

L3 Harris Technologies Communication Systems (AZ)

REVISED TEST REPORT TO 109068-7

Device: Peripheral Overlay Display

Model: POD-PVS14*

*(See Appendix A for Manufacturers Declaration)

Tested To The Following Standards:

FCC Part 15 Subpart C Section(s)
15.249

Report No.: 109068-7A

Date of issue: July 18, 2024

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Test Certificate # 803.01

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

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Administrative Information

Test Report Information

REPORT PREPARED FOR:

L3 Harris Technologies Communication Systems (AZ)
1215 S 52nd Street
Tempe, AZ 85281

Representative: Darius Miller
Customer Reference Number: AZEE000102

DATE OF EQUIPMENT RECEIPT:**DATE(S) OF TESTING:****REPORT PREPARED BY:**

Stacey Noriega
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 109068

February 23, 2024

March 1, March 4 - 6 and March 11, 2024

Revision History

Original: Testing of the Peripheral Overlay Display, Model: POD-PVS14* to FCC Part 15 Subpart C Section 15.249.

Revision A: To update Test Data for Occupied Bandwidth and Radiated Emissions, add and relabel photos.

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the equipment provided by the client, tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.

A handwritten signature in black ink that reads "Steve Behm". The signature is written in a cursive style and is positioned above a horizontal line.

Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information



Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
110 North Olinda Place
Brea, CA 92823

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.20

Site Registration & Accreditation Information

Location	*NIST CB #	FCC	Canada	Japan
Canyon Park, Bothell, WA	US0103	US1024	3082C	A-0136
Brea, CA	US0103	US1024	3082D	A-0136
Fremont, CA	US0103	US1024	3082B	A-0136
Mariposa, CA	US0103	US1024	3082A	A-0136

*CKC's list of NIST designated countries can be found at: <https://standards.gov/cabs/designations.html>

Summary of Results

Standard / Specification: FCC Part 15 Subpart C – 15.249

Test Procedure	Description	Modifications	Results
15.215(c)	Occupied Bandwidth	NA	Pass
15.249(a)	Field Strength of Fundamental	NA	Pass
15.249(a)	Field Strength of Spurious Emissions	NA	Pass
15.207	AC Conducted Emissions	NA	NP

NA= Not applicable

NP= CKC Laboratories was not contracted to perform test.

ISO/IEC 17025 Decision Rule

The equipment sample utilized for testing is selected by the manufacturer. The declaration of pass or fail herein is a binary statement for simple acceptance rule (ILAC G8) based upon assessment to the specification(s) listed above, without consideration of measurement uncertainties. For performance related tests, equipment was monitored for specified criteria identified in that section of testing.

Modifications During Testing

This list is a summary of the modifications made to the equipment during testing.

Summary of Conditions

No modifications were made during testing.

Conditions During Testing

This list is a summary of the conditions noted to the equipment during testing.

Summary of Conditions

None

Equipment Under Test (EUT)

During testing, numerous configurations may have been utilized. The configurations listed below support compliance to the standard(s) listed in the Summary of Results section.

Configuration 1

Equipment Tested:

Device	Manufacturer	Model #	S/N
Peripheral Overlay Display	L3 Harris Technologies Communication Systems (AZ)	POD-PVS14	233000001

Support Equipment:

Device	Manufacturer	Model #	S/N
Mobile phone	Samsung	S20	RFCT43490TH
Power Supply	Topward	6306D	988614

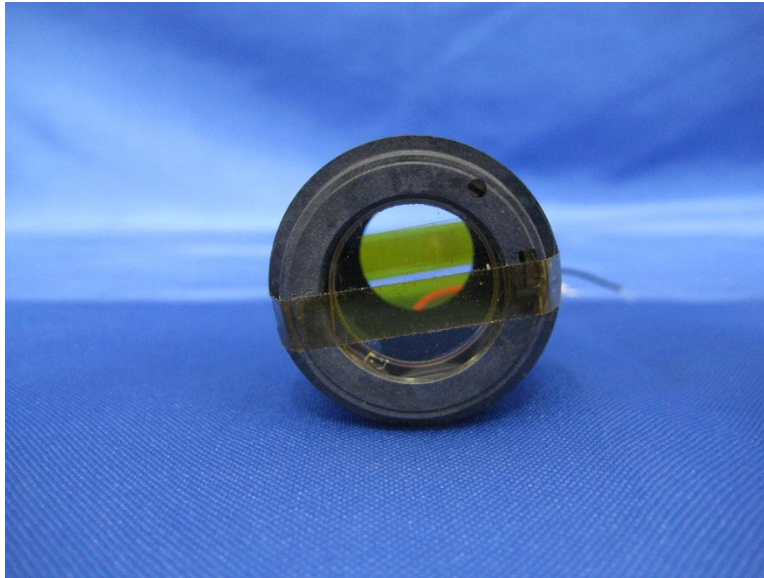
General Product Information:

Description of EUT
Peripheral Overlay Display

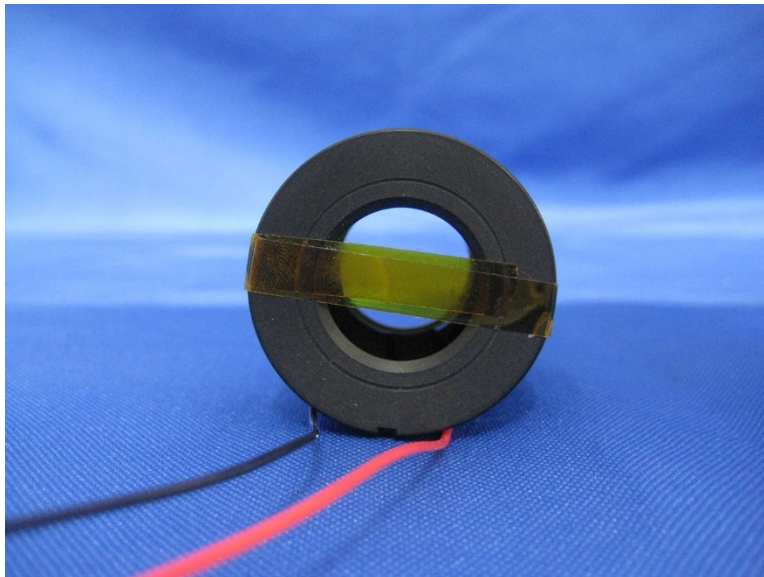
Product Information	Manufacturer-Provided Details
Operating Frequencies Tested:	2402-2480MHz
Equipment Type:	Stand-Alone Equipment
Maximum Duty Cycle:	98%
Modulation Type(s):	GFSK
Antenna Type(s) and Gain:	Trace, -2dBi
Antenna Connection Type:	Integral
Nominal Input Voltage:	3 Vdc with range 2.0V - 3.6V DC
Firmware / Software Version(s):	POD-802-Flex-FCC_TEST
Firmware / Software Description:	This software contains the base POD software, Soft device, and bootloader, while adding additional modes and commands to broadcast our radio for FCC Testing.
Firmware / Software Setting(s):	User selectable radio settings for FCC Testing
Tune-up or Adjustment(s):	NA
The validity of results is dependent on the stated product details, the accuracy of which the manufacturer assumes full responsibility.	

NA = Not applicable

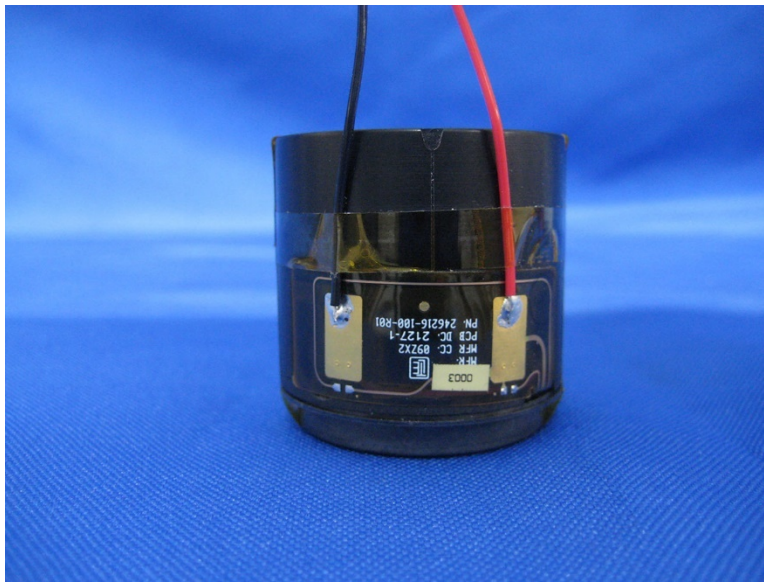
EUT Photo(s)



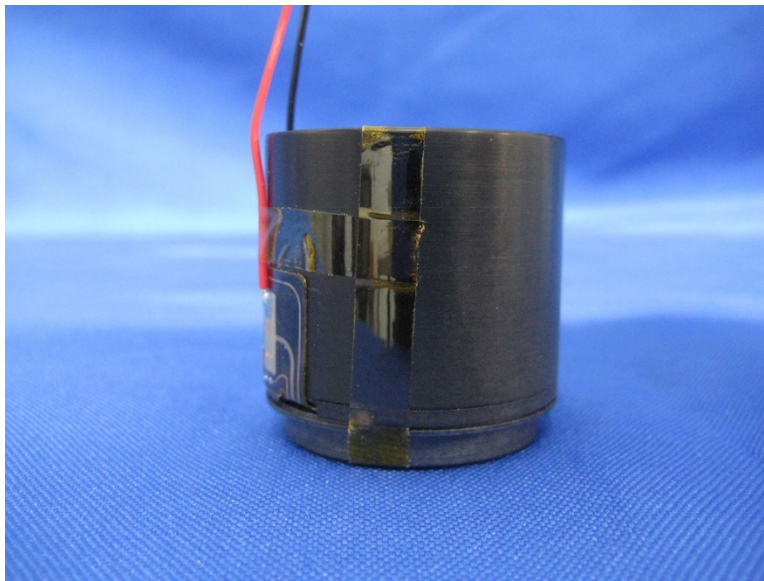
External; View 1



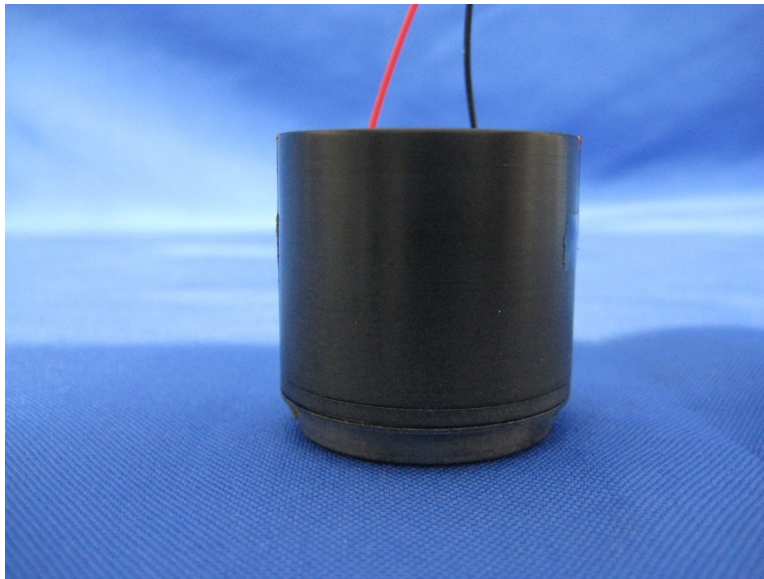
External; View 2



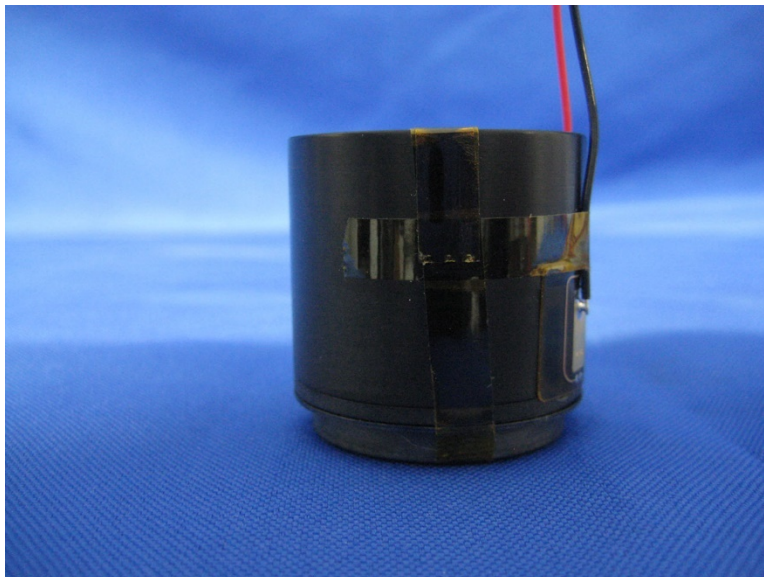
External; View 3



External; View 4



External; View 5



External; View 6

Support Equipment Photo(s)



Mobile Phone

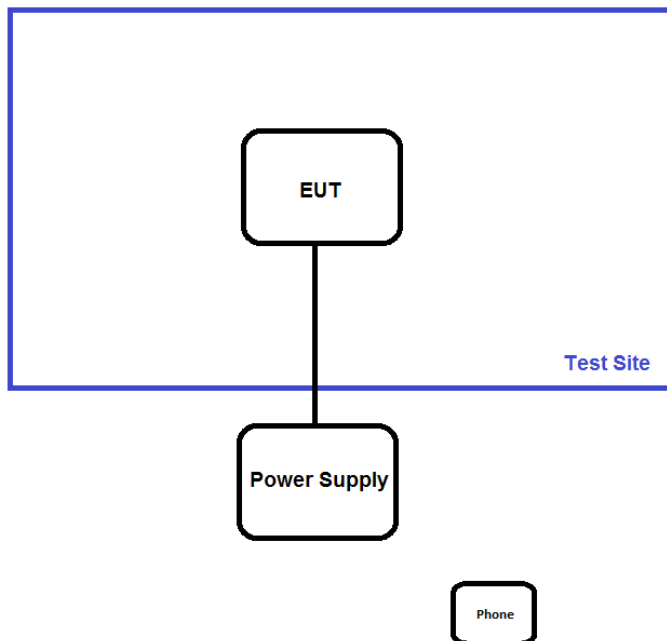


Power Supply

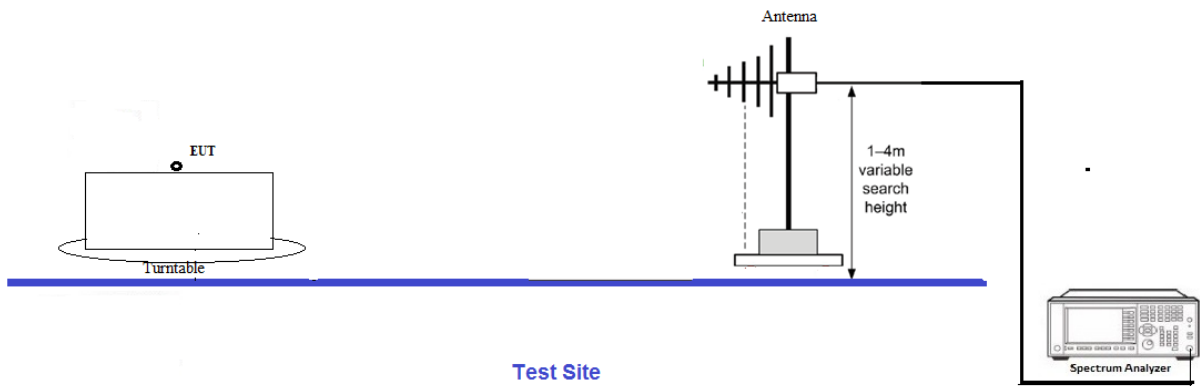
Block Diagram of Test Setup(s)

Config#	Setup Description of Block Diagram
1	The equipment under test (EUT) is placed on top of the Styrofoam tabletop. The EUT is placed in a continuous transmit mode. Frequency range of the EUT: 2402MHz to 2480MHz Low, High channel frequencies: 2402MHz, 2480MHz Protocol: BLE +4dBm 2Mbps. Firmware settings: radio:p4, radio:m1 BLE +8dBm 1Mbps. Firmware settings: radio:p8, radio:m0

Test Setup Block Diagram



Radiated test setup



FCC Part 15 Subpart C

15.215(c) Occupied Bandwidth (20dB BW)

Test Setup/Conditions

Test Location:	Brea Lab D	Test Engineer:	S. Yamamoto
Test Method:	ANSI C63.10 (2020)	Test Date(s):	3/5/2024
Configuration:	1		

Environmental Conditions

Temperature (°C)	18	Relative Humidity (%):	51
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Test Equipment

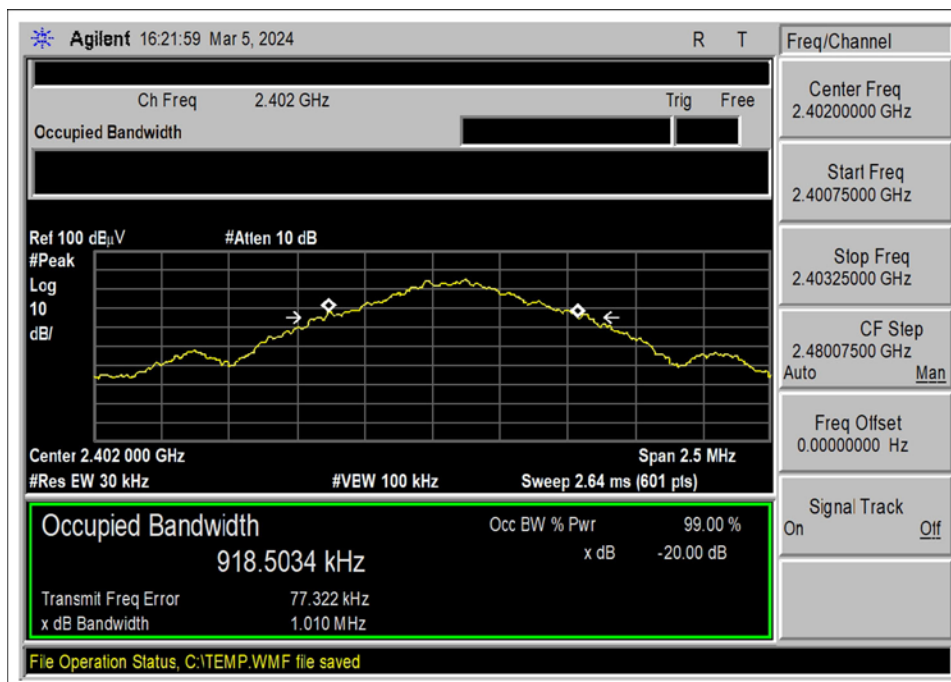
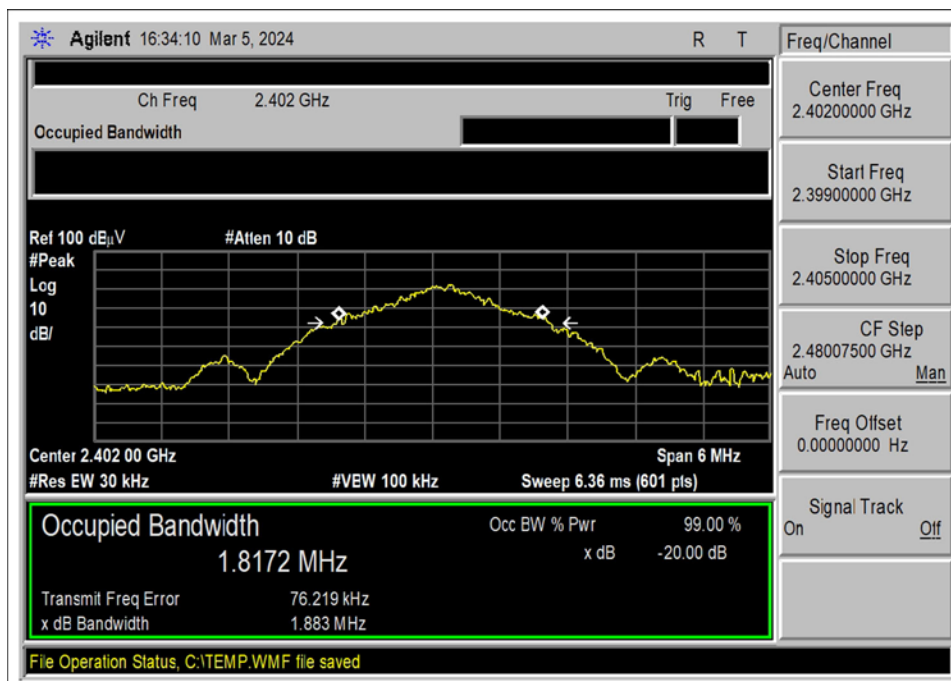
Asset#	Description	Manufacturer	Model	Cal Date	Cal Due
02869	Spectrum Analyzer	Agilent	E4440A	1/17/2024	1/17/2025
P04382	Cable	andrew	LDF-50	5/18/2022	5/18/2024
P07691	Cable	CommScope	LDF1-50	9/9/2022	9/9/2024
00787	Preamp	HP	83017A	6/27/2023	6/27/2025
P07657	Cable	Astrolab, Inc.	32022-29094K-29094K-24TC	6/22/2022	6/22/2024
02113	Horn	EMC Test Systems	3115	1/11/2023	1/11/2025

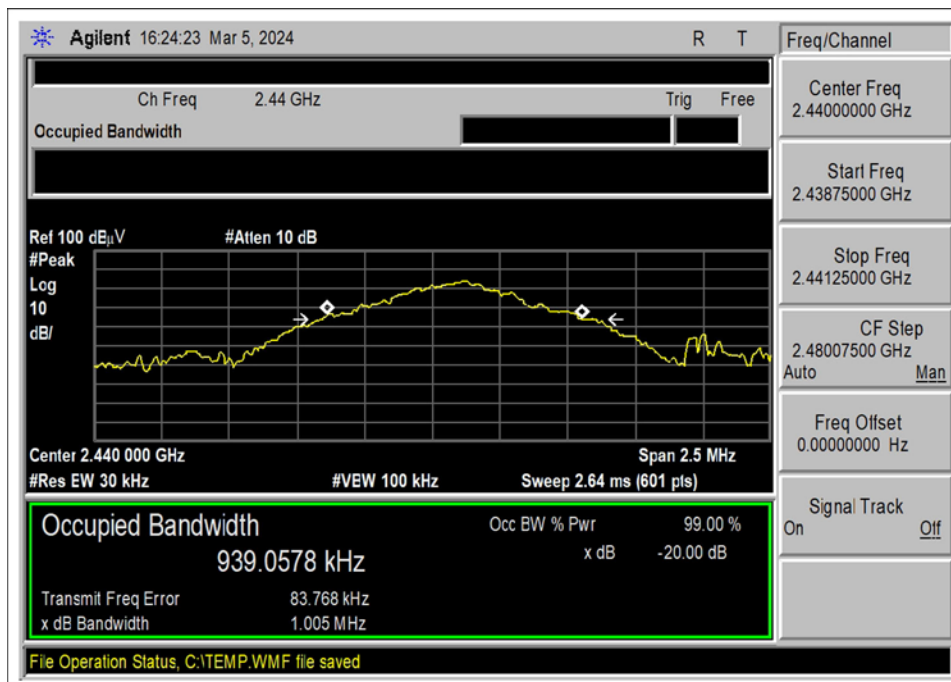
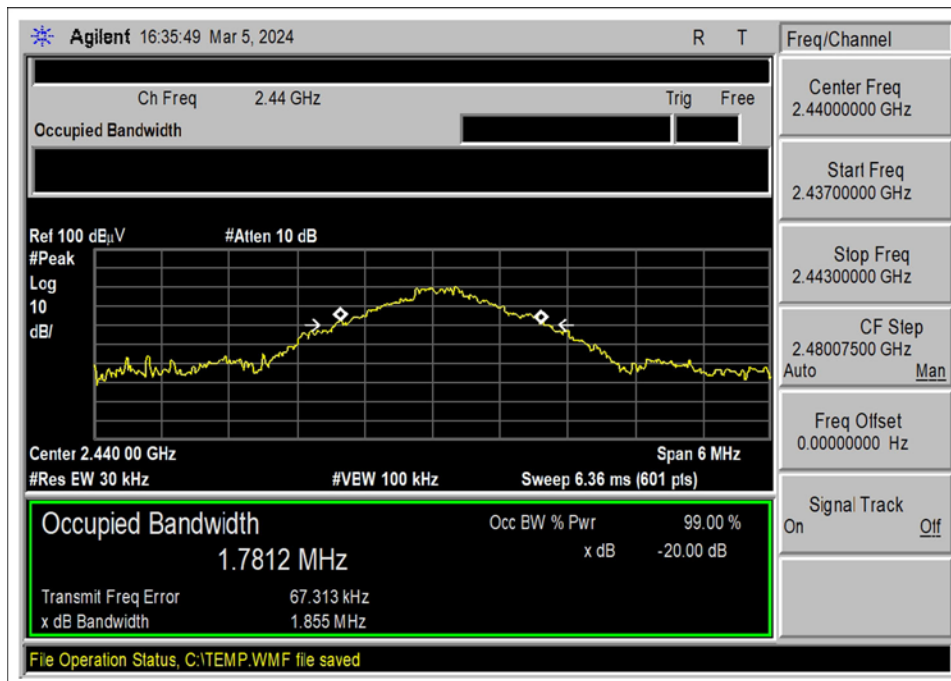
Test Data Summary

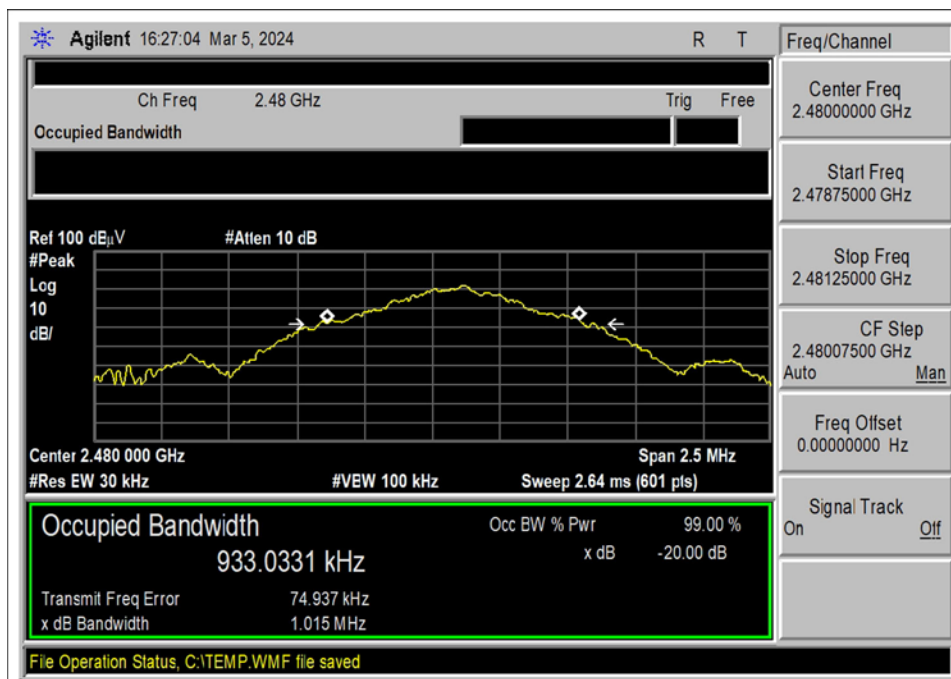
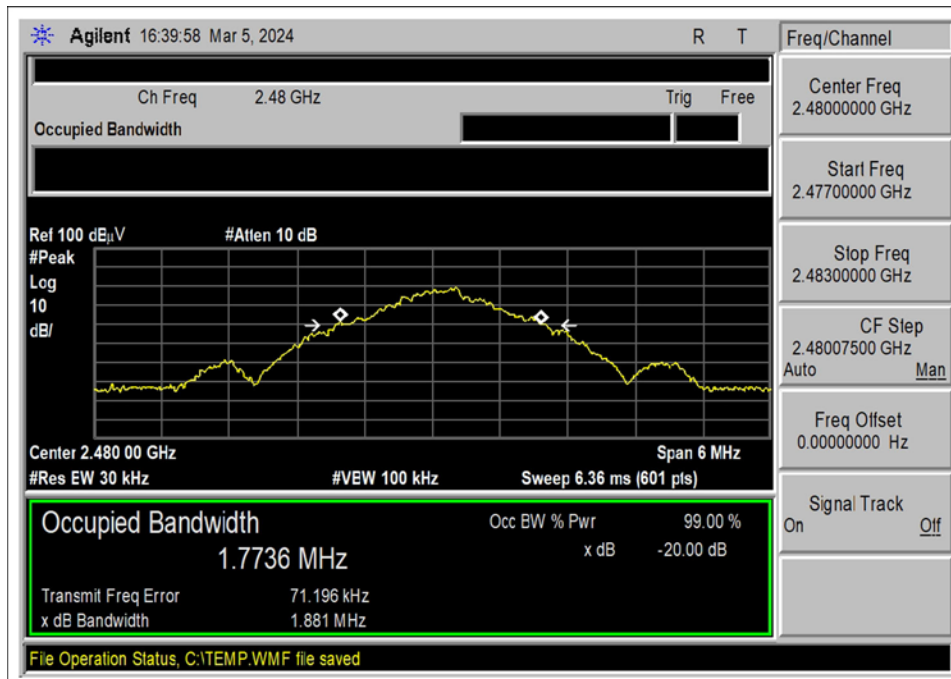
Frequency (MHz)	Antenna Port	Modulation	Measured (kHz)	Limit (kHz)	Results
2402	Integral Trace	GFSK 2MBps	1883	None	NA
2440	Integral Trace	GFSK 2MBps	1855	None	NA
2480	Integral Trace	GFSK 2MBps	1881	None	NA
2402	Integral Trace	GFSK 1MBps	1010	None	NA
2440	Integral Trace	GFSK 1MBps	1005	None	NA
2480	Integral Trace	GFSK 1MBps	1015	None	NA

NA = Not applicable, because FCC 15.215 does not give any limits so there is no criteria for pass or fail.

Plot(s)







Test Setup Photo(s)



Occupied Bandwidth

15.249(a) Field Strength of Fundamental

Test Setup/Conditions

Test Location:	Brea Lab D	Test Engineer:	E. Wong
Test Method:	ANSI C63.10 (2020)	Test Date(s):	3/1/2024
Configuration:	1		

Environmental Conditions

Temperature (°C)	18	Relative Humidity (%):	61
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Asset #	Description	Model	Calibration Date	Cal Due Date
AN02869	Spectrum Analyzer	E4440A	1/17/2024	1/17/2025
AN02113	Horn Antenna- ANSI C63.5	3115	1/11/2023	1/11/2025
ANP07657	Cable	32022-29094K- 29094K-24TC	6/22/2022	6/22/2024
AN00787	Preamplifier	83017A	6/27/2023	6/27/2025
ANP07691	Cable	LDF1-50	9/9/2022	9/9/2024
ANP04382	Cable	LDF-50	5/18/2022	5/18/2024
P07164	Multimeter	8845A/G	8/21/2023	8/21/2025

Test Data Summary - Voltage Variations

Frequency (MHz)	Modulation / Ant Port	V _{Minimum} (dBuV/m)	V _{Nominal} (dBuV/m)	V _{Maximum} (dBuV/m)	Max Deviation from V _{Nominal} (dB)
2402	GFSK (BLE 2Mbps)/ integral trace	80.7	80.7	80.7	0

Test performed using operational mode with the highest output power, representing worst case.

Parameter Definitions:

Measurements performed at input voltage V_{Nominal} ± 15%.

Parameter	Value
V _{Nominal} :	3.0 Vdc
V _{Minimum} :	1.7 Vdc
V _{Maximum} :	4.14 Vdc

Declared nominal 2.0V- 3.6V dc

Using a fresh battery.

Test Data Summary – Radiated Field Strength Measurement

Frequency (MHz)	Modulation	Ant. Type	Measured (dBuV/m @ 3m)	Limit (dBuV/m @ 3m)	Results
2402	GFSK (BLE 2Mbps)	Integral Trace	80.7	≤94	Pass
2440	GFSK (BLE 2Mbps)	Integral Trace	80.3	≤94	Pass
2480	GFSK (BLE 2Mbps)	Integral Trace	77.0	≤94	Pass
2402	GFSK (BLE 1Mbps)	Integral Trace	85.4	≤94	Pass
2440	GFSK (BLE 1Mbps)	Integral Trace	84.4	≤94	Pass
2480	GFSK (BLE 1Mbps)	Integral Trace	83.7	≤94	Pass

Test Setup / Conditions / Data

Test Location: CKC Laboratories, Inc • 110 N. Olinda Place • Brea, CA • (714) 993 6112
 Customer: **L3 Harris Technologies Communication Systems (AZ)**
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**
 Work Order #: **109068** Date: 3/1/2024
 Test Type: **Radiated Scan** Time: 16:46:14
 Tested By: E. Wong Sequence#: 2
 Software: EMITest 5.03.20

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

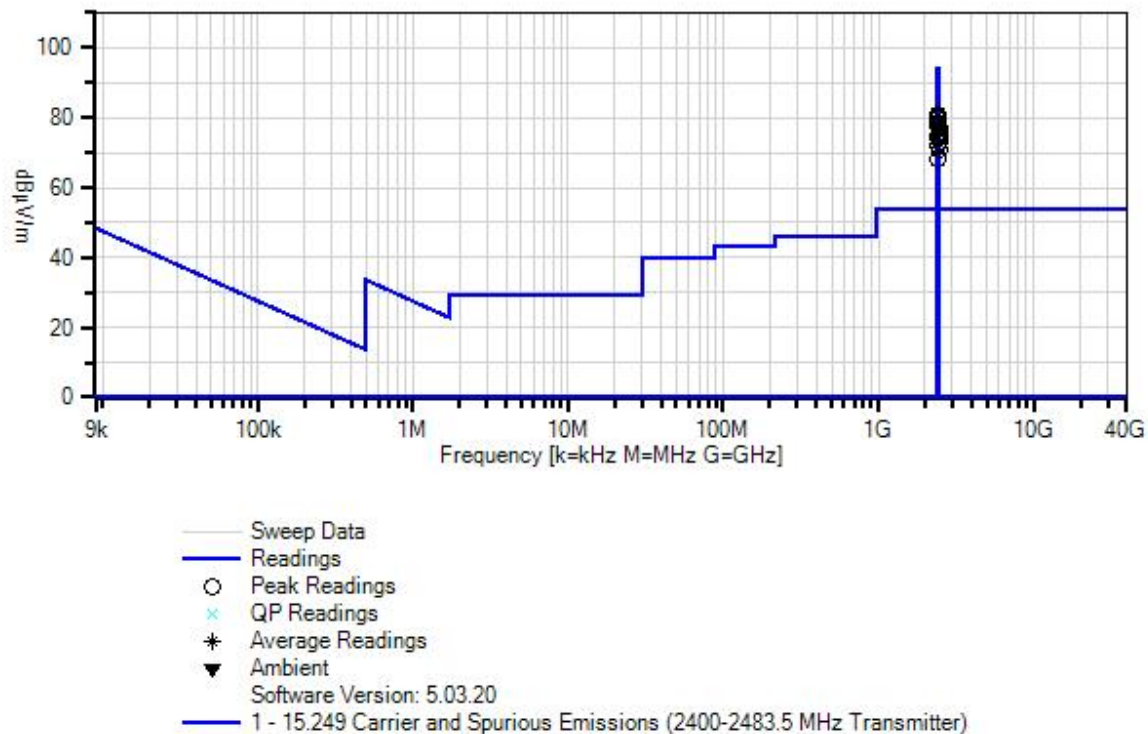
Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The EUT is placed on Styrofoam platform. Set in continuous transmit mode. Frequency range: 2402- 2480MHz TX: 2402MHz, 2440MHz, 2480MHz Protocol: BLE 2Mbps, Firmware setting: radio:p4, radio:m1 Frequency range of measurement = 9 kHz- 25 GHz. 30 MHz-1000 MHz;RBW=120 kHz,VBW=360 kHz, 1000 MHz-25000 MHz;RBW=1MHz,VBW=3 MHz. Emission profile of the EUT rotated along three orthogonal axis was investigated. Recorded data represent worse case emission. Site D Test Method: ANSI C63.10-2020

L3 Harris Technologies Communication Systems (AZ) WO#: 109068 Sequence#: 2 Date: 3/1/2024
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Vert



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	1/17/2024	1/17/2025
T2	AN02113	Horn Antenna- ANSI C63.5	3115	1/11/2023	1/11/2025
T3	ANP07657	Cable	32022-29094K- 29094K-24TC	6/22/2022	6/22/2024
T4	AN00787	Preamp	83017A	6/27/2023	6/27/2025
T5	ANP07691	Cable	LDF1-50	9/9/2022	9/9/2024
T6	ANP04382	Cable	LDF-50	5/18/2022	5/18/2024

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Measurement Data:		Reading listed by margin.						Test Distance: 3 Meters			
#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB μ V	dB	dB	dB	dB	Table	dB μ V/m	dB μ V/m	dB	Ant
1	2402.112M	82.3	+0.0 +3.6	+28.6 +5.6	+0.5	-39.9	+0.0	80.7	94.0 P4_2Mbps_Y_L max	-13.3	Horiz
2	2439.767M	82.0	+0.0 +3.6	+28.5 +5.6	+0.5	-39.9	+0.0	80.3	94.0 P4_2Mbps_Y_M	-13.7	Horiz
3	2402.395M	81.2	+0.0 +3.6	+28.6 +5.6	+0.5	-39.9	+0.0	79.6	94.0 P4_2Mbps_X_L	-14.4	Vert
4	2439.767M	80.4	+0.0 +3.6	+28.5 +5.6	+0.5	-39.9	+0.0	78.7	94.0 P4_2Mbps_X_M	-15.3	Vert
5	2402.112M	80.2	+0.0 +3.6	+28.6 +5.6	+0.5	-39.9	+0.0	78.6	94.0 P4_2Mbps_Z_L	-15.4	Horiz
6	2440.033M	79.9	+0.0 +3.6	+28.5 +5.6	+0.5	-39.9	+0.0	78.2	94.0 P4_2Mbps_Z_M	-15.8	Horiz
7	2402.112M	79.2	+0.0 +3.6	+28.6 +5.6	+0.5	-39.9	+0.0	77.6	94.0 P4_2Mbps_X_L	-16.4	Horiz
8	2480.467M	78.6	+0.0 +3.7	+28.5 +5.7	+0.5	-40.0	+0.0	77.0	94.0 P4_2Mbps_Y_H	-17.0	Horiz
9	2480.467M	77.4	+0.0 +3.7	+28.5 +5.7	+0.5	-40.0	+0.0	75.8	94.0 P4_2Mbps_X_H	-18.2	Horiz
10	2480.467M	77.2	+0.0 +3.7	+28.5 +5.7	+0.5	-40.0	+0.0	75.6	94.0 P4_2Mbps_X_H	-18.4	Vert
11	2402.112M	76.6	+0.0 +3.6	+28.6 +5.6	+0.5	-39.9	+0.0	75.0	94.0 P4_2Mbps_Y_L	-19.0	Vert
12	2480.033M	76.0	+0.0 +3.7	+28.5 +5.7	+0.5	-40.0	+0.0	74.4	94.0 P4_2Mbps_Z_H	-19.6	Vert
13	2439.767M	75.8	+0.0 +3.6	+28.5 +5.6	+0.5	-39.9	+0.0	74.1	94.0 P4_2Mbps_X_M	-19.9	Horiz
14	2480.467M	74.8	+0.0 +3.7	+28.5 +5.7	+0.5	-40.0	+0.0	73.2	94.0 P4_2Mbps_Y_H	-20.8	Vert
15	2402.112M	73.8	+0.0 +3.6	+28.6 +5.6	+0.5	-39.9	+0.0	72.2	94.0 P4_2Mbps_Z_L	-21.8	Vert
16	2439.767M	73.9	+0.0 +3.6	+28.5 +5.6	+0.5	-39.9	+0.0	72.2	94.0 P4_2Mbps_Y_M	-21.8	Vert
17	2480.033M	72.6	+0.0 +3.7	+28.5 +5.7	+0.5	-40.0	+0.0	71.0	94.0 P4_2Mbps_Z_H	-23.0	Horiz
18	2440.033M	69.8	+0.0 +3.6	+28.5 +5.6	+0.5	-39.9	+0.0	68.1	94.0 P4_2Mbps_Z_M	-25.9	Vert

Test Location: CKC Laboratories, Inc • 110 N. Olinda Place • Brea, CA • (714) 993 6112
 Customer: **L3 Harris Technologies Communication Systems (AZ)**
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**
 Work Order #: **109068** Date: 3/4/2024
 Test Type: **Radiated Scan** Time: 16:51:36
 Tested By: S. Yamamoto Sequence#: 4
 Software: EMITest 5.03.20

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

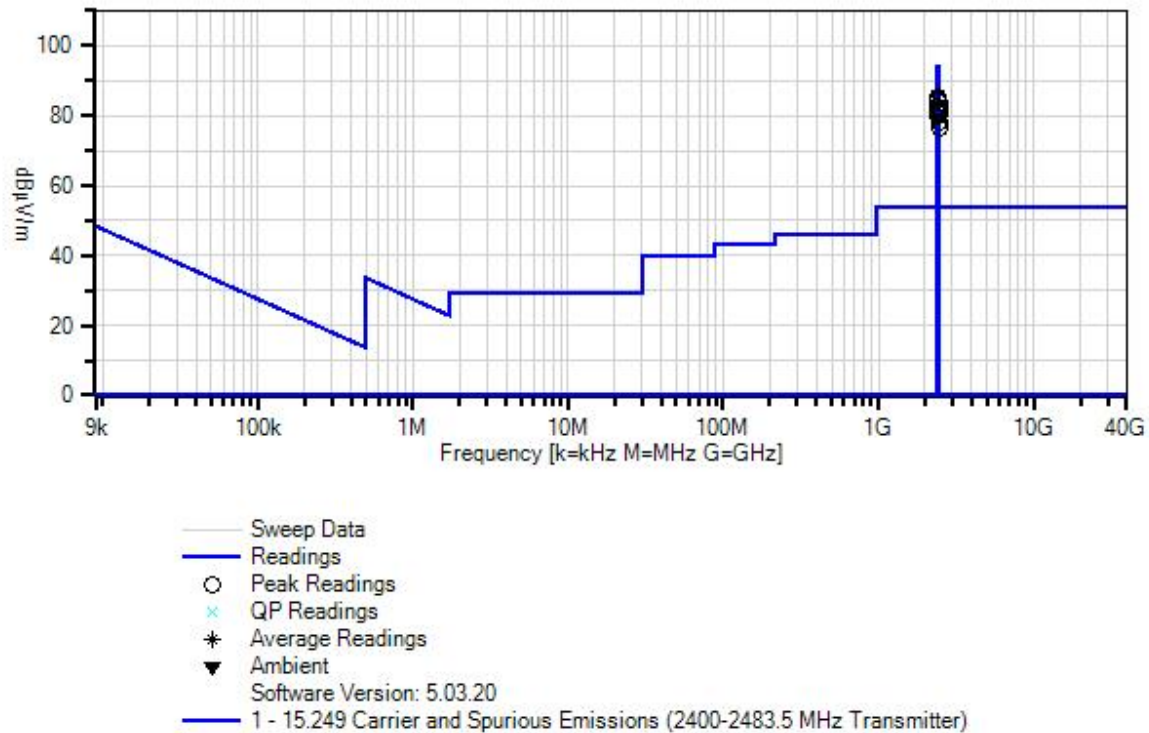
Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The EUT is placed on Styrofoam platform. Set in continuous transmit mode. Freq range: 2402- 2480MHz TX: 2402MHz, 2440MHz, 2480MHz Protocol: BLE 1Mbps, Firmware setting: radio:p8, radio:m0 Measurement of field strength of fundamental Frequency range of measurement = 9 kHz- 25 GHz. 30 MHz-1000 MHz;RBW=120 kHz,VBW=360 kHz, 1000 MHz-25000 MHz;RBW=1MHz,VBW=3 MHz. Test Environment Conditions: Temperature: 19°C Humidity: 53% Pressure: 99kPa Emission profile of the EUT rotated along three orthogonal axis was investigated. Recorded data represent worse case emission. Site D Test Method: ANSI C63.10-2020

L3 Harris Technologies Communication Systems (AZ) WO#: 109068 Sequence#: 4 Date: 3/4/2024
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Horiz



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02869	Spectrum Analyzer	E4440A	1/17/2024	1/17/2025
T1	ANP04382	Cable	LDF-50	5/18/2022	5/18/2024
T2	ANP07691	Cable	LDF1-50	9/9/2022	9/9/2024
	AN00787	Preamp	83017A	6/27/2023	6/27/2025
	ANP07657	Cable	32022-29094K-29094K-24TC	6/22/2022	6/22/2024
T3	AN02113	Horn Antenna-ANSI C63.5	3115	1/11/2023	1/11/2025

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Measurement Data:		Reading listed by margin.					Test Distance: 3 Meters				
#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB		Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	2401.925M	47.6	+5.6	+3.6	+28.6		+0.0	85.4	94.0 +8dBm, 1MBps, Z axis	-8.6	Horiz
2	2401.942M	47.6	+5.6	+3.6	+28.6		+0.0	85.4	94.0 +8dBm, 1MBps, Y axis	-8.6	Horiz
3	2402.250M	47.2	+5.6	+3.6	+28.6		+0.0	85.0	94.0 +8dBm, 1MBps, X axis	-9.0	Vert
4	2439.933M	46.7	+5.6	+3.6	+28.5		+0.0	84.4	94.0 +8dBm, 1MBps, Z axis	-9.6	Horiz
5	2440.233M	46.5	+5.6	+3.6	+28.5		+0.0	84.2	94.0 +8dBm, 1MBps, Y axis	-9.8	Horiz
6	2440.242M	46.4	+5.6	+3.6	+28.5		+0.0	84.1	94.0 +8dBm, 1MBps, X axis	-9.9	Vert
7	2480.217M	45.8	+5.7	+3.7	+28.5		+0.0	83.7	94.0 +8dBm, 1MBps, Y axis	-10.3	Horiz
8	2480.225M	45.7	+5.7	+3.7	+28.5		+0.0	83.6	94.0 +8dBm, 1MBps, X axis	-10.4	Vert
9	2440.225M	44.7	+5.6	+3.6	+28.5		+0.0	82.4	94.0 +8dBm, 1MBps, X axis	-11.6	Horiz
10	2480.250M	44.4	+5.7	+3.7	+28.5		+0.0	82.3	94.0 +8dBm, 1MBps, Z axis	-11.7	Horiz
11	2402.267M	43.8	+5.6	+3.6	+28.6		+0.0	81.6	94.0 +8dBm, 1MBps, X axis	-12.4	Horiz
12	2402.192M	43.2	+5.6	+3.6	+28.6		+0.0	81.0	94.0 +8dBm, 1MBps, Z axis	-13.0	Vert
13	2402.258M	43.0	+5.6	+3.6	+28.6		+0.0	80.8	94.0 +8dBm, 1MBps, Y axis	-13.2	Vert

14	2479.925M	42.3	+5.7	+3.7	+28.5	+0.0	80.2	94.0 +8dBm, 1MBps, X axis	-13.8	Horiz
15	2439.883M	42.4	+5.6	+3.6	+28.5	+0.0	80.1	94.0 +8dBm, 1MBps, Y axis	-13.9	Vert
16	2440.225M	42.2	+5.6	+3.6	+28.5	+0.0	79.9	94.0 +8dBm, 1MBps, Z axis	-14.1	Vert
17	2480.200M	40.4	+5.7	+3.7	+28.5	+0.0	78.3	94.0 +8dBm, 1MBps, Y axis	-15.7	Vert
18	2480.217M	38.8	+5.7	+3.7	+28.5	+0.0	76.7	94.0 +8dBm, 1MBps, Z axis	-17.3	Vert

Test Setup Photo(s)



Test Setup



Position X



Position Y



Position Z



Radiated Emissions; Above 1GHz



Radiated Frequency; Above 1GHz, View 1



Radiated Frequency; Above 1GHz, View 2

15.249(a) Field Strength of Spurious Radiated Emissions

Test Setup / Conditions / Data

Test Location: CKC Laboratories, Inc • 110 N. Olinda Place • Brea, CA • (714) 993 6112
 Customer: **L3 Harris Technologies Communication Systems (AZ)**
 Specification: **15.209 Radiated Emissions**
 Work Order #: **109068** Date: 3/6/2024
 Test Type: **Radiated Scan** Time: 11:54:32
 Tested By: S. Yamamoto Sequence#: 5
 Software: EMITest 5.03.20

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on top of the styrofoam tabletop.
 The EUT is placed in a continuous transmit mode.

Frequency range of the EUT: 2402MHz to 2480MHz

Low, Middle, High channel frequencies: 2402MHz, 2440MHz, 2480MHz

Protocol:

BLE +4dBm 2Mbps. Firmware settings: radio:p4, radio:m1

BLE +8dBm 1Mbps. Firmware settings: radio:p8, radio:m0

Data sheet is for spurious emissions.

Frequency range of measurement and data sheet: 9kHz to 25GHz

9kHz to 150kHz. RBW=200Hz, VBW=600Hz

150kHz to 30MHz, RBW=9kHz, VBW=30kHz

30MHz to 1000MHz, RBW=120kHz, VBW=360kHz

1000MHz to 25000MHz, RBW=1MHz, VBW=3 MHz.

Test Environment Conditions:

Temperature: 19°C

Humidity: 53%

Pressure: 99kPa

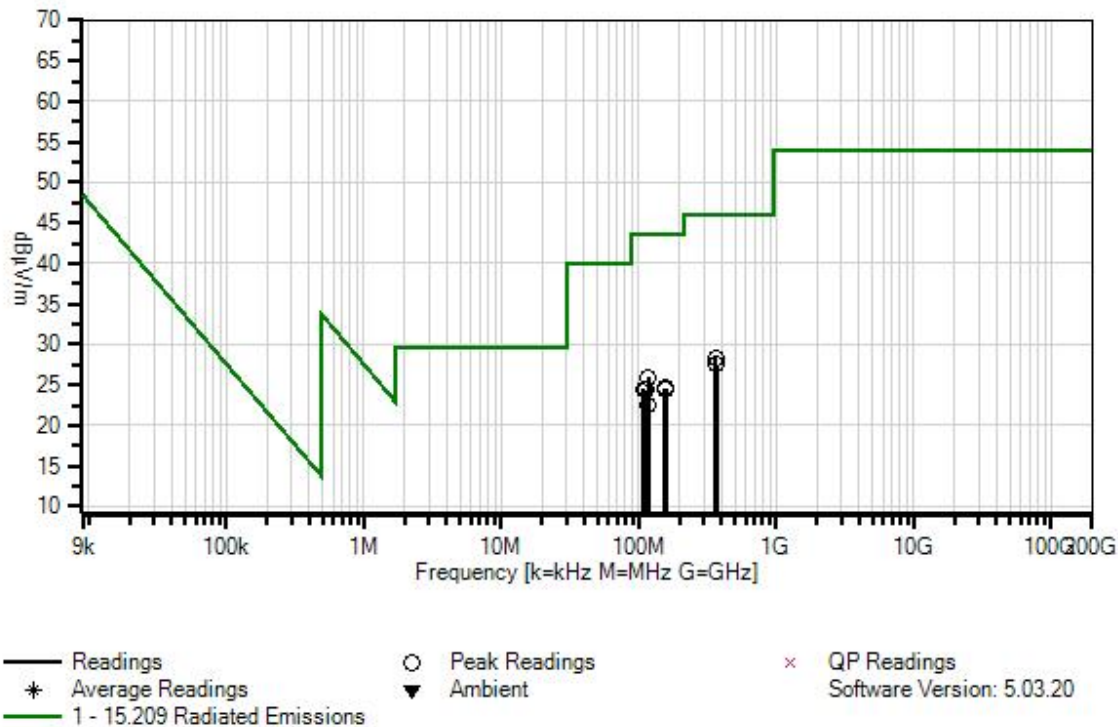
Site D

Test Method: ANSI C63.10-2020

Emission profile of the EUT rotated along three orthogonal axis was investigated.

Recorded data represent worse case emissions.

L3 Harris Technologies Communication Systems (AZ) WD#: 109068 Sequence#: 5 Date: 3/6/2024
15.209 Radiated Emissions Test Distance: 3 Meters Vert



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	1/17/2024	1/17/2025
T2	ANP06664	Cable	PHASEFLEX FJR01N01036.0	3/25/2022	3/25/2024
T3	AN00010	Preamp	8447D	1/2/2024	1/2/2026
T4	ANP04382	Cable	LDF-50	5/18/2022	5/18/2024
T5	ANP05569	Cable-Amplitude +15C to +45C (dB)	RG-214/U	12/31/2022	12/31/2024
T6	AN01994	Biconilog Antenna	CBL6111C	6/1/2022	6/1/2024
	AN03385	High Pass Filter	11SH10- 3000/T10000- O/O	5/15/2023	5/15/2025
	AN00787	Preamp	83017A	6/27/2023	6/27/2025
	AN01413	Horn Antenna	84125-80008	10/3/2022	10/3/2024
	ANP07691	Cable	LDF1-50	9/9/2022	9/9/2024
	ANP07657	Cable	32022-29094K- 29094K-24TC	6/22/2022	6/22/2024
	AN02113	Horn Antenna- ANSI C63.5	3115	1/11/2023	1/11/2025
	AN00314	Loop Antenna	6502	3/29/2022	3/29/2024

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Measurement Data:			Reading listed by margin.				Test Distance: 3 Meters				
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB μ V	T5 dB	T6 dB	dB	dB	Table	dB μ V/m	dB μ V/m	dB	Ant
1	117.610M	33.4	+0.0 +1.1	+0.1 +17.2	-27.0	+1.2	+0.0	26.0	43.5	-17.5	Vert
2	361.210M	30.5	+0.0 +2.1	+0.1 +20.5	-27.0	+2.1	+0.0	28.3	46.0	-17.7	Vert
3	367.830M	29.3	+0.0 +2.2	+0.1 +20.7	-27.0	+2.2	+0.0	27.5	46.0	-18.5	Vert
4	155.506M	32.3	+0.0 +1.3	+0.1 +16.5	-26.9	+1.4	+0.0	24.7	43.5	-18.8	Vert
5	156.923M	32.2	+0.0 +1.3	+0.1 +16.4	-26.9	+1.4	+0.0	24.5	43.5	-19.0	Vert
6	108.510M	32.5	+0.0 +1.0	+0.1 +16.7	-27.0	+1.2	+0.0	24.5	43.5	-19.0	Vert
7	154.889M	32.0	+0.0 +1.3	+0.1 +16.5	-26.9	+1.4	+0.0	24.4	43.5	-19.1	Vert
8	112.210M	32.1	+0.0 +1.1	+0.1 +16.9	-27.0	+1.2	+0.0	24.4	43.5	-19.1	Vert
9	116.132M	30.0	+0.0 +1.1	+0.1 +17.1	-27.0	+1.2	+0.0	22.5	43.5	-21.0	Vert

Test Location: CKC Laboratories, Inc • 110 N. Olinda Place • Brea, CA • (714) 993 6112
 Customer: **L3 Harris Technologies Communication Systems (AZ)**
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**
 Work Order #: **109068** Date: 3/4/2024
 Test Type: **Radiated Scan** Time: 14:04:33
 Tested By: S. Yamamoto Sequence#: 3
 Software: EMITest 5.03.20

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

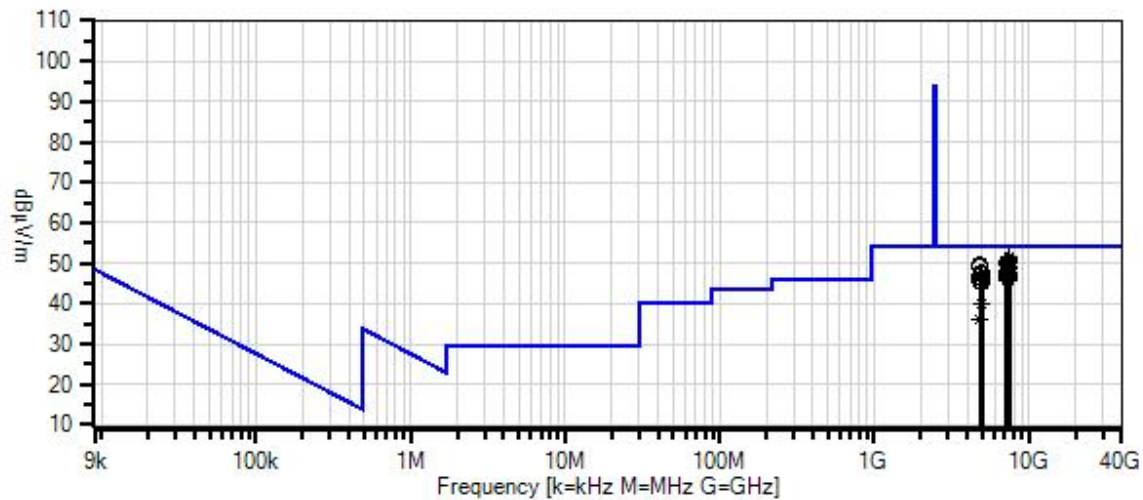
Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on top of the styrofoam surface. The EUT is placed in a continuous transmit mode. Frequency range of the EUT: 2402MHz to 2480MHz Low, Middle, High channel frequencies: 2402MHz, 2440MHz, 2480MHz Protocol: BLE +8dBm 2Mbps. Firmware settings: radio:p8, radio:m1 Data sheet is for field strength of harmonics. Frequency range of measurement 2.5GHz to 25GHz RBW=1MHz VBW=3 MHz. Test Environment Conditions: Temperature: 19°C Humidity: 53% Pressure: 99kPa Emission profile of the EUT rotated along three orthogonal axis was investigated. Recorded data represent worse case emissions. Site D Test Method: ANSI C63.10-2020

L3 Harris Technologies Communication Systems (AZ) WO#: 109068 Sequence#: 3 Date: 3/4/2024
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Horiz



— Readings
○ Peak Readings
× QP Readings
* Average Readings
▼ Ambient
Software Version: 5.03.20
— 1 - 15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	1/17/2024	1/17/2025
T2	ANP04382	Cable	LDF-50	5/18/2022	5/18/2024
T3	ANP07691	Cable	LDF1-50	9/9/2022	9/9/2024
T4	AN00787	Preamplifier	83017A	6/27/2023	6/27/2025
T5	ANP07657	Cable	32022-29094K-29094K-24TC	6/22/2022	6/22/2024
T6	AN03385	High Pass Filter	11SH10-3000/T10000-O/O	5/15/2023	5/15/2025
T7	AN02113	Horn Antenna-ANSI C63.5	3115	1/11/2023	1/11/2025
	AN01413	Horn Antenna	84125-80008	10/3/2022	10/3/2024

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Measurement Data:											
			Reading listed by margin.					Test Distance: 3 Meters			
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	T5	T6	T7		Table	dBμV/m	dBμV/m	dB	Ant
1	7321.267M Ave	34.3	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	51.3	54.0 +8dBm, 2MBps, Y axis	-2.7	Vert
2	7439.267M Ave	33.7	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	50.9	54.0 +8dBm, 2MBps, Y axis	-3.1	Vert
3	7205.265M Ave	34.0	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	50.8	54.0 +8dBm, 2MBps, Y axis	-3.2	Vert
4	7441.257M Ave	33.6	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	50.8	54.0 +8dBm, 2MBps, Y axis	-3.2	Vert
5	7439.267M Ave	33.4	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	50.6	54.0 +8dBm, 2MBps, Z axis	-3.4	Vert
6	7319.250M Ave	33.4	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	50.4	54.0 +8dBm, 2MBps, Z axis	-3.6	Horiz
7	7207.265M Ave	33.6	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	50.4	54.0 +8dBm, 2MBps, Y axis	-3.6	Vert
8	7441.267M Ave	33.1	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	50.3	54.0 +8dBm, 2MBps, Z axis	-3.7	Vert
^	7441.267M	41.8	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	59.0	54.0 +8dBm, 2MBps, Z axis	+5.0	Vert
^	7441.257M	41.3	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	58.5	54.0 +8dBm, 2MBps, Y axis	+4.5	Vert
11	7441.237M Ave	33.1	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	50.3	54.0 +8dBm, 2MBps, Z axis	-3.7	Horiz
12	7439.212M Ave	33.0	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	50.2	54.0 +8dBm, 2MBps, Z axis	-3.8	Horiz
13	7319.767M Ave	33.2	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	50.2	54.0 +8dBm, 2MBps, Y axis	-3.8	Vert
^	7319.767M	40.6	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	57.6	54.0 +8dBm, 2MBps, Y axis	+3.6	Vert
15	7321.225M Ave	33.2	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	50.2	54.0 +8dBm, 2MBps, Z axis	-3.8	Horiz

16	7207.217M Ave	33.4	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	50.2	54.0 +8dBm, 2MBps, X axis	-3.8	Horiz
17	7205.267M Ave	33.3	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	50.1	54.0 +8dBm, 2MBps, X axis	-3.9	Horiz
18	4804.850M	41.7	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	49.8	54.0 +8dBm, 2MBps, Z axis	-4.2	Horiz
19	7205.283M Ave	32.8	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	49.6	54.0 +8dBm, 2MBps, Z axis	-4.4	Horiz
20	4803.417M	41.5	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	49.6	54.0 +8dBm, 2MBps, X axis	-4.4	Horiz
21	7207.283M Ave	32.8	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	49.6	54.0 +8dBm, 2MBps, Z axis	-4.4	Horiz
22	4803.593M	41.0	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	49.1	54.0 +8dBm, 2MBps, Y axis	-4.9	Horiz
23	7319.300M Ave	32.1	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	49.1	54.0 +8dBm, 2MBps, X axis	-4.9	Horiz
24	7321.250M Ave	31.7	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	48.7	54.0 +8dBm, 2MBps, X axis	-5.3	Horiz
25	7205.207M Ave	31.2	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	48.0	54.0 +8dBm, 2MBps, Y axis	-6.0	Horiz
^	7205.267M	42.2	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	59.0	54.0 +8dBm, 2MBps, X axis	+5.0	Horiz
^	7205.283M	41.4	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	58.2	54.0 +8dBm, 2MBps, Z axis	+4.2	Horiz
^	7205.207M	39.8	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	56.6	54.0 +8dBm, 2MBps, Y axis	+2.6	Horiz
29	7207.275M Ave	31.1	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	47.9	54.0 +8dBm, 2MBps, Y axis	-6.1	Horiz
^	7207.217M	42.4	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	59.2	54.0 +8dBm, 2MBps, X axis	+5.2	Horiz
^	7207.283M	41.1	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	57.9	54.0 +8dBm, 2MBps, Z axis	+3.9	Horiz
^	7207.275M	39.0	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	55.8	54.0 +8dBm, 2MBps, Y axis	+1.8	Horiz

33	7321.225M Ave	30.8	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	47.8	54.0 +8dBm, 2MBps, Y axis	-6.2	Horiz
^	7321.225M	42.0	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	59.0	54.0 +8dBm, 2MBps, Z axis	+5.0	Horiz
^	7321.250M	40.5	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	57.5	54.0 +8dBm, 2MBps, X axis	+3.5	Horiz
^	7321.225M	39.6	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	56.6	54.0 +8dBm, 2MBps, Y axis	+2.6	Horiz
37	7439.325M Ave	30.4	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	47.6	54.0 +8dBm, 2MBps, X axis	-6.4	Horiz
38	7441.250M Ave	30.3	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	47.5	54.0 +8dBm, 2MBps, X axis	-6.5	Horiz
39	7439.358M Ave	30.3	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	47.5	54.0 +8dBm, 2MBps, X axis	-6.5	Vert
^	7439.267M	41.8	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	59.0	54.0 +8dBm, 2MBps, Z axis	+5.0	Vert
^	7439.267M	41.6	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	58.8	54.0 +8dBm, 2MBps, Y axis	+4.8	Vert
^	7439.358M	38.6	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	55.8	54.0 +8dBm, 2MBps, X axis	+1.8	Vert
43	4959.570M	38.6	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	47.5	54.0 +8dBm, 2MBps, Z axis	-6.5	Horiz
44	4959.817M	38.4	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	47.3	54.0 +8dBm, 2MBps, X axis	-6.7	Horiz
45	4960.417M	38.4	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	47.3	54.0 +8dBm, 2MBps, Y axis	-6.7	Vert
46	7319.275M Ave	30.2	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	47.2	54.0 +8dBm, 2MBps, Y axis	-6.8	Horiz
^	7319.250M	42.0	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	59.0	54.0 +8dBm, 2MBps, Z axis	+5.0	Horiz
^	7319.300M	40.7	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	57.7	54.0 +8dBm, 2MBps, X axis	+3.7	Horiz
^	7319.275M	39.4	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	56.4	54.0 +8dBm, 2MBps, Y axis	+2.4	Horiz

50	7205.325M Ave	30.4	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	47.2	54.0 +8dBm, 2MBps, Z axis	-6.8	Vert
51	7321.242M Ave	30.2	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	47.2	54.0 +8dBm, 2MBps, Z axis	-6.8	Vert
^	7321.267M	42.7	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	59.7	54.0 +8dBm, 2MBps, Y axis	+5.7	Vert
^	7321.242M	39.3	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	56.3	54.0 +8dBm, 2MBps, Z axis	+2.3	Vert
54	4880.792M	38.6	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	47.1	54.0 +8dBm, 2MBps, Y axis	-6.9	Horiz
55	4959.607M	38.1	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	47.0	54.0 +8dBm, 2MBps, Y axis	-7.0	Horiz
56	7439.265M Ave	29.8	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	47.0	54.0 +8dBm, 2MBps, Y axis	-7.0	Horiz
^	7439.212M	41.8	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	59.0	54.0 +8dBm, 2MBps, Z axis	+5.0	Horiz
^	7439.265M	39.2	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	56.4	54.0 +8dBm, 2MBps, Y axis	+2.4	Horiz
^	7439.325M	38.7	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	55.9	54.0 +8dBm, 2MBps, X axis	+1.9	Horiz
60	4803.392M	38.8	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	46.9	54.0 +8dBm, 2MBps, X axis	-7.1	Vert
61	7205.268M Ave	30.0	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	46.8	54.0 +8dBm, 2MBps, X axis	-7.2	Vert
^	7205.265M	41.8	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	58.6	54.0 +8dBm, 2MBps, Y axis	+4.6	Vert
^	7205.325M	39.9	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	56.7	54.0 +8dBm, 2MBps, Z axis	+2.7	Vert
^	7205.268M	39.2	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	56.0	54.0 +8dBm, 2MBps, X axis	+2.0	Vert
65	7319.392M Ave	29.6	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	46.6	54.0 +8dBm, 2MBps, Z axis	-7.4	Vert
^	7319.392M	38.7	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	55.7	54.0 +8dBm, 2MBps, Z axis	+1.7	Vert

67	7207.218M Ave	29.6	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	46.4	54.0 +8dBm, 2MBps, X axis	-7.6	Vert
68	7441.265M Ave	29.0	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	46.2	54.0 +8dBm, 2MBps, Y axis	-7.8	Horiz
^	7441.237M	41.4	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	58.6	54.0 +8dBm, 2MBps, Z axis	+4.6	Horiz
^	7441.250M	39.3	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	56.5	54.0 +8dBm, 2MBps, X axis	+2.5	Horiz
^	7441.265M	38.9	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	56.1	54.0 +8dBm, 2MBps, Y axis	+2.1	Horiz
72	4960.233M	37.1	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	46.0	54.0 +8dBm, 2MBps, X axis	-8.0	Vert
73	7207.225M Ave	29.1	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	45.9	54.0 +8dBm, 2MBps, Z axis	-8.1	Vert
^	7207.265M	41.9	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	58.7	54.0 +8dBm, 2MBps, Y axis	+4.7	Vert
^	7207.225M	39.7	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	56.5	54.0 +8dBm, 2MBps, Z axis	+2.5	Vert
^	7207.218M	39.4	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	56.2	54.0 +8dBm, 2MBps, X axis	+2.2	Vert
77	4803.560M	37.7	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	45.8	54.0 +8dBm, 2MBps, Y axis	-8.2	Vert
78	7319.275M Ave	28.6	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	45.6	54.0 +8dBm, 2MBps, X axis	-8.4	Vert
^	7319.275M	37.6	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	54.6	54.0 +8dBm, 2MBps, X axis	+0.6	Vert
80	4880.625M	36.9	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	45.4	54.0 +8dBm, 2MBps, Y axis	-8.6	Vert
81	4880.167M	36.9	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	45.4	54.0 +8dBm, 2MBps, Z axis	-8.6	Vert
82	4880.150M	36.8	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	45.3	54.0 +8dBm, 2MBps, X axis	-8.7	Vert
83	4959.817M	36.4	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	45.3	54.0 +8dBm, 2MBps, Z axis	-8.7	Vert

84	4880.167M Ave	31.6	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	40.1	54.0 +8dBm, 2MBps, Z axis	-13.9	Horiz
^	4880.167M	39.7	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	48.2	54.0 +8dBm, 2MBps, Z axis	-5.8	Horiz
^	4880.125M	38.7	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	47.2	54.0 +8dBm, 2MBps, X axis	-6.8	Horiz
87	4804.233M Ave	28.1	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	36.2	54.0 +8dBm, 2MBps, Z axis	-17.8	Vert
^	4804.233M	37.7	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	45.8	54.0 +8dBm, 2MBps, Z axis	-8.2	Vert

Test Location: CKC Laboratories, Inc • 110 N. Olinda Place • Brea, CA • (714) 993 6112
 Customer: **L3 Harris Technologies Communication Systems (AZ)**
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**
 Work Order #: **109068** Date: 3/5/2024
 Test Type: **Radiated Scan** Time: 14:40:00
 Tested By: S. Yamamoto Sequence#: 4
 Software: EMITest 5.03.20

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

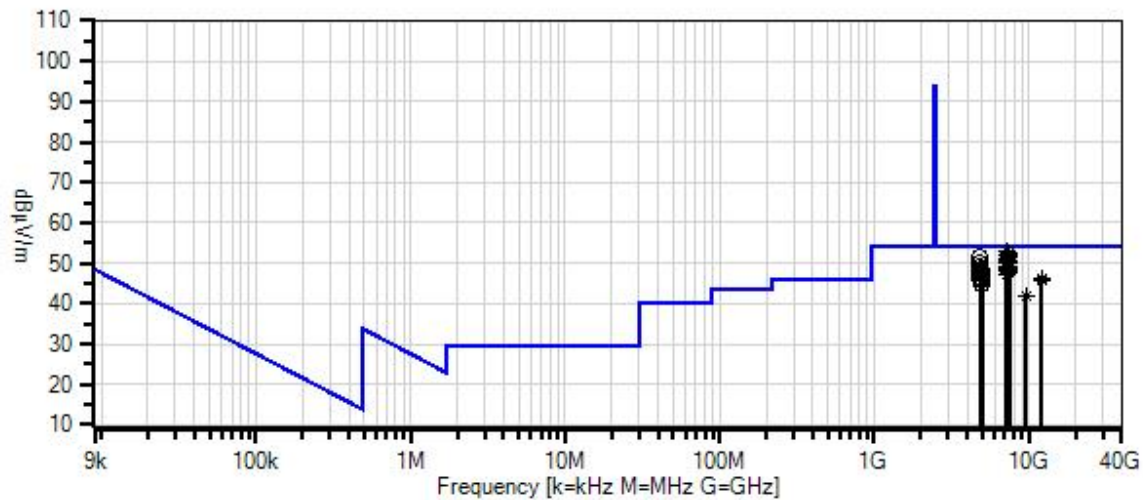
Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on top of the styrofoam surface. The EUT is placed in a continuous transmit mode. Frequency range of the EUT: 2402MHz to 2480MHz Low, Middle, High channel frequencies: 2402MHz, 2440MHz, 2480MHz Protocol: BLE +8dBm 1Mbps Firmware settings: radio:p8, radio:m0 Data sheet is for field strength of harmonics Frequency range of measurement 2.5GHz to 25GHz RBW=1MHz VBW=3 MHz. Test Environment Conditions: Temperature: 18°C Humidity: 51% Pressure: 99kPa Emission profile of the EUT rotated along three orthogonal axis was investigated. Recorded data represent worse case emissions. Site D Test Method: ANSI C63.10-2020

L3 Harris Technologies Communication Systems (AZ) WO#: 109068 Sequence#: 4 Date: 3/5/2024
15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Horiz



— Readings
○ Peak Readings
× QP Readings
* Average Readings
▼ Ambient
Software Version: 5.03.20
— 1 - 15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	1/17/2024	1/17/2025
T2	ANP04382	Cable	LDF-50	5/18/2022	5/18/2024
T3	ANP07691	Cable	LDF1-50	9/9/2022	9/9/2024
T4	AN00787	Preamp	83017A	6/27/2023	6/27/2025
T5	ANP07657	Cable	32022-29094K-29094K-24TC	6/22/2022	6/22/2024
T6	AN03385	High Pass Filter	11SH10-3000/T10000-O/O	5/15/2023	5/15/2025
T7	AN02113	Horn Antenna-ANSI C63.5	3115	1/11/2023	1/11/2025
	AN01413	Horn Antenna	84125-80008	10/3/2022	10/3/2024

WARNING: This document contains data under International Traffic in Arms Regulations (ITAR). Transfer of the data to a foreign person/entity requires an export license or exemption.

Measurement Data:											
			Reading listed by margin.					Test Distance: 3 Meters			
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	T5	T6	T7		Table	dBμV/m	dBμV/m	dB	Ant
1	7205.745M Ave	36.2	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	53.0	54.0 +8dBm, 1MBps, Y axis	-1.0	Vert
2	7440.660M Ave	35.2	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	52.4	54.0 +8dBm, 1MBps, Y axis	-1.6	Vert
3	7440.707M Ave	35.1	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	52.3	54.0 +8dBm, 1MBps, Z axis	-1.7	Horiz
4	7320.715M Ave	35.3	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	52.3	54.0 +8dBm, 1MBps, Z axis	-1.7	Horiz
5	7319.745M Ave	35.2	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	52.2	54.0 +8dBm, 1MBps, Z axis	-1.8	Horiz
6	7439.769M Ave	34.9	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	52.1	54.0 +8dBm, 1MBps, Y axis	-1.9	Vert
7	7206.778M Ave	35.1	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	51.9	54.0 +8dBm, 1MBps, Y axis	-2.1	Vert
8	7440.700M Ave	34.7	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	51.9	54.0 +8dBm, 1MBps, Z axis	-2.1	Vert
9	7439.767M Ave	34.6	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	51.8	54.0 +8dBm, 1MBps, Z axis	-2.2	Horiz
^	7439.767M	42.3	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	59.5	54.0 +8dBm, 1MBps, Z axis	+5.5	Horiz
^	7439.770M	39.8	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	57.0	54.0 +8dBm, 1MBps, Y axis	+3.0	Horiz
12	7206.610M Ave	35.0	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	51.8	54.0 +8dBm, 1MBps, Z axis	-2.2	Horiz
13	7319.780M Ave	34.7	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	51.7	54.0 +8dBm, 1MBps, Y axis	-2.3	Vert
14	7439.775M Ave	34.5	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	51.7	54.0 +8dBm, 1MBps, Z axis	-2.3	Vert
15	7320.800M Ave	34.5	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	51.5	54.0 +8dBm, 1MBps, Y axis	-2.5	Vert

16	4803.952M	43.2	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	51.3	54.0 +8dBm, 1MBps, Z axis	-2.7	Horiz
17	7206.700M Ave	34.3	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	51.1	54.0 +8dBm, 1MBps, X axis	-2.9	Horiz
^	7206.610M	42.0	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	58.8	54.0 +8dBm, 1MBps, Z axis	+4.8	Horiz
19	7205.765M Ave	33.9	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	50.7	54.0 +8dBm, 1MBps, Z axis	-3.3	Horiz
20	7205.742M Ave	33.9	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	50.7	54.0 +8dBm, 1MBps, X axis	-3.3	Horiz
21	7319.770M Ave	33.6	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	50.6	54.0 +8dBm, 1MBps, X axis	-3.4	Horiz
22	7320.710M Ave	33.3	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	50.3	54.0 +8dBm, 1MBps, X axis	-3.7	Horiz
23	4803.812M	42.1	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	50.2	54.0 +8dBm, 1MBps, X axis	-3.8	Horiz
24	7205.777M Ave	33.2	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	50.0	54.0 +8dBm, 1MBps, Y axis	-4.0	Horiz
^	7205.765M	41.8	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	58.6	54.0 +8dBm, 1MBps, Z axis	+4.6	Horiz
^	7205.742M	40.9	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	57.7	54.0 +8dBm, 1MBps, X axis	+3.7	Horiz
^	7205.777M	40.9	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	57.7	54.0 +8dBm, 1MBps, Y axis	+3.7	Horiz
28	7439.870M Ave	32.1	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	49.3	54.0 +8dBm, 1MBps, Y axis	-4.7	Horiz
29	4803.833M	41.2	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	49.3	54.0 +8dBm, 1MBps, Y axis	-4.7	Horiz
30	7206.726M Ave	32.4	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	49.2	54.0 +8dBm, 1MBps, X axis	-4.8	Vert

31	7319.780M Ave	32.1	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	49.1	54.0 +8dBm, 1MBps, Y axis	-4.9	Horiz
^	7319.745M	42.4	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	59.4	54.0 +8dBm, 1MBps, Z axis	+5.4	Horiz
^	7319.770M	41.2	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	58.2	54.0 +8dBm, 1MBps, X axis	+4.2	Horiz
^	7319.780M	39.9	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	56.9	54.0 +8dBm, 1MBps, Y axis	+2.9	Horiz
35	7440.712M Ave	31.8	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	49.0	54.0 +8dBm, 1MBps, X axis	-5.0	Vert
36	7205.745M Ave	32.2	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	49.0	54.0 +8dBm, 1MBps, X axis	-5.0	Vert
37	7439.773M Ave	31.8	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	49.0	54.0 +8dBm, 1MBps, X axis	-5.0	Vert
38	7439.772M Ave	31.7	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	48.9	54.0 +8dBm, 1MBps, X axis	-5.1	Vert
^	7439.769M	42.3	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	59.5	54.0 +8dBm, 1MBps, Y axis	+5.5	Vert
^	7439.775M	42.1	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	59.3	54.0 +8dBm, 1MBps, Z axis	+5.3	Vert
^	7439.773M	40.1	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	57.3	54.0 +8dBm, 1MBps, X axis	+3.3	Vert
^	7439.772M	39.8	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	57.0	54.0 +8dBm, 1MBps, X axis	+3.0	Vert
43	7320.800M Ave	31.8	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	48.8	54.0 +8dBm, 1MBps, Y axis	-5.2	Horiz
^	7320.715M	42.6	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	59.6	54.0 +8dBm, 1MBps, Z axis	+5.6	Horiz
^	7320.710M	41.1	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	58.1	54.0 +8dBm, 1MBps, X axis	+4.1	Horiz
^	7320.800M	40.2	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	57.2	54.0 +8dBm, 1MBps, Y axis	+3.2	Horiz

47	7206.747M Ave	32.0	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	48.8	54.0 +8dBm, 1MBps, Y axis	-5.2	Horiz
^	7206.700M	41.0	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	57.8	54.0 +8dBm, 1MBps, X axis	+3.8	Horiz
^	7206.747M	39.9	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	56.7	54.0 +8dBm, 1MBps, Y axis	+2.7	Horiz
50	7440.690M Ave	31.4	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	48.6	54.0 +8dBm, 1MBps, Y axis	-5.4	Horiz
^	7440.707M	42.5	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	59.7	54.0 +8dBm, 1MBps, Z axis	+5.7	Horiz
^	7440.690M	39.6	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	56.8	54.0 +8dBm, 1MBps, Y axis	+2.8	Horiz
53	7440.718M Ave	31.4	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	48.6	54.0 +8dBm, 1MBps, X axis	-5.4	Vert
^	7440.700M	41.9	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	59.1	54.0 +8dBm, 1MBps, Z axis	+5.1	Vert
^	7440.660M	41.8	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	59.0	54.0 +8dBm, 1MBps, Y axis	+5.0	Vert
^	7440.712M	39.8	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	57.0	54.0 +8dBm, 1MBps, X axis	+3.0	Vert
^	7440.718M	39.4	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	56.6	54.0 +8dBm, 1MBps, X axis	+2.6	Vert
^	7440.718M	39.3	+0.0 +0.6	+11.2 +0.3	+6.9 +37.7	-39.5	+0.0	56.5	54.0 +8dBm, 1MBps, X axis	+2.5	Vert
59	7319.785M Ave	31.4	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	48.4	54.0 +8dBm, 1MBps, X axis	-5.6	Vert
60	7320.702M Ave	31.3	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	48.3	54.0 +8dBm, 1MBps, Z axis	-5.7	Vert
^	7320.800M	42.3	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	59.3	54.0 +8dBm, 1MBps, Y axis	+5.3	Vert

62	7319.762M Ave	31.2	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	48.2	54.0 +8dBm, 1MBps, Z axis	-5.8	Vert
^	7319.780M	42.5	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	59.5	54.0 +8dBm, 1MBps, Y axis	+5.5	Vert
^	7319.785M	39.3	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	56.3	54.0 +8dBm, 1MBps, X axis	+2.3	Vert
^	7319.762M	38.9	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	55.9	54.0 +8dBm, 1MBps, Z axis	+1.9	Vert
66	7206.710M Ave	31.3	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	48.1	54.0 +8dBm, 1MBps, Z axis	-5.9	Vert
^	7206.778M	42.5	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	59.3	54.0 +8dBm, 1MBps, Y axis	+5.3	Vert
^	7206.726M	40.3	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	57.1	54.0 +8dBm, 1MBps, X axis	+3.1	Vert
^	7206.710M	39.0	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	55.8	54.0 +8dBm, 1MBps, Z axis	+1.8	Vert
^	7206.710M	38.5	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	55.3	54.0 +8dBm, 1MBps, Z axis	+1.3	Vert
71	4880.200M	39.6	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	48.1	54.0 +8dBm, 1MBps, Y axis	-5.9	Horiz
72	4804.180M	39.9	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	48.0	54.0 +8dBm, 1MBps, X axis	-6.0	Vert
73	4804.288M	39.8	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	47.9	54.0 +8dBm, 1MBps, Y axis	-6.1	Vert
74	4880.153M	39.3	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	47.8	54.0 +8dBm, 1MBps, Z axis	-6.2	Horiz
75	4879.997M	39.3	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	47.8	54.0 +8dBm, 1MBps, Y axis	-6.2	Vert
76	4960.038M	38.8	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	47.7	54.0 +8dBm, 1MBps, X axis	-6.3	Vert

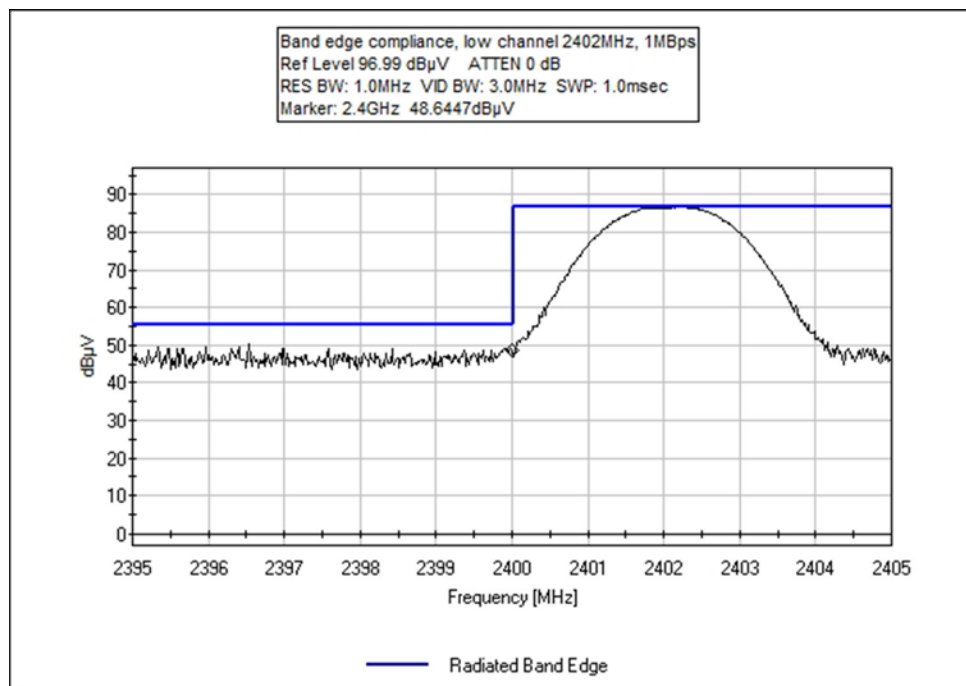
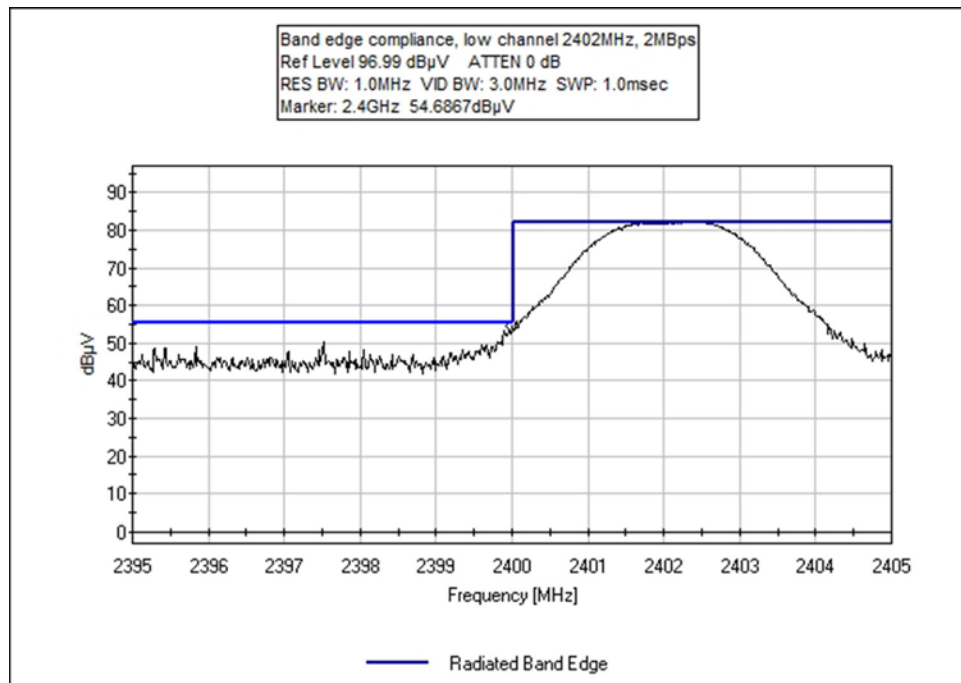
77	7320.696M Ave	30.7	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	47.7	54.0 +8dBm, 1MBps, X axis	-6.3	Vert
^	7320.702M	40.0	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	57.0	54.0 +8dBm, 1MBps, Z axis	+3.0	Vert
^	7320.696M	39.0	+0.0 +0.8	+11.1 +0.3	+6.8 +37.5	-39.5	+0.0	56.0	54.0 +8dBm, 1MBps, X axis	+2.0	Vert
80	4960.445M	38.8	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	47.7	54.0 +8dBm, 1MBps, Y axis	-6.3	Horiz
81	4880.357M	39.0	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	47.5	54.0 +8dBm, 1MBps, X axis	-6.5	Horiz
82	4959.816M	38.5	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	47.4	54.0 +8dBm, 1MBps, Y axis	-6.6	Vert
83	4960.215M	38.5	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	47.4	54.0 +8dBm, 1MBps, Z axis	-6.6	Horiz
84	7205.760M Ave	30.4	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	47.2	54.0 +8dBm, 1MBps, Z axis	-6.8	Vert
^	7205.745M	43.7	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	60.5	54.0 +8dBm, 1MBps, Y axis	+6.5	Vert
^	7205.745M	40.3	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	57.1	54.0 +8dBm, 1MBps, X axis	+3.1	Vert
^	7205.760M	39.1	+0.0 +0.9	+11.0 +0.2	+6.8 +37.3	-39.4	+0.0	55.9	54.0 +8dBm, 1MBps, Z axis	+1.9	Vert
88	4804.115M Ave	38.5	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	46.6	54.0 +8dBm, 1MBps, Z axis	-7.4	Horiz
89	4880.455M	37.9	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	46.4	54.0 +8dBm, 1MBps, X axis	-7.6	Vert
90	12009.623 M Ave	19.1	+0.0 +0.9	+14.7 +0.4	+9.2 +41.2	-39.2	+0.0	46.3	54.0 +8dBm, 1MBps, Y axis	-7.7	Horiz
^	12009.623 M	29.1	+0.0 +0.9	+14.7 +0.4	+9.2 +41.2	-39.2	+0.0	56.3	54.0 +8dBm, 1MBps, Y axis	+2.3	Horiz
92	4804.620M	38.1	+0.0 +0.6	+8.3 +0.3	+5.3 +33.1	-39.5	+0.0	46.2	54.0 +8dBm, 1MBps, Z axis	-7.8	Vert

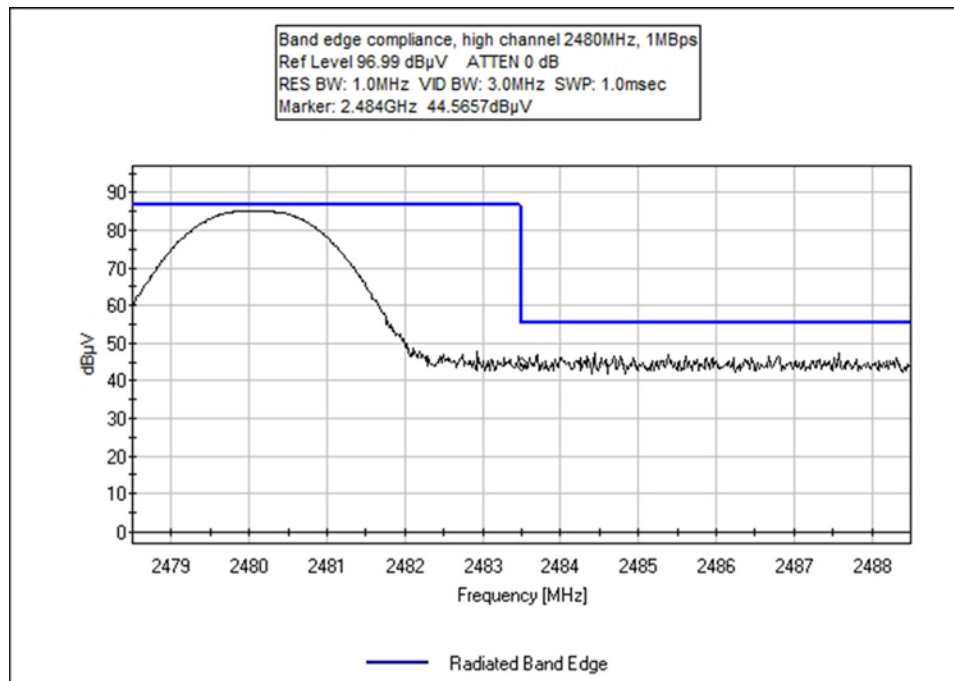
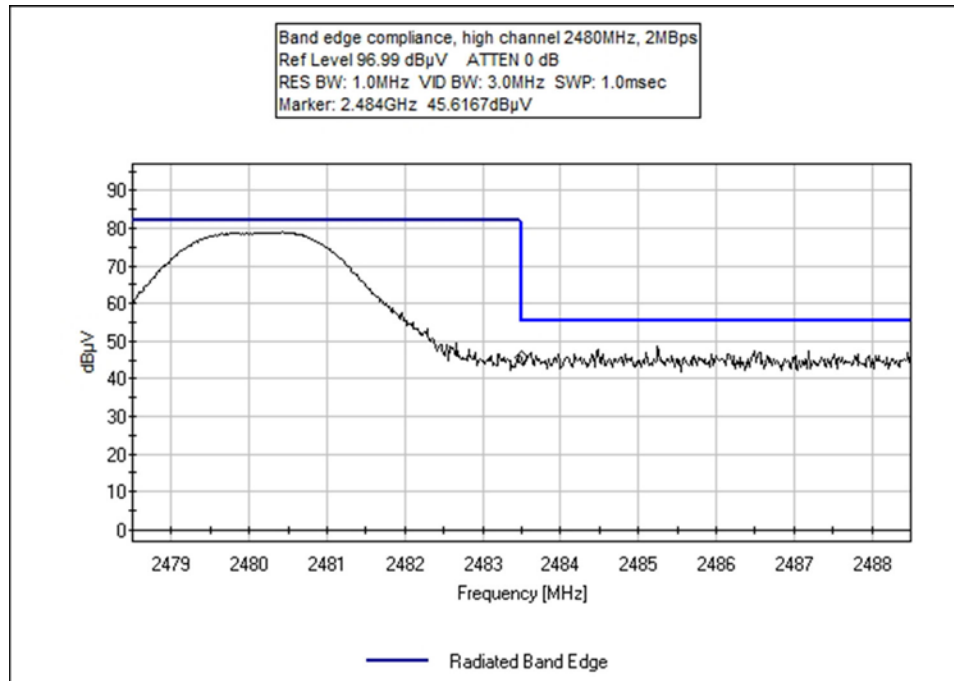
93	12009.623 M Ave	18.5	+0.0 +0.9	+14.7 +0.4	+9.2 +41.2	-39.2	+0.0	45.7	54.0	-8.3	Vert
									+8dBm, 1MBps, Y axis		
^	12009.623 M	27.7	+0.0 +0.9	+14.7 +0.4	+9.2 +41.2	-39.2	+0.0	54.9	54.0	+0.9	Vert
									+8dBm, 1MBps, Y axis		
95	4960.553M	36.6	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	45.5	54.0	-8.5	Vert
									+8dBm, 1MBps, Z axis		
96	4959.993M	36.6	+0.0 +0.6	+8.5 +0.3	+5.5 +33.5	-39.5	+0.0	45.5	54.0	-8.5	Vert
									+8dBm, 1MBps, X axis		
97	4879.887M	36.2	+0.0 +0.6	+8.4 +0.3	+5.4 +33.3	-39.5	+0.0	44.7	54.0	-9.3	Vert
									+8dBm, 1MBps, Z axis		
98	9607.730M Ave	19.1	+0.0 +0.9	+13.2 +0.5	+7.9 +39.5	-39.0	+0.0	42.1	54.0	-11.9	Vert
									+8dBm, 1MBps, Y axis		
^	9607.730M	32.2	+0.0 +0.9	+13.2 +0.5	+7.9 +39.5	-39.0	+0.0	55.2	54.0	+1.2	Vert
									+8dBm, 1MBps, Y axis		
100	9607.792M Ave	19.1	+0.0 +0.9	+13.2 +0.5	+7.9 +39.5	-39.0	+0.0	42.1	54.0	-11.9	Horiz
									+8dBm, 1MBps, Y axis		
^	9607.792M	28.0	+0.0 +0.9	+13.2 +0.5	+7.9 +39.5	-39.0	+0.0	51.0	54.0	-3.0	Horiz
									+8dBm, 1MBps, Y axis		

Band Edge

Band Edge Summary					
Frequency (MHz)	Modulation	Ant. Type	Field Strength (dBuV/m @3m)	Limit (dBuV/m @3m)	Results
2400	GFSK 2MBps	Integral	53.1	<54	Pass
2483.5	GFSK 2MBps	Integral	45.6	<54	Pass
2400	GFSK 1MBps	Integral	48.6	<54	Pass
2483.5	GFSK 1MBps	Integral	44.6	<54	Pass

Band Edge Plots





Test Setup / Conditions / Data

Test Location: CKC Laboratories, Inc • 110 N. Olinda Place • Brea, CA • (714) 993 6112
 Customer: **L3 Harris Technologies Communication Systems (AZ)**
 Specification: **Radiated Band Edge**
 Work Order #: **109068** Date: 3/11/2024
 Test Type: **Radiated Scan** Time: 10:20:35
 Tested By: S. Yamamoto Sequence#: 6
 Software: EMITest 5.03.20

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

The equipment under test (EUT) is placed on top of the styrofoam tabletop. The EUT is placed in a continuous transmit mode. Frequency range of the EUT: 2402MHz to 2480MHz Low, High channel frequencies: 2402MHz, 2480MHz Protocol: BLE +4dBm 2Mbps. Firmware settings: radio:p4, radio:m1 BLE +8dBm 1Mbps. Firmware settings: radio:p8, radio:m0 Measurement of radiated band edge compliance RBW=1MHz, VBW=3 MHz. Test Environment Conditions: Temperature: 17°C Humidity: 54% Pressure: 99kPa Site D Test Method: ANSI C63.10-2020

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	1/17/2024	1/17/2025
T2	AN02113	Horn Antenna- ANSI C63.5	3115	1/11/2023	1/11/2025
T3	ANP07657	Cable	32022-29094K- 29094K-24TC	6/22/2022	6/22/2024
T4	AN00787	Preamp	83017A	6/27/2023	6/27/2025
T5	ANP07691	Cable	LDF1-50	9/9/2022	9/9/2024
T6	ANP04382	Cable	LDF-50	5/18/2022	5/18/2024

WARNING: This document contains data under International Traffic in Arms Regulations (ITAR). Transfer of the data to a foreign person/entity requires an export license or exemption.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB μ V	dB	dB	dB	dB	Table	dB μ V/m	dB μ V/m	dB	Ant
1	2400.000M	54.7	+0.0 +3.6	+28.6 +5.6	+0.5	-39.9	+0.0	53.1	54.0 p4 m1	-0.9	Horiz
2	2400.000M	48.6	+0.0 +3.6	+28.6 +5.6	+0.5	-39.9	+0.0	47.0	54.0 p8 m0	-7.0	Horiz
3	2483.500M	45.6	+0.0 +3.7	+28.5 +5.7	+0.5	-40.0	+0.0	44.0	54.0 p4 m1	-10.0	Horiz
4	2483.500M	44.6	+0.0 +3.7	+28.5 +5.7	+0.5	-40.0	+0.0	43.0	54.0 p8 m0	-11.0	Horiz

Test Setup Photo(s)



Below 1GHz



Above 1GHz, View 1



Above 1GHz, View 2



Above 1GHz, View 3

Appendix A: Manufacturer Declaration

The following models have been tested by CKC Laboratories:

Device: Peripheral Overlay Display

Model: POD-PVS14

The manufacturer declares that the following additional models are identical electrically or any differences between them do not affect their EMC characteristics, and therefore meets the level of testing equivalent to the tested model:

Model numbers: Description

POD-PVS14-XY-ZZZZ; where X,Y, and Z are configurable options that do not affect emissions.

Supplemental Information

Measurement Uncertainty

Uncertainty Value	Parameter
5.77 dB	Radiated Emissions
0.673 dB	RF Conducted Measurements
5.77×10^{-10}	Frequency Deviation
0.00005 s	Time Deviation
3.18 dB	Mains Conducted Emissions

Uncertainties reported are worst case for all CKC Laboratories' sites and represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k=2$. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in $\text{dB}\mu\text{V}/\text{m}$, the spectrum analyzer reading in $\text{dB}\mu\text{V}$ was corrected by using the following formula. This reading was then compared to the applicable specification limit. Individual measurements were compared with the displayed limit value in the margin column. The margin was calculated based on subtracting the limit value from the corrected measurement value; a positive margin represents a measurement exceeding the limit, while a negative margin represents a measurement less than the limit.

SAMPLE CALCULATIONS		
	Meter reading	($\text{dB}\mu\text{V}$)
+	Antenna Factor	(dB/m)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	($\text{dB}\mu\text{V}/\text{m}$)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or caret ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.