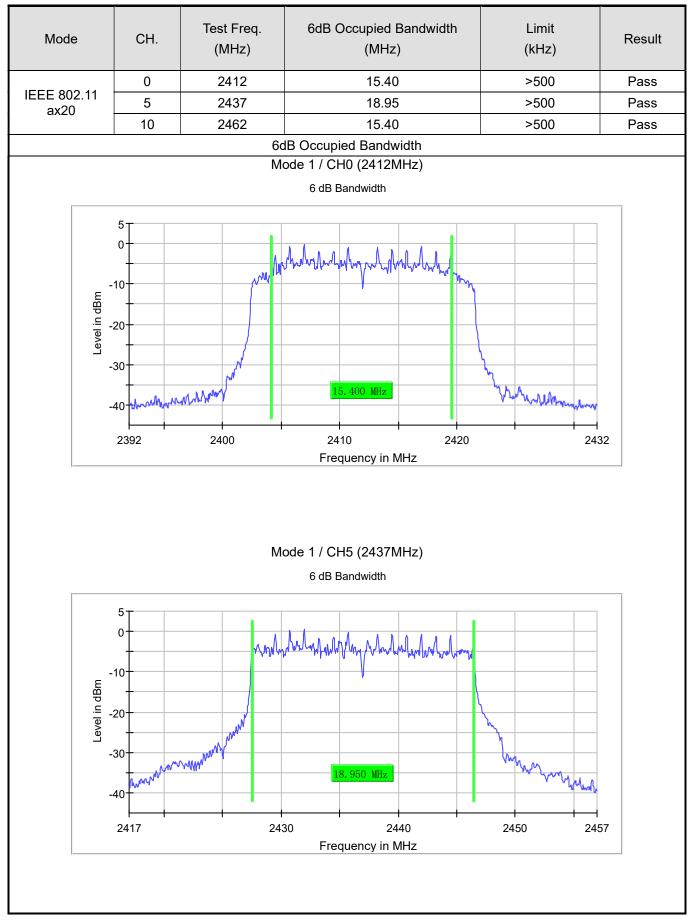




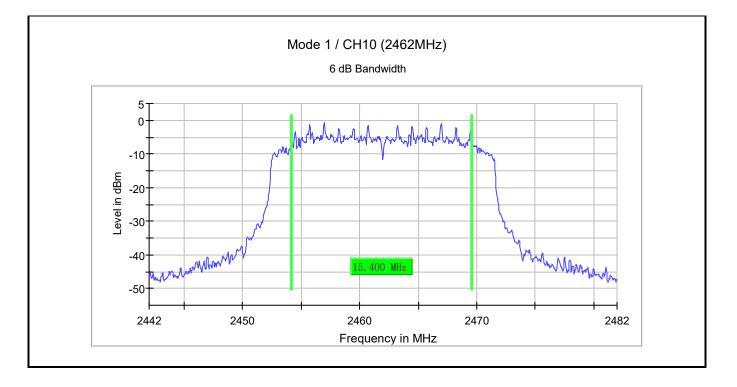






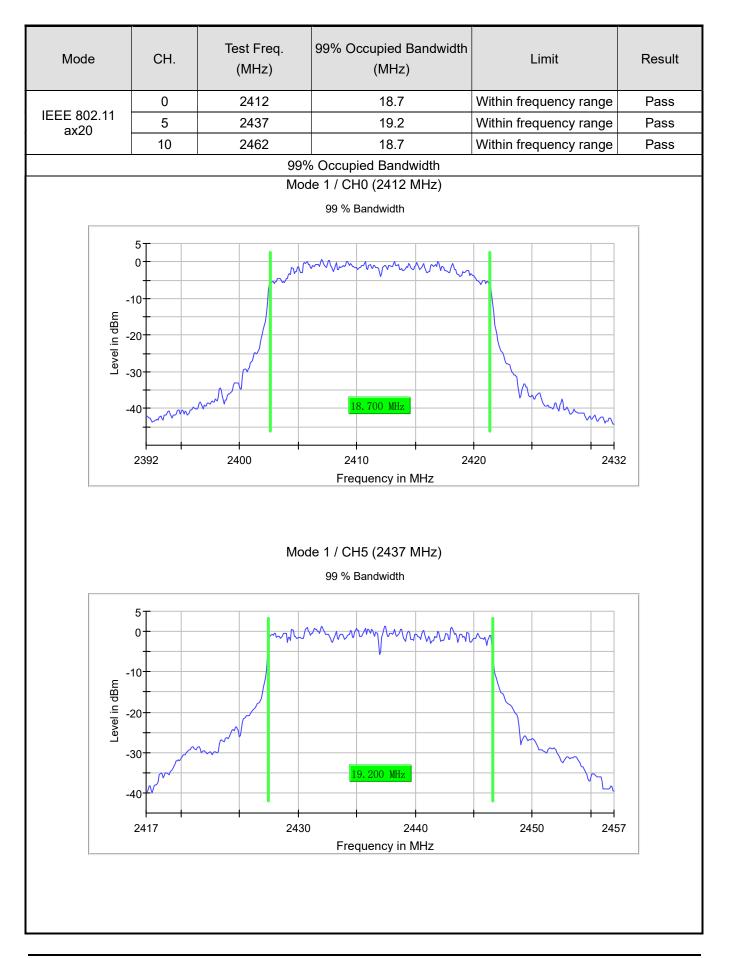




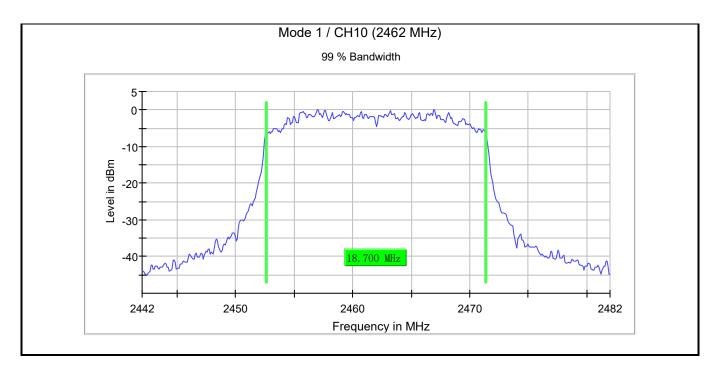


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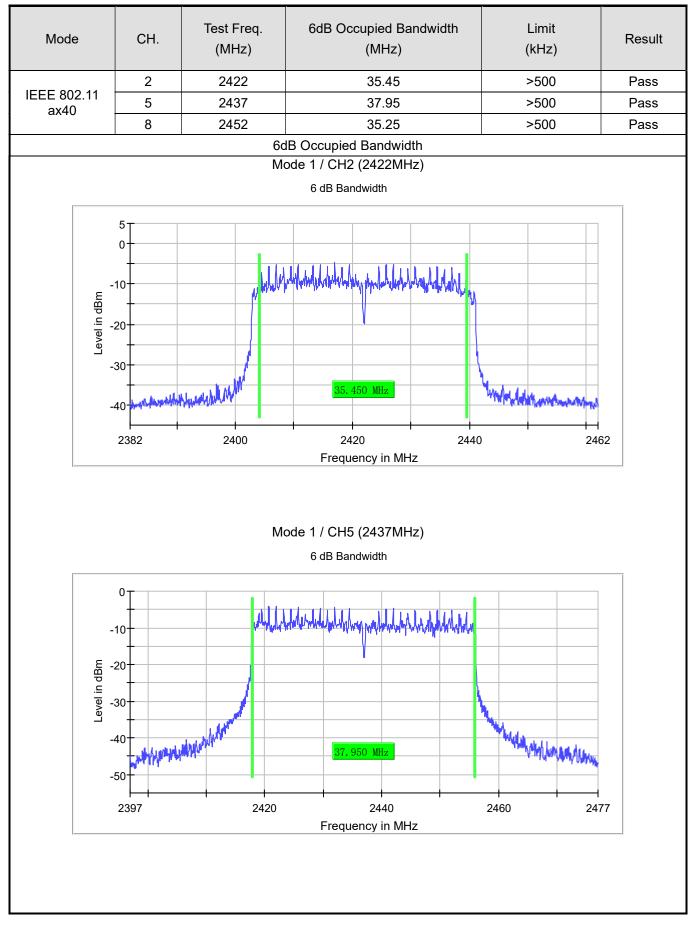






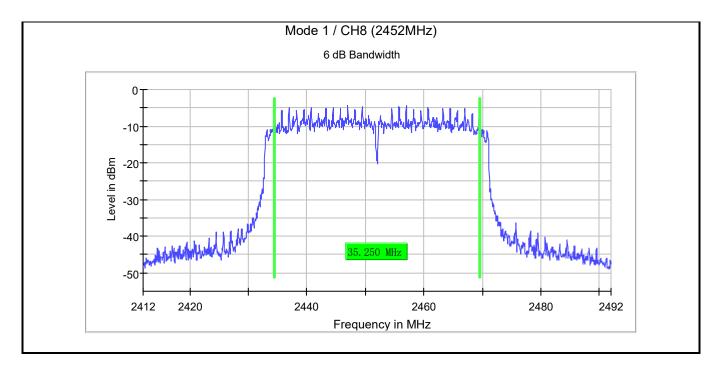






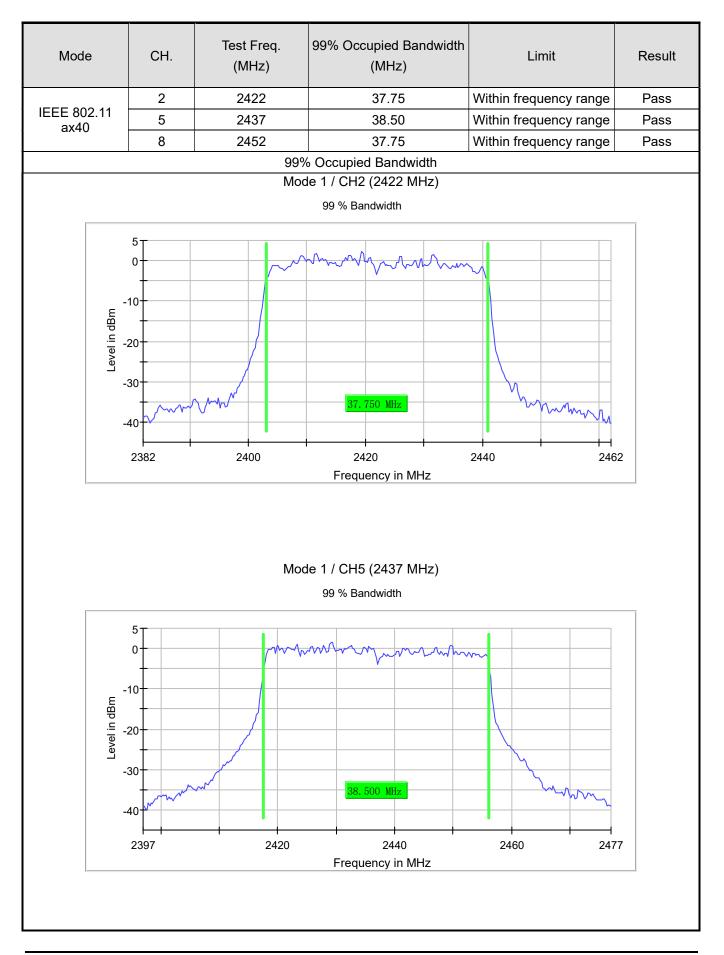
Report no.: 4909379.59



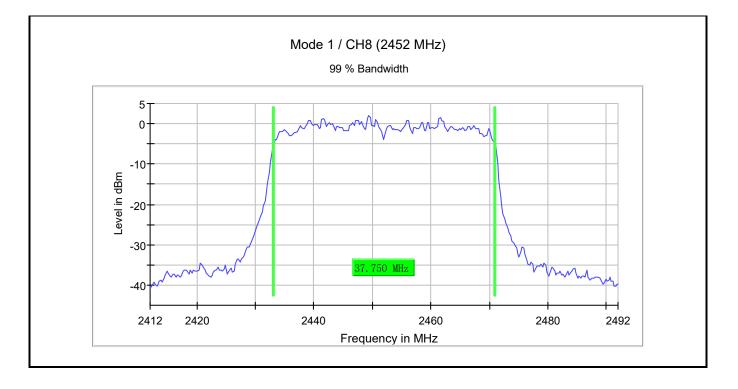


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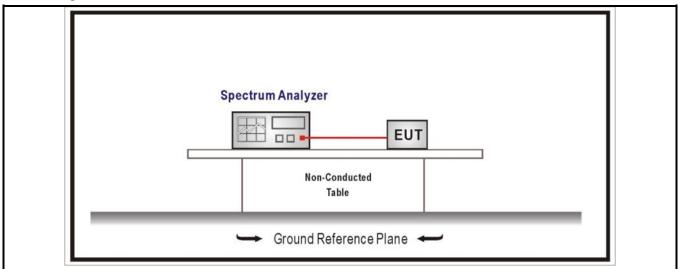




# 4.7 Fundamental emission output power VERDICT: PASS

Standard FCC F			FCC Pa	rt 15 Subpart C Paragraph 15.247 (b)(3)					
$\boxtimes$	GTX -	GTX <6dBi		Pout≤30dBm					
	GTX >6dBi								
		Non-Fix point-point		Pout≤30-( GTX -6)					
		Fix point-point		Pout≤30-[(GTX-6)]/3					
		Point-to-multipoint		Pout≤30-(GTX-6)					
		Overlap Beams		Pout≤30-[(GTX-6)]/3					
		Aggregate power transmitted simultaneously on all beams		Pout≤30-[(GTX-6)]/3					
	singby LE directional beam		al F	Pout≤30-[(GTX-6)]/3+8dB					
	Note 1 : GTX directional gain of transmitting antennas. Note 2 : Pout is maximum peak conducted output power .								

## Test Configuration



## Performed measurements

Port under test	Anter	Antenna port			
Test method applied		Conducted measurement			
		Radiated measurement			
Test setup	Refe	Refer to the Annex 3 for test setup photo(s).			
Operating mode(s) used	Mode	Mode 1			
Remark					

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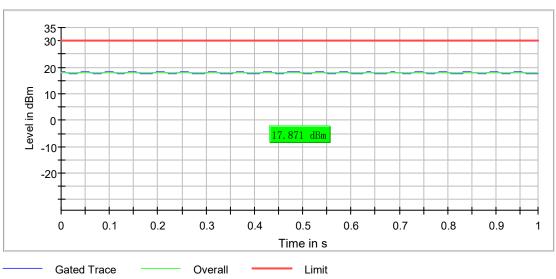
## Results

Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
	0	2412	17.9	≤30	20.2	≤36	Pass
IEEE 802.11 b	5	2437	17.0	≤30	19.3	≤36	Pass
002.110	10	2462	17.0	≤30	19.3	≤36	Pass
	0	2412	14.6	≤30	16.9	≤36	Pass
IEEE 802.11 g	5	2437	10.0	≤30	12.3	≤36	Pass
002.119	10	2462	10.1	≤30	12.4	≤36	Pass
	0	2412	14.5	≤30	16.8	≤36	Pass
IEEE 802.11 n20	5	2437	9.9	≤30	12.2	≤36	Pass
002.11120	10	2462	10.0	≤30	12.3	≤36	Pass
	2	2422	12.5	≤30	14.8	≤36	Pass
IEEE 802.11 n40	5	2437	11.6	≤30	13.9	≤36	Pass
002.111140	8	2452	11.9	≤30	14.2	≤36	Pass
IEEE	0	2412	11.5	≤30	13.8	≤36	Pass
802.11	5	2437	10.6	≤30	12.9	≤36	Pass
ax20	10	2462	10.6	≤30	12.9	≤36	Pass
IEEE	2	2422	11.0	≤30	13.3	≤36	Pass
802.11	5	2437	11.8	≤30	14.1	≤36	Pass
ax40	8	2452	10.4	≤30	12.7	≤36	Pass

Remark: 2,3 dBi for 2.4GHz

## Data of IEEE 802.11 b

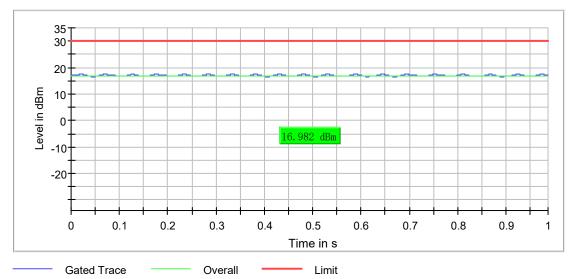
Gated Trace

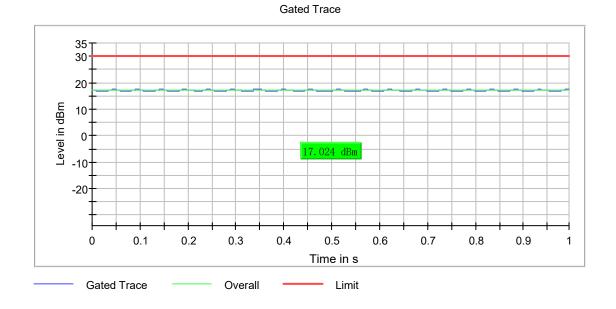


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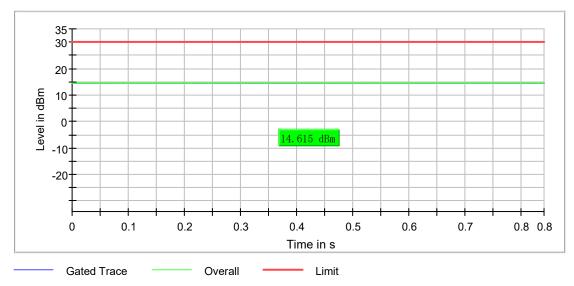
Gated Trace

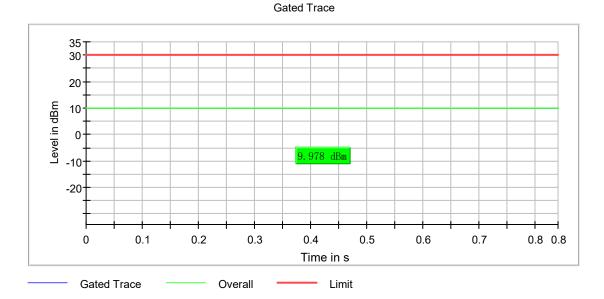


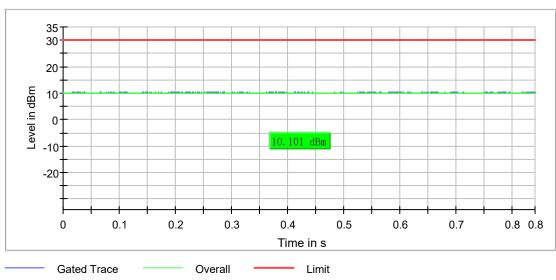




Data of IEEE 802.11 g





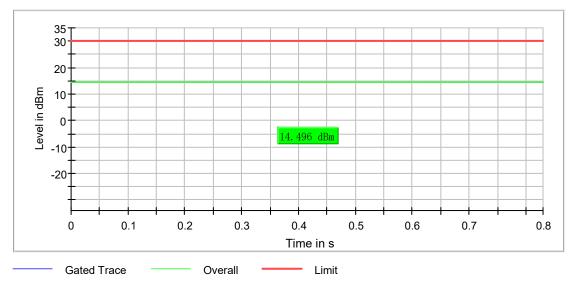


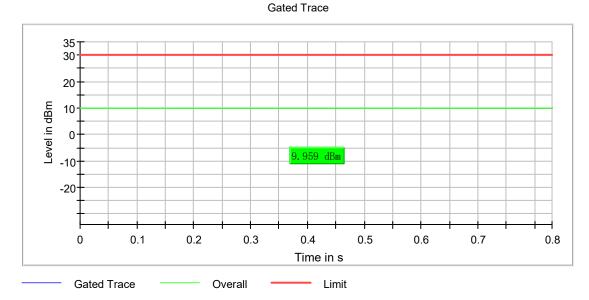
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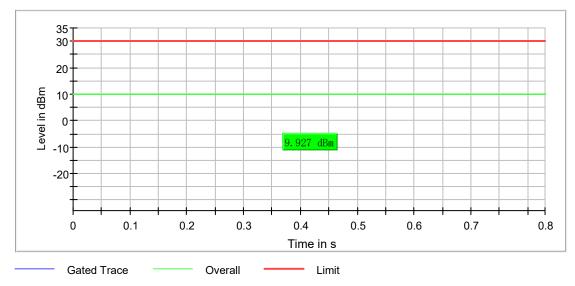
Report no.: 4909379.59



Data of IEEE 802.11 n20

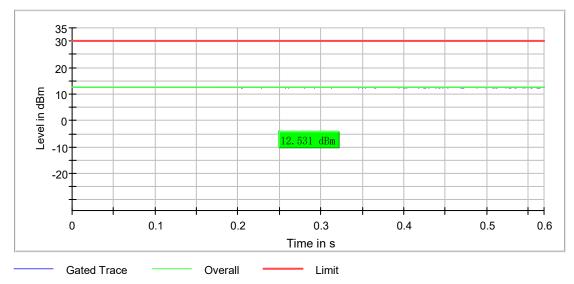


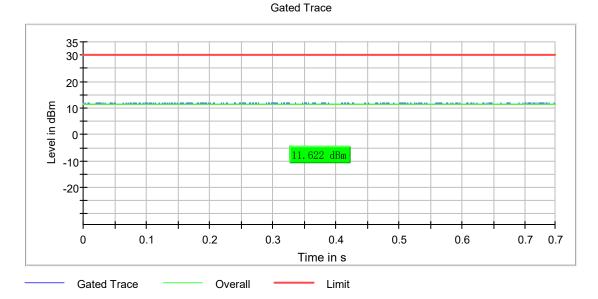




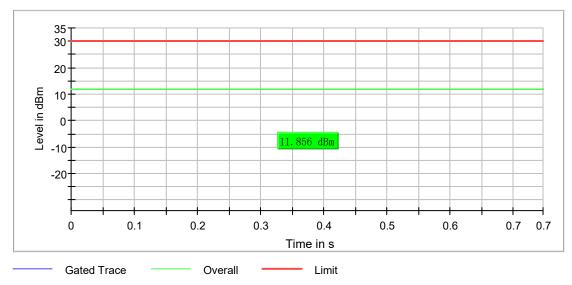


Data of IEEE 802.11 n40



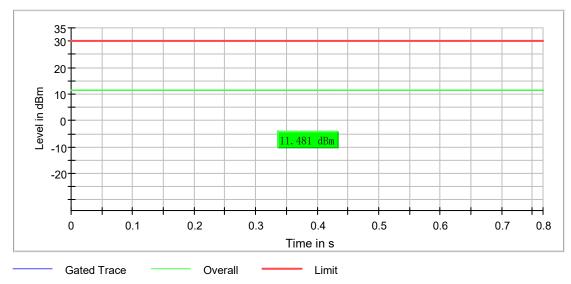


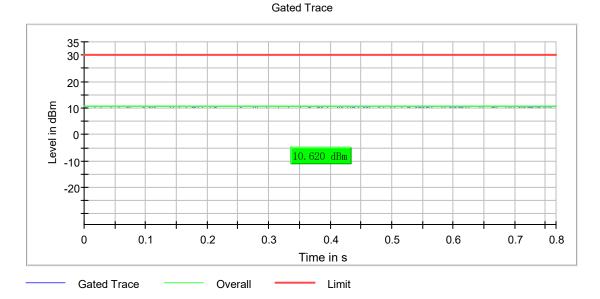




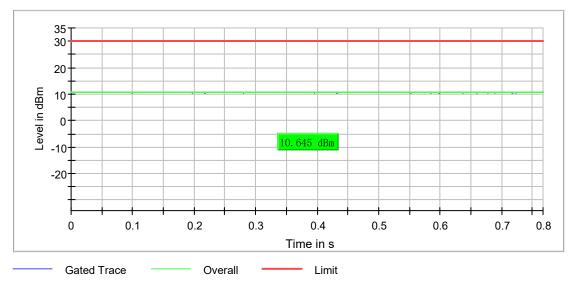


Data of IEEE 802.11 ax20



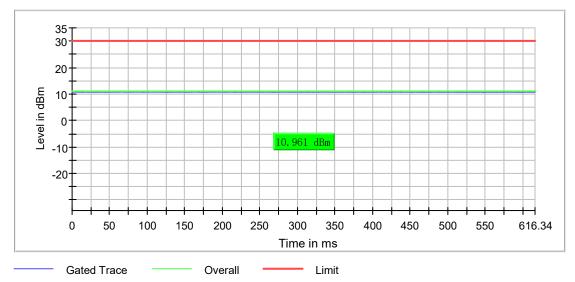


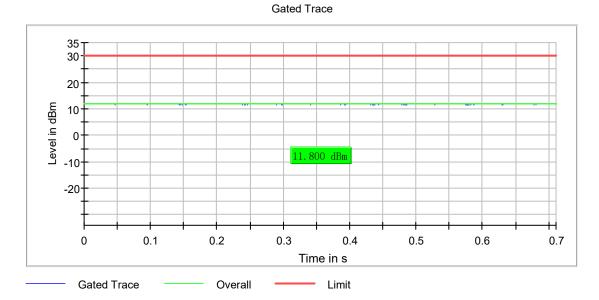




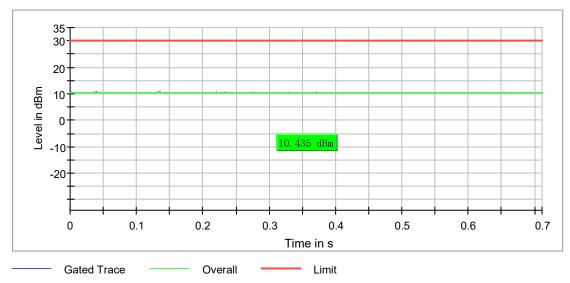


Data of IEEE 802.11 ax40







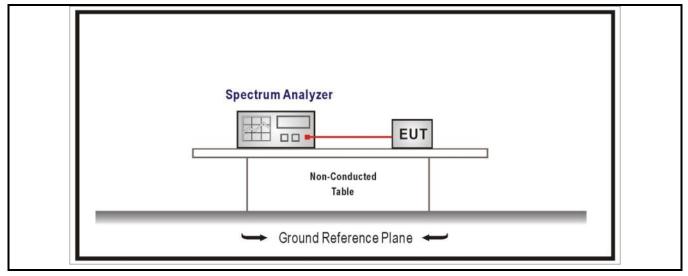




# 4.8 Power Density VERDICT: PASS

Standard FCC Part 15 Subpart C Paragraph 15.247 (b)(3)				
Power Spectral Density≤8dBm/3kHz				

# **Test Configuration**



### Performed measurements

Port under test	Anter	Antenna port		
Test method applied	Conducted measurement			
		Radiated measurement		
Test setup	Refer to the Annex 3 for test setup photo(s).			
Operating mode(s) used	Mode 1			
Remark				

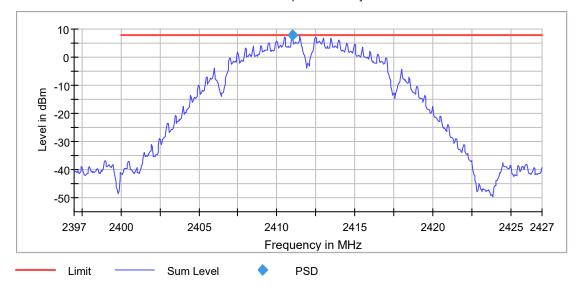
### Results

Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm/3kHz)	Result
	0	2412	7.790	≤8	Pass
IEEE 802.11 b	5	2442	7.142	≤8	Pass
	10	2462	7.501	≤8	Pass
	0	2412	2.722	≤8	Pass
IEEE 802.11 g	5	2442	-1.988	≤8	Pass
	10	2462	-1.808	≤8	Pass
IEEE 802.11 n20	0	2412	2.380	≤8	Pass
	5	2442	-2.087	≤8	Pass
	10	2462	-1.926	≤8	Pass

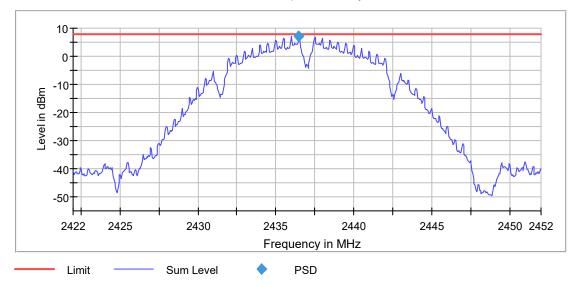


IEEE 802.11	2	2422	-2.711	≤8	Pass
	5	2442	-3.662	≤8	Pass
	8	2452	-3.299	≤8	Pass
IEEE 802.11 ax20	0	2412	-0.357	≤8	Pass
	5	2442	-1.115	≤8	Pass
	10	2462	-0.935	≤8	Pass
	2	2422	-4.218	≤8	Pass
IEEE 802.11 ax40	5	2442	-3.245	≤8	Pass
	8	2452	-4.473	≤8	Pass

### Data of IEEE 802.11 b

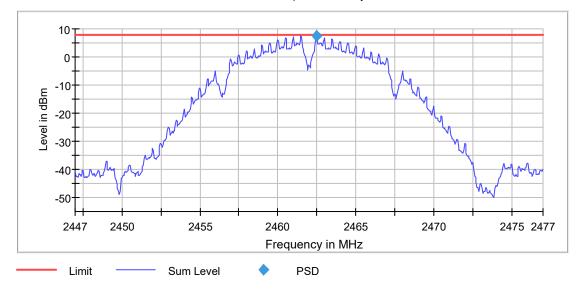


	Peak	Power	Spectral	Density
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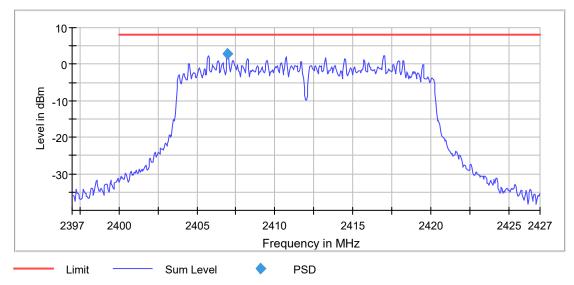




Peak Power Spectral Density

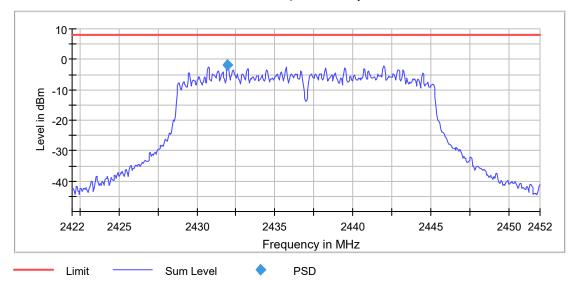


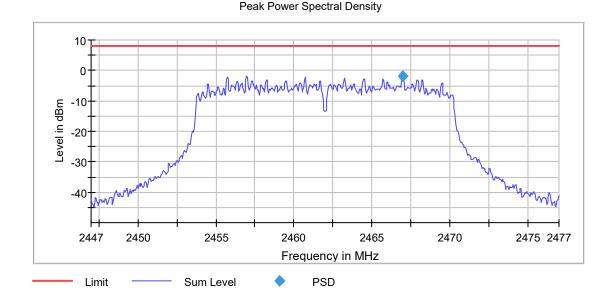
Data of IEEE 802.11 g





Peak Power Spectral Density

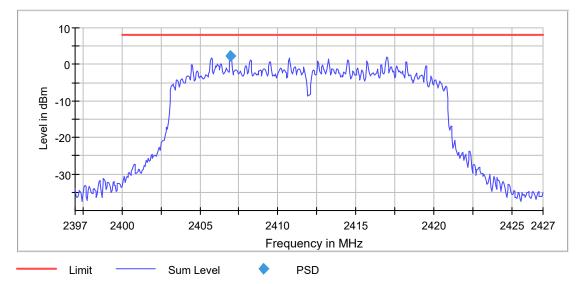


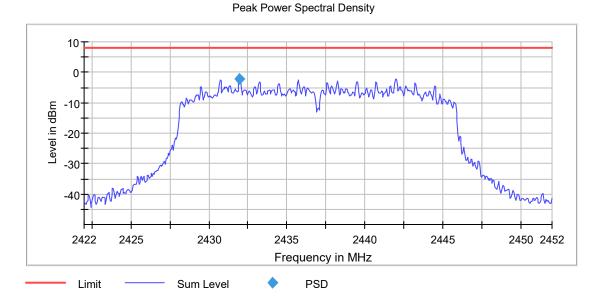




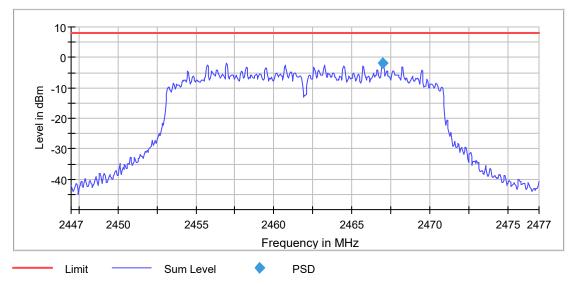
Data of IEEE 802.11 n20

Peak Power Spectral Density



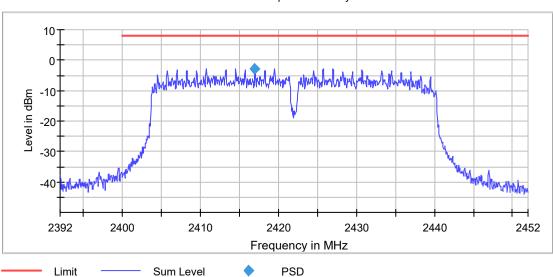




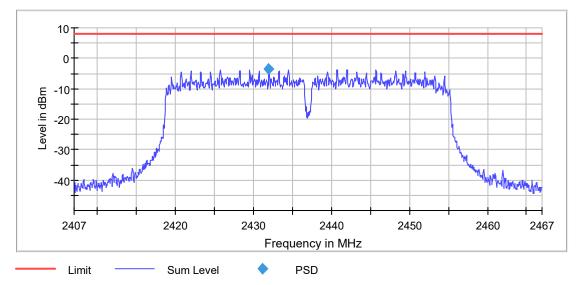




# Data of IEEE 802.11 n40

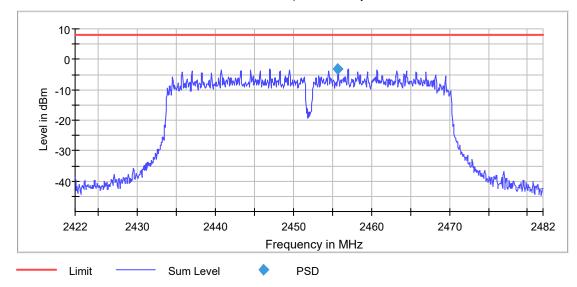






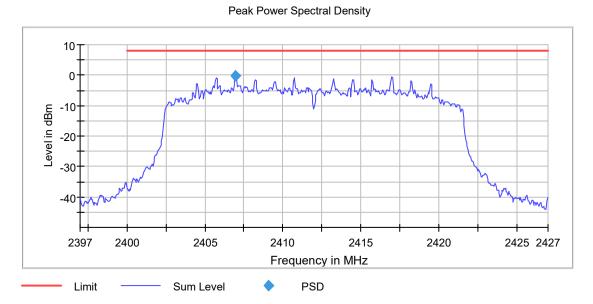


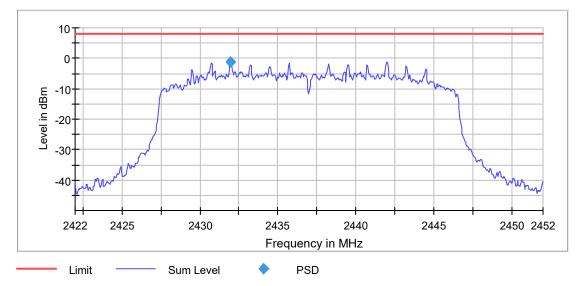
Peak Power Spectral Density





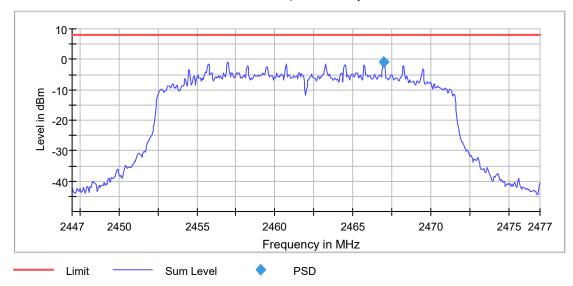
# Data of IEEE 802.11 ax20





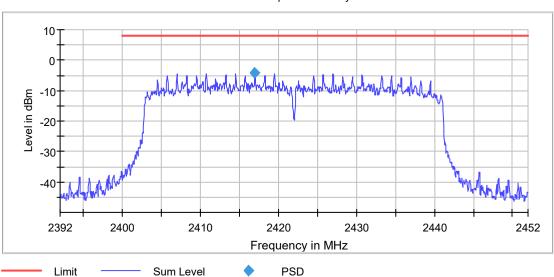


Peak Power Spectral Density



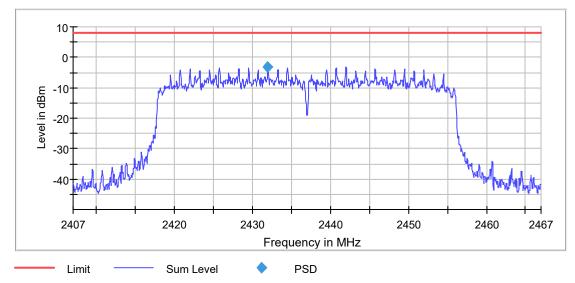


Data of IEEE 802.11 ax40



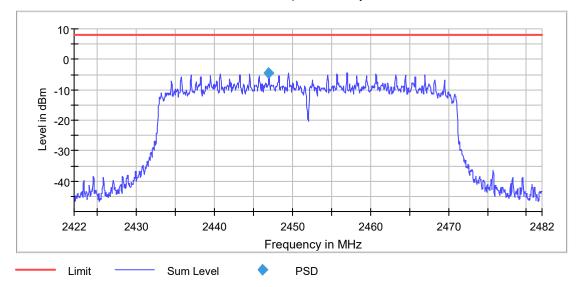
Peak Power Spectral Density







Peak Power Spectral Density





# 5 **IDENTIFICATION OF THE EQUIPMENT UNDER TEST**

The photographs show the tested device.

Refer to documents External photo and Internal photo.



# ANNEX 1 – MEASUREMENT UNCERTAINTY

Test Item	Uncertainty
Occupied Channel Bandwidth	±0,7%
RF Output power, conducted	±0,6dB
Power Spectral Density, Conducted	±0,6dB
Unwanted Emissions, Conducted	±0.7dB
Spurious (30-1000MHz)	±4,4dB
Spurious (1-12,75GHz)	±4,4dB



# **ANNEX 2 - USED EQUIPMENT**

For Continuous disturbances conducted (150 kHz to 30 MHz)

Instrumentation	Manufacturer	Model No.	Serial No.	DEKRA No.	Cal. Due date
Shielding Room	Changzhou Feite	/	/	G/L861	2024/05/31
EMI Receiver	R&S	ESCI	101206	G/L857	2024/07/02
LISN	R&S	ENV216	101337	G/L859	2024/07/02

# For Radiated Emission (30MHz-1000MHz)

Instrumentation	Manufacturer	Model No.	Serial No.	DEKRA No.	Cal. Due date
3m Chamber	ETS	FACT3-2.0	CT000344-1100	G/L856	2024/06/04
EMI receiver	R&S	ESCI	101205	G/L858	2024/07/02
Antenna (30MHz-3GHz)	SCHWARZBECK	VULB9163	506	G/L864	2023/12/05
Antenna (30MHz-2GHz)	SCHWARZBECK	VULB9168	01229	GZ2018	2024/03/12
CMAD	TESEQ	CMAD 20B	49023	GZ1756	2024/09/08
CMAD	TESEQ	CMAD 20B	49024	GZ1757	2024/09/08
CMAD	TESEQ	CMAD 20B	49026	GZ1758	2024/09/08
CDNE	TESEQ	M310	48706	GZ1759	2024/09/07
CDNE	TESEQ	M210	540133	GZ1906	2024/05/07
Test software	AUDIX	e3	Version 6.130520		

### For Radiated Emission (1GHz-18GHz)

Instrumentation	Manufacturer	Model No.	Serial No.	DEKRA No.	Cal. Due date
3m Chamber	ETS	FACT3-2.0	СТ000344-1100	G/L856	2024/06/04
Antenna (1GHz-18GHz)	R&S	HF907	102306	G/L1236	2024/04/10
Horn antenna preamplifier	Schwarzbeek	SCU-18	102234	G/L1236-1	2024/02/21
Antenna (1GHz-18GHz)	SCHWARZBECK	BBHA 9120D	02408	GZ2019	2024/01/16
Horn antenna preamplifier	EMC Instruments corporation	EMC051845 SE	980778	GZ2009	2023/12/04
Spectrum analyzer	R&S	FSV	SN101012	G/L1235	2024/01/09

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FOR RF

<u>DR RF</u>					
Instrumentation	Manufacturer	Model	Serial no.	DEKRA No.	Cal Due date
Spectrum analyzer	R&S	FSV	SN101012	G/L1235	2024/01/09
Chamber	ETS	/	1	G/L856	2024/06/04
Horn antenna (1GHz-18GHz)	R&S	HF907	102306	G/L1236	2024/04/10
Horn antenna preamplifier	Schwarzbeek	SCU-18	102234	G/L1236-1	2024/02/21
Horn antenna (18GHz-26.5GHz)	ETS	3160-09	00164643	G/L1237	2024/01/09
Horn antenna preamplifier	/	SCU-26D	1879064	G/L1237-1	2024/01/08
EMI receiver	R&S	ESCI	101205	G/L857	2024/07/02
Antenna (30MHz-2GHz)	SCHWARZBECK	VULB9168	01229	GZ2018	2024/03/12
Antenna	SCHWARZBECK	VULB9163	506	G/L864	2023/12/05
(30MHz-3GHz)					
OSP	R&S	OSP 150	101907	GZ1894	2024/02/23
Signal generator	R&S	SMB 100A	181317	GZ1895	2024/02/23
Vector signal generator	R&S	SMBV100A	263671	GZ1896	2024/02/23
Wireless connectivity tester	R&S	CMW 270	100990	GZ1893	2024/02/23
Manual step attenuator (11dB)	Keysight	8494B	TH60074118	GZ2086	2024/07/07
Manual step attenuator (70dB)	Keysight	8495D	TH60074471	GZ2087	2024/07/07
Programmable Temperature & Humidity Chamber	ASTUOD	TT-5166	52689	GZ2209	2024/05/08
Test software	R&S	EMC32			Version 11.30.00



# **ANNEX 3 - TEST PHOTOS**

Refer to document Test setup.

--- END ---