Stop 26.50 GHz

Sweep 66.67 ms (40001 pts)

FUNCTION VALUE



Keysight S XI R L

Center I ASS

10 dB/div Log

11.5 21.5

41.5 51.5 -61.5

Start 0.03 GHz

MKR MODE TRC SCL

234

SG

#Res BW 1.0 MHz

eysight Spe	ectrum Analy	zer - Swept	SA									
۲L	RF	50 Ω	AC			SEN	SE:PULSE		ALIGN AUTO			
nter F	req 13.	26500	000	0 GHz					Avg Typ	e: Log-Pwr		TRACE 1 2 3 4 5 6
SS					PNO: Fast IFGain:Low	φ	Trig: Free I Atten: 10 c					TYPE M WWWW DET P P P P P
B/div		set 5.0 d .47 dB									Mkr5 25 -5	.966 6 GHz 7.072 dBm
Trac	e 1 Pass	5					1	12				
0									-			
j 🚽						-					3	
i	. 1											
	$\langle \rangle'$		_		-			-				
	2									4		<u>5</u>
				\bigcirc^2					13	$\langle \rangle^4$	-	
	1 40.0		A	Y				and the second second		and the second descents		
5 weber 144						dial in			hard the second second			
-												

#VBW 3.0 MHz

Y

-43.382 dBm -62.285 dBm -64.883 dBm -61.125 dBm

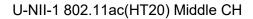
-57.072 dBm

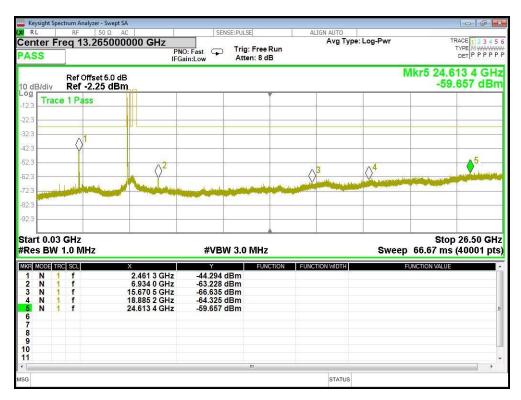
x 2.461 3 GHz 6.906 9 GHz 15.851 8 GHz 19.680 0 GHz 25.966 6 GHz

FUNCTION FUNCTION WIDTH

STATUS

U-NII-1 802.11ac(HT20) Low CH

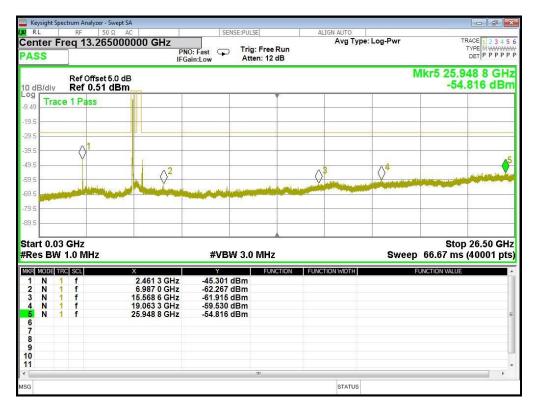






U-NII-1 802.11ac(HT20) High CH

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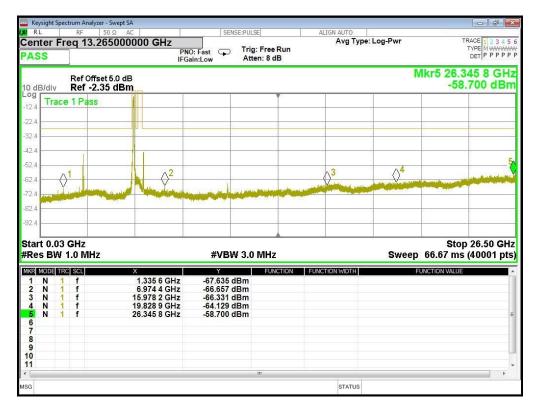
U-NII-1 802.11n(HT40) Low CH







U-NII-1 802.11n(HT40) High CH



U-NII-1 802.11ac(HT40) Low CH



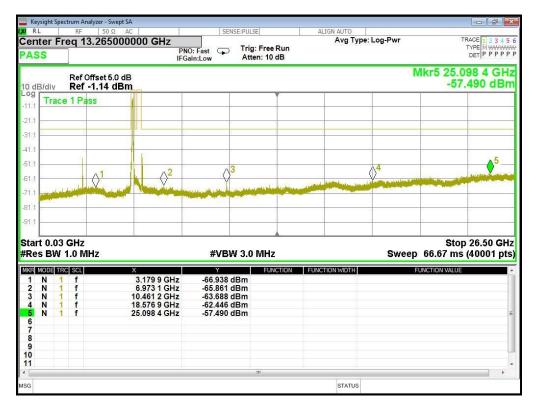
http://www.FCS-lab.com

Tel: 769-27280901 Fax: 769-27280901



U-NII-1 802.11ac(HT40) High CH

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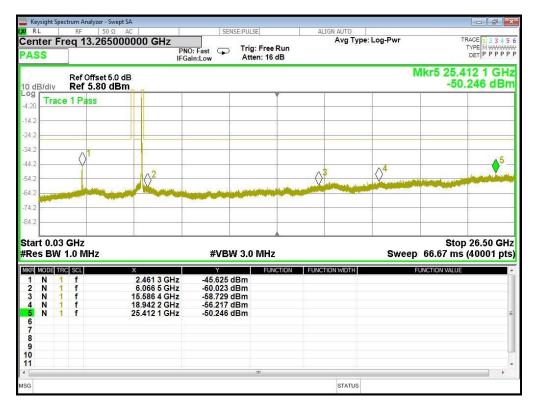


U-NII-1 802.11ac(HT80) Middle CH

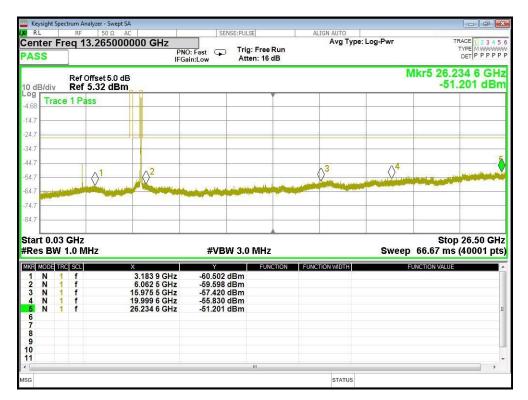




U-NII-3 802.11a Low CH

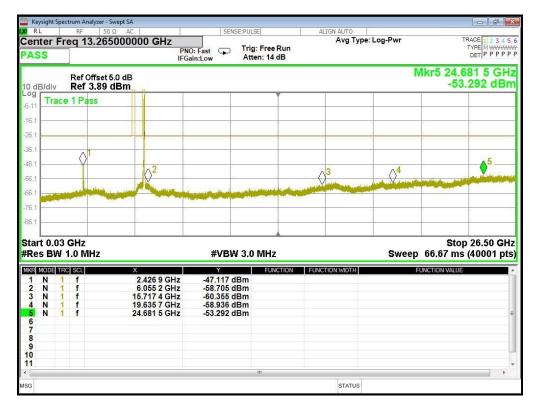


U-NII-3 802.11a Middle CH

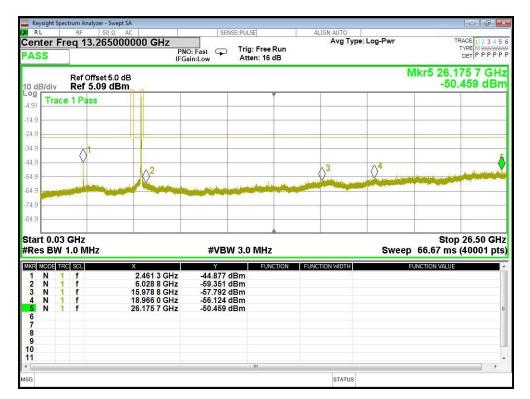




U-NII-3 802.11a High CH



U-NII-3 802.11n(HT20) Low CH



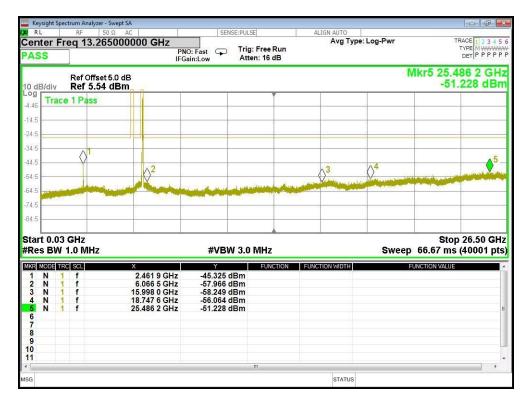


U-NII-3 802.11n(HT20) Middle CH

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	Spectrum Analyzer -					1	
Center		Ω AC 5000000 GHz	SENSE:PUL	SE	ALIGN AUTO Avg Typ	e: Log-Pwr	TRACE 1 2 3 4 5
PASS		PN	D: Fast 😱 Trig ain:Low Atte	: Free Run en: 16 dB			TYPE MWWWW DET PPPP
10 dB/div	Ref Offset Ref 4.61					0	Mkr5 26.028 8 GH -50.473 dBn
Log -5.39 Tra	ice 1 Pass			Ť.			
-15.4							
-25.4							
-35.4							
-45.4	$\langle \rangle^1$					1	<u> </u>
-55.4	Í	^2			3	\Diamond^4	
65.4 	- Manual Lands		and the second second second second	and the second	A STATE OF THE STATE OF		
.75.4							
.85.4							
03.4							
Start 0.0 #Res BN)3 GHz N 1.0 MHz		#VBW 3.0	MHz		Sweep	Stop 26.50 GH 66.67 ms (40001 pts
MKR MODE	TRC SCL	X	Y	FUNCTION	FUNCTION WIDTH		FUNCTION VALUE
1 N 2 N	1 f	2.461 9 GHz 6.040 7 GHz	-46.766 dBm -58.933 dBm				
3 N 4 N	1 f	15.771 7 GHz 18.815 8 GHz	-58.279 dBm -55.958 dBm				
5 N	1 f	26.028 8 GHz	-50.473 dBm				:
6 7 8 9							
8							
10							
11 <				m			
ISG					STATUS		

U-NII-3 802.11n(HT20) High CH

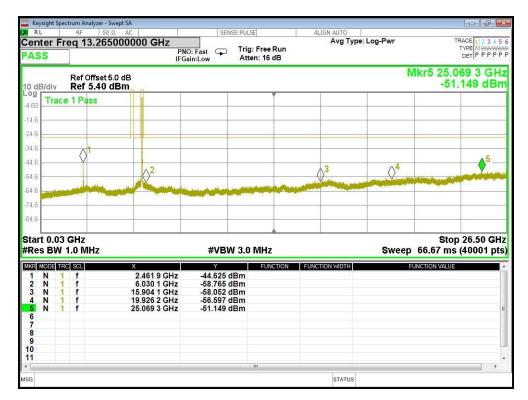




U-NII-3 802.11ac(HT20) Low CH

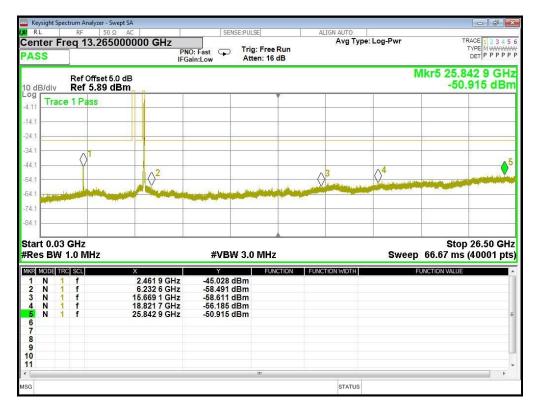
	pectrum Analyzer - S						
Center F	RF 50 5	000000 GHz	SENSE:PULSE D: Fast Trig: Fr in:Low Atten:		ALIGN AUTO Avg Type	⊧: Log-Pwr	TRACE 1 2 3 4 5 TYPE M WWWWM DET P P P P P
10 dB/div	Ref Offset 5 Ref 4.81 c					1	Mkr5 26.456 3 GHz -50.907 dBm
-5.19 Tra	ce 1 Pass					_	
-15.2	12				2		Q
-25.2							
-45.2	<mark>1</mark>	1.02	5	-	A3	\\ ⁴	5
-55.2			and the second	a series and a series of the	Participation and	V.	
-65.2							
-85.2	8	2					8
Start 0.0 #Res BW	3 GHz / 1.0 MHz		#VBW 3.0 MI	Hz		Sweep	Stop 26.50 GH 66.67 ms (40001 pts
MKR MODE 1	1 f	× 2.459 3 GHz	-50.550 dBm	UNCTION	FUNCTION WIDTH		FUNCTION VALUE
2 N 3 N	1 f 1 f	6.106 2 GHz 15.984 1 GHz	-59.179 dBm -57.471 dBm				
4 N 5 N	1 f 1 f	19.013 6 GHz 26.456 3 GHz	-56.667 dBm -50.907 dBm				
6 7 8 9							
9 10 11							
			m		1 1		
ISG					STATUS		

U-NII-3 802.11ac(HT20) Middle CH





U-NII-3 802.11ac(HT20) High CH



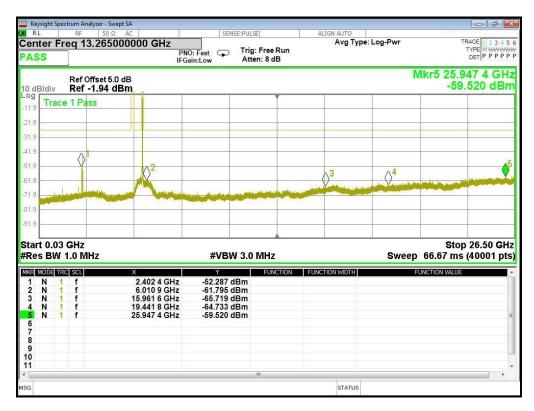
U-NII-3 802.11n(HT40) Low CH



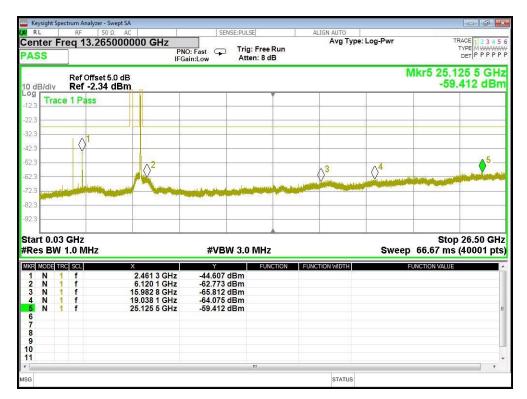


U-NII-3 802.11n(HT40) High CH

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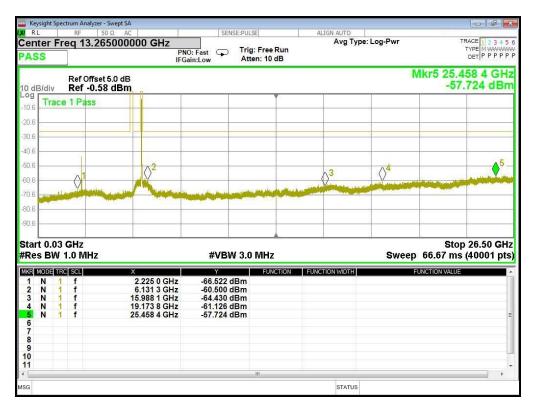


U-NII-3 802.11ac(HT40) Low CH





U-NII-3 802.11ac(HT40) High CH



U-NII-3 802.11ac(HT80) Middle CH



Note:1.The emission levels of other frequencies were less than 20dB margin against the limit. 2.Max Value (dBm) is added antenna gain.





8. Duty Cycle

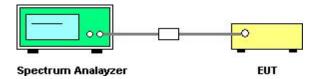
8.1 TEST REQUIREMENT

47 CFR Part 15C 15.407 and 789033 D02 General UNII Test Procedures New Rules v02r01(December 14, 2017), Section (B) ANSI C63.10: 2013

8.2 TEST PROCEDURE

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

8.3 TEST SETUP





8.4 TEST RESULTS

	802.11a	i mode	
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
52	100	100	100
149	100	100	100
	802.11n(HT	20) mode	
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
52	100	100	100
149	100	100	100
	802.11n(HT	f40) mode	
channel	On time(ms)	Period(ms)	Duty Cycle(%)
38	100	100	100
54	100	100	100
151	100	100	100
	802.11ac(H	T20) mode	
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
52	100	100	100
149	100	100	100
	802.11ac(H	T40) mode	
channel	On time(ms)	Period(ms)	Duty Cycle(%)
38	100	100	100
54	100	100	100
151	100	100	100
	802.11ac(H	T80) mode	
channel	On time(ms)	Period(ms)	Duty Cycle(%)
42	100	100	100
58	100	100	100
155	100	100	100



9 RADIATED EMISSION MEASUREMENT

9.1 RADIATED EMISSION LIMITS

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205(a)&209(a) limit in the table and according to ANSI C63.10-2013 below has to be followed

Frequencies	Field Strength	Measurement Distance	
(MHz)	(micorvolts/meter)	(meters)	
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	3	
88~216	150	3	
216~960	200	3	
Above 960	500	3	

LIM	ITS OF RADIATED EMISSIC	ON MEASUREMENT ((0.009MH	lz - 1000MHz)

For Radiated Emission

Spectrum Parameter	Setting			
Attenuation	Auto			
Detector	Peak/AV			
Start Frequency	1000 MHz(Peak/AV)			
Stop Frequency	10th carrier hamonic(Peak/AV)			
RB / VB (emission in restricted				
band)	PK=1MHz / 1MHz, AV=1 MHz /10 Hz			



9.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz,and above 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment shall be 0.8 m(above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then QuasiPeak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos. Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported