







Report No.: WSCT-A2LA-R&E230300006A-Wi-Fi2

Certificate #5768.01

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7.5PEAK POWER

	Product	: EUT-Sample	Test Mode	: See section 3.4	L
ł,	Floudet	. Lo 1-Sample	rest wode	. See Section 3.4	,
	Test Item	: Peak Power	Temperature	: 25 °C	
1	Test Voltage	: DC 3.8V	Humidity	: 56%RH	
7	Test Result	: PASS	AV.	45107	Ī

Channel	Frequency (MHz)	Total Power (dBm)	Limit (dBm)	Verdict		
20MHz(IEEE 802.11a/n/ac)-worst						
Low	5180	8.57	24	Pass		
High	5240	8.71	24	Pass		
Low	5260	9.15	24	Pass		
High	5320	8.66	24	Pass		
Low	5500	11.5	24	Pass		
High	5700	7.33	24	Pass		
Low	5745	7.21	30	Pass		
High	5825	7.39	30	Pass		
Low	5190	7.96	24	Pass		
High	5230	7.74	24	Pass		
Low	5270	8.31	24	Pass		
High	5310	7.84	24	Pass		
Low	5510	10.71	24	Pass		
High	5670	7.17	24	Pass		
Low	5755	6.24	30	Pass		
High	5795	6.3	30	Pass		
Low	5210	7.45	24	Pass		
Low	5290	7.73	24	Pass		
Low	5530	9.92	24	Pass		
High	5610	8.41	24	Pass		
Low	5775	5.84	30	Pass		
	Low High	Common	20MHz(IEEE 802.11a/n/ac)-worst Low 5180 8.57 High 5240 8.71 Low 5260 9.15 High 5320 8.66 Low 5500 11.5 High 5700 7.33 Low 5745 7.21 High 5825 7.39 40MHz(IEEE 802.11n/ac)-worst Low 5190 7.96 High 5230 7.74 Low 5270 8.31 High 5310 7.84 Low 5510 10.71 High 5670 7.17 Low 5755 6.24 High 5795 6.3 80MHz(IEEE 802.11ac)-worst Low Low 5290 7.73 Low 5530 9.92 High 5610 8.41	20MHz(IEEE 802.11a/n/ac)-worst Low 5180 8.57 24 High 5240 8.71 24 Low 5260 9.15 24 High 5320 8.66 24 Low 5500 11.5 24 High 5700 7.33 24 Low 5745 7.21 30 High 5825 7.39 30 40MHz(IEEE 802.11n/ac)-worst Low 5190 7.96 24 High 5230 7.74 24 Low 5270 8.31 24 High 5310 7.84 24 Low 5510 10.71 24 High 5670 7.17 24 Low 5755 6.24 30 High 5795 6.3 30 80MHz(IEEE 802.11ac)-worst 24 Low 5290 7.73 24 Low		

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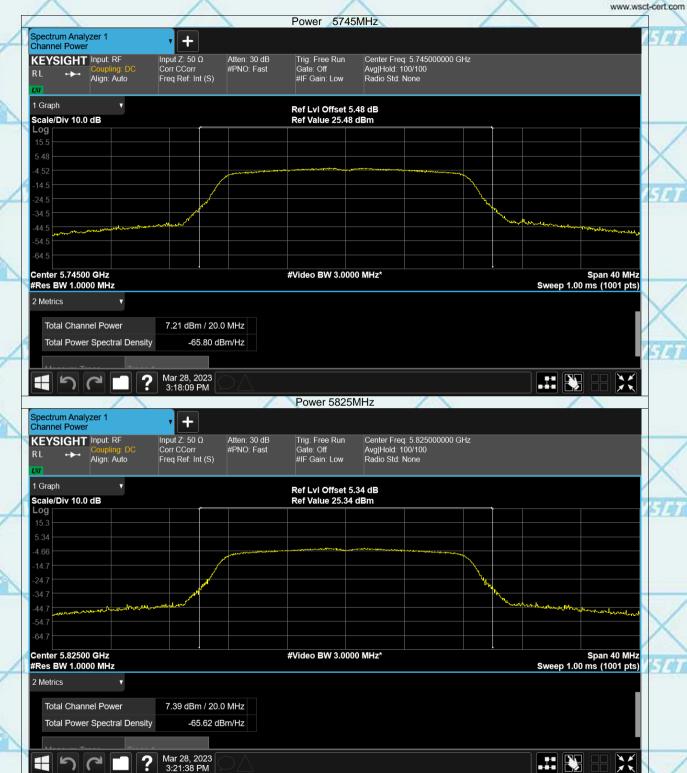




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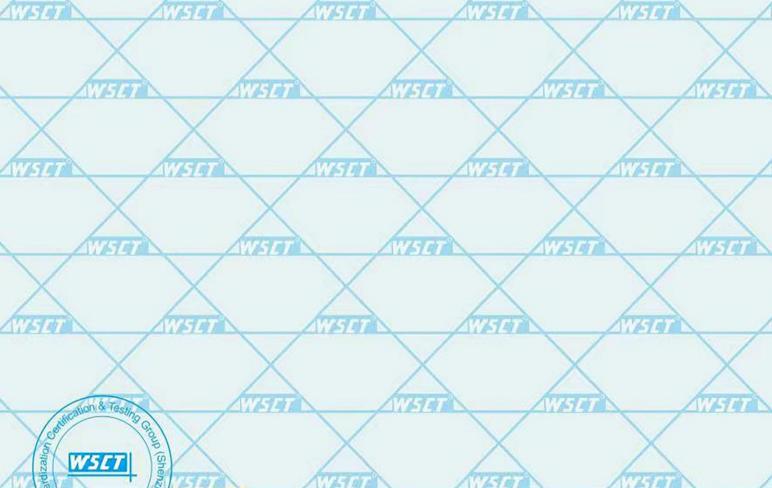


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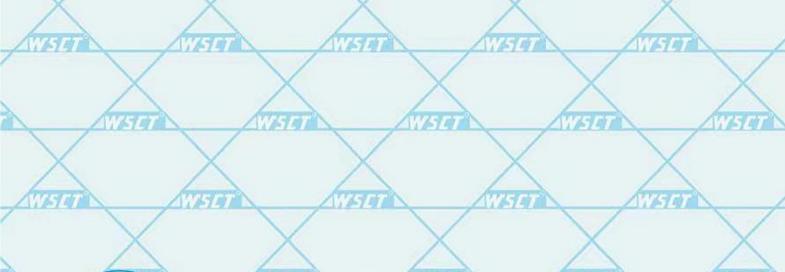
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7.6 PEAK POWER SPECTRAL DENSITY

ATTITUTE	ATT of all all all	ATTI STORY	ATT A STATE OF THE	
Product	: EUT-Sample	Test Mode	: See section 3.4	
Test Item	: Peak Power Spectral Density	Temperature	: 25 ℃	
Test Voltage	: DC 3.8V	Humidity	: 56%RH	1
Test Result	: PASS	AT	274	2

Band	Channel	Frequency (MHz)	Total PSD (dBm)	Limit (dBm)	Verdict		
	20MHz(IEEE 802.11a/n/ac)-worst						
4	Low	5180	-3.47	11	Pass		
1	High	5240	-4.18	11.7	Pass		
2	Low	5260	-2.75	11	Pass		
4/	High	5320	-3.76	11	Pass		
3	Low	5500	-0.16	11	Pass		
3	High	5700	-5.45	11	Pass		
ATTACACTO	Low	5745	-8.54	30	Pass		
14.74	High	5825	-9.3	30	Pass		
4	40MHz(IEEE 802.11n/ac)-worst						
1	Low	5190	-6.61	11	Pass		
'	High	5230	-7.33	11	Pass		
2	Low	5270	-7.16	11	Pass		
2	High	5310	-7.72	ALA11C / T	Pass		
3	Low	5510	-4.95	11	Pass		
3 /	High	5670	-9.09	11	Pass		
4	Low	5755	-12.73	30	Pass		
-	High	5795	-12.37	30	Pass		
80MHz(IEEE 802.11ac)-worst							
11-741	Low	5210	-12.14	11	Pass		
2	Low	5290	-13.04	11	Pass		
3	Low	5530	-10.31	11	Pass		
3	High	5610	-11.38	11	Pass		
4	Low	5775	-16.04	30	Pass		









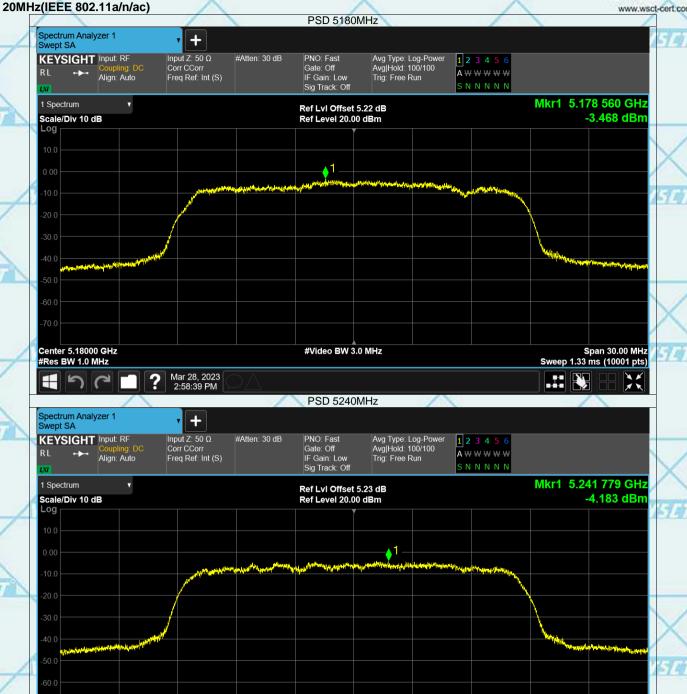




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Center 5.24000 GHz

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#Res BW 1.0 MHz

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#Video BW 3.0 MHz

Span 30.00 MHz

Sweep 1.33 ms (10001 pts)



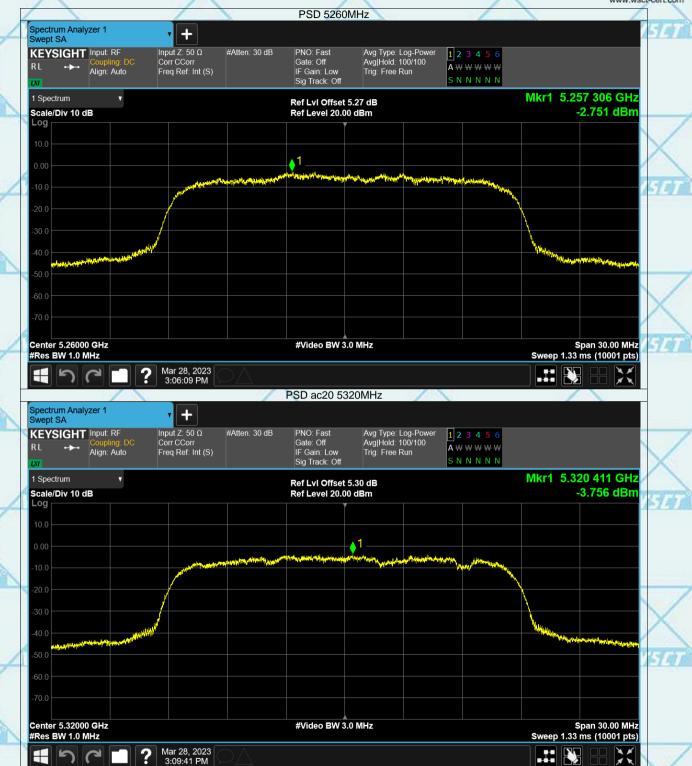




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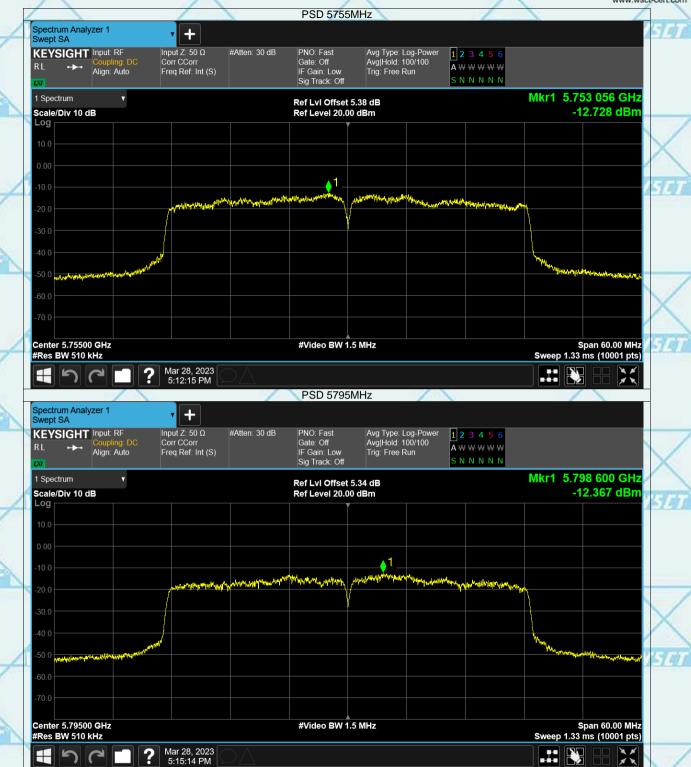




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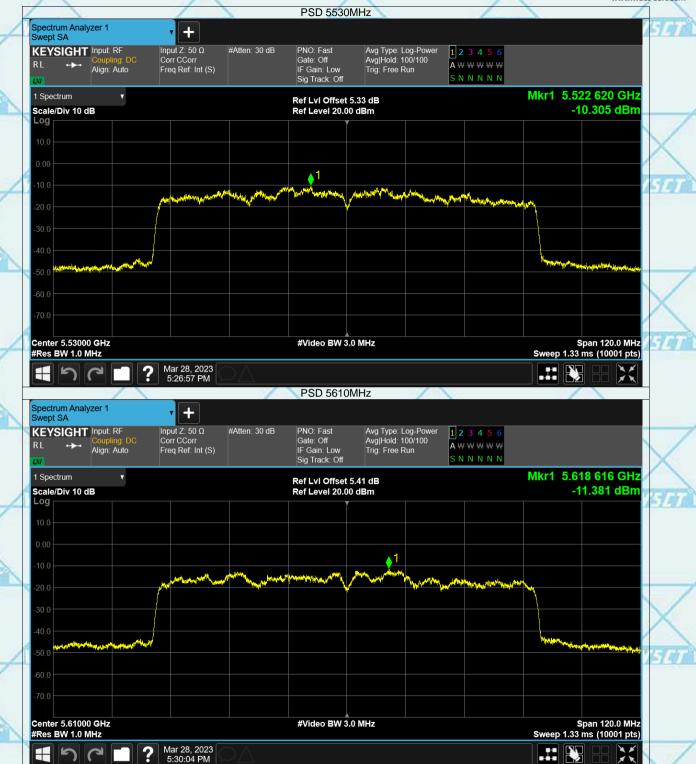




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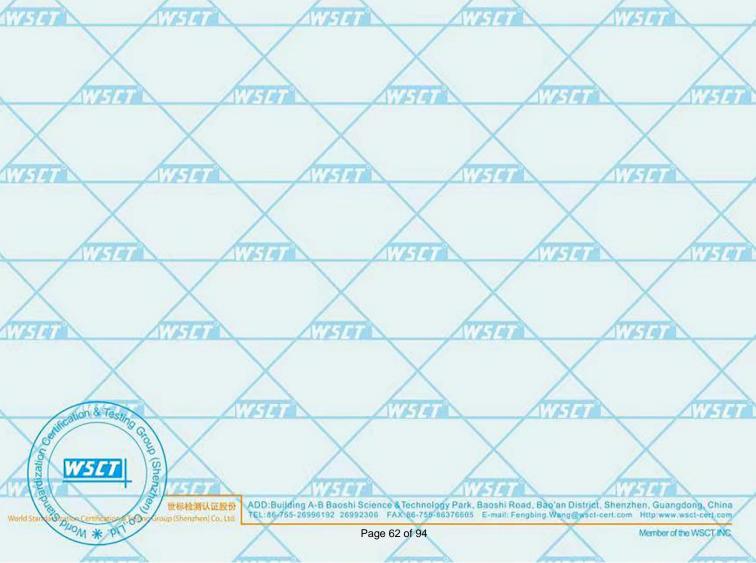
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7.7FREQUENCY STABILITY

Á	Product:	EUT-Sample	Test Item:	Frequency Stability
	Temperature:	25 ℃	Humidity:	56%RH
	Test Voltage:	DC 3.8V	Test Result:	PASS

	Band	Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz) EEE 802.11a/n/ac)	Deviation (ppm)	Limit (ppm)	Verdict	J
					/	Ä		
		5180	5180	0	0	25	Pass	
2	W51	5240	5240	0	0	25	Pass	Ż
	2	5260	5260.02	20000	3.8	25	Pass	
	2	5320	5320	0	0	25	Pass	i
	3	5500	5500	0	0	25	Pass	ĺ
X	3	5700	5700	0	0	25	Pass	l
	4	5745	5745	0	0	25	Pass	i
	4	5825	5825.02	20000	3.43	25	Pass	
	400MHz(IEEE 802.11n/ac)							×
	/	5190	5190	0	0	25	Pass	
J	11723	5230	5230	0	0,757	25	Pass	3
-	2	5270	5269.96	-40000	-7.59	25	Pass	ſ
	2	5310	5309.96	-40000	-7.53	25	Pass	ĺ
	3	5510	5509.96	-40000	-7.26	25	Pass	i
	3	5670	5670	0 /	0	25	Pass	i
D	4	5755	5754.96	-40000	-6.95	25	Pass	
	14	5795	5795	0	0	25	Pass	
	X			(IEEE 802.11ac)	X			×
	1/	5210	5210	0	0	25	Pass	ſ
	2	5290	5290	0	0	25	Pass	2
1	3	5530	5529.92	-80000	-14.47	25	Pass	2
	3	5610	5610	0	0	25	Pass	l
	4	5775	5775	0	0	25	Pass	

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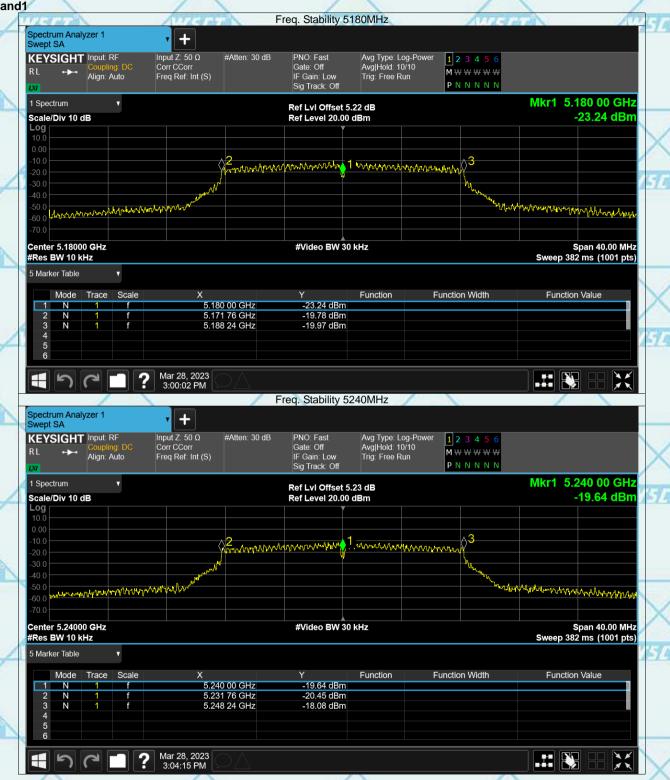
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20MHz(IEEE 802.11a/n/ac)

Band1











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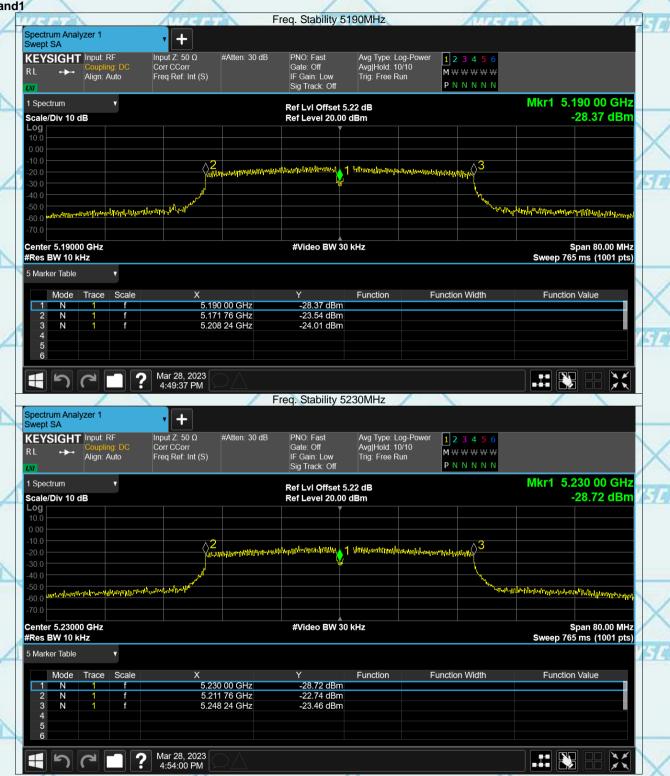
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40MHz(IEEE 802.11n/ac)

Band1











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Center 5.27000 GHz #Res BW 10 kHz Span 80.00 MHz Sweep 765 ms (1001 pts) #Video BW 30 kHz 5 Marker Table

Mode Scale Function Function Width Function Value -29.90 dBm 5.269 96 GHz 5.251 76 GHz 5.288 16 GHz -23.30 dBm -19.20 dBm 6

Mar 28, 2023 4:57:02 PM * *

Freq. Stability 5310MHz Spectrum Analyzer 1 Swept SA + Avg Type: Log-Power Avg|Hold: 10/10 Trig: Free Run KEYSIGHT Input: RF Input Z: 50 Ω #Atten: 30 dB PNO: Fast 1 2 3 4 5 6 Corr CCorr Freq Ref: Int (S) Gate: Off IF Gain: Low $M \otimes W \otimes W \otimes W$ Align: Auto PNNNNN Sig Track: Off Mkr1 5.309 96 GHz 1 Spectrum Ref Lvi Offset 5.30 dB Ref Level 20.00 dBm Scale/Div 10 dB -27.79 dBm ٥2 adpliperioder by all and of the last of th +1)₆74-hhpmah-hhmmha-pasana-ak-pasylphhyhaha/sapaha Center 5.31000 GHz #Res BW 10 kHz Span 80.00 MHz Sweep 765 ms (1001 pts) #Video BW 30 kHz 5 Marker Table

Mode Trace Scale Function **Function Width** Function Value 5.309 96 GHz -27.79 dBm 5.291 76 GHz 5.328 16 GHz -23.79 dBm -21.87 dBm 'n 6 Mar 28, 2023 5:00:39 PM









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Band3 www.wsct-cert.com Freq. Stability 5510MHz Spectrum Analyzer 1 Swept SA + Avg Type: Log-Power Avg|Hold: 10/10 Trig: Free Run Input Z: 50 Ω KEYSIGHT Input: RF #Atten: 30 dB PNO: Fast 1 2 3 4 5 6 Corr CCorr Freq Ref: Int (S) Gate: Off IF Gain: Low Align: Auto $M \Leftrightarrow W \Leftrightarrow W \Leftrightarrow W$ PNNNNN Sig Track: Off

Mkr1 5.509 96 GHz 1 Spectrum Ref Lvl Offset 5.31 dB Ref Level 20.00 dBm -24.71 dBm Scale/Div 10 dB dellerentil programmen allerentil de servición de la constitución de l tangalikatakhiripanangahiripanahakharitipanga, Center 5.51000 GHz #Res BW 10 kHz Span 80.00 MHz Sweep 765 ms (1001 pts) #Video BW 30 kHz 5 Marker Table Mode Scale Function Function Width Function Value -24.71 dBm 5.509 96 GHz 5.491 76 GHz 5.528 16 GHz -20.20 dBm -18.42 dBm 6

Mar 28, 2023 5:07:16 PM Freq. Stability 5670MHz Spectrum Analyzer 1 Swept SA + Avg Type: Log-Power Avg|Hold: 10/10 Trig: Free Run KEYSIGHT Input: RF Input Z: 50 Ω #Atten: 30 dB PNO: Fast 1 2 3 4 5 6 Corr CCorr Freq Ref: Int (S) Gate: Off IF Gain: Low $M \otimes W \otimes W \otimes W$ Align: Auto PNNNNN Sig Track: Off Mkr1 5.670 00 GHz 1 Spectrum Ref Lvi Offset 5.52 dB Ref Level 20.00 dBm -31.46 dBm Scale/Div 10 dB իկրողս երկինիկելիու 1 HAMMAN THE ᡟᢦᢔᠬᠬᡮᠾ᠇ᡟᡀᡮᠾᡮᠾᠰᠰᡳ Center 5.67000 GHz #Res BW 10 kHz Span 80.00 MHz Sweep 765 ms (1001 pts) #Video BW 30 kHz 5 Marker Table Mode Trace Scale Function **Function Width** Function Value 5.670 00 GHz -31.46 dBm 5.651 76 GHz 5.688 24 GHz -23.89 dBm -24.92 dBm 'n 6 Mar 28, 2023 5:10:17 PM









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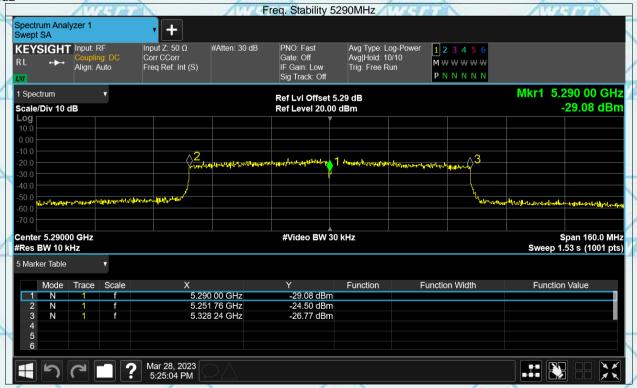
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80MHz(IEEE 802.11ac) Band1















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Band3 www.wsct-cert.com Freq. Stability 5530MHz Spectrum Analyzer 1 Swept SA + Avg Type: Log-Power Avg|Hold: 10/10 Trig: Free Run Input Z: 50 Ω KEYSIGHT Input: RF #Atten: 30 dB PNO: Fast 1 2 3 4 5 6 Corr CCorr Freq Ref: Int (S) Gate: Off IF Gain: Low Align: Auto $M \Leftrightarrow W \Leftrightarrow W \Leftrightarrow W$ PNNNNN Sig Track: Off Mkr1 5.529 92 GHz 1 Spectrum

Ref LvI Offset 5.33 dB Ref Level 20.00 dBm -28.18 dBm Scale/Div 10 dB <u>∆</u>3 Center 5.53000 GHz #Res BW 10 kHz Span 160.0 MHz Sweep 1.53 s (1001 pts) #Video BW 30 kHz 5 Marker Table

Mode Scale Function Function Width Function Value -28.18 dBm 5.529 92 GHz 5.491 76 GHz 5.568 08 GHz -21.32 dBm -23.42 dBm 6

Mar 28, 2023 5:28:32 PM Freq. Stability 5610MHz Spectrum Analyzer 1 Swept SA + Avg Type: Log-Power Avg|Hold: 10/10 Trig: Free Run KEYSIGHT Input: RF Input Z: 50 Ω #Atten: 30 dB PNO: Fast 1 2 3 4 5 6 Corr CCorr Freq Ref: Int (S) Gate: Off IF Gain: Low $M \otimes W \otimes W \otimes W$ Align: Auto PNNNNN Sig Track: Off Mkr1 5.610 00 GHz 1 Spectrum Ref Lvi Offset 5.41 dB Ref Level 20.00 dBm Scale/Div 10 dB -27.70 dBm

⊘2 <u>∆3</u> Center 5.61000 GHz #Res BW 10 kHz Span 160.0 MHz Sweep 1.53 s (1001 pts) #Video BW 30 kHz 5 Marker Table Mode Trace Scale Function **Function Width** Function Value 5.610 00 GHz -27.70 dBm 5.571 76 GHz 5.648 24 GHz -22.31 dBm -25.90 dBm 'n

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7.8BAND EDGE EMISSIONS

TEST EQUIPMENT

Please refer to Section 4 this report.

1		
	7.8.2 TEST PI	ROCEDURE
	Band Edge Emis	sions Measurement:
7	Test Method:	a.)The EUT was tested according to ANSI C63.10. b)The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high
		1.5 m. All set up is according to ANSI C63.10.
	X	c)The frequency spectrum from <u>9</u> kHz to 40 GHz was investigated. All readings from <u>9</u> kHz to <u>150</u> kHz are quasi-peak values with a resolution bandwidth of <u>200</u> Hz. All readings from
		150 kHz to 30 MHz are quasi-peak values with a resolution bandwidth of 9 KHz. All
	WSIT	readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120
/		KHz. All readings are above <u>1</u> GHz , peak values with a resolution bandwidth of <u>1</u> MHz . Measurements were made at <u>3</u> meters.
	34	d)The emissions from the EUT were measured continuously at every azimuth by rotating the turntable. The Receiving antenna high is varied from 1 m to 4 m high to find the maximum
4		emission for each frequency. Emissions below 30MHz were measured with a loop antenna while emission above 30MHz were measured using a broadband E-field
Z.		antenna.
	X	e) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak
	NISTE OF	detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
1		f)Each emission was to be maximized by changing the polarization of receiving antenna both

horizontal and vertical. In order to find out the max. emission, the relative positions of this

transmitter(EUT) was rotated through three orthogonal axes according to the

requirements in

Section 8 and 13 of ANSI C63.10.

	Band Edge Emissions Measurement:	
	Test Equipment Setting:	X
	a)Attenuation: Auto	d)RBW/VBW(Emission in non-restricted band)
	b)Span Frequency: 100 MHz	1MHz / 3MHz for peak
	c)RBW/VBW (Emission in restricted band):	A14798 A1479
١	1MHz / 3MHz for Peak,	
•	1MHz / 1/T for Average	

7.8.3 TEST SETUP

Same as section 3.4 of this report

7.8.4 CONFIGURATION OF THE EUT

Same as section 3.4 of this report

7.8.5 EUT OPERATING CONDITION

Same as section 3.4 of this report.











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7.8.6 LIMIT

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7.8.6 LIMIT				www.wsct-cert.com
Spurious Padiate	ed Emission & Band Edge Emi	issions Maggurament:	(1/47 m m)	1 (17.74
Limit:	For transmitters operating in the GHz band shall not exceed an For transmitters operating in the 5.47-5.725 GHz band shall not for transmitters operating in the range from the band edge to 1	ne 5.15-5.35 GHz band: all emis	nissions outside of the MHz. issions within the frequency d edge shall not exceed an	
N/FIET	In any 100 KHz bandwidth out that is produced by modulation sequence and the carrier frequendwidth within the band that		nd, the radio frequency power uence, the information dB below that in any 100 KHz e desired power or shall not	NEITE
	All other emissions inside rest	ricted bands specified in section	15.205(a) shall not exceed	
579		limits specified in section 15.20		
permitted average 47 CFR § 15.237(nics/spurious emissions that fall in field strength is listed in section c): The emission limits as specifior. The provisions in section 15.	i 15.209. ied above are based on measui	rement instrument employing	NI STATE
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7.8.7 TEST RESULT

	Band Edge and Fundamental Emissions Product: EUT-Sample Test Mode: 20MHzIEEE 802.11a/n/ac						
1	Product:	EUT-Sample	Test Mode:	20MHzIEEE 802.11a/n/ac			
	Test Item:		Temperature:	25 ℃			
į	2000	DC 3.8V	Humidity:	56%RH	1		
	Test Result:	PASS					
		X					

	rest itesuit.	1 700				
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	X		X		X	X
	WEIGH		WASTER	NEGO	WEIGHT	WEIGH
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lion		Group (S)	\times		X	X
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World Star V	WSET	型标检测认证股 One Group (Shenzhen) Co. L	TEL:86/755-26998192 269	Science & Technology Park, Ba 92306 FAX 66-755-86376605 E Page 77 of 94	-mail: Fengbing. Wang@wsct-ce	Member of the WSCT-INC
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Channel High (5320MHz)

5 6



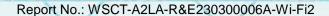










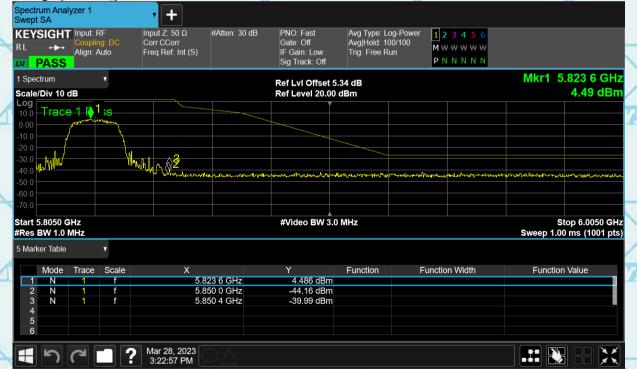


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Channel High (5825MHz)













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40MHzIEEE 802.11n/ac Channel Low (5190MHz)



Channel High (5310MHz)













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Channel Low (5755MHz)



Channel High (5795MHz)











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80MHzIEEE 802.11ac Channel Low (5210MHz)















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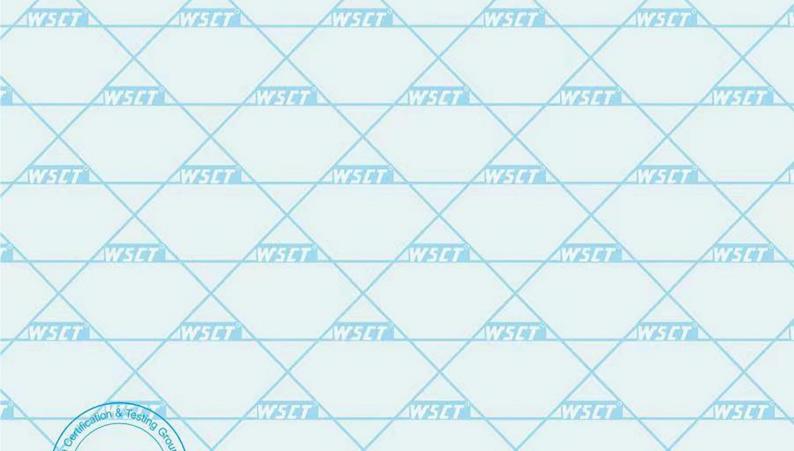
Channel Low (5775MHz)

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ADD:Building A-B Baoshi Science & Technology Park, Baoshi Road, Bao'an District, Shenzhen, Guangdong, China TEL:86-755-26996192 26992306 FAX-86-755-86376605 E-mail:Fengbing.Wang@wscl-cert.com Http://www.wscl-cert.com

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7.9 DYNAMIC FREQUENCY SELECTION (DFS)

7.9.1 DFS OVERVIEW

A U-NII network will employ a DFS function to detect signals from radar systems and to avoid co-channel operation with these systems. This applies to the 5250-5350 MHz and/or 5470-5725 MHz bands.

Within the context of the operation of the DFS function, a U-NII device will operate in either *Master Mode* or *Client Mode*. U-NII devices operating in *Client Mode* can only operate in a network controlled by a U-NII device operating in *Master Mode*.

Tables 1 and 2 shown below summarize the information contained in sections 5.1.1 and 5.1.2

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode				
	Master	Client Without Radar Detection	Client With Radar Detection		
Non-Occupancy Period	Yes	Not required	Yes		
DFS Detection Threshold	Yes	Not required	Yes		
Channel Availability Check Time	Yes	Not required	Not required		
U-NII Detection Bandwidth	Yes	Not required	Yes		

Table 2: Applicability of DFS requirements during normal operation

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11/4/11/11

	•	•			
Requirement	Operational	Operational Mode			
	Master Device or Client	Client Without			
	with Radar Detection	Radar Detection			
DFS Detection Threshold	Yes	Not required			
Channel Closing Transmission Time	Yes	Yes			
Channel Move Time	Yes	Yes			
U-NII Detection Bandwidth	Yes	Not required			

Additional requirements for devices with	Master Device or Client with	Client Without Radar
multiple bandwidth modes	Radar Detection	Detection
U-NII Detection Bandwidth and Statistical	All BW modes must be tested	Not required
Performance Check		_
Channel Move Time and Channel Closing	Test using widest BW mode	Test using the widest
Transmission Time	available	BW mode available for
		the link
All other tests	Any single BW mode	Not required

Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.

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The operational behavior and individual DFS requirements that are associated with these modes are associated with these modes.

DFS Detection Thresholds

Table 3 below provides the *DFS Detection Thresholds* for *Master Devices* as well as *Client Devices* incorporating *In-Service Monitoring*.

Table 3: DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Maximum Transmit Power	Value
	(See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and	-62 dBm
power spectral density < 10 dBm/MHz	
EIRP < 200 milliwatt that do not meet the power spectral density	-64 dBm
requirement	

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.

Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

Response Requirements

Table 4 provides the response requirements for *Master* and *Client Devices* incorporating DFS.

Table 4: DFS Response Requirement Values

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds
	See Note 1.
Channel Closing Transmission Time	200 milliseconds + an
	aggregate of 60
	milliseconds over remaining
	10 second period.
	See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-
	NII 99% transmission
	power bandwidth. See Note
	3.

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.









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RADAR TEST WAVEFORMS

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

Short Pulse Radar Test Waveforms

Table 5	Chant	Dulce	Dadan	Toot	Waveforms	
Table 5 -	SHULL	ruise	Kauai	T est	wavefulms	

Table 5 – Short Pulse Radar Test Waveforms								
Radar	Pulse Width	PRI	Number of Pulses	Minimum	Minimum			
Type	(µsec)	(µsec)		Percentage of	Number of			
				Successful	Trials			
				Detection				
0	1	1428	18	See Note 1	See Note 1			
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding	Roundup $ \left\{ \frac{\left(\frac{1}{360}\right)}{\left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu \text{sec}}}\right)} \right\} $	60%	30			
		PRI values selected in Test A						
2	1.5		22.20	600/	20			
2	1-5	150-230	23-29	60%	30			
3	6-10	200-500	16-18	60%	30			
4	11-20	200-500	12-16	60%	30			
Aggregate (I	Aggregate (Radar Types 1-4) 80% 120							

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B.

For example if in Short Pulse Radar Type 1 Test B a PRI of 3066 µsec is selected, the number of pulses would be

Roundup $\left\{ \left(\frac{1}{360} \right) \cdot \left(\frac{19 \cdot 10^{\circ}}{3066} \right) \right\} = \text{Round up } \{17.2\} = 18.$

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Table 5a - Pulse Repetition Intervals Values for Test A

Table 5a - Pulse Repetition Intervals Values for Test A				
Pulse Repetition	Pulse Repetition Frequency	Pulse Repetition Interval		
Frequency Number	(Pulses Per Second)	(Microseconds)		
Number		(Microsecolius)		
1	1930.5	518		
2	1858.7	538		
3	1792.1	558		
4	1730.1	578		
5	1672.2	598		
6	1618.1	618		
7	1567.4	638		
8	1519.8	658		
9	1474.9	678		
10	1432.7	698		
11	1392.8	718		
12	1355	738		
13	1319.3	758		
14	1285.3	778		
15	1253.1	798		
16	1222.5	818		
17	1193.3	838		
18	1165.6	858		
19	1139	878		
20	1113.6	898		
21	1089.3	918		
22	1066.1	938		
23	326.2	3066		

The aggregate is the average of the percentage of successful detections of Short Pulse Radar Types 1-4. For example, the following table indicates how to compute the aggregate of percentage of successful detections.

Radar Type	Number of Trials	Number of Successful Detections	Minimum Percentage of Successful		
			Detection		
1	35	29	82.9%		
2	30	18	60%		
3	30	27	90%		
4	50	44	88%		
Aggregate $(82.9\% + 60\% + 90\% + 88\%)/4 = 80.2\%$					











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Long Pulse Radar Test Waveform

Table 6 – Long Pulse Radar Test Waveform

Radar	Pulse	Chirp	PRI	Number	Number	Minimum	Minimum
Type	Width	Width	(µsec)	of Pulses	of Bursts	Percentage of	Number of
	(µsec)	(MHz)		per <i>Burst</i>		Successful	Trials
				_		Detection	
5	50-100	5-20	1000-	1-3	8-20	80%	30
			2000				

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse Radar Type waveforms. If more than 30 waveforms are used for the Long Pulse Radar Type waveforms, then each additional waveform must also be unique and not repeated from the previous waveforms.

Each waveform is defined as follows:

- 1) The transmission period for the Long Pulse Radar test signal is 12 seconds.
- 2) There are a total of 8 to 20 *Bursts* in the 12 second period, with the number of *Bursts* being randomly chosen. This number is *Burst Count*.
- 3) Each *Burst* consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each *Burst* within the 12 second sequence may have a different number of pulses.
- 4) The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a *Burst* will have the same pulse width. Pulses in different *Bursts* may have different pulse widths.
- 5) Each pulse has a linear frequency modulated chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a *transmission period* will have the same chirp width. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.
- 6) If more than one pulse is present in a *Burst*, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a *Burst*, the random time interval between the first and second pulses is chosen independently of the random time interval between the second and third pulses.
- 7) The 12 second transmission period is divided into even intervals. The number of intervals is equal to *Burst Count*. Each interval is of length (12,000,000 / *Burst Count*) microseconds. Each interval contains one *Burst*. The start time for the *Burst*, relative to the beginning of the interval, is between 1 and [(12,000,000 / *Burst Count*) (Total *Burst* Length) + (One Random PRI Interval)] microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each *Burst* is chosen randomly.
- A representative example of a Long Pulse Radar Type waveform:
- 1) The total test waveform length is 12 seconds.
 - 2) Eight (8) Bursts are randomly generated for the Burst Count.

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- 3) Burst 1 has 2 randomly generated pulses.
- 4) The pulse width (for both pulses) is randomly selected to be 75 microseconds.
- 5) The PRI is randomly selected to be at 1213 microseconds.
- 6) Bursts 2 through 8 are generated using steps 3-5.
- 7) Each *Burst* is contained in even intervals of 1,500,000 microseconds. The starting location for Pulse 1, *Burst* 1 is randomly generated (1 to 1,500,000 minus the total *Burst* 1 length + 1 random

PRI interval) at the 325,001 microsecond step. *Bursts* 2 through 8 randomly fall in successive 1,500,000 microsecond intervals (i.e. *Burst* 2 falls in the 1,500,001 - 3,000,000 microsecond range).

Figure 1 provides a graphical representation of the Long Pulse Radar Test Waveform.

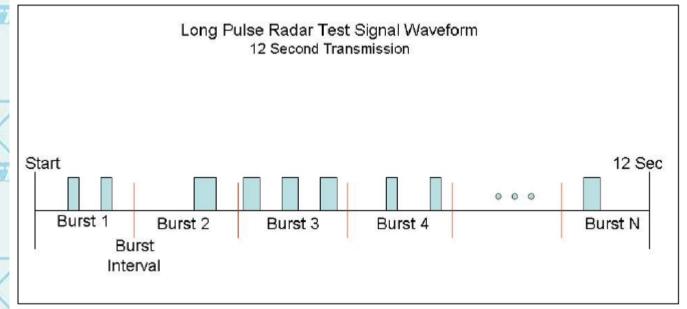
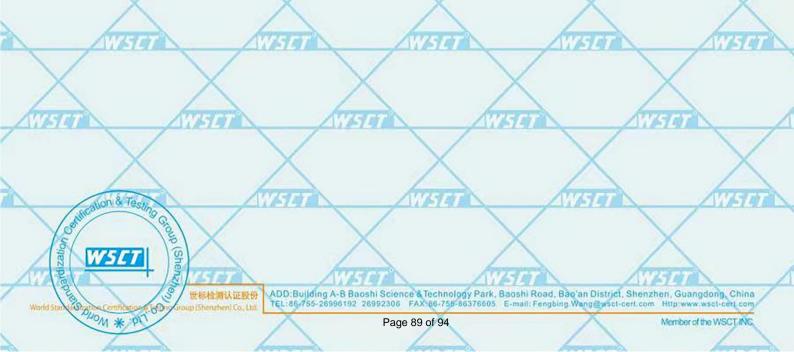


Figure 1: Graphical Representation of a Long Pulse Radar Type Waveform











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Frequency Hopping Radar Test Waveform

١.	Table 7 – Frequency Hopping Radar Test Waveform								
	Radar	Pulse	PRI	Pulses	Hopping	Hopping	Minimum	Minimum	
	Type	Width	(µsec)	per	Rate	Sequence	Percentage of	Number of	
		(µsec)		Hop	(kHz)	Length	Successful	Trials	
				_		(msec)	Detection		
	6	1	333	9	0.333	300	70%	30	

For the Frequency Hopping Radar Type, the same Burst parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm: 4

The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues until all 475 frequencies are chosen for the set. For selection of a random frequency, the frequencies remaining within the group

are always treated as equally likely.	WETA	7751	WETAT
WSGT	WSIII	WE	
WEIGH	NYSIGI	Wister	WESTER
WSI	WSI	AVE	
WETER	WSG	Wister	WEIGH
WESTER WESTER	NIETOT NIETO	THE WAS	
son & Tore	WE THE	Wister	WHI
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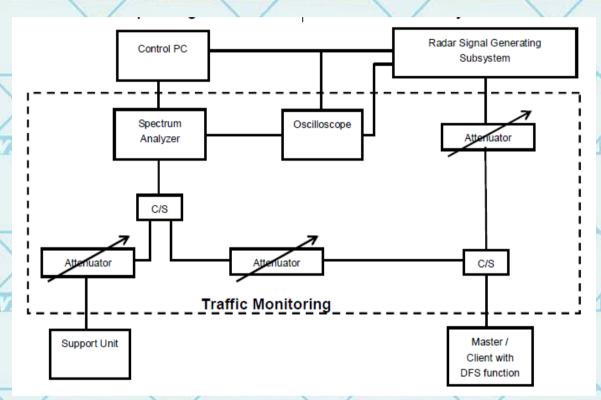
7.9.2 TEST PROCEDURE

DFS MEASUREMENT SYSTEM

A complete DFS Measurement System consists of two subsystems:

- (1) The Radar Signal Generating Subsystem and
- (2) The Traffic Monitoring Subsystem.

The control PC is necessary for generating the Radar waveforms in Table 10, 11 and 12. The traffic monitoring subsystem is specified to the type of unit under test (UUT).



The test transmission will always be from the Master Device to the Client Device. While the Client device is set up to associate with the Master device and play the MPEG file (6 y Magic Hours) from Master device, the designated MPEG test file and instructions are located at: http://ntiacsd.ntia.doc.gov/dfs/.











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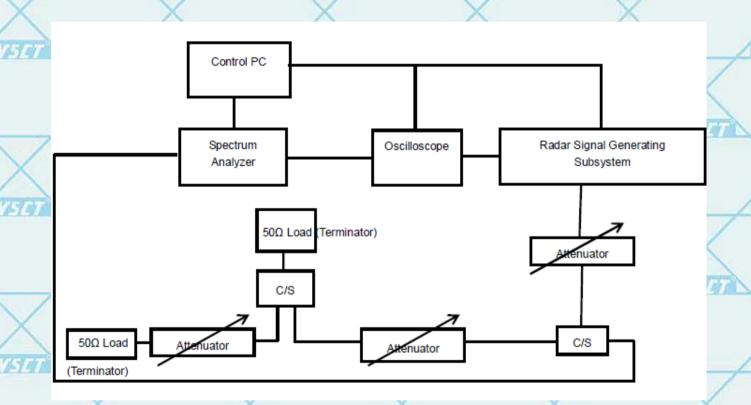
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CALIBRATION OF DFS DETECTION THRESHOLD LEVEL

The measured channel is 5260MHz. The radar signal was the same as transmitted channels, and injected into the antenna port of Client Device with Radar Detection, measured the channel closing transmission time and channel move time.

SLAVE WITHOUT RADAR DETECTION MODE

The antenna gain is -4dBi and required detection threshold is -65dBm (= -62 +1 - 4)dBm. The calibrated conducted detection threshold level is set to -65dBm.



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No deviation.

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7.9.3 TEST RESULT

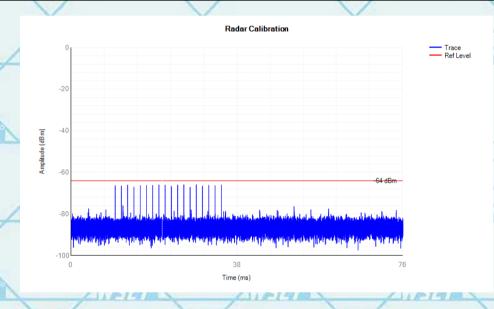
Test Items	Remark	Result
Channel Closing Transmission Time	Applicable	PASS
Channel Move Time	Applicable	PASS

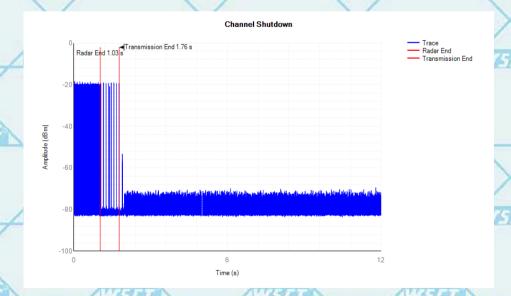
Note: This phone can only be used as a slave without radar detection function.

Measurement Record (the wost case)

Measurement data below:

5320MHz					
Test Items	Value (s)	Limit (s)	Test Result		
Channel Closing Transmission Time	0.01	1 /1727	Pass		
Channel Move Time	0.7394	10	Pass		













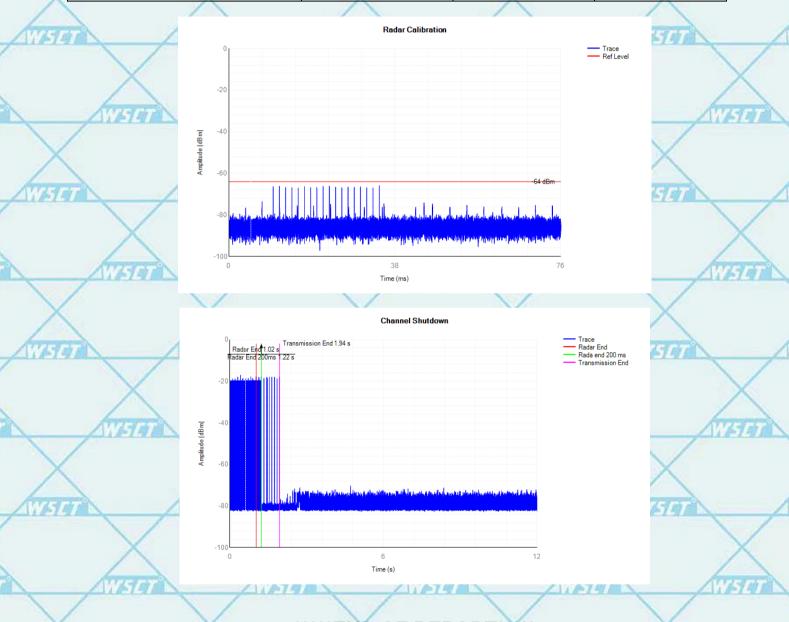
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Measu	ırement	data	below:

5500MHz					
Test Items	Value (s)	Limit (s)	Test Result		
Channel Closing Transmission Time	0.0412	0.26	Pass		
Channel Move Time	0.9165	10	Pass		



*****END OF REPORT****

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