

TEST REPORT

Report Number: 15107858-E24V1

- Applicant : Google LLC 1600 Amphitheatre Parkway Mountain View, CA 94043 U.S.A.
- Reference Model : GZC4K/GQ57S
 - FCC ID : A4RGZC4K
- EUT Description : Phone
- Test Standard(s) : DFS PORTION of FCC 47 CFR PART 15 SUBPART E

Date Of Issue:

2024-04-25

Prepared by: UL VERIFICATION SERVICES INC. 47173 Benicia Street Fremont, CA 94538 U.S.A. TEL: (510) 319-4000 FAX: (510) 661-0888



Revision History

Rev.	lssue Date	Revisions	Revised By
V1	2024-04-25	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	Google LLC 1600 Amphitheater pkwy Mountain View, CA 94043 U.S.A.	
EUT DESCRIPTION:	Phone	
MODEL:	GZC4K/GQ57S	
SERIAL NUMBER:	41101FDAS0009C	
DATE TESTED:	2024-04-19	
	APPLICABLE STANDARDS	
S	TANDARD	TEST RESULTS
DFS Portion of 4	17 CFR Part 15 Subpart E	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document.

Approved & Released For UL Verification Services Inc. By:

Frank Ibrahim Staff Engineer CONSUMER TECHNOLOGY DIVISION UL Verification Services Inc.

Prepared By:

lenny ma

Henry Lau Senior Project Engineer CONSUMER TECHNOLOGY DIVISION UL Verification Services Inc.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the DFS portion of FCC 47 CFR Part 2, FCC 47 CFR Part 15, FCC KDB 789033, KDB 905462 D02 and D03.

3. SUMMARY OF TEST RESULTS

Requirement Description	Result	Remarks
DFS Portion of FCC 47 CFR PART 15 SUBPART E	Complies	None

4. REFERENCE DOCUMENTS

Measurements of transmitter parameters as referenced in this report and all other manufacturer's declarations relevant to the RF test requirements are documented in UL Verification Services report number 15107858-E10.

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for correctly integrating customer-provided data with measurements performed by UL Verification Services Inc.

Below is a list of the data provided by the customer:

1. Antenna gain and type (see section 7.1.6)

5. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, Certificate Number 0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
\boxtimes	Building 1: 47173 Benicia Street,	US0104	2324A	550739
	Fremont, California, USA			
	Building 2: 47266 Benicia Street,	US0104	2324A	550739
	Fremont, California, USA			
	Building 4: 47658 Kato Rd, Fremont,	US0104	2324A	550739
	California, USA			

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6. DECISION RULES AND MEASUREMENT UNCERTAINTY

6.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

6.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement).

6.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U _{Lab}
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Power Spectral Density	2.47 dB
RF Power Measurement Direct Method Using Power Meter	1.3 dB (PK) / 0.45 dB (AV)
Unwanted Emissions, Conducted	1.94 dB
Worst Case Conducted Disturbance, 9kHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9kHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB
Time Domain Measurements	0.02 %
Temperature	0.57°C
Humidity	3.39%
DC Supply Voltages	0.57%

Uncertainty figures are valid to a confidence level of 95%.

7. DYNAMIC FREQUENCY SELECTION

7.1. OVERVIEW

7.1.1. LIMITS

<u>FCC</u>

§15.407 (h), FCC KDB 905462 D02 "COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION" and KDB 905462 D03 "U-NII CLIENT DEVICES WITHOUT RADAR DETECTION CAPABILITY".

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Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operatio	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

Requirement	Operational Mode			
	Master	Client	Client	
		(without DFS)	(with DFS)	
DFS Detection Threshold	Yes	Not required	Yes	
Channel Closing Transmission Time	Yes	Yes	Yes	
Channel Move Time	Yes	Yes	Yes	
U-NII Detection Bandwidth	Yes	Not required	Yes	

Additional requirements for	Master Device or Client with	Client				
devices with multiple bandwidth	Radar DFS	(without DFS)				
modes						
U-NII Detection Bandwidth and	All BW modes must be	Not required				
Statistical Performance Check	tested					
Channel Move Time and	Test using widest BW mode	Test using the				
Channel Closing Transmission	available	widest BW mode				
Time		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 all 20 MHz channel bl	ocks and a null frequency betwee	en the bonded 20				

MHz channel blocks.

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Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value			
	(see notes)			
E.I.R.P. ≥ 200 mill watt	-64 dBm			
E.I.R.P. < 200 mill watt and	-62 dBm			
power spectral density < 10 dBm/MHz				
E.I.R.P. < 200 mill watt that do not meet power spectral	-64 dBm			
density 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.				
Note 3: E.I.R.P. is based on the highest antenna gain. For MIMO devices refer to KDB				
publication 662911 D01.				

Table 4: DFS Response requirement values

Value
30 minutes
60 seconds
10 seconds (See Note 1)
200 milliseconds + approx. 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
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.

Table 5 – Short Pulse Radar Test Waveforms

Radar	Pulse	PRI	Pulses	Minimum	Minimum		
Туре	Width	(usec)		Percentage	Trials		
51	(usec)			of Successful			
				Detection			
0	1	1428	18	See Note 1	See Note		
					1		
1	1	Test A: 15 unique		60%	30		
		PRI values randomly					
		selected from the list	Roundup:				
		of 23 PRI values in	{(1/360) x (19 x 10 ⁶ /PRI _{usec})}				
		table 5a					
		Test B: 15 unique					
		PRI values randomly					
		selected within the					
		range of 518-3066					
		usec. With a					
		minimum increment					
		of 1 usec, excluding					
		PRI values selected					
		in Test A					
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 (Radar Types 1-4) 80% 120						
	Note 1: Short Pulse Radar Type 0 should be used for the Detection Bandwidth test, Channel						
Move I	Move Time, and Channel Closing Time tests.						

Table 6 – Long Pulse Radar Test Signal

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

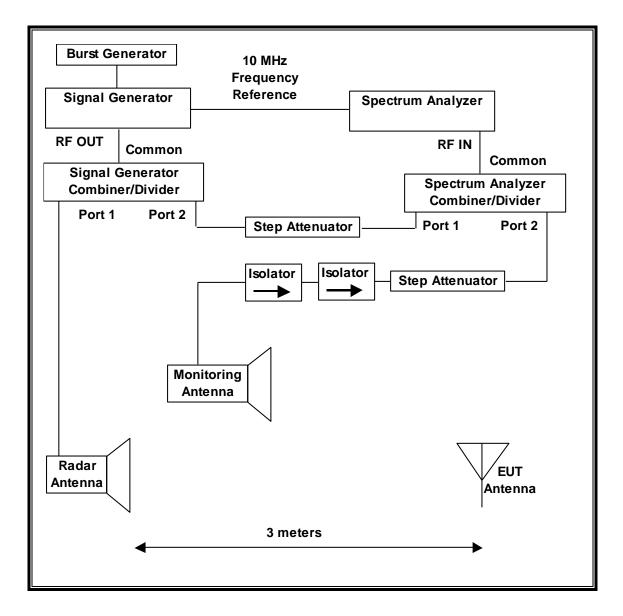
Table 7 – Frequency Hopping Radar Test Signal

		/	<u> </u>	U			
Radar	Pulse	PRI	Pulses	Hopping	Hopping	Minimum	Minimum
Waveform	Width	(µsec)	per	Rate	Sequence	Percentage of	Trials
Туре	(µsec)		Hop	(kHz)	Length	Successful	
					(msec)	Detection	
6	1	333	9	0.333	300	70%	30

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7.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED METHOD SYSTEM BLOCK DIAGRAM



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SYSTEM OVERVIEW

The short pulse and long pulse signal generating system utilizes the NTIA software. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 1, 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of KDB 905462 D02. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

SYSTEM CALIBRATION

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to a horn antenna via a coaxial cable, with the reference level offset set to (horn antenna gain – coaxial cable loss). The signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of –64 dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is –64 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

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ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Client and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Client devices. Iperf3 is used to generate WLAN traffic. Traffic that meets or exceed the minimum loading requirement is streamed from the Master device to the Client Device. The monitoring antenna is adjusted so that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST									
Description	Manufacturer	Model	ID No.	Cal Due					
Spectrum Analyzer, PXA, 3Hz to 8.4GHz	Keysight	N9030A	150667	2025-01-31					
Signal Generator, MXG X-Series RF Vector	Keysight	N5182B	215999	2025-01-31					
Frequency Extender	Keysight	N5182BX	213906	2025-01-31					

Note: An MXG series Signal Generator and separate external Frequency Extender module are shown in the preceding test system block diagram as a stand-alone Signal Generator.

7.1.3. TEST AND MEASUREMENT SOFTWARE

The following test and measurement software was utilized for the tests documented in this report:

TEST SOFTWARE LIST						
Name	Version	Test / Function				
Aggregate Time-PXA	3.1	Channel Loading and Aggregate Closing Time				
PXA Read	3.1	Signal Generator Screen Capture				
SGXProject.exe	1.7	Radar Waveform Generation and Download				

7.1.4. TEST ROOM ENVIRONMENT

The test room temperature and humidity shall be maintained within normal temperature of 15~35 °C and normal humidity 20~75% (relative humidity).

ENVIRONMENT CONDITION

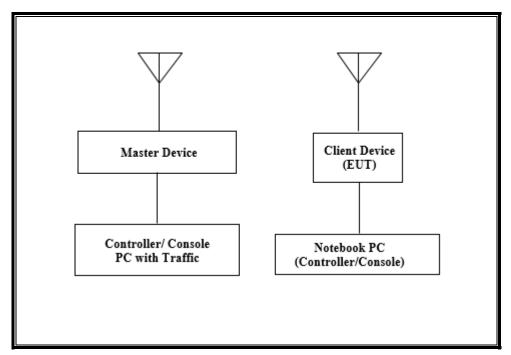
Parameter	Value
Temperature	23.7
Humidity	46

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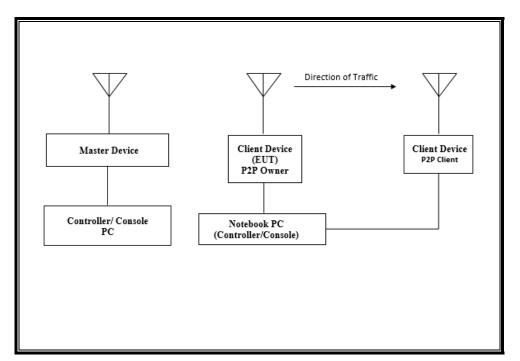
7.1.5. SETUP OF EUT

RADIATED METHOD EUT TEST SETUP

Client Mode

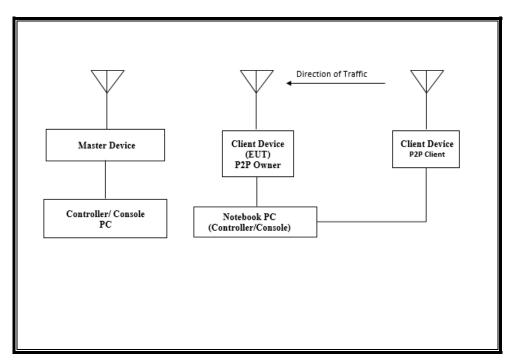






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P2P Mode (Client)



SUPPORT EQUIPMENT

The following support equipment was utilized for the tests documented in this report:

Р	PERIPHERAL SUPPORT EQUIPMENT LIST									
Description	Manufacturer	Model	Serial Number	FCC ID						
Wireless GT-AXE11000 Wifi 6E	ASUSTEK	GT-AXE11000	M6IAJF202341	MSQ-						
Tri Band Gigabit Router	Computer			RTAXJF00						
AC/DC Adapter (AP)	Acbel	ADD011	ADD01117AG204504118	DoC						
	Electronic Co.		А							
Controller/Console PC (AP)	Lenovo	Туре 4236-В92	PB-HEX04 12/05	DoC						
AC/DC Adapter (AP Laptop)	Lenovo	42T4418	11S42T4418Z1ZGWG08	DoC						
			R90M							
EUT Laptop	Dell	5310	860M663	DoC						
AC/DC Adapter (EUT Laptop)	Dell	LA90PM130	CN-01XMKR-LOC00-	DoC						
			25Q-89E1-A02							
Support Client Device	Google	GUR25	3C301FDAQ00010	A4RGUR25						

7.1.6. DESCRIPTION OF EUT

For FCC the EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

The EUT is a Client Device without Radar Detection.

The manufacturer has declared that the highest power level within these bands is declared maximum output power + uncorrelated gain of 18.88 dBm EIRP in the 5250-5350 MHz band and 20.11 dBm EIRP in the 5470-5725 MHz band.

The manufacturer has declared that the highest gain antenna assembly utilized with the EUT has a gain of -2.4 dBi in the 5250-5350 MHz band and -3.9 dBi in the 5470-5725 MHz band. The manufacturer has declared that the lowest gain antenna assembly utilized with the EUT has a gain of -4 dBi in the 5250-5350 MHz band and -3.9 dBi in the 5470-5725 MHz band.

An IFA and an ILA antenna are utilized to meet the diversity and MIMO operational requirements.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is -64 + 1 = -63 dBm.

The calibrated radiated DFS Detection Threshold level is set to –64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

The EUT uses two transmitter/receiver chains, each connected to an antenna to perform radiated tests.

WLAN traffic that meets or exceeds the minimum required loading was generated by transferring a data stream from the Master Device to the Client Device using iPerf version 3.1.3 software package.

TPC is not required since the maximum EIRP is less than 500 mW (27 dBm).

The EUT utilizes the 802.11ax architecture. Four nominal channel bandwidths are implemented: 20 MHz, 40 MHz, 80 MHz and 160 MHz.

Channel puncturing is supported by the EUT.

TDLS (Tunneled Direct Link Setup) mode is not supported by the EUT.

Peer 2 Peer mode is supported by the EUT at 80MHz bandwidth.

The software installed in the EUT is komodo-userdebug 14 AD1A.240223.002 11488211 devkeys..

The software installed in the access point is V3.0.0.4.386_45940-gaafbb83...

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UNIFORM CHANNEL SPREADING

This function is not required per KDB 905462 for client devices.

OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS

The Master Device is a ASUSTEK Computer, Inc. Wireless GT-AXE11000 Tri Band Gigabit Router, FCC ID: MSQ-RTAXJF00. The minimum antenna gain for the Master Device is 1.97 dBi.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore, the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is -64 + 1 = -63 dBm.

The calibrated radiated DFS Detection Threshold level is set to –64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

The software installed in the access point is V3.0.0.4.386_45940-gaafbb83.

7.2. MODEL DIFFERENCES

The manufacturer hereby declares the following for models: GZC4K, GQ57S

They have the same PCB layout, design, common components, antennas, antenna locations and housing cases.

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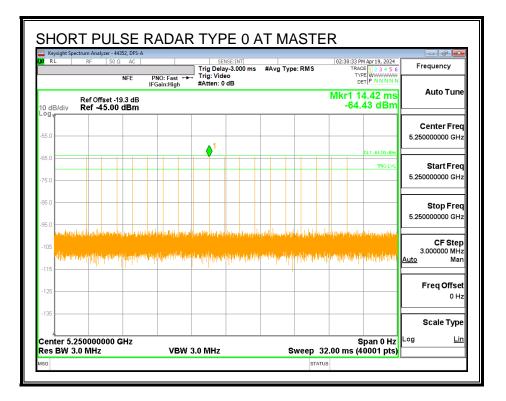
7.3. RESULTS FOR 160 MHz BANDWIDTH (Client Mode)

7.3.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5250 MHz.

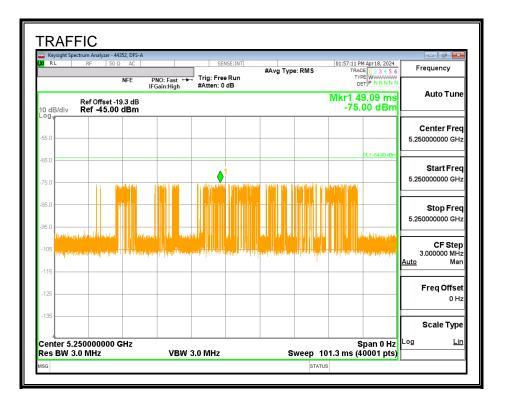
7.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



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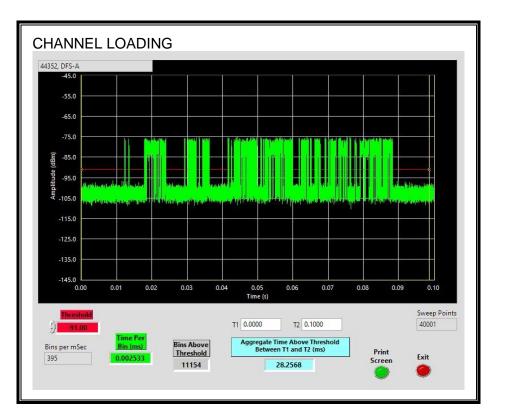
TRAFFIC



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CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 28.2568%

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7.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.3.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time = (Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

<u>RESULTS</u>

Channel Move Time	Limit
(sec)	(sec)
0	10

Aggregate Channel Closing Transmission Time	Limit
(msec)	(msec)
0	60

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MOVE TIME

RL RF	nalyzer - 44352, DFS-A 50 Ω AC	4	SENSE	INT		01:39:17 PM Ap	19 2024		
NC RP	NFE	PNO: Fast IFGain:Higl	Trig: Free R	#Avg un	Type: RMS	TRACE 1	2 3 4 5 6 WWWWWW	Frequenc	у
	Offset -19.3 dB -45.00 dBm	ii Gaintrigi				ΔMkr1 0. 0.0	000 s 00 dB	Auto	Tune
^g	142								_
5.0	,					DL1	-64.00 dBm	Center 5.25000000	
5.0	wold, and gate they are a p	n na hana an ta	a Maria ang pang pang pang pang pang pang pang	under dinn wedd ac an a ba	tinen menteraleranak	aliya sa Marini a sa ji	uniter ter	Start 5.250000000	
Allowertonic									
								Stop	
25								Stop 5.250000000	
15 25 35 enter 5.2500 es BW 3.0 M		VE	SW 3.0 MHz		Sweep	Spa 16.00 s (400	ın 0 Hz 01 pts)	5.25000000 CF 3.000000	Step
enter 5.25000 s BW 3.0 Mi	Hz		Y	FUNCTION	Sweep		01 pts)	5.250000000 CF	Stel
25 enter 5.25000 es BW 3.0 MI R MODE TRC SCL A2 1 t 2 F 1 t 3	Hz	VE 0.000 s 1.668 s	Y	3	· ·	16.00 s (400	01 pts) ALUE	5.25000000 CF 3.000000	Step MH Mai
25 36 enter 5.25000 es BW 3.0 MI G MODE HRG S31 42 1 t 34 5 5 7	Hz	0.000 s	Υ (Δ) 0.00 dB	3	· ·	16.00 s (400	01 pts)	5.250000000 CF 3.0000000 <u>Auto</u> Freq O	Step MH Mai Offse 0 H
25 35 enter 5.25000 es BW 3.0 Mi R MODE TRC SCU	Hz	0.000 s	Υ (Δ) 0.00 dB	3	· ·	16.00 s (400	01 pts) ALUE	5.250000000 CF 3.000000 <u>Auto</u>	OGH: Step OMH: Mar Offse OH:

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CHANNEL CLOSING TIME

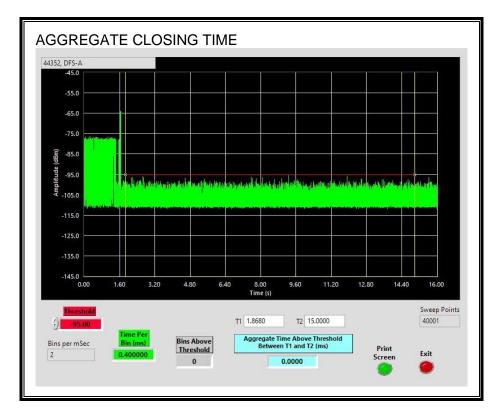
Keysight Spectrum Analyze	er - 44352, DFS-A 50 Ω AC		SEN	SE:INT			01:44:15 P	M Apr 18, 2024	
	NFE	PNO: Fast		o	#Avg Type	e:RMS	TRAC	E 1 2 3 4 5 6 E WWWWWW T P N N N N N	Frequency
dB/div Ref -45	et -19.3 dB 5.00 dBm	FGain:High	#Atten: 0	00		2		00.0 ms 9.55 dB	Auto Tune
,a .									Center Free
5.0								DL1 -64.00 dBm	5.25000000 GH
5.0 <mark>- X2</mark>								TRIG LVL	Start Free
5.0									5.250000000 GH:
5.0								[Stop Free
5.0	hlifan dyffodda yw		9 (1.1) 1.16	المعمر الله	la ha co	ير الأر م	di Jana	a de lancete e	5.25000000 GH
105 North Manual 1	men melangan keratak Tilik kerkulan di Musikerada	en energen synes. De ofder de frædere		antornar van en Alexander fiskan	e generation providente La rendezi de la dela dela dela del	en des frankers anderski kerstere	e anders of the second states	Andrew Proceedings and an and a second s An An A	CF Step 3.000000 MH
115								4	<u>Auto</u> Mar
25									Freq Offse
35									0 H:
									Scale Type
enter 5.2500000 es BW 3.0 MHz	00 GHz		8.0 MHz					pan 0 Hz 0001 pts)	_og <u>Lir</u>

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AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



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7.3.5. NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.

KI RE RF	nalyzer - 44352, DFS-A				
	50 Ω AC	SENSE:INT	#Avg Type: RMS	08:14:18 AM Apr 19, 2024 TRACE 1 2 3 4 5 6	Frequency
	NFE PNO: IFGain:	Fast ↔ Trig: Free Run High #Atten: 0 dB		DET P N N N N	
10 dB/div Ref	Offset -19.3 dB -45.00 dBm			∆Mkr1 1.800 ks -42.49 dB	Auto Tune
Log					Center Free
-55.0					5.250000000 GH
-65.0				DL1 -64.00 dBm	
					Start Free
-75.0					5.250000000 GH
-85.0					Stop Free
					5.250000000 GH
-95.0	والمراجع والمعار المحمد والمحالي المحالي	defiliendelineertelideerterre	alli dama sa baddi saya shat, and	بالديوا والعامية المرابع	
-105		e called a official and attack for a the diffic		a, arba e balle a A <mark>TVS</mark> line.	CF Stej 3.000000 MH
	in here it is hereicht is in sterie die te sterie sterie	an and the second program in the second s	antipie presidente de la texte de prederer en de la texte	ารสาวเราะ และสารณ์ การสมับสืบ เราะ	Auto Mai
and the state of the section is not of the					
-115					
-115 -125					Freq Offse
-125					•
					Freq Offse 0 H Scale Type

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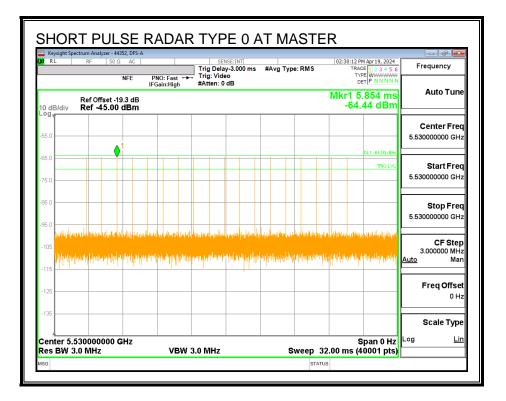
7.4. RESULTS FOR 80 MHz BANDWIDTH (P2P Mode) [Owner]

7.4.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5530 MHz.

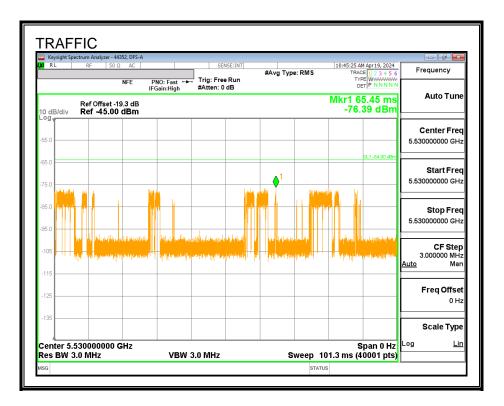
7.4.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



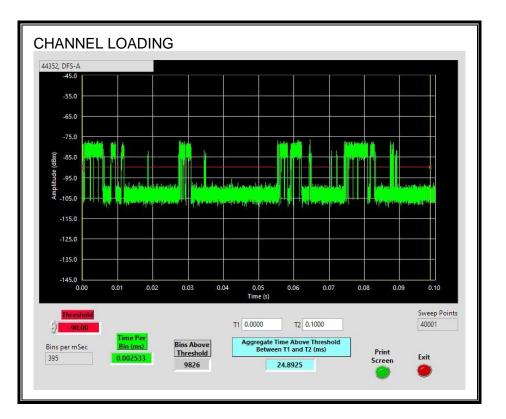
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TRAFFIC



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CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 24.8925%

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7.4.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.4.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time = (Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

<u>RESULTS</u>

Channel Move Time	Limit
(sec)	(sec)
0.0248	10

Aggregate Channel Closing Transmission Time	Limit
(msec)	(msec)
0	60

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MOVE TIME

				SENS	E:INT				AM Apr 19, 20		
FE		NO: Fast Gain:Hig		rig: Free Atten: 0 c		#Avg Ty	be:RMS	Т	ACE 1 2 3 4 YPE WWWW DET P N N N	3 0	Frequency
3 dB I B m	3	Summig					Δ		24.80 m 17.30 d		Auto Tun
											Center Free
									DL1 -64.00 c		30000000 GH
											Start Free
alahli	h huin	والاختلال	الراري المربعا	la line di Alifonia	ad post datas	hin Whataha	mahallahay	والقارقان فكأما	وفناوفته والقبا	5.5	30000000 GH
		-									
										5.5	
											30000000 GH
Hz		VE	W 3.0	MHz			Sweep 7		Span 0 I 40001 p	Hz ts)	Stop Free 30000000 GH: CF Step 3.000000 MH:
×				MHz -17.30 d		CTION FU	Sweep /	6.00 s (-lz	30000000 GH CF Step
×	24.	VE .80 ms 1.568 s	(Δ)	Y	в	CTION FU	· ·	6.00 s (40001 p	Hz ts)	30000000 GH CF Ste 3.000000 MH Ma Freq Offse
×	24.	.80 ms	(Δ)	Y -17.30 d	в	CTION	· ·	6.00 s (40001 p	Hz ts)	30000000 GH CF Stel 3.000000 MH

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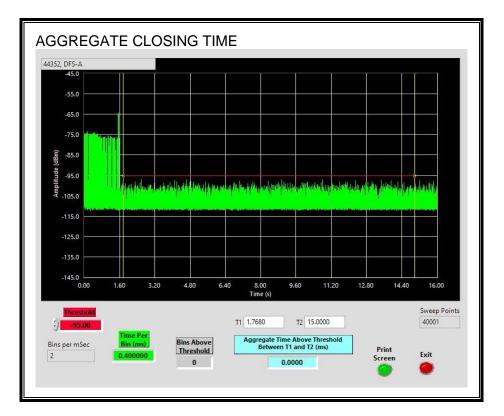
CHANNEL CLOSING TIME

zysight Spectrum Analyzer - 44352, D L RF 50 Ω A		SENSE:INT		08:31:33 AM Apr 19, 2024	
NFE	PNO: Fast +		#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P NNNNN	Frequency
Ref Offset -19.3 c dB/div Ref -45.00 dB		#Atten: 0 dB	2	∆Mkr1 200.0 ms -39.75 dB	Auto Tuno
					Center Free 5.530000000 GH
				DL1 -64.00 dBm	5.55000000 GH
0 <u>1×2</u>				TRIG LVL	Start Free 5.530000000 GH
					Stop Free 5.530000000 GH
	×		testelastesin (marking more data and	terre has here the start of the terre have been	CF Step 3.000000 MH Auto Mar
25					Freq Offse 0 H
					Scale Type
enter 5.530000000 GHz es BW 3.0 MHz		3.0 MHz		Span 0 Hz 00.0 ms (40001 pts)	_og <u>Li</u> i

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AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



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7.4.5. NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.

M Keysig	nt Spectrum Analyze RF	r - 44352, DFS-A 50 Ω AC		SEN	NSE:INT	#Avg Type	RMS		AM Apr 19, 2024 CE 1 2 3 4 5 6	Frequency
			PNO: Fast ↔ FGain:High	Trig: Free #Atten: 0				TY		
10 dB/d		et -19.3 dB .00 dBm							1.800 ks l6.30 dB	Auto Tun
Log										Center Fre
-55.0									DL1 -64.00 dBm	5.530000000 GH
-65.0	2								DET -04.00 GDM	Start Free
-75.0										5.530000000 GH
-85.0									I	Stop Fre
-95.0										5.530000000 GH
-105 -	a hal Mikanada ka	rely telepite	ahtti jahan	Hindrich	1 politikar	luni (upa)	n <mark>lill Add</mark>	HANDANA		CF Ste j 3.000000 MH <u>Auto</u> Ma
-115									F	
-125 —										Freq Offse 0 H
-135 —										Scale Typ
Conto	5.53000000	0 GHz							Span 0 Hz	_og <u>Li</u>

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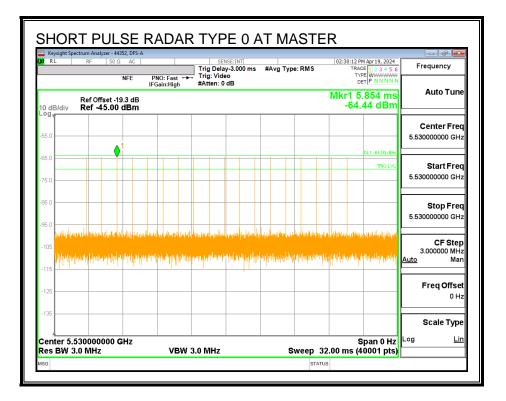
7.5. RESULTS FOR 80 MHz BANDWIDTH (P2P Mode) [Client]

7.5.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5530 MHz.

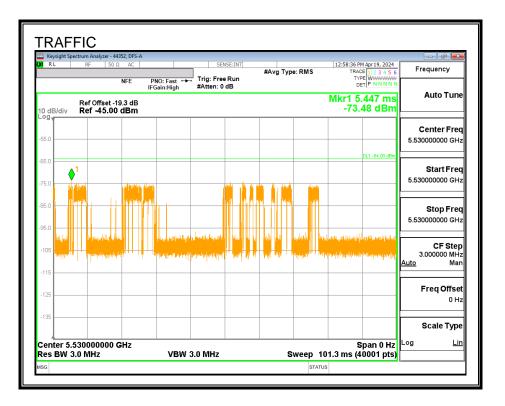
7.5.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



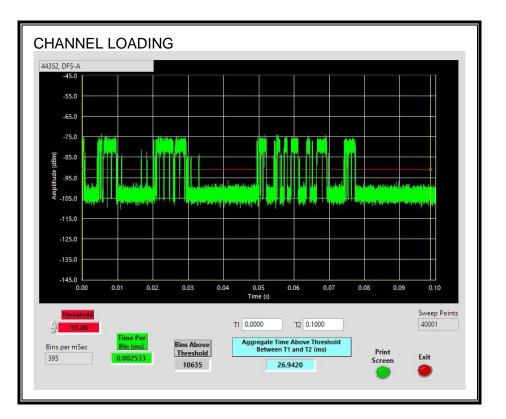
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TRAFFIC



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CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 26.942%

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7.5.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.5.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time = (Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

<u>RESULTS</u>

Channel Move Time	Limit
(sec)	(sec)
0.8388	10

Aggregate Channel Closing Transmission Time	Limit
(msec)	(msec)
1.6	60

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MOVE TIME

	50 Ω AC		SENSE:INT		12:59:41 P	M Apr 19, 2024	
			rig: Free Run Atten: 0 dB	#Avg Type: RMS	TY	CE 1 2 3 4 5 6 PE WWWWWW ET P N N N N N	Frequency
	et -19.3 dB .00 dBm				ΔMkr1 8 -1	38.8 ms 2.03 dB	Auto Tun
9							Center Fre
i.0 2	1Δ2					DL1 -64.00 dBm	5.530000000 GH
i.0							Start Fre
io DS	tated and bala alt	and any state of the second	walting a distant	and the hold providence of	dentrolika (include).	dependence and	5.530000000 GH
15							
15 25 36							
25 36 enter 5.53000000	10 GHz	VBW 3.0		Swee		ipan 0 Hz	Stop Free 5.53000000 GH CF Step 3.000000 MH
25 35 29 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	X	VBW 3.0	Y FI		ep 16.00 s(4	0001 pts)	5.530000000 GH
25 36 enter 5.53000000 s BW 3.0 MHz R Model TRC Scu Δ2 1 t (Δ) 2 F 1 t	× 838.8	.8 ms (Δ)			ep 16.00 s(4	0001 pts)	5.530000000 GH CF Step 3.000000 MH <u>Auto</u> Ma
25 25 25 25 25 25 25 25 25 25	× 838.8	.8 ms (Δ)	Y F		ep 16.00 s(4	0001 pts)	5.530000000 GH CF Step 3.000000 MH
25 26 27 26 27 27 27 27 27 27 27 27 27 27	× 838.8	.8 ms (Δ)	Y F		ep 16.00 s(4	0001 pts)	5.530000000 GH CF Stej 3.000000 MH <u>Auto</u> Ma Freq Offse

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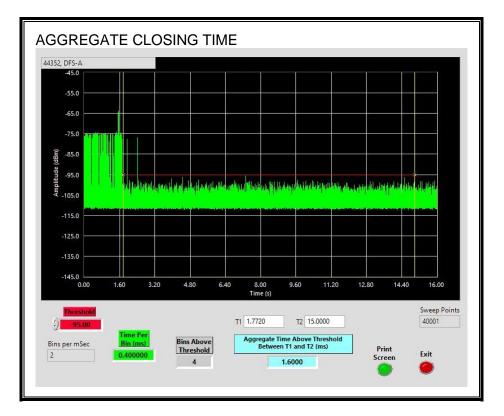
CHANNEL CLOSING TIME

eysight Spectrum Analyzer - 44352, D L RF 50 Ω A		SENSE:INT		01:05:11 PM Apr 19, 2024	- Ø -
NFE	PNO: Fast ↔	Taine Mide a	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
Ref Offset -19.3 o dB/div Ref -45.00 dB		#Atten: 0 db		∆Mkr1 200.0 ms -39.88 dB	Auto Tune
g					Center Free
5.0				DL1 -64.00 dBm	5.530000000 GH
5.0 2				TRIG LVL	Start Free 5.530000000 GH
5.0					Stop Fre 5.530000000 GH
05 Annual Contractor (1997) 15	· · · · · · · · · · · · · · · · · · ·		a ka ku ya na ka sa ka ku	Hilling the production of the billing of the second s	CF Step 3.000000 MH Auto Mar
25					Freq Offse 0 H
35					Scale Type
enter 5.530000000 GHz es BW 3.0 MHz		3.0 MHz		Span 0 Hz 00.0 ms (40001 pts)	_og <u>Lir</u>

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AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



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7.5.5. NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.

Keysight Spectrum		T	SENSE:INT	#Avg Type:		:44:39 PM Apr 19, 2024 TRACE 1 2 3 4 5 6 TYPE WWWWWW	Frequency
10 dB/div Re			Atten: 0 dB		ΔΜ	kr1 1.800 ks -46.96 dB	Auto Tun
-55.0							Center Fre 5.53000000 GH
-65.0 2						DL1 -64.00 dBm	Start Fre 5.530000000 GH
-85.0							Stop Fre 5.53000000 GH
-105	ppharantel (ni)		roto providelje		halil hann belander		CF Stej 3.000000 MH Auto Ma
-125							Freq Offse 0 H
-135 Center 5.5300	00000 CH7					Span 0 Hz	Scale Typ

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8. SETUP PHOTOS

Please refer to 15107858-EP2 for setup photos.

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