

TEST REPORT

Report Number. : 13757234-E14V2

- Applicant : Magic Leap Inc. 7500 West Sunrise Blvd Plantation, FL, 33322, US
 - Model : M1003000, M1004000, M1005000 M1103000, M1104000, M1105000
 - Brand : Magic Leap Inc.
 - FCC ID : 2AM5N-ML2M1
 - **IC** : 23045-ML2M1
- EUT Description : Magic Leap 2 Compute Pack and Headset
- **Test Standard(s) :** DFS PORTION of FCC 47 CFR PART 15 SUBPART E DFS PORTION of ISED CANADA RSS-247 ISSUE 2

Date Of Issue: June 06, 2022

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



Revision History

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Page 2 of 78

TABLE OF CONTENTS

1.	ATTESTATION OF TEST RESULTS	5
2.	TEST METHODOLOGY	6
3.	SUMMARY OF TEST RESULTS	6
4.	REFERENCE DOCUMENTS	6
5.	FACILITIES AND ACCREDITATION	6
6.	DECISION RULES AND MEASUREMENT UNCERTAINTY	7
6	.1. METROLOGICAL TRACEABILITY	7
6	2. DECISION RULES	7
7.	DYNAMIC FREQUENCY SELECTION	7
7	.1. OVERVIEW	7
	7.1.1. LIMITS	
	7.1.2. TEST AND MEASUREMENT SYSTEM	
	7.1.3. TEST AND MEASUREMENT SOFTWARE	
	7.1.4. TEST ROOM ENVIRONMENT	
	7.1.6. DESCRIPTION OF EUT	
	7.1.7. MODEL DIFFERENCES	17
7	2. RESULTS FOR 20 MHz BANDWIDTH	18
-	7.2.1. TEST CHANNEL	18
	7.2.2. RADAR WAVEFORM AND TRAFFIC	
	7.2.3. OVERLAPPING CHANNEL TESTS	
	7.2.4. MOVE AND CLOSING TIME	
7	.3. RESULTS FOR 40 MHz BANDWIDTH2	
	7.3.1. TEST CHANNEL	
	7.3.2. RADAR WAVEFORM AND TRAFFIC	
	7.3.4. MOVE AND CLOSING TIME	-
_		
1	.4. RESULTS FOR 80 MHz BANDWIDTH	
	7.4.2. RADAR WAVEFORM AND TRAFFIC	
	7.4.3. OVERLAPPING CHANNEL TESTS	
	7.4.4. MOVE AND CLOSING TIME	
	7.4.5. 30-MINUTE NON-OCCUPANCY PERIOD	39
7	.5. RESULTS FOR 160 MHz BANDWIDTH	40
	7.5.1. TEST CHANNEL	
	7.5.2. RADAR WAVEFORM AND TRAFFIC	-
	7.5.3. OVERLAPPING CHANNEL TESTS	
	 7.5.4. MOVE AND CLOSING TIME	
-		
7	.6. TDLS RESULTS FOR 20 MHz BANDWIDTH	
		41

-	7.6.2. 7.6.3. 7.6.4.	RADAR WAVEFORM AND TRAFFIC OVERLAPPING CHANNEL TESTS MOVE AND CLOSING TIME	51
-	7. TDL 7.7.1. 7.7.2. 7.7.3. 7.7.4.	S RESULTS FOR 40 MHz BANDWIDTH TEST CHANNEL RADAR WAVEFORM AND TRAFFIC OVERLAPPING CHANNEL TESTS MOVE AND CLOSING TIME	55 55 58
-	3. TDL 7.8.1. 7.8.2. 7.8.3. 7.8.4. 7.8.5.	S RESULTS FOR 80 MHz BANDWIDTH TEST CHANNEL RADAR WAVEFORM AND TRAFFIC OVERLAPPING CHANNEL TESTS MOVE AND CLOSING TIME	62 62 65 65
-	9. TDL 7.9.1. 7.9.2. 7.9.3. 7.9.4. 7.9.5.	S RESULTS FOR 160 MHz BANDWIDTH TEST CHANNEL RADAR WAVEFORM AND TRAFFIC OVERLAPPING CHANNEL TESTS MOVE AND CLOSING TIME	70 70 73 73
8. 3	SETUP	PHOTOS	78

Page 4 of 78

1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	MAGIC LEAP, INC. 7500 WEST SUNRISE BLVD. PLANTATION, FL, 33322, U.S.A.
EUT DESCRIPTION:	Magic Leap 2 Compute Pack and Headset
BRAND:	Magic Leap Inc.
MODEL:	M1003000, M1004000, M1005000 M1103000, M1104000, M1105000
MODEL TESTED:	M1003000
SERIAL NUMBER:	GB52XG030044, GB52XG03000S
DATE TESTED:	FEBRUARY 01 to 03 & April 12, 2022

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
DFS Portion of CFR 47 Part 15 Subpart E	Complies
DFS Portion of ISED CANADA RSS-247 Issue 2	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:

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Doug Anderson Test Engineer CONSUMER TECHNOLOGY DIVISION UL Verification Services Inc.

Page 5 of 78

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the DFS portion of FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC KDB 789033, KDB 905462 D02 and D03 and RSS-247 Issue 2.

The scope of this report covers the client DFS performance of Models M1003000, M1004000, M1005000, M1103000, M1104000, M1105000.

3. SUMMARY OF TEST RESULTS

Requirement Description	Result	Remarks
DFS Portion of FCC 47 CFR PART 15 SUBPART E	Complies	None
DFS Portion of ISED CANADA RSS-247 ISSUE 2	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 13757234-E10V1 & 13757234-E11V1.

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer.

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
\mathbf{X}	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			

Page 6 of 78

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).

7. DYNAMIC FREQUENCY SELECTION

7.1. OVERVIEW

7.1.1. LIMITS

INNOVATION, SCIENCE and ECONOMIC DEVELOPMENT CANADA (ISED)

ISED RSS-247 is closely harmonized with FCC Part 15 DFS rules. The deviations are as follows:

RSS-247 Issue 2

Note: For the band 5600–5650 MHz, no operation is permitted.

Until further notice, devices subject to this annex shall not be capable of transmitting in the band 5600–5650 MHz. This restriction is for the protection of Environment Canada weather radars operating in this band.

FCC

§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".

Page 7 of 78

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

Requirement	Operationa	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	

Master Device or Client with	Client			
Radar DFS	(without DFS)			
All BW modes must be	Not required			
tested				
Test using widest BW mode	Test using the			
available	widest BW mode			
	available for the			
	link			
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 blocks and a null frequency between the bonded 20				
	Radar DFS All BW modes must be tested Test using widest BW mode available Any single BW mode stical performance check (Section e radar detection bandwidth and th. For 802.11 devices it is sugge			

MHz channel blocks.

Page 8 of 78

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 v	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

Parameter	Value
Non-occupancy period	30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds (See Note 1)
Channel Closing Transmission Time	200 milliseconds + approx. 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.

Table 5 – Short Pulse Radar Test Waveforms

Radar	Pulse	PRI	Pulses	Minimum	Minimum
Туре	Width	(usec)		Percentage	Trials
	(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 T	ypes 1-4)	80%	120
			ld be used for the Detection Bai	ndwidth test, Ch	annel
Move T	<i>ime</i> , and	Channel Closing Time to	ests.		

Table 6 – Long Pulse Radar Test Signal

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				

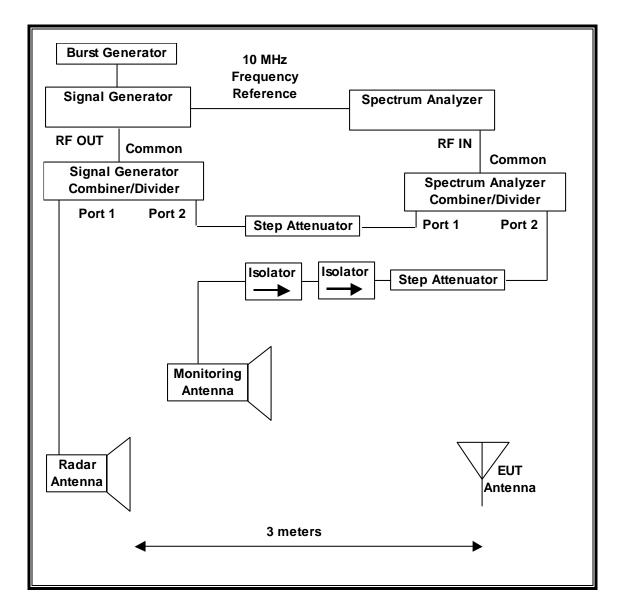
Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length	Minimum Percentage of Successful	Minimum Trials
Type	(µ300)		Пор	(1112)	(msec)	Detection	
6	1	333	9	0.333	300	70%	30

Page 10 of 78

7.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED METHOD SYSTEM BLOCK DIAGRAM



Page 11 of 78

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.

Page 12 of 78

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Slave and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. Traffic that meets or exceed the minimum loading requirement is streamed from the Master device to the Slave 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 44GHz	Keysight	N9030A	150667	01/27/23					
Signal Generator, MXG X-Series RF Vector	Agilent	N5182B	150666	01/26/23					

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

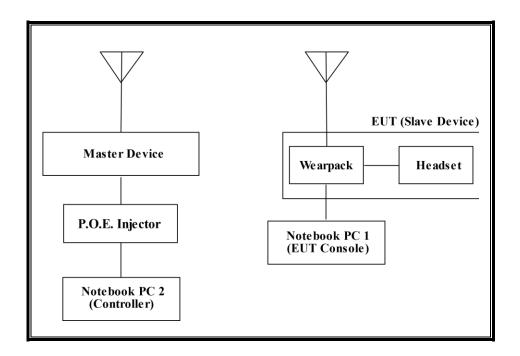
Parameter	Value
Temperature	26.0, 25.7 and 24.9 °C
Humidity	22, 21 and 22%

Page 13 of 78

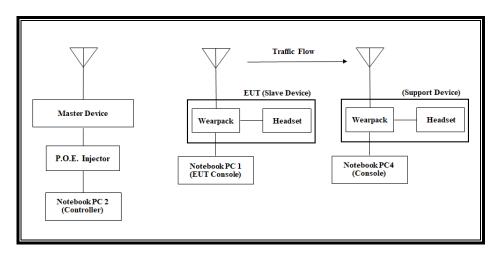
7.1.5. SETUP OF EUT

RADIATED METHOD EUT TEST SETUP

STANDARD CONFIGURATION



TDLS CONFIGURATION



Page 14 of 78

SUPPORT EQUIPMENT

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

PE	RIPHERAL SUPPO	RT EQUIPMENT LIS	т	
Description	Manufacturer	Model	Serial Number	FCC ID
Notebook PC 1 (EUT Console)	HP	V2W71UT#ABA	5GC65239OX	DoC
AC Adapter 1 (Notebook PC 1)	Chicony Electric Technology	PPP012C-S	WEBPK0BGC9 V209	DoC
802.11ac Dual Band Wireless Access Point (Master 1)	Cisco	AIR-CAP3702E-A- K9	FTX181570A6	LDK102087
P.O.E. Injector (Master 1)	Phihong	POE30U-560(G)	PHI170102N2	DoC
Notebook PC 2 (Master Controller)	Lenovo	Туре 4236-В92	PB-HEX04 12/05	DoC
AC Adapter 2 (Notebook PC 2)	Lenovo	42T4418	11S42T4418Z1 ZGWG08R90M	DoC
Wireless AX6000 Dual Band Gigabit Router (Master 2)	ASUSTEK Computer	RT-AX88U	M8IG39208055 X35	MSQ- RTAXHP00
AC Adapter 3 (Master 2)	AC BEL	ADH011	ADH01117AG2 04833506A	DoC
Notebook PC 3 (Master Controller)	HP	HSTNN-C86C	GND809488M	DoC
AC Adapter 4 (Notebook PC 3)	Chicony Power Technology	A200A008L	WFDEC0AHHA E92W	DoC
Notebook PC 4 (Support Console)	HP	Elitebook 840 G4	5CG7426DT0	DoC
AC Adapter 5 (Notebook PC 4)	Acbel Electronic Co.	PPP009A	WFTLK0FGMB4 537	DoC
Support Client Device	Magic Leap	M1003000	GB52XG03004 0	2AM5N-ML2M1
Wireless GT-AXE11000 Wifi 6E	ASUSTEK	GT-AXE11000	M6IAJF202341	MSQ-
Tri Band Gigabit Router (Master 3)	Computer			RTAXJF00
AC Adapter 6 (Master 3)	Acbel Electronic Co.	ADD011	ADD01117AG2 04504118A	DoC

Page 15 of 78

7.1.6. DESCRIPTION OF EUT

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

For ISED the EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges, excluding the 5600-5650 MHz range.

The EUT is a Slave Device without Radar Detection.

The highest power level within these bands is 22.76 dBm EIRP in the 5250-5350 MHz band and 23.48 dBm EIRP in the 5470-5725 MHz band.

The highest gain antenna assembly utilized with the EUT has a gain of 3.3 dBi in the 5250-5350 MHz band and 4.5 dBi in the 5470-5725 MHz band. The lowest gain antenna assembly utilized with the EUT has a gain of 2.9 dBi in the 5250-5350 MHz band and 3.5 dBi in the 5470-5725 MHz band.

Two antennas 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 Slave Device using iPerf3 version 10.1_64bit software package.

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

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

Master Device 1 was used for 20 MHz, 40 MHz and 80 MHz channel bandwidths.

Master Device 2 & 3 was used 160 MHz channel bandwidth.

The software installed in Master Device 1 is AP3G2-K9W7-M Version 15.3(3)JAB.

The software installed in Master Device 2 is version V3.0.0.4.386.42489.

The software installed in Master Device 3 is version V3.0.0.4.386_45940-gaafbb83.

The software installed in the EUT is PEQ4B.

Channel puncturing is not supported.

Page 16 of 78

7.1.7. MODEL DIFFERENCES

Models M1003000, M1004000, M1005000, M1103000, M1104000, and M1105000 are electronically identical. The model numbers are to differentiate the markets and regions of sale.

UNIFORM CHANNEL SPREADING

This is requirement not applicable to Slave Devices.

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

For 20 MHz, 40 MHz and 80 MHz:

Master Device 1 used for 20 MHz, 40 MHz, & 80 MHz testing is a Cisco Access Point, FCC ID: LDK102087. The minimum antenna gain for the Master Device is 6 dBi.

The rated output power of Master Device 1 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 Master Device 1 is AP3G2-K9W7-M Version 15.3(3)JAB.

For 160 MHz:

Master Device 2

Master Device 2 used for 160 MHz testing is an ASUSTEK Computer, Inc. Wireless AX6000 Dual Band Gigabit Router, FCC ID: MSQ-RTAXHP00. The minimum antenna gain for the Master Device is 2.24 dBi.

The rated output power of Master Device 2 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 Master Device 2 is version V3.0.0.4.386_44266.

Master Device 3

Master Device 3 used for TDLS 160 MHz testing is an 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 Master Device 3 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.

Page 17 of 78

The software installed in Master Device 3 is version V3.0.0.4.386_45940-gaafbb83.

7.2. RESULTS FOR 20 MHz BANDWIDTH

7.2.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5500 MHz.

7.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM

XI R	uter F	RF		50 Ω DOO	AC) GH	Z IO: Fas	t 🔸	, Tr	ig De ig: Vi	lay- deo		ms	Av	д Туре	e: Log	-Pwr	07:	TR4	AM Feb 03, 202 ICE 1 2 3 4 5 IPE WWWWWWW	6 ₩	requency
	3/div		Offse '-45.			IFG	ain:Hig	jh	##	Atten:	0 dl	в							r1 2	25.42 m .04 dBn	s	Auto Tune
Log _¶ -55.0																						Center Freq 00000000 GHz
-65.0																	. (DL1 -64.00 dB		
-75.0																				TRIG LV		Start Freq
-85.0																					5.5	Stop Freq 00000000 GHz
-105	dalaan dalayoo						aan addad													talasan pintan pulata pinta		CF Step 3.000000 MHz Man
-125																						Freq Offset 0 Hz
-135											-											Scale Type
	ter 5.4 BW 3			0 G	Hz			(1)		мн							- 01			Span 0 H: 40001 pts		Lin

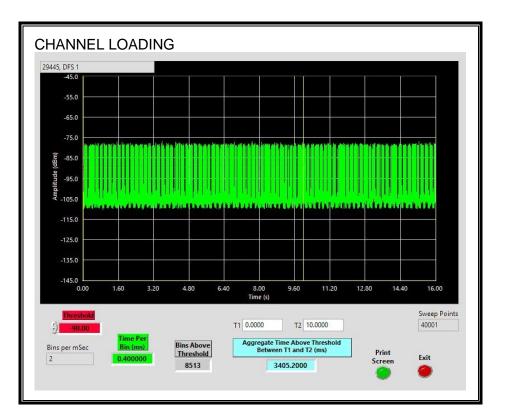
Page 18 of 78

TRAFFIC

Keysight Spectrum Analyzer - 29445, DFS 1 RL RF 50 Ω AC	SENSE:INT		10-50-15 AM 5-6 01 2022	- 6 -
Center Freq 5.500000000 NFE	GHz PNO: Fast +++ Trig: Free Run	Avg Type: Log-Pwr	10:59:15 AM Feb 01, 2022 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
Ref Offset -20.5 dB 0 dB/div Ref -45.00 dBm	IFGain:High #Atten: 0 dB		Mkr1 3.596 s -76.79 dBm	Auto Tune
•g			DL1 -64.00 dBm	Center Fred 5.500000000 GH:
75.0	hina da un consecto e consecto e da da consecto.			Start Free 5.50000000 GH;
25.0				Stop Fred 5.50000000 GH;
-105 -115				CF Step 3.000000 MH; <u>Auto</u> Mar
125				Freq Offse 0 Ha
135				Scale Type
Center 5.500000000 GHz Res BW 3.0 MHz	#VBW 3.0 MHz	_	Span 0 Hz 16.00 s (40001 pts)	Log <u>Lir</u>

Page 19 of 78

CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 34.05%.

Page 20 of 78

7.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.2.4. 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)
0.0844	10

Aggregate Channel Closing Transmission Time	Limit
(msec)	(msec)
0.0	60

Page 21 of 78

MOVE TIME

RL	ctrum Analyzer - 2 RF 50	R AC	SI	NSE:INT	Avg Type	. Law Down	11:03:42 AM Feb 01	
enter Fr	eq 5.5000	NFE PNO: Fas			Avg Type	: Log-Pwr	TRACE 1 2 3 TYPE WWW DET P N N	VAAAAV
	Ref Offset -		h #Atten.	, ab		Δ	Mkr1 84.40 -15.84	ms Auto Tune
odB/div	Ref -45.00) dBm					-15.64	
5.0	102						DL1 -64.0	Center Free 5.500000000 GH
15.0 15.0								Start Free
105	i il <mark>latiki kumi</mark>	Hillenhaughagus Mendelek	gent partition of the	الالإيطالاتين	n an Alasar I.	a Mapilla <mark>I</mark> taan	adada da gabar	5.50000000 GH
115								Stop Free 5.500000000 GH
135								
es BW 3			/BW 3.0 MH	2		•	Span (6.00 s (40001	pts) 3.000000 MH
kr mode tr 1 Δ2 1	t (Δ)	x 84.40 ms		dB	ICTION FUN	CTION WIDTH	FUNCTION VALU	
2 F 1 3 4 5 6	t	1.548 s	-63.55 d	Bm				FreqOffse ○ H
6 7 8 9								Scale Type
0 1								Log <u>Lir</u>

Page 22 of 78

CHANNEL CLOSING TIME

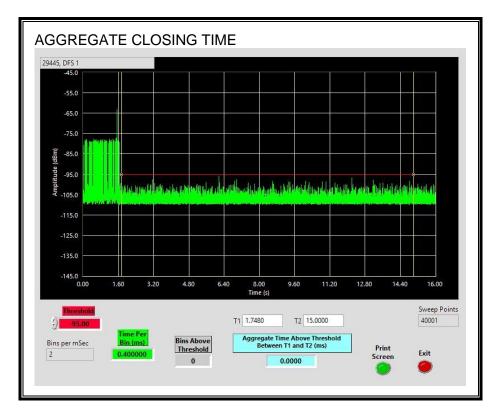
leysight Spectrum Analyzer - 29445, DFS 1 RL RF 50 Ω AC	SEN	SE:INT	11:09:53 AM Feb 01, 2022	
nter Freq 5.50000000 0		Avg Type: Lo o		4
Ref Offset -20.5 dB	iroain.nign #Atten. o		ΔMkr1 200.0 ms -39.55 dB	
pg.				Center Free
5.0				5.50000000 GH
5.0 <mark>- X2</mark>			DL1 -64.00 dBm	
5.0			TRIG LVL	Start Fred 5.500000000 GH:
50				Stop Free 5.500000000 GH:
s.o	and a paralla 1∆2 Julia karan	naliselesense the other to be	e este biligio and a contraction data attended	
05 6	et a de anna de la calega de la c	ana di Jahay Lafatandiktai yayamayya (tajda ili dajda 1004 atj	a dagat, allara alla saglar, andra a sa	CF Step 3.000000 MH <u>Auto</u> Mar
				Freq Offse
25				он
35				Scale Type
enter 5.500000000 GHz			Span 0 Hz	Log <u>Lir</u>

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Page 23 of 78

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



Page 24 of 78

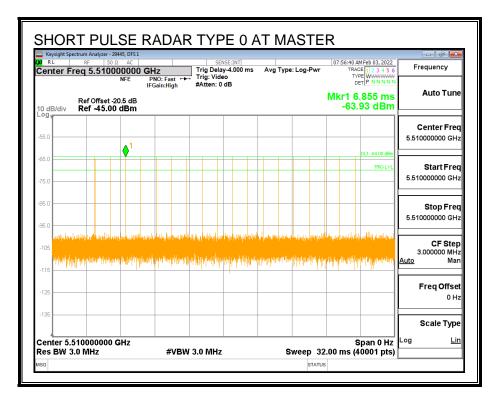
7.3. RESULTS FOR 40 MHz BANDWIDTH

7.3.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5510 MHz.

7.3.2. RADAR WAVEFORM AND TRAFFIC

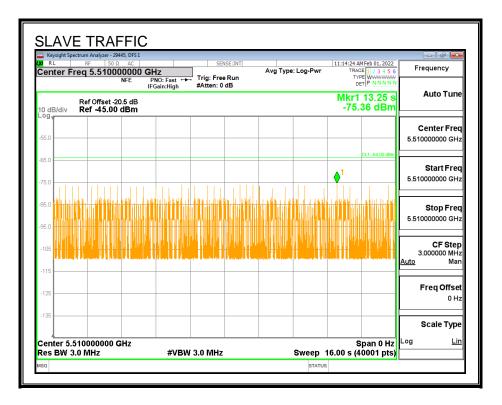
RADAR WAVEFORM



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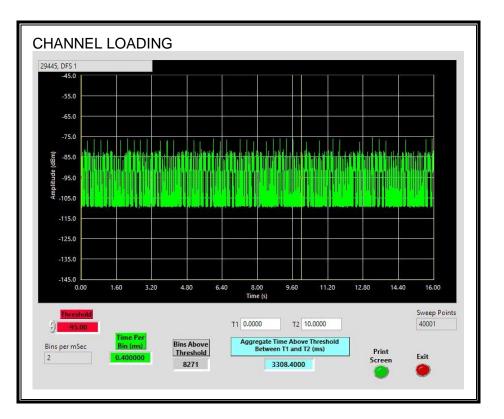
Page 25 of 78

TRAFFIC



Page 26 of 78

CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 33.08%.

Page 27 of 78

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)
0.0684	10

Aggregate Channel Closing Transmission Time	Limit
(msec)	(msec)
0.0	60

Page 28 of 78

MOVE TIME

Keysight Spectrum Analyzer - 2944 R L RF 50 Ω	AC	SENSI			11:19:10 AM Feb 01, 2022	
enter Freq 5.51000	0000 GHz	😛 Trig: Free F	lun	Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWW DET P N N N N N	Frequency
Ref Offset -20	IFGain:High	#Atten: 0 dl	3	4	Mkr1 68.40 ms	Auto Tune
dB/div Ref -45.00					-23.34 dB	
55.0					DL1 -64.00 dBm	Center Free
55.0 2 75.0 2					DE1 -04.00 00m	5.510000000 GH
5.0 1∆2						Start Free
95.0 1011 1111 105	son differente	a pa a tribile arta ante catil	din kumphatta	ender and the first	(illameterale) and mathematic	5.510000000 GH
115						Stop Free
125						5.510000000 GH
enter 5.510000000 G					Span 0 Hz	CF Step
es BW 3.0 MHz		BW 3.0 MHz		· ·	16.00 s (40001 pts)	3.000000 MH Auto Mar
$\frac{\text{KR MODE TRC SCL}}{1 \Delta 2 1 t (\Delta)}$	x 68.40 ms (FUNCTION WIDTH	FUNCTION VALUE	
2 F 1 t 3 4 5 6	1.590 s	-64.33 dBn	1		E	Freq Offse 0 H
6 7 8 9						Scale Type
9 0 1						Log <u>Lii</u>

Page 29 of 78

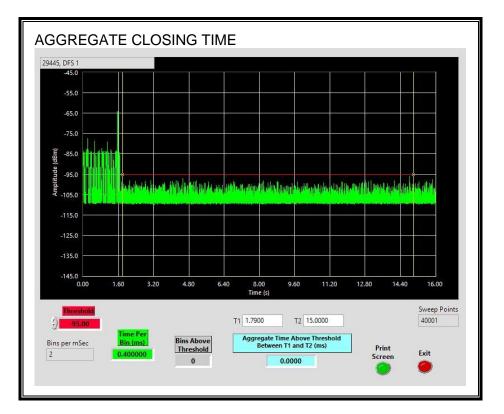
CHANNEL CLOSING TIME

Keysight Spectrum Analyzer - 29445, DFS 1 R L RF 50 Ω AC	SENS	E-INT	11:24:29 AM Feb 01, 2022	
enter Freq 5.51000000 G		Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
Ref Offset -20.5 dB	roam:nign #riten: o d	-	∆Mkr1 200.0 ms -35.15 dB	Auto Tune
pg.				Center Free
5.0				5.510000000 GH
5.0 <mark>2 2</mark>			DL1 -64.00 dBm	
5.0			TRIG LVL	Start Free 5.510000000 GH
5.0	A 162			Stop Fred 5.510000000 GH:
5.0 ppd pro alogos in anticipated		development legitespecies and developm	e hand digard and tradition that	
05 singletiferenden der bereg der an det bester der bes	ya da Ulan da ana ang pangan na na sang pangan na kang kana na na kang pangan na kang kana na na kang pangan na	na a na dina dina sa dina na dina dinja na dina na dina Internet dina na dina na dina dina na di	ik oori pendalaa kalytaa oo taan taan taa ahaa dha qayaa yaki ka	CF Step 3.000000 MH <u>Auto</u> Mar
25				Freq Offse
4.0 A				0 H
35				Scale Type
enter 5.510000000 GHz			Span 0 Hz	Log <u>Lir</u>

Page 30 of 78

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



Page 31 of 78

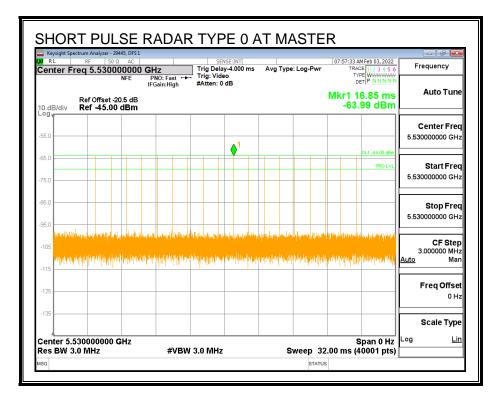
7.4. RESULTS FOR 80 MHz BANDWIDTH

7.4.1. TEST CHANNEL

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

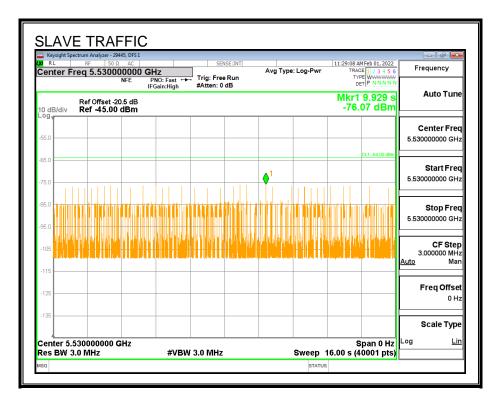
7.4.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



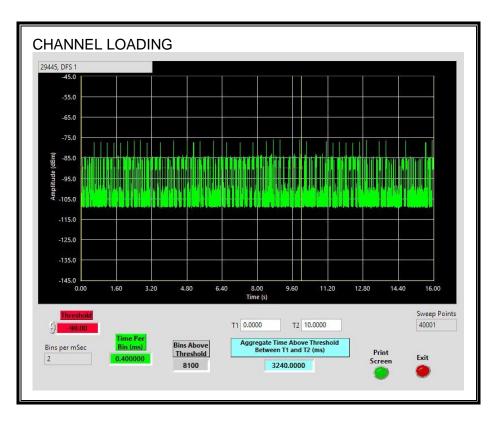
Page 32 of 78

TRAFFIC



Page 33 of 78

CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 32.4%.

Page 34 of 78

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)
0.004	10

Aggregate Channel Closing Transmission Time	Limit
(msec)	(msec)
0.0	60

Page 35 of 78

MOVE TIME

RL RF	r - 29445, DFS 1 50 Ω AC	SENSE			11:50:14 AM Feb 01, 2022	
enter Freq 5.53	NFE PNO: Fast		un –	ype: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
	IFGain:Hig et -20.5 dB	h #Atten: 0 dB		Δ	Mkr1 4.000 ms	Auto Tune
odB/div Ref -45	.00 dBm				-24.60 dB	
55.0						Center Free
5.0 2					DL1 -64.00 dBm	5.530000000 GH
						Start Free
95.0 105	palpapalapaalihmaater	us and the manufacture	tepitlasia popiledit	angastashagala	ubiological information	5.530000000 GH
115						Stop Fred
125						5.530000000 GH
enter 5.5300000	00 GHz				Span 0 Hz	CF Ster
es BW 3.0 MHz		/BW 3.0 MHz		· ·	6.00 s (40001 pts)	3.000000 MH: Auto Mar
$\frac{1}{\Delta 2} \Delta 2 \Delta 1 \Delta 2$	× 4.000 ms		FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	
2 F 1 t 3 4	1.489 s	-63.97 dBm				Freq Offse
5 6					E	0 11.
7 8 9						Scale Type
0						Log <u>Lir</u>

Page 36 of 78

CHANNEL CLOSING TIME

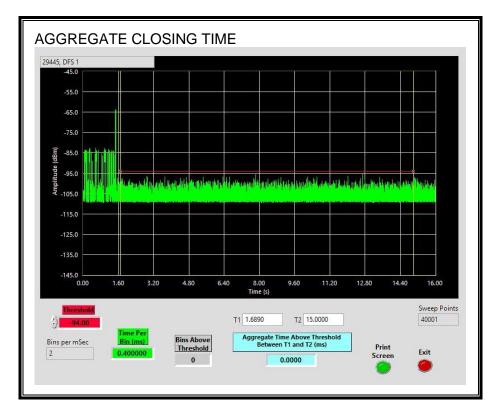
eysight Spectrum Analyzer - 294 RL RF 50 Ω	45, DFS 1 AC	SENSE:INT		11:39:34 AM Feb 01, 2022	- a -
nter Freq 5.53000	0000 GHz NFE PNO: Fast +		Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
Ref Offset -20		#Atten: 0 dB	Δ	Mkr1 200.0 ms -35.95 dB	Auto Tune
pg					Center Free
5.0					5.530000000 GH
5.0 m X 2				DL1 -64.00 dBm	
5.0				TRIG LVL	Start Fred 5.530000000 GH;
5.0					Stop Free
5.0	11	1 <u>∆2</u>	بالمغاربة المتام ومرتقا اللار والترابي فيرقم وأل	talanan lahataa	5.530000000 GH
105 <mark>Ministeria dina perina kata partimatika kataka</mark>	n y hag da yen i server a server a da en al y da en al d Normana y se en al da parter, del a y standader a da enforma da en		ganer hand der bereiten geschlen eine einer der der deren henten einen einen An genera hand der bereiten einer der eine geheren henten einer einer der einer der bestehen einer einer der be	una, panelial aportato, ente ato, accontratas	CF Step 3.000000 MH: <u>Auto</u> Mar
115					Freq Offse
125					0 H:
135					Scale Type
enter 5.530000000 G	Hz			Span 0 Hz	Log <u>Lir</u>

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Page 37 of 78

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



Page 38 of 78

7.4.5. 30-MINUTE NON-OCCUPANCY PERIOD

RESULTS

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

	50 Ω AC		SEN	ISE:INT				4 Feb 01, 2022	Frequency
enter Freq 5.53	NFE PN	Z O:Fast ↔→→ ain:High	Trig: Free #Atten: 0		Avg Type	: Log-Pwr	TYP	E 1 2 3 4 5 6 E WWWWWWW T P N N N N N	Frequency
Ref Offse dB/div Ref -45.	-20.5 dB					1		.800 ks 4.15 dB	Auto Tune
pg -									Center Fred
5.0									5.530000000 GHz
5.0								DL1 -64.00 dBm	Start Fred
5.0 📶									5.53000000 GHz
5.0 0									
<i>u</i> w2									Stop Fred 5.530000000 GH;
	artanthatha	ngaliyaa daligaa	y the aft	hangelande	wywyłud	Holpholytan	arthle		CF Step 3.000000 MHz <u>Auto</u> Mar
									FreqOffse
125									он:
135									Scale Type
enter 5.53000000	0 GHz						S	pan 0 Hz	Log <u>Lir</u>

Page 39 of 78

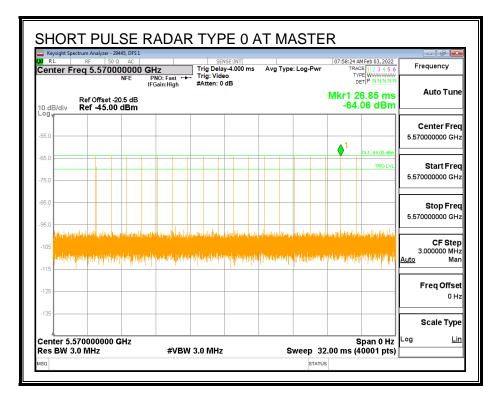
7.5. RESULTS FOR 160 MHz BANDWIDTH

7.5.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5570 MHz.

7.5.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



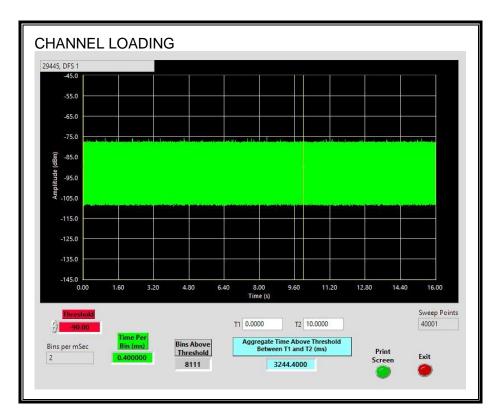
Page 40 of 78

TRAFFIC

	ectrum Analyzer -						- ē ×
Center F	RF 50 Freq 5.570	0 Ω AC 0000000 NFE	GHz PNO: Fast ↔→ IFGain:High	SENSE:INT Trig: Free Run #Atten: 0 dB	Avg Type: Log-Pwr	02:10:23 PM Feb 02, 2022 TRACE 1 2 3 4 5 6 TYPE WWWWW DET P N N N N N	Frequency
0 dB/div	Ref Offset Ref -45.0	-20.5 dB 10 dBm	roantnign			Mkr1 8.342 s -75.17 dBm	Auto Tune
.og						DL1 -64.00 dBm	Center Freq 5.570000000 GHz
75.0	shue durine huter						Start Fred 5.570000000 GHz
95.0 95.0							Stop Fred 5.570000000 GHz
105			data da ang basa kapita dan ang ang ba			fyreidd <u>e, wy doeren y ddie en annordd</u> I	CF Step 3.000000 MHz <u>Auto</u> Mar
115							Freq Offse
115 125 135							0 Hz Scale Type

Page 41 of 78

CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 32.44%.

Page 42 of 78

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)
0.0476	10

Aggregate Channel Closing Transmission Time	Limit
(msec)	(msec)
0.0	60

Page 43 of 78

MOVE TIME

R L	RF 50		SENS	E:INT		02:15:57 PM Feb 02, 2022	- 6 -
enter F	req 5.5700	NFE PNO: Fas		Run	Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
	Ref Offset		h #Atten: 0 d	D	Δ	Mkr1 47.60 ms -14.03 dB	Auto Tune
0 dB/div	Ref -45.0	U dBm				-14.00 0D	
i5.0	162					DL1 -64.00 dBm	Center Free 5.570000000 GH
5.0							Start Free 5.570000000 GH
105	abititanda	Milling of the second	grane displacing	antinuunda (ny fakanaa	na kata Mahanak Kapadia	enative harmonical and beautiful and pure	5.570000000 GH
115 125 135							Stop Fre 5.570000000 GH
enter 5	.570000000 3.0 MHz		/BW 3.0 MHz		Sweep 7	Span 0 Hz 16.00 s (40001 pts)	CF Step 3.000000 MH
	RC SCL 1 t (Δ)	x 47.60 ms	Υ (Δ) -14.03 d	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Mar
2 F 3 4 5 6	1 t	1.629 s	-64.13 dBi			E	Freq Offse 0 H
6 7 8 9							Scale Type
9 0 1							Log <u>Lir</u>

Page 44 of 78

CHANNEL CLOSING TIME

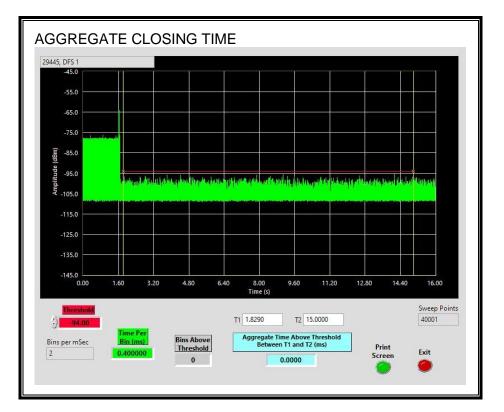
eysight Spectrum Analyzer - 29445 L RF 50 Ω	AC	SENSE:INT		02:20:15 PM Feb 02, 2022	
nter Freq 5.570000	FE PNO: Fast		Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
Ref Offset -20.4 dB/div Ref -45.00 d		#Atten: 0 dB	Δ	Mkr1 200.0 ms -36.29 dB	Auto Tune
g					Center Free
.0					5.570000000 GH
.0				DL1 -64.00 dBm	
.0				TRIG LVL	Start Fred 5.570000000 GH;
5.0		102			Stop Fred 5.570000000 GH:
and the second	v .		ilelf (lleves) se his figsis estation being the		CF Ster
15		and Mollow Thould a long address of	difficient merine addresses in series as in a site		3.000000 MH Auto Mar
25					Freq Offse
					0 H:
35					Scale Type
enter 5.570000000 GH	łz			Span 0 Hz).0 ms (40001 pts)	Log <u>Lir</u>

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Page 45 of 78

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



Page 46 of 78

7.5.5. 30-MINUTE NON-OCCUPANCY PERIOD

RESULTS

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

X RL RF	alyzer - 29445, DFS 1 50 Ω AC	SENSE:INT		02:59:52 PM Feb 02, 2022	- 0 -
Center Freq 5.	570000000 GHz NFE PNO: Fas IFGain:Hid		Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N	Frequency
10 dB/div Ref -	ffset -20.5 dB 45.00 dBm		L	Mkr1 1.800 ks -27.60 dB	Auto Tune
Log					Center Free
-55.0				DL1 -64.00 dBm	5.570000000 GH
-65.0				DC1 -64.00 GBN	Start Free
-75.0					5.570000000 GH
-85.0					Stop Fre
-95.0				1	5.570000000 GH
-105	arar Yunda Qafadda Aranna	adayind dalahin	haliptapalal property and a property of the pr	v	CF Stej 3.000000 MH Auto Ma
-115					<u>Auto</u> Ma
-125					Freq Offse 0 H
-135					Scale Type

Page 47 of 78

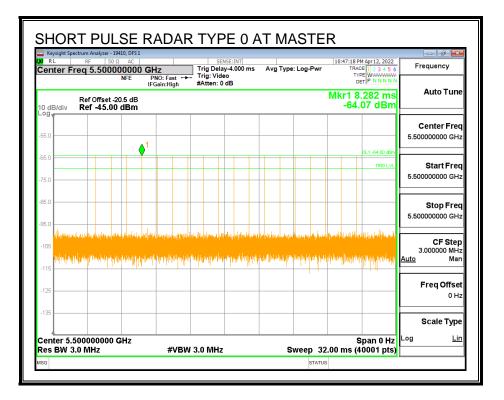
7.6. TDLS RESULTS FOR 20 MHz BANDWIDTH

7.6.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5500 MHz.

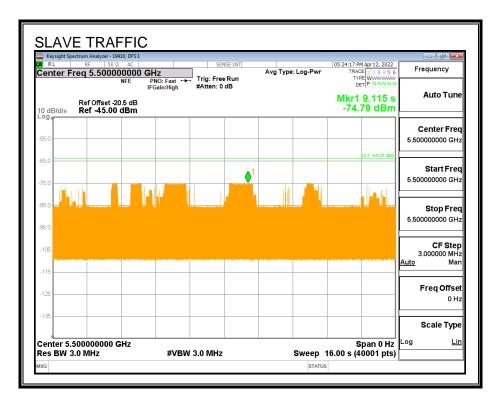
7.6.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



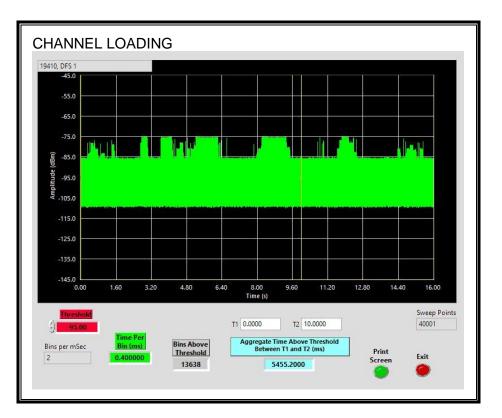
Page 48 of 78

TRAFFIC



Page 49 of 78

CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 54.55%

Page 50 of 78

7.6.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.6.4. 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)
0.082	10

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

Page 51 of 78

MOVE TIME

RL RL	Spectrum Analyzer - 194 RF 50 Ω		SENSE:INT		05:28:39 PM Apr 12, 2022	- 5 🐱
	Freq 5.50000	00000 GHz		Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6	Frequency
		NFE PNO: Fast ← IFGain:High	#Atten: 0 dB		DET P N N N N	
10 dB/div	Ref Offset -2 Ref -45.00			۵	Mkr1 82.00 ms -13.06 dB	Auto Tune
-og						Center Fred
-65.0	142				DL1 -64.00 dBm	5.500000000 GHz
-85.0						Start Fred
-105	Diliatedilar	addar haddo dla ogoa	And when the Providence	enter die die trijde de meter kentigen de	erastehorik ersektetad	5.500000000 GHz
-115						Stop Fred
-125						5.50000000 GHz
	5.500000000 (3.0 MHz	#VB	W 3.0 MHz	•	Span 0 Hz 16.00 s (40001 pts)	CF Step 3.000000 MHz Auto Mar
	TRC SCL 1 t (Δ)	× 82.00 ms (Δ		UNCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> mur
2 F 3 4 5	i t	1.531 s	-65.23 dBm		E	Freq Offset 0 Hz
6 7 8 9						Scale Type
10 11						Log <u>Lir</u>

Page 52 of 78

CHANNEL CLOSING TIME

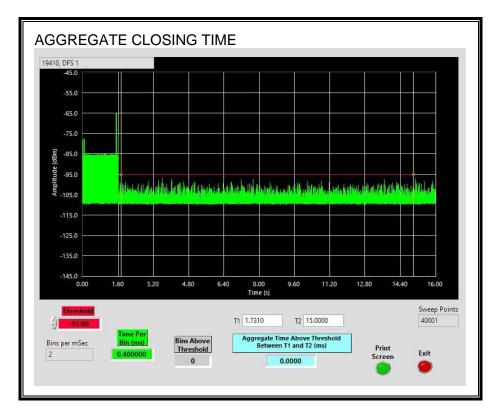
eysight Spectrum Analyzer - 19410, DFS 1	SENSE:INT		05:47:06 PM Apr 12, 2022	
nter Freq 5.500000000 NFE	GHz PNO: Fast +++ Trig: Video	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
Ref Offset -20.5 dB	IFGain:High #Atten: 0 dB	Δι	/kr1 200.0 ms -35.73 dB	Auto Tune
9				Center Free
.0			DL1 -64.00 dBm	5.50000000 GH
° <mark>2</mark> 2			TRIG LVL	Start Free
.0				5.50000000 GH;
.0				Stop Free 5.50000000 GH
	مار المعالية	s, kilos estalezio, esc. lato est. lui telinas escales al di	ورويا أفقر افريقت فحربان ليتنقص	3.30000000 311
)5 <u>ny letterioten (ö. 1966) jan en jan ding höjeli</u> n 15	and the second	na dan dala ar mana da dan dan segan dan dala tana na yang dalam dan dan dan	status farta para di teri di teri di seconda di teri di seconda di teri di seconda di teri di seconda di teri d E	CF Step 3.000000 MH Auto Mar
25				Freq Offse
35				0 H:
db				Scale Type
enter 5.500000000 GHz es BW 3.0 MHz	#VBW 3.0 MHz		Span 0 Hz .0 ms (40001 pts)	.og <u>Lir</u>

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Page 53 of 78

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



Page 54 of 78

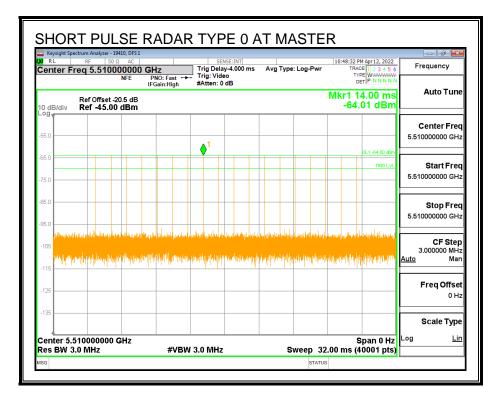
7.7. TDLS RESULTS FOR 40 MHz BANDWIDTH

7.7.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5510 MHz.

7.7.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



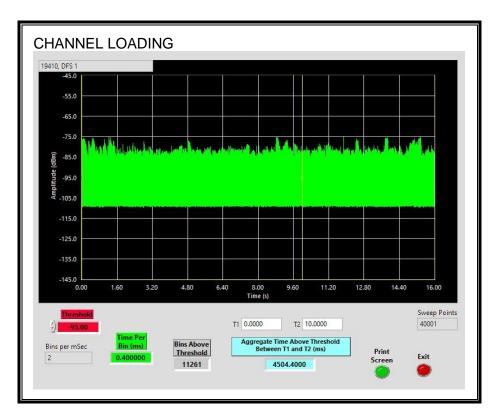
Page 55 of 78

TRAFFIC

	- 19410, DFS 1 0 Ω AC		SENSE:INT		06:20:29 PM Apr 12, 2022	- 6 <u>-</u>
enter Freq 5.510	000000 GH	Hz NO: Fast ↔→ Gain:High	Trig: Free Run #Atten: 0 dB	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWW DET P N N N N N	Frequency
Ref Offset 0 dB/div Ref -45.0					Mkr1 11.87 s -75.07 dBm	Auto Tune
5.0						Center Fred 5.510000000 GHz
55.0					DL1 -64.00 dBm	
5.0					1	Start Fred 5.510000000 GH;
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	a hadaa adda ahaa	والمناه المالية المناهدية ال	A DISCOUNT OF STREET, AND A DISCOUNT OF ST	I de de L. Land, h. h. L. L. L.	
	a na fairte an fairt a'	n politika broy	dialogy of the second	ha baalay yoo ballahaad arayya b	anna chaile i lear	
15.0 T THE MANY TOTAL			dialart Militara a	an analysis of association of		Stop Frec 5.51000000 GHz CF Step 3.000000 MHz Auto Mar
15.0 105						5.510000000 GHz CF Step 3.000000 MHz
105 115 115						5.510000000 GH; CF Step 3.000000 MH; <u>Auto</u> Mar Freq Offset

Page 56 of 78

CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 45.04%

Page 57 of 78

7.7.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.7.4. 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)
0.0548	10

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

Page 58 of 78

MOVE TIME

RL RF	zer - 19410, DFS 1 50 Ω AC	SENSE:INT		06:24:04 PM Apr 12, 2022	
enter Freq 5.5	10000000 GHz		Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6	Frequency
	NFE PNO: Fast IFGain:High	#Atten: 0 dB		DET P N N N N N	
	set -20.5 dB 5.00 dBm		Δ	Mkr1 54.80 ms -23.28 dB	Auto Tune
og	5.00 dBm				
55.0 55.0 75.0				DL1 -64.00 dBm	Center Free 5.510000000 GH
					Start Free 5.510000000 GH
105	ud til a liter til av ter halt av det ser til av det ser til som	lang kerdapangan Propinsi Angerapan	de la presenta de la printe por se terre		
115					Stop Free 5.510000000 GH
135					5.51000000 GH
enter 5.5100000 tes BW 3.0 MHz		BW 3.0 MHz	Sweep	Span 0 Hz 16.00 s (40001 pts)	CF Step 3.000000 MH Auto Mar
$\frac{1}{1} \Delta 2 = \frac{1}{1} t (\Delta)$	× 54.80 ms		UNCTION FUNCTION WIDTH	FUNCTION VALUE	<u>, ato</u>
2 F 1 t 3 4 5	1.441 s	-64.43 dBm		#	Freq Offse 0 H:
6 7 8 9					Scale Type
0 1					Log <u>Lir</u>

Page 59 of 78

CHANNEL CLOSING TIME

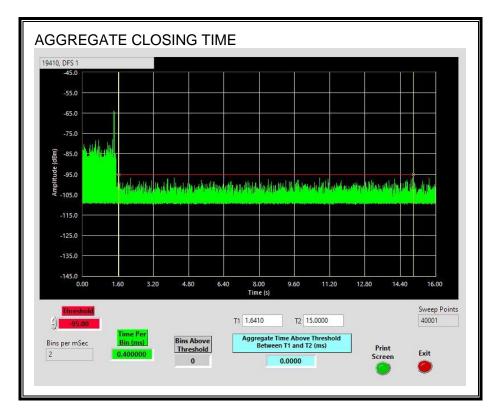
	n Analyzer - 19410, DFS 1 RF 50 Ω AC		SENSE:INT		06:28:56 PM Apr 12, 2022	
	5.510000000 NFE	GHz PNO: Fast ↔ Trig: V IFGain:High #Atten	ideo	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
dB/div R	ef Offset -20.5 dB ef -45.00 dBm	ir-Gain:nign #Atten		۵	Mkr1 200.0 ms -37.46 dB	Auto Tune
pa						Center Free
5.0					DL1 -64.00 dBm	5.510000000 GH
5.0 <mark>2</mark>					TRIG LVL	Start Fred 5.510000000 GH;
5.0						Oton From
5.0						Stop Fred 5.510000000 GH;
ال	III I III a post (Marth print)		and lanear interaction where an	nadadasta karlan ayasta sharana da a anayan sana anayan ayasta sharan a	and the second second problems of	CF Step
15				·		3.000000 MH Auto Mar
25						Freq Offse
35						0 H
						Scale Type
enter 5.510 es BW 3.0 M	000000 GHz	#VBW 3.0 MI			Span 0 Hz 0.0 ms (40001 pts)	Log <u>Lir</u>

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Page 60 of 78

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



Page 61 of 78

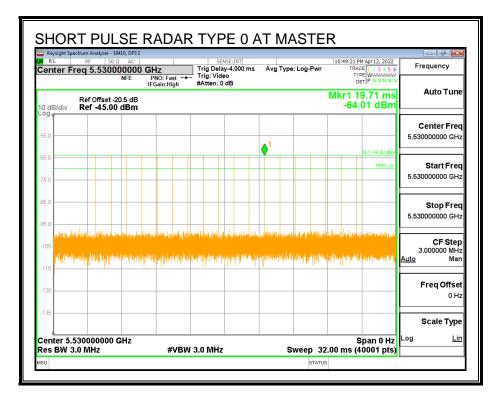
7.8. TDLS RESULTS FOR 80 MHz BANDWIDTH

7.8.1. TEST CHANNEL

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

7.8.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



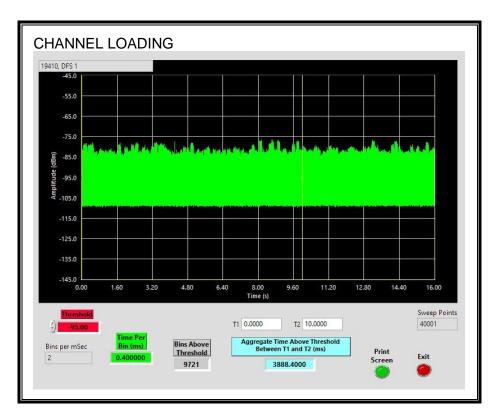
Page 62 of 78

TRAFFIC

RL RF 50 Ω AC	\$1	SENSE:INT		06:37:55 PM Apr 12, 2022	
enter Freq 5.53000000 NFE			Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
Ref Offset -20.5 d dB/div Ref -45.00 dBn	в			Mkr1 8.683 s -76.45 dBm	Auto Tune
pg					Center Free
5.0				DL1 -64.00 dBm	5.530000000 GH
5.0		_1			Start Free 5.53000000 GH
	ا يا الد ا ي	in an a' 🖌 📕 📶 🗍 i	A B C A B A B A B A B A B A B A B A B A	tradit dia dia di	
	hourt Hearten	andrea fille file	(The hydrogenie)	ha naan kaana k	
5.0	hdattlaatuu			n in the second in the second s	Stop Frec 5.53000000 GH: CF Step 3.000000 MH: <u>Auto</u> Mar
5.0 05 15					5.530000000 GH; CF Step 3.000000 MH; <u>Auto</u> Mar Freq Offset
5.0 5.0 105 115 125 135					5.530000000 GH: CF Step 3.000000 MH: <u>Auto</u> Mar

Page 63 of 78

CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 38.88%

Page 64 of 78

7.8.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.8.4. 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)
0.0704	10

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

Page 65 of 78

MOVE TIME

R L	rum Analyzer - 19410, DF RF 50 Ω AC		SENSE:INT		06:42:59 PM Apr 12, 2022	
enter Fre	eq 5.5300000	PNO: Fast ↔	📮 Trig: Free Run	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWWW DET P N N N N N	Frequency
	Ref Offset -20.5 d	IFGain:High	#Atten: 0 dB	Δ	Mkr1 70.40 ms	Auto Tune
0 dB/div	Ref -45.00 dBi				-24.02 dB	
55.0 65.0					DL1 -64.00 dBm	Center Free 5.530000000 GH
85.0 Dibay i n 95.0	1∆2 hitera.idutationi	internal of principal Assemblished	hetstelestasse added historismeth	and a president and an angle of a state of the	daaksinnik Hening ata kataa, ata ingana	Start Free 5.530000000 GH
105						
125						Stop Fred 5.530000000 GH:
enter 5.5 tes BW 3.	30000000 GHz 0 MHz	#VB\	V 3.0 MHz	Sweep 1	Span 0 Hz 16.00 s (40001 pts)	CF Step 3.000000 MH
	SCL t (Δ)	X 70.40 ms (Δ)		UNCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Mar
2 F 1 3 4 5	t (Δ)	1.652 s	-24.02 dB -64.03 dBm		E	Freq Offse 0 Hi
6 7 8 9						Scale Type
10 11						Log <u>Lir</u>

Page 66 of 78

CHANNEL CLOSING TIME

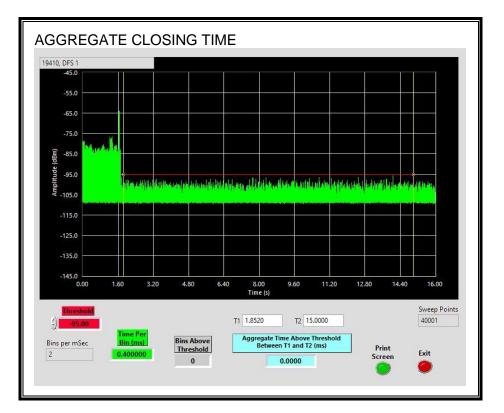
RL RF	Analyzer - 19410, DFS 1 50 Ω AC		SENSE:INT	1	06:51:42	2 PM Apr 12, 2022	- 8 -
	5.53000000 0	PNO: Fast +++	Trig: Video #Atten: 0 dB	Avg Type: Log	g-Pwr TF	ACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
dB/div Ref	Offset -20.5 dB 45.00 dBm	IFGain:High	#Atten: 0 dB		ΔMkr1	200.0 ms 37.62 dB	Auto Tuno
^{yg}							Center Free
5.0						DL1 -64.00 dBm	5.530000000 GH
5.0 <mark>2</mark>						TRIG LVL	Start Fred
5.0							5.530000000 GH;
5.0	ullanih						Stop Fred
5.0							5.530000000 GH
t na hANA na	111111 alertalladered		teal-linear blance	and dag sala and dis daribitish	and a later to a state of the s	differenter	CF Ster
15	ite ar an en i el la la i de ancasta i de anca		i aldışı dağı di fəra bil ita iy bərəliyə	en foren de milier ann a stand an de politice d'an de la segar	in a faith providing by the day on the		3.000000 MH; uto Mar
							Freq Offse
25							0 H:
35							Scale Type
enter 5 5300	00000 GHz					Span 0 Hz	og <u>Lir</u>

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Page 67 of 78

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



Page 68 of 78

7.8.5. 30-MINUTE NON-OCCUPANCY PERIOD

RESULTS

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

Keysight Spectrum Analyzer - 1 RL RF 50		SENSE:IN	т		07:35:06 PM Apr 12, 2022	
enter Freq 5.5300	NFE PNO: Fast	Trig: Free Run	Avg Type:	Log-Pwr	TRACE 1 2 3 4 5 TYPE WWWWWW DET P N N N N	Frequency
Ref Offset - dB/div Ref -45.00		#Atten: 0 dB		Δ	Mkr1 1.800 ks -18.28 dE	Auto Tune
^g						Center Freq
5.0						5.530000000 GH;
5.0					DL1 -64.00 dBn	Start Free
5.0						5.530000000 GH;
5.0						Stop Fred
5.0						5.530000000 GHz
	an the second	oppi Manual Auto	hjogolumhjed	ni Albiya (M	142 ["]	CF Step 3.000000 MH; <u>Auto</u> Mar
25						Freq Offse 0 H:
35						Scale Type
enter 5.530000000 es BW 3.0 MHz		W 3.0 MHz			Span 0 Hz 100 ks (40001 pts	

Page 69 of 78

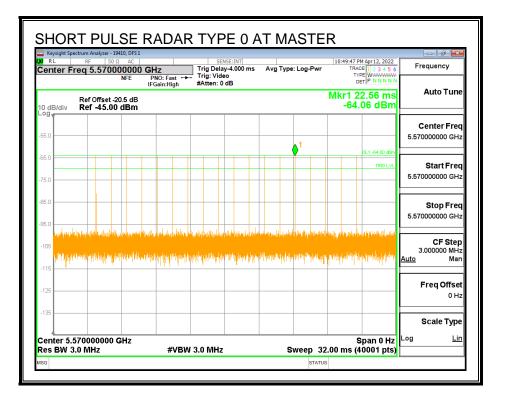
7.9. TDLS RESULTS FOR 160 MHz BANDWIDTH

7.9.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5570 MHz.

7.9.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



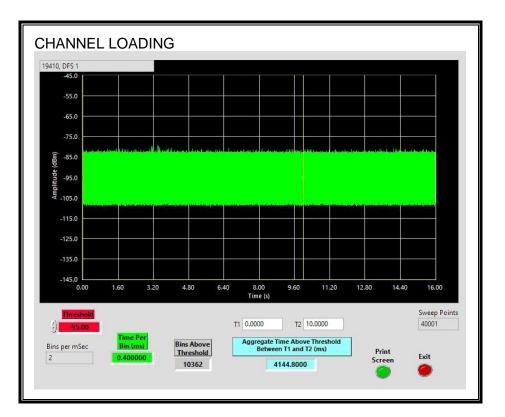
Page 70 of 78

TRAFFIC

	pectrum Analyzer - 19							- 5 🗙
enter I	RF 50 ⊆ req 5.5700		GHz PNO:Fast ↔ IFGain:High	Trig: Free Ru #Atten: 0 dB	Av	g Type: Log-Pwr	09:51:51 PM Apr 12, 2022 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N	4
0 dB/div	Ref Offset -2 Ref -45.00	20.5 dB) dBm					Mkr1 3.403 s -79.40 dBm	
.og							DL1 -64.00 dBm	Center Frec 5.570000000 GHz
75.0		● ¹					DC1 - 64.00 dBm	Start Free 5.570000000 GH:
85.0	وروا والمراط الألاوها فرو	d d lost to	والمحاليات المراجع المراجع	وبار ليترينا وسيطريه	an and the set	No ma de la companya	ويطبقون المؤبية الالهان الملوطية	
95.0								
105	u iz ta tin in a kita di an il in		strate and the state of the state		elised for milling the private		ni desi dalam daga malaji yana yana ya	5.570000000 GH: CF Ster 3.000000 MH
105								5.57000000 GH: CF Ster 3.00000 MH: <u>Auto</u> Mar Freq Offset
105 115 115 125 135								Stop Frec 5.57000000 GH: CF Step 3.000000 MH <u>Auto</u> Mar Freq Offse 0 H: Scale Type

Page 71 of 78

CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 41.44%

Page 72 of 78

7.9.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.9.4. 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)
0.1004	10

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

Page 73 of 78

MOVE TIME

RL	pectrum Analyzer - 19410 RF 50 Ω	AC	SENSE:INT		10:31:59 PM Apr 12, 2022	
	Freq 5.570000			Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
I0 dB/div	Ref Offset -20. Ref -45.00 d	5 dB	#Atten: 0 dB	Δ	Mkr1 100.4 ms -21.44 dB	Auto Tune
-og						Center Fred
-65.0	λ <u>2</u>				DL1 -64.00 dBm	5.570000000 GHz
-85.0		si Nandya Ingenisti Apanya	stal and star star and an	anist to also particular and any faster the orbits of	alahayaa ahayaa hadaa ahaan	Start Fred 5.570000000 GHz
-105						
-125						Stop Fred 5.570000000 GHz
	570000000 GH 3.0 MHz		№ 3.0 MHz	Sweep 1	Span 0 Hz 6.00 s (40001 pts)	CF Step 3.000000 MHz Auto Mar
	TRC SCL 1 t (Δ)	× 100.4 ms (Δ		UNCTION FUNCTION WIDTH	FUNCTION VALUE	Auto Mar
2 F 3 4 5	1 t	1.644 s	-64.17 dBm		E	Freq Offset 0 Hz
6 7 8 9						Scale Type
						Log Lir

Page 74 of 78

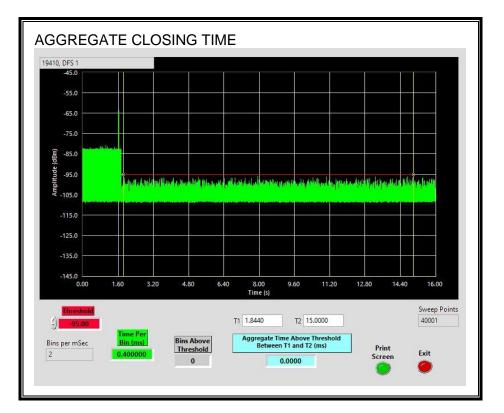
CHANNEL CLOSING TIME

eysight Spectrum Analyzer - 1941 RL RF 50 Ω	AC	SENSE:INT		10:43:44 PM Apr 12, 2022	Frequency
enter Freq 5.57000	0000 GHz NFE PNO: Fast ← IFGain:High	Trig: Video #Atten: 0 dB	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N	Frequency
Ref Offset -20 dB/div Ref -45.00 (.5 dB		Δι	/kr1 200.0 ms -38.06 dB	Auto Tune
5.0					Center Free 5.570000000 GH
				DL1 -64.00 dBm	5.57000000 GH
5.0 X 2				TRIG LVL	Start Free 5.570000000 GH:
5.0 <u>The construction of a side back</u>					Stop Fred 5.570000000 GH:
, a i dhini dhi dhi dhalida a shek	V.		i (per degrade en al per de la figura de anticipante de la companya de la companya de la companya de la company La companya de la comp		CF Ster
15					3.000000 MH <u>Auto</u> Mar
25					Freq Offse 0 H
35					Scale Type
enter 5.570000000 G	Hz			Span 0 Hz	Log <u>Lii</u>

Page 75 of 78

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



Page 76 of 78

7.9.5. 30-MINUTE NON-OCCUPANCY PERIOD

RESULTS

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

Key: RL			i Analy: F	zer - 194 50 Ω	10, DFS 1 AC				NGT JUT			40.07.001			
				7000	00000 (GHz PNO: Fast IFGain:Hig		Trig: Free #Atten: 0		Avg Type	e: Log-Pwr	TR4	PM Apr 12, 2022 CE 1 2 3 4 5 6 PE WWWWWWW DET P N N N N N	Frequenc	;y
	/div			set -20 5.00).5 dB	ir Gain: nigi		writen. o					1.800 ks 39.98 dB	Auto	Tune
5.0														Center 5.57000000	
	X2												DL1 -64.00 dBm	5.57000000	JGHZ
5.0	////2													Start 5.57000000	
5.0						+	+							Stop 5.57000000	
5.0 - 105 - 115 -	l _{i (d} i)	ut boy	44.44	hurna An an	Wan a a	leh Midana		difimadidd	hin dan	n-malanthi	allah palitan	n ^h in linin	.1 <u>∆2</u> . h	CF 3.000000 Auto	Step 0 MHz Man
125 -							_							Freq C	Offset 0 Hz
135 -							+							Scale	Туре
يل ent	er 5.		0000 /IHz	000 G	Hz			3.0 MHz					Span 0 Hz 40001 pts)	Log	Lir

Page 77 of 78

8. SETUP PHOTOS

Please refer to UL Verification Services Report number 13757234-EP2V1.

END OF TEST REPORT

Page 78 of 78