Divigraph (Pty) LTD

TEST REPORT FOR

Industrial Edge Machine with IEEE 802.15.4 and BLE radio, 2.4GHz Wi-Fi/Bluetooth and LTE/WCDMA cellular interface, Model: 110A1000-01
Panel Antenna (TE MD24-12), Model: 110A1003
RF Extension Cable (175101-10-24.00), Model: 175101-10-24.00
Antenna Whip 5G WB Cell IP67 N Plug, Model: 110A1008
Dipole Antenna (HUBER+SUHNER 1399.17.0224), Model: 100A1001
Yagi Antenna (HUBER+SUHNER 1324.17.0116), Model: 110A1007

Tested to The Following Standards:

FCC Part 15 Subpart C Section(s)

15.207 & 15.247
(DTS 2400-2483.5 MHz)

Report No.: 109523-6

Date of issue: April 9, 2024

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.

Test Certificate # 803.01

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Testing the Future
CKC LABORATORIES, INC.

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Administrative Information

Test Report Information

REPORT PREPARED FOR:

Divigraph (Pty) LTD
Prosperity Park, Computer Road
Milnerton Cape Town, 7441
South Africa

Representative: Dennis Naude
Customer Reference Number: 2359

REPORT PREPARED BY:

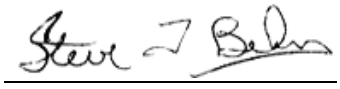
Viviana Prado
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 109523

DATE OF EQUIPMENT RECEIPT: March 15, 2024
DATE(S) OF TESTING: March 15, 21, and 26, 2024

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.



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.
1120 Fulton Place
Fremont, CA 94539

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 - 15.247 (DTS 2400-2483.5 MHz)

Test Procedure	Description	Modifications	Results
15.247(a)(2)	6dB Bandwidth	NA	NP
15.247(b)(3)	Output Power	NA	NP
15.247(d)	RF Conducted Emissions & Band Edge	NA	NP
15.247(d)	Radiated Emissions & Band Edge	NA	Pass
15.247(e)	Power Spectral Density	NA	NP
15.207	AC Conducted Emissions	NA	Pass

NA = Not Applicable
NP = CKC Laboratories was not contracted to perform the required testing since the EUT has a certified modular (FCC ID: 2AOADNG01) with new antennas.

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.

Modifications listed above must be incorporated into all production units.

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 3

Equipment Tested:

Device	Manufacturer	Model #	S/N
Industrial Edge Machine with IEEE 802.15.4 and BLE radio, 2.4GHz Wi-Fi/Bluetooth and LTE/WCDMA cellular interface	Divigraph (Pty)LTD	110A1000-01	AD24BD0B
Panel Antenna (TE MD24-12)	TE CONNECTIVITY	110A1003	DVG-AGW-UL-025
RF Extension Cable (175101-10-24.00)	Amphenol RF	175101-10-24.00	DVG-AGW-UL-022
Antenna Whip 5G WB Cell IP67 N Plug	TE CONNECTIVITY	110A1008	DVG-AGW-UL-004
Dipole Antenna (HUBER+SUHNER 1399.17.0224)	HUBER+SUHNER	100A1001	DVG-AGW-UL-001

Radio / Subcomponent	Antenna	Type	Gain	Active
(1) 802.15.4 & BLE	Panel Antenna (TE MD24-12)	Panel	11dBi	YES
(2) Cellular	Antenna Whip 5G WB Cell IP67 N Plug	Omni	3.9dbi	NO
(3) Wi-Fi and Bluetooth	Dipole Antenna (HUBER+SUHNER 1399.17.0224)	Omni	2dBi	NO

Support Equipment:

Device	Manufacturer	Model #	S/N
PoE DC Injector	Tenda	PoE30G-AT	E519201931300529
5-Port 10/100 Mbps Ethernet Switch	LiteWave	LS1005	22390K7014704
NUC	Intel	NUC 8i3BEH	G6BE84900Z2M
Monitor	Element	ELEFW195	H5C0M0A1S194044842
Mouse	Microsoft	X05-48976	52195-576-6371461-0000
Keyboard	Microsoft	KU-0462	7687605031296

Configuration 4

Equipment Tested:

Device	Manufacturer	Model #	S/N
Industrial Edge Machine with IEEE 802.15.4 and BLE radio, 2.4GHz Wi-Fi/Bluetooth and LTE/WCDMA cellular interface	Divigraph (Pty)LTD	110A1000-01	AD24BD0B
Yagi Antenna (HUBER+SUHNER 1324.17.0116)	HUBER+SUHNER	110A1007	DVG-AGW-UL-003
Antenna Whip 5G WB Cell IP67 N Plug	TE CONNECTIVITY	110A1008	DVG-AGW-UL-004
Dipole Antenna (HUBER+SUHNER 1399.17.0224)	HUBER+SUHNER	100A1001	DVG-AGW-UL-001

Radio / Subcomponent	Antenna	Type	Gain	Active
(1) 802.15.4 & BLE	Yagi Antenna (HUBER+SUHNER 1324.17.0116)	Yagi	14dBi	YES
(2) Cellular	Antenna Whip 5G WB Cell IP67 N Plug	Omni	3.9dbi	NO
(3) Wi-Fi and Bluetooth	Dipole Antenna (HUBER+SUHNER 1399.17.0224)	Omni	2dBi	NO

Support Equipment:

Device	Manufacturer	Model #	S/N
PoE DC Injector	Tenda	PoE30G-AT	E519201931300529
5-Port 10/100 Mbps Ethernet Switch	LiteWave	LS1005	22390K7014704
NUC	Intel	NUC 8i3BEH	G6BE84900Z2M
Monitor	Element	ELEFW195	H5C0M0A1S194044842
Mouse	Microsoft	X05-48976	52195-576-6371461-0000
Keyboard	Microsoft	KU-0462	7687605031296

Configuration 6

Equipment Tested:

Device	Manufacturer	Model #	S/N
Industrial Edge Machine with IEEE 802.15.4 and BLE radio, 2.4GHz Wi-Fi/Bluetooth and LTE/WCDMA cellular interface	Divigraph (Pty)LTD	110A1000-01	AD24BD09
Yagi Antenna (HUBER+SUHNER 1324.17.0116)	HUBER+SUHNER	110A1007	DVG-AGW-UL-003
Antenna Whip 5G WB Cell IP67 N Plug	TE CONNECTIVITY	110A1008	DVG-AGW-UL-004
Dipole Antenna (HUBER+SUHNER 1399.17.0224)	HUBER+SUHNER	100A1001	DVG-AGW-UL-001

Radio / Subcomponent	Antenna	Type	Gain	Active
(1) 802.15.4 & BLE	Yagi Antenna (HUBER+SUHNER 1324.17.0116)	Yagi	14dBi	YES
(2) Cellular	Antenna Whip 5G WB Cell IP67 N Plug	Omni	3.9dbi	NO
(3) Wi-Fi and Bluetooth	Dipole Antenna (HUBER+SUHNER 1399.17.0224)	Omni	2dBi	NO

Support Equipment:

Device	Manufacturer	Model #	S/N
PoE DC Injector	Tenda	PoE30G-AT	E519201931300529
5-Port 10/100 Mbps Ethernet Switch	LiteWave	LS1005	22390K7014704
NUC	Intel	NUC 8i3BEH	G6BE84900Z2M
Monitor	Element	ELEFW195	H5C0M0A1S194044842
Mouse	Microsoft	X05-48976	52195-576-6371461-0000
Keyboard	Microsoft	KU-0462	7687605031296

General Product Information:

Description of EUT
Industrial Edge Machine

Product Information	Manufacturer-Provided Details
Operating Frequencies Tested:	2405-2475MHz
Equipment Type:	Stand-Alone Equipment
Type of Wideband System:	802.15.04
Maximum Duty Cycle:	100%
Modulation Type(s):	OQPSK, DSSS
Number of TX Chains:	1
Beamforming Type:	NA
Antenna Type(s) and Gain:	11dBi and 14dBi
Antenna Connection Type:	External Connector
Nominal Input Voltage:	24VDC
Firmware / Software Version(s):	NA
Firmware / Software Description:	NA
Firmware / Software Setting(s):	Putty (64-bit)
Tune-up or Adjustment(s):	None
The validity of results is dependent on the stated product details, the accuracy of which the manufacturer assumes full responsibility.	

EUT and Accessory Photo(s)

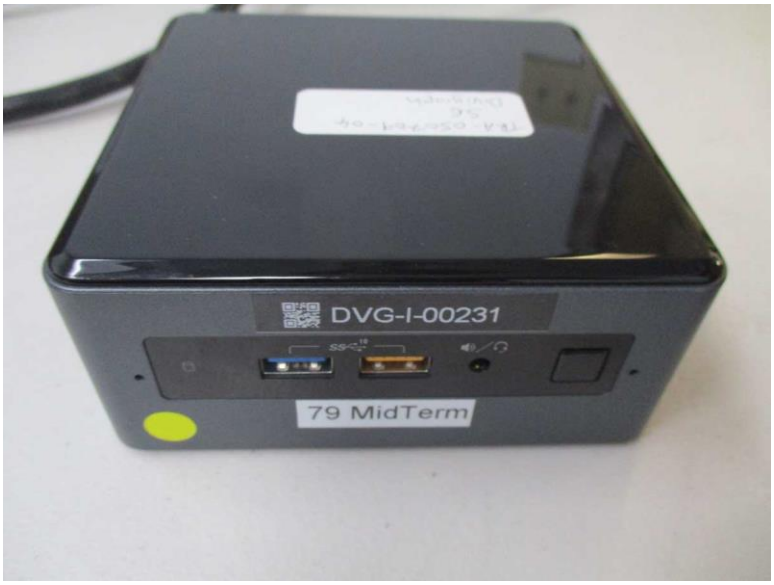
EUT Front View

EUT Back View

Pannel Antenna 11dBi

RF Extension Cable

Yagi Antenna 14dBi



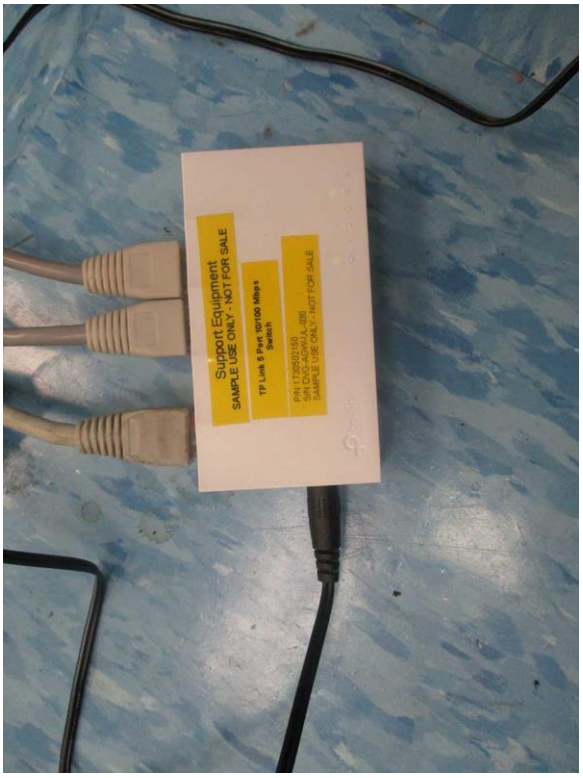
NUC

Monitor

Mouse

Keyboard

Support Equipment Photo(s)



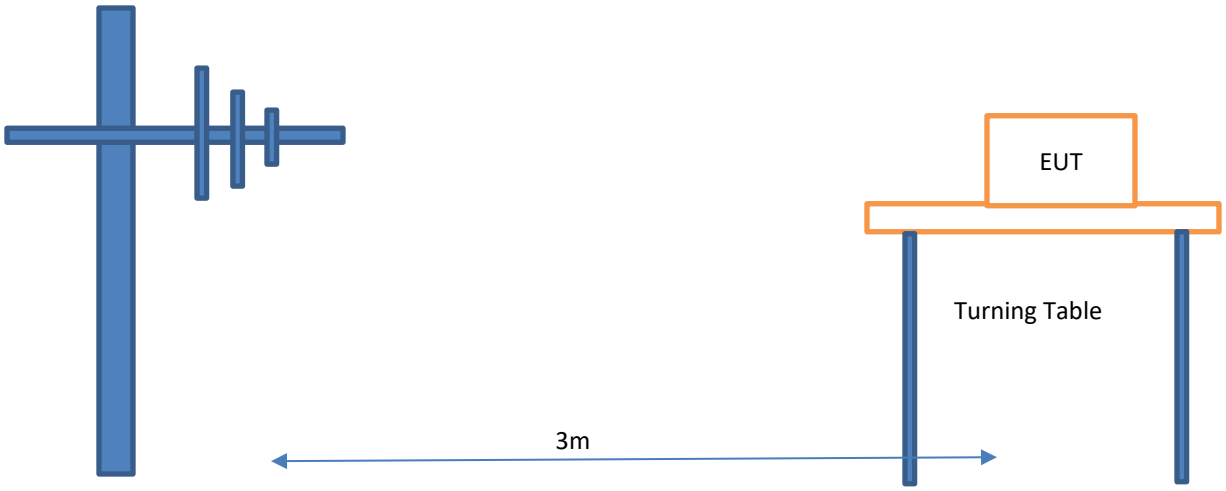
Ethernet Switch

PoE Injector

Block Diagram of Test Setup(s)

Config#	Setup Description of Block Diagram
3 & 4	EUT functioning in normal operating mode with the receiving antenna 3m away.

Radiated Method Setup



FCC Part 15 Subpart C

15.247(d) Radiated Emissions & Band Edge

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/21/2024
Test Type:	**Radiated Scan**	Time:	09:23:03
Tested By:	Hieu Song Nguyenpham	Sequence#:	41
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

Test Conditions / Notes:

RSE
Frequency Range: 9kHz to 1GHz

Test Environment Conditions:
Temperature: 21.1°C
Humidity: 42%
Atmospheric Pressure: 101.9kPa

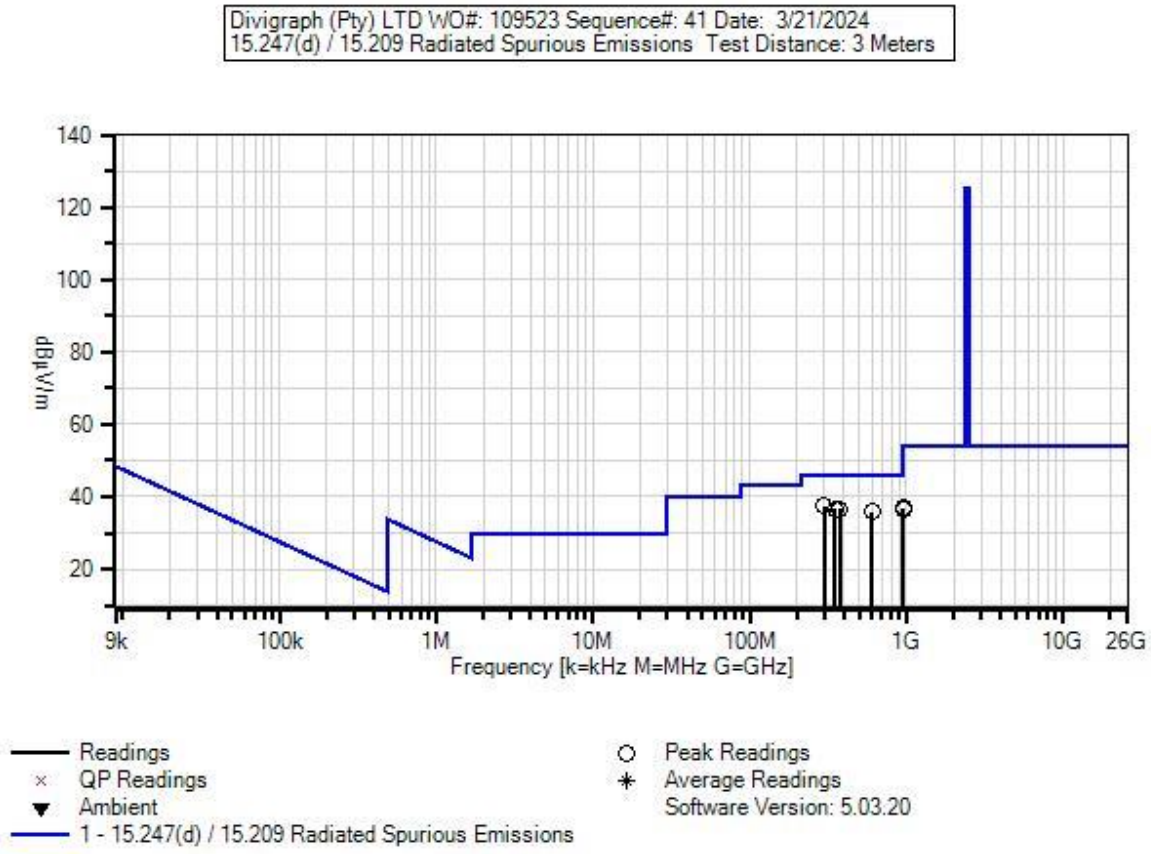
Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Perform 3 orientations of a receiving antenna from 9kHz to 30MHz. No emissions detected within 20dB of the limit in frequency range 9kHz to 30MHz.

Note:
Low Channel
Panel Antenna (TE MD24-12) 11dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	5/9/2022	5/9/2024
T2	ANP00880	Cable	RG214U	3/25/2022	3/25/2024
T3	ANP01187	Cable	CNT-195	7/12/2022	7/12/2024
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
	AN00432	Loop Antenna	6502	7/10/2023	7/10/2025
T4	AN01995	Biconilog Antenna	CBL6111C	4/19/2022	4/19/2024
T5	ANP06691	Cable	PE3062-180	3/20/2024	3/20/2026

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	300.032M	47.0	-31.9 +0.6	+1.8	+0.5	+19.4	+0.0	37.4	46.0	-8.6	Horiz
2	956.861M	29.9	-30.8 +1.3	+3.5	+0.9	+32.0	+0.0	36.8	46.0	-9.2	Horiz
3	374.987M	43.9	-31.8 +0.7	+2.0	+0.6	+21.2	+0.0	36.6	46.0	-9.4	Vert
4	953.730M	29.8	-30.8 +1.3	+3.5	+0.9	+31.9	+0.0	36.6	46.0	-9.4	Vert
5	350.002M	44.7	-31.8 +0.7	+1.9	+0.5	+20.6	+0.0	36.6	46.0	-9.4	Vert
6	599.972M	38.0	-32.0 +0.9	+2.6	+0.6	+25.8	+0.0	35.9	46.0	-10.1	Horiz

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/15/2024
Test Type:	**Radiated Scan**	Time:	09:14:59
Tested By:	Hieu Song Nguyenpham	Sequence#:	20
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

Test Conditions / Notes:

RSE
Frequency Range: 1GHz to 25GHz

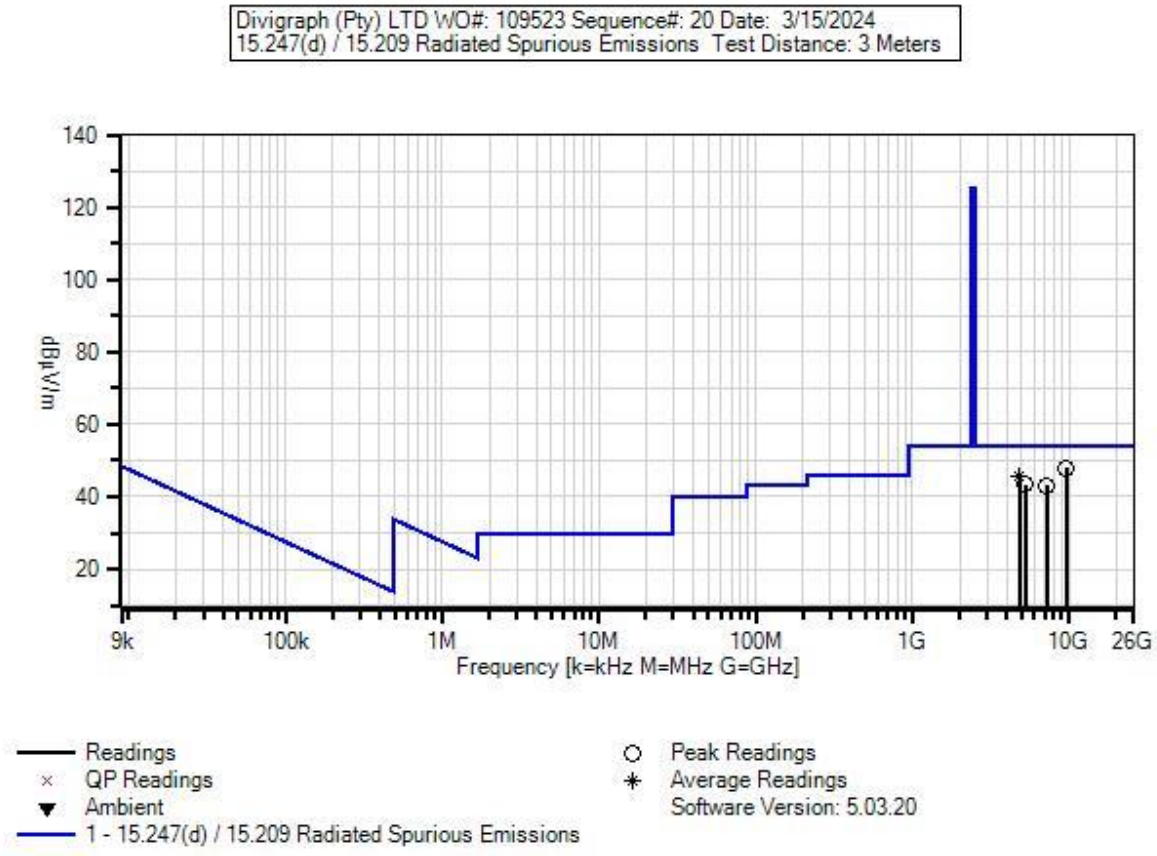
Test Environment Conditions:
Temperature: 21.1°C
Humidity: 45%
Atmospheric Pressure: 101.5kPa

Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Note:
Low Channel
Panel Antenna (TE MD24-12) 11dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/11/2023	1/11/2025
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2024	1/9/2026
T3	ANP01210	Cable	FSJ1P-50A-4A	1/9/2024	1/9/2026
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
T4	AN03738	Preamp	BZRYE-00101800-221055-202323	2/5/2024	2/5/2026
T5	AN03386	High Pass Filter	11SH10-3000/T10000-O/O	3/22/2022	3/22/2024
T6	AN03013	Cable	32022-2-2909K-36TC	1/9/2024	1/9/2026
	AN02693	Active Horn Antenna	AMFW-5F-12001800-20-10P	1/9/2024	1/9/2026

	AN02694	Horn Antenna	AMFW-5F-18002650-20-10P	1/9/2024	1/9/2026
	ANP00928	Cable	various	1/26/2024	1/26/2026
	ANP00929	Cable	various	1/26/2024	1/26/2026
	ANP07698	Cable	32022-29094K-29094K-72TC	9/1/2022	9/1/2024
	ANP07704	Cable	32022-29094K-29094K-120TC	9/1/2022	9/1/2024

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9620.024M	52.0	+39.3 +0.4	+3.0 +1.6	+5.9	-54.3	+0.0	47.9	54.0	-6.1	Horiz
2	4811.199M Ave	59.4	+33.4 +0.4	+2.0 +1.1	+3.6	-54.0	+0.0	45.9	54.0	-8.1	Horiz
^	4811.199M	67.5	+33.4 +0.4	+2.0 +1.1	+3.6	-54.0	+0.0	54.0	54.0	+0.0	Horiz
4	4808.929M Ave	59.4	+33.4 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	45.8	54.0	-8.2	Horiz
^	4808.929M	67.2	+33.4 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	53.6	54.0	-0.4	Horiz
6	5241.600M	55.8	+34.3 +0.4	+2.1 +1.2	+3.8	-54.1	+0.0	43.5	54.0	-10.5	Vert
7	7214.959M	52.7	+36.0 +0.4	+2.5 +1.5	+4.5	-54.4	+0.0	43.2	54.0	-10.8	Vert

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/21/2024
Test Type:	**Radiated Scan**	Time:	09:44:05
Tested By:	Hieu Song Nguyenpham	Sequence#:	44
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

Test Conditions / Notes:

RSE
Frequency Range: 9kHz to 1GHz

Test Environment Conditions:
Temperature: 21.1°C
Humidity: 42%
Atmospheric Pressure: 101.9kPa

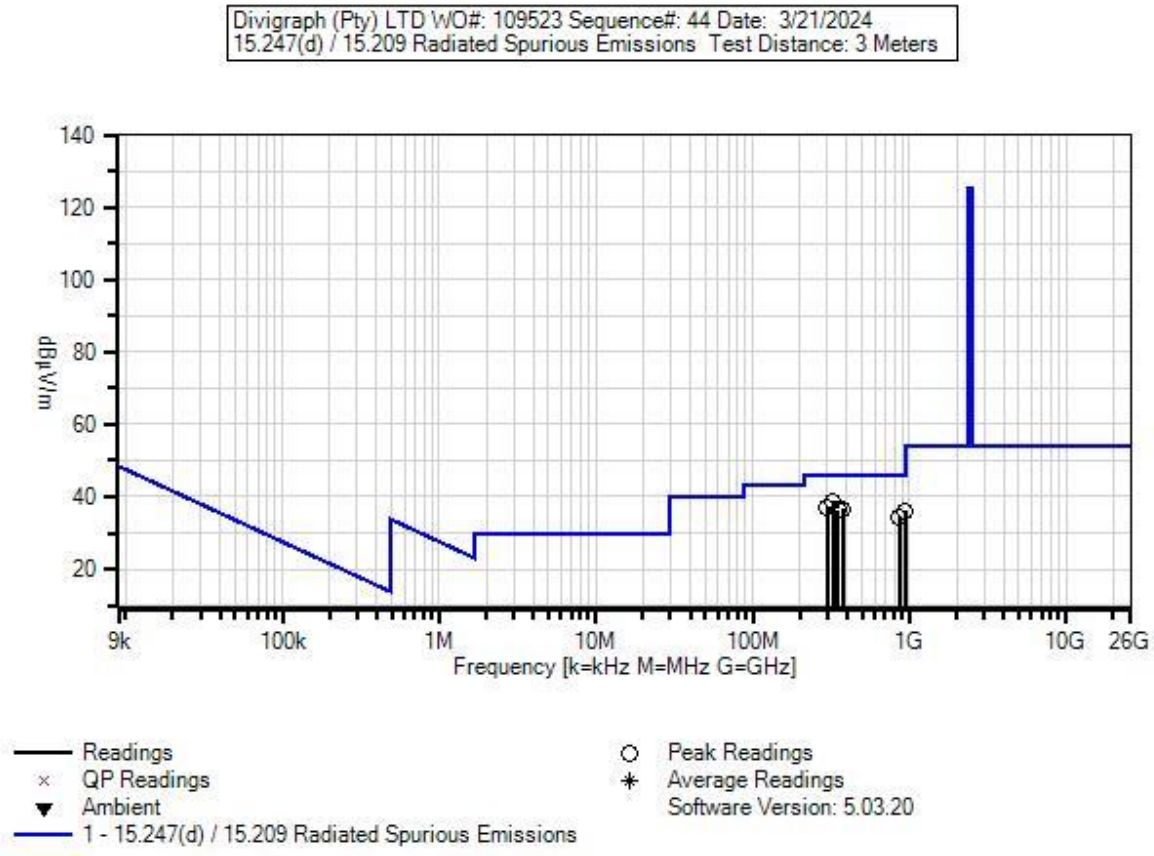
Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Perform 3 orientations of a receiving antenna from 9kHz to 30MHz. No emissions detected within 20dB of the limit in frequency range 9kHz to 30MHz.

Note:
Middle Channel
Panel Antenna (TE MD24-12) 11dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	5/9/2022	5/9/2024
T2	ANP00880	Cable	RG214U	3/25/2022	3/25/2024
T3	ANP01187	Cable	CNT-195	7/12/2022	7/12/2024
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
	AN00432	Loop Antenna	6502	7/10/2023	7/10/2025
T4	AN01995	Biconilog Antenna	CBL6111C	4/19/2022	4/19/2024
T5	ANP06691	Cable	PE3062-180	3/20/2024	3/20/2026

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	325.064M	47.8	-31.8 +0.6	+1.8	+0.5	+19.8	+0.0	38.7	46.0	-7.3	Vert
2	300.038M	46.6	-31.9 +0.6	+1.8	+0.5	+19.4	+0.0	37.0	46.0	-9.0	Horiz
3	374.874M	43.9	-31.8 +0.7	+2.0	+0.6	+21.2	+0.0	36.6	46.0	-9.4	Vert
4	350.090M	44.5	-31.8 +0.7	+1.9	+0.5	+20.6	+0.0	36.4	46.0	-9.6	Vert
5	942.202M	29.8	-30.9 +1.3	+3.5	+0.9	+31.5	+0.0	36.1	46.0	-9.9	Horiz
6	859.299M	30.8	-31.5 +1.2	+3.3	+0.8	+29.7	+0.0	34.3	46.0	-11.7	Horiz

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/15/2024
Test Type:	**Radiated Scan**	Time:	09:38:45
Tested By:	Hieu Song Nguyenpham	Sequence#:	23
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

Test Conditions / Notes:

RSE
Frequency Range: 1GHz to 25GHz

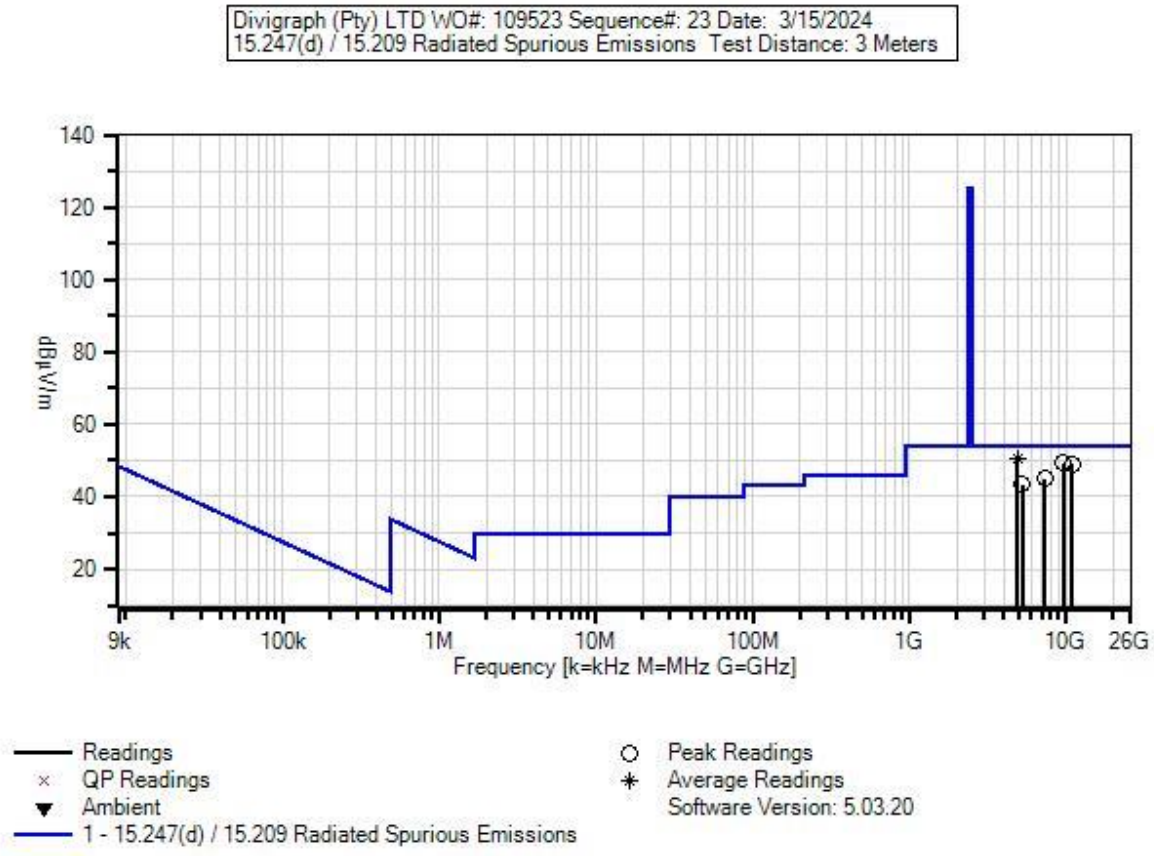
Test Environment Conditions:
Temperature: 21.1°C
Humidity: 45%
Atmospheric Pressure: 101.5kPa

Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Note:
Middle Channel
Panel Antenna (TE MD24-12) 11dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/11/2023	1/11/2025
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2024	1/9/2026
T3	ANP01210	Cable	FSJ1P-50A-4A	1/9/2024	1/9/2026
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
T4	AN03738	Preamp	BZRYE-00101800-221055-202323	2/5/2024	2/5/2026
T5	AN03386	High Pass Filter	11SH10-3000/T10000-O/O	3/22/2022	3/22/2024
T6	AN03013	Cable	32022-2-2909K-36TC	1/9/2024	1/9/2026
	AN02693	Active Horn Antenna	AMFW-5F-12001800-20-10P	1/9/2024	1/9/2026

	AN02694	Horn Antenna	AMFW-5F-18002650-20-10P	1/9/2024	1/9/2026
	ANP00928	Cable	various	1/26/2024	1/26/2026
	ANP00929	Cable	various	1/26/2024	1/26/2026
	ANP07698	Cable	32022-29094K-29094K-72TC	9/1/2022	9/1/2024
	ANP07704	Cable	32022-29094K-29094K-120TC	9/1/2022	9/1/2024

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	4881.122M Ave	63.9	+33.6 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	50.5	54.0	-3.5	Horiz
^	4881.122M	71.1	+33.6 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	57.7	54.0	+3.7	Horiz
3	4878.922M Ave	63.8	+33.6 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	50.4	54.0	-3.6	Horiz
^	4878.922M	71.0	+33.6 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	57.6	54.0	+3.6	Horiz
5	9664.658M	53.3	+39.4 +0.4	+3.0 +1.6	+5.8	-54.3	+0.0	49.2	54.0	-4.8	Vert
6	10949.942 M	51.4	+39.4 +0.7	+3.2 +1.7	+6.1	-53.5	+0.0	49.0	54.0	-5.0	Vert
7	7318.500M	54.2	+36.3 +0.4	+2.6 +1.5	+4.5	-54.6	+0.0	44.9	54.0	-9.1	Horiz
8	5245.800M	55.7	+34.4 +0.4	+2.1 +1.2	+3.8	-54.1	+0.0	43.5	54.0	-10.5	Vert

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/21/2024
Test Type:	**Radiated Scan**	Time:	10:11:50
Tested By:	Hieu Song Nguyenpham	Sequence#:	47
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

Test Conditions / Notes:

RSE
Frequency Range: 9kHz to 1GHz

Test Environment Conditions:
Temperature: 21.1°C
Humidity: 42%
Atmospheric Pressure: 101.9kPa

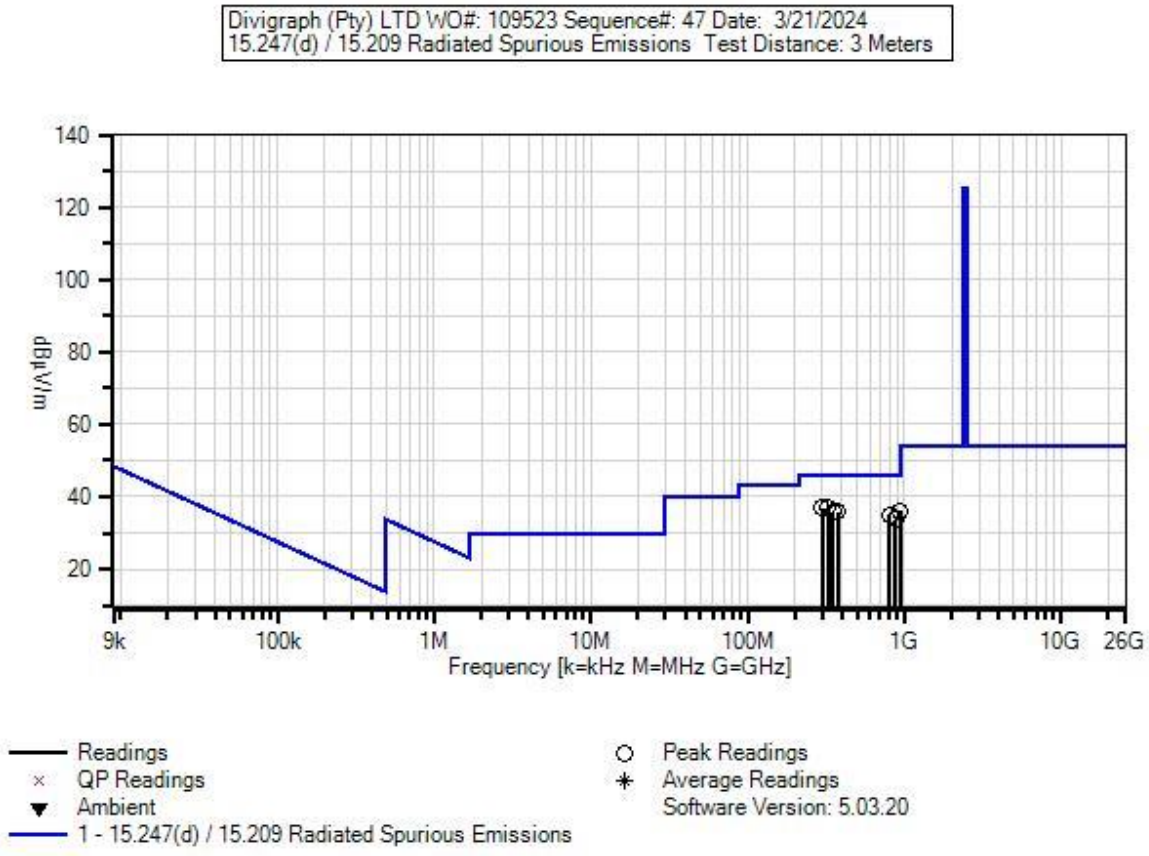
Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Perform 3 orientations of a receiving antenna from 9kHz to 30MHz. No emissions detected within 20dB of the limit in frequency range 9kHz to 30MHz.

Note:
High Channel
Panel Antenna (TE MD24-12) 11dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	5/9/2022	5/9/2024
T2	ANP00880	Cable	RG214U	3/25/2022	3/25/2024
T3	ANP01187	Cable	CNT-195	7/12/2022	7/12/2024
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
	AN00432	Loop Antenna	6502	7/10/2023	7/10/2025
T4	AN01995	Biconilog Antenna	CBL6111C	4/19/2022	4/19/2024
T5	ANP06691	Cable	PE3062-180	3/20/2024	3/20/2026

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	325.064M	46.1	-31.8 +0.6	+1.8	+0.5	+19.8	+0.0	37.0	46.0	-9.0	Vert
2	300.038M	46.4	-31.9 +0.6	+1.8	+0.5	+19.4	+0.0	36.8	46.0	-9.2	Horiz
3	946.872M	29.6	-30.9 +1.3	+3.5	+0.9	+31.7	+0.0	36.1	46.0	-9.9	Horiz
4	374.874M	43.2	-31.8 +0.7	+2.0	+0.6	+21.2	+0.0	35.9	46.0	-10.1	Vert
5	350.090M	43.9	-31.8 +0.7	+1.9	+0.5	+20.6	+0.0	35.8	46.0	-10.2	Vert
6	799.749M	33.1	-31.8 +1.1	+3.1	+0.7	+28.9	+0.0	35.1	46.0	-10.9	Vert
7	871.559M	30.2	-31.4 +1.2	+3.3	+0.8	+29.6	+0.0	33.7	46.0	-12.3	Horiz

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/15/2024
Test Type:	**Radiated Scan**	Time:	10:12:26
Tested By:	Hieu Song Nguyenpham	Sequence#:	26
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

Test Conditions / Notes:

RSE
Frequency Range: 1GHz to 25GHz

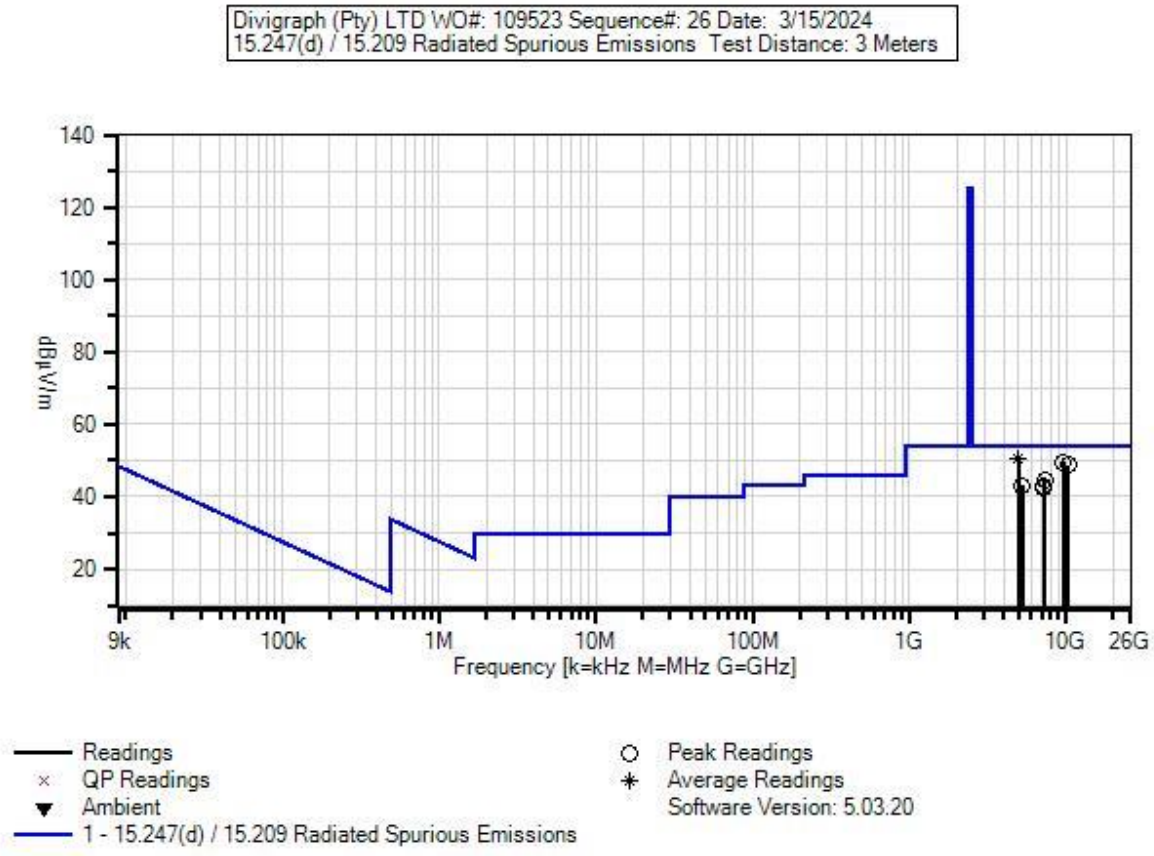
Test Environment Conditions:
Temperature: 21.1°C
Humidity: 45%
Atmospheric Pressure: 101.5kPa

Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Note:
High Channel
Panel Antenna (TE MD24-12) 11dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/11/2023	1/11/2025
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2024	1/9/2026
T3	ANP01210	Cable	FSJ1P-50A-4A	1/9/2024	1/9/2026
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
T4	AN03738	Preamp	BZRYE-00101800-221055-202323	2/5/2024	2/5/2026
T5	AN03386	High Pass Filter	11SH10-3000/T10000-O/O	3/22/2022	3/22/2024
T6	AN03013	Cable	32022-2-2909K-36TC	1/9/2024	1/9/2026
	AN02693	Active Horn Antenna	AMFW-5F-12001800-20-10P	1/9/2024	1/9/2026

	AN02694	Horn Antenna	AMFW-5F-18002650-20-10P	1/9/2024	1/9/2026
	ANP00928	Cable	various	1/26/2024	1/26/2026
	ANP00929	Cable	various	1/26/2024	1/26/2026
	ANP07698	Cable	32022-29094K-29094K-72TC	9/1/2022	9/1/2024
	ANP07704	Cable	32022-29094K-29094K-120TC	9/1/2022	9/1/2024

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	4948.939M Ave	63.4	+33.8 +0.4	+2.0 +1.2	+3.6	-54.0	+0.0	50.4	54.0	-3.6	Horiz
^	4948.939M	70.9	+33.8 +0.4	+2.0 +1.2	+3.6	-54.0	+0.0	57.9	54.0	+3.9	Horiz
3	4951.169M Ave	63.3	+33.8 +0.4	+2.0 +1.2	+3.6	-54.0	+0.0	50.3	54.0	-3.7	Horiz
^	4951.169M	70.7	+33.8 +0.4	+2.0 +1.2	+3.6	-54.0	+0.0	57.7	54.0	+3.7	Horiz
5	9652.168M	53.6	+39.4 +0.4	+3.0 +1.6	+5.8	-54.3	+0.0	49.5	54.0	-4.5	Horiz
6	10281.303 M	52.3	+39.5 +0.5	+3.1 +1.6	+5.7	-54.0	+0.0	48.7	54.0	-5.3	Horiz
7	7290.400M	53.9	+36.2 +0.4	+2.6 +1.5	+4.5	-54.6	+0.0	44.5	54.0	-9.5	Horiz
8	5267.000M	55.5	+34.4 +0.4	+2.1 +1.2	+3.8	-54.2	+0.0	43.2	54.0	-10.8	Horiz
9	7178.800M	53.0	+35.9 +0.4	+2.5 +1.5	+4.4	-54.5	+0.0	43.2	54.0	-10.8	Horiz
10	7229.800M	52.1	+36.1 +0.4	+2.5 +1.5	+4.5	-54.5	+0.0	42.6	54.0	-11.4	Horiz

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/21/2024
Test Type:	**Radiated Scan**	Time:	11:24:32
Tested By:	Hieu Song Nguyenpham	Sequence#:	56
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4			

Test Conditions / Notes:

RSE
Frequency Range: 9kHz to 1GHz

Test Environment Conditions:
Temperature: 21.1°C
Humidity: 42%
Atmospheric Pressure: 101.9kPa

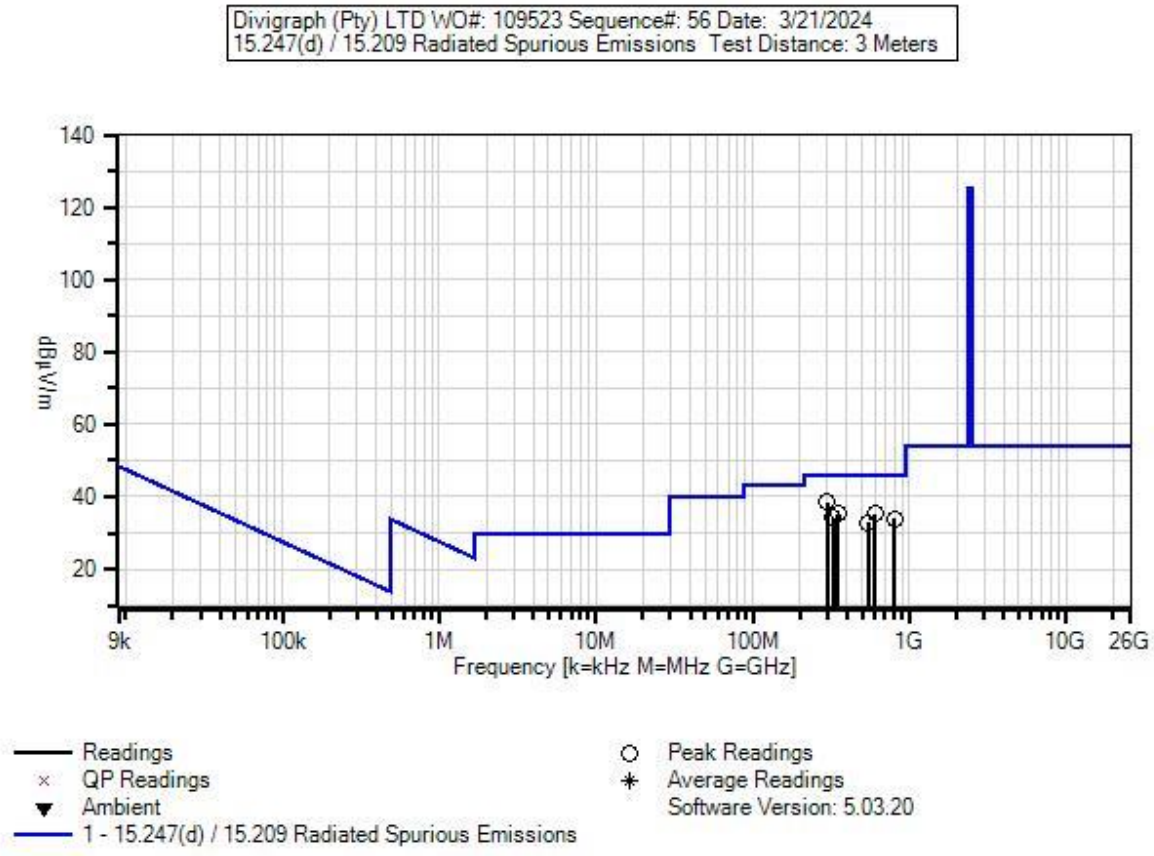
Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Perform 3 orientations of a receiving antenna from 9kHz to 30MHz. No emissions detected within 20dB of the limit in frequency range 9kHz to 30MHz.

Note:
Low Channel
Yagi Antenna (HUBER+SUHNER 1324.17.0116) 14dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	5/9/2022	5/9/2024
T2	ANP00880	Cable	RG214U	3/25/2022	3/25/2024
T3	ANP01187	Cable	CNT-195	7/12/2022	7/12/2024
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
	AN00432	Loop Antenna	6502	7/10/2023	7/10/2025
T4	AN01995	Biconilog Antenna	CBL6111C	4/19/2022	4/19/2024
T5	ANP06691	Cable	PE3062-180	3/20/2024	3/20/2026

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	300.038M	48.0	-31.9 +0.6	+1.8	+0.5	+19.4	+0.0	38.4	46.0	-7.6	Vert
2	350.090M	43.4	-31.8 +0.7	+1.9	+0.5	+20.6	+0.0	35.3	46.0	-10.7	Vert
3	600.083M	37.4	-32.0 +0.9	+2.6	+0.6	+25.8	+0.0	35.3	46.0	-10.7	Horiz
4	325.064M	43.4	-31.8 +0.6	+1.8	+0.5	+19.8	+0.0	34.3	46.0	-11.7	Vert
5	799.749M	31.8	-31.8 +1.1	+3.1	+0.7	+28.9	+0.0	33.8	46.0	-12.2	Horiz
6	549.874M	34.5	-31.9 +0.9	+2.5	+0.6	+26.2	+0.0	32.8	46.0	-13.2	Horiz

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/15/2024
Test Type:	**Radiated Scan**	Time:	11:09:31
Tested By:	Hieu Song Nguyenpham	Sequence#:	29
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4			

Test Conditions / Notes:

RSE
Frequency Range: 1GHz to 25GHz

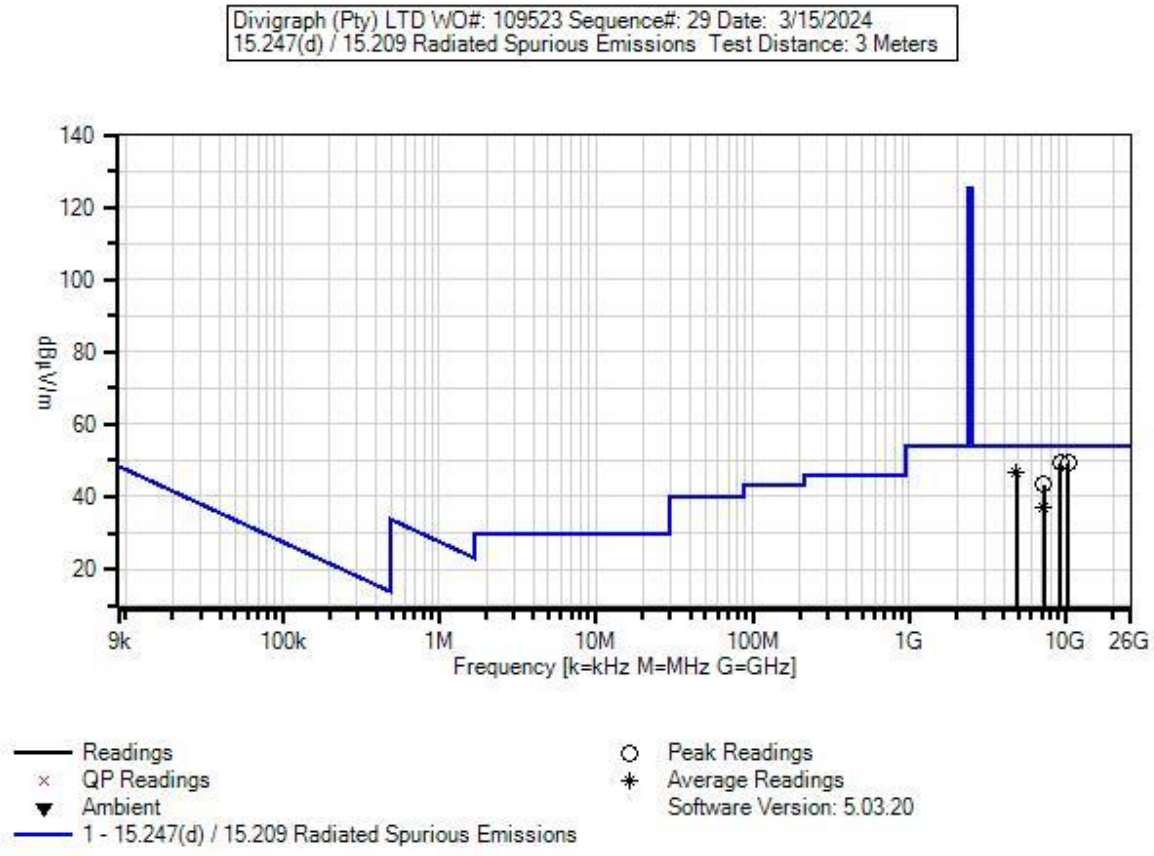
Test Environment Conditions:
Temperature: 21.1°C
Humidity: 45%
Atmospheric Pressure: 101.5kPa

Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Note:
Low Channel
Yagi Antenna (HUBER+SUHNER 1324.17.0116) 14dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/11/2023	1/11/2025
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2024	1/9/2026
T3	ANP01210	Cable	FSJ1P-50A-4A	1/9/2024	1/9/2026
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
T4	AN03738	Preamp	BZRYE-00101800-221055-202323	2/5/2024	2/5/2026
T5	AN03386	High Pass Filter	11SH10-3000/T10000-O/O	3/22/2022	3/22/2024
T6	AN03013	Cable	32022-2-2909K-36TC	1/9/2024	1/9/2026
	AN02693	Active Horn Antenna	AMFW-5F-12001800-20-10P	1/9/2024	1/9/2026

	AN02694	Horn Antenna	AMFW-5F-18002650-20-10P	1/9/2024	1/9/2026
	ANP00928	Cable	various	1/26/2024	1/26/2026
	ANP00929	Cable	various	1/26/2024	1/26/2026
	ANP07698	Cable	32022-29094K-29094K-72TC	9/1/2022	9/1/2024
	ANP07704	Cable	32022-29094K-29094K-120TC	9/1/2022	9/1/2024

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9262.034M	54.3	+38.8 +0.4	+2.9 +1.6	+5.8	-54.5	+0.0	49.3	54.0	-4.7	Horiz
2	10298.876 M	52.9	+39.5 +0.5	+3.1 +1.6	+5.7	-54.1	+0.0	49.2	54.0	-4.8	Horiz
3	4811.185M Ave	60.3	+33.4 +0.4	+2.0 +1.1	+3.6	-54.0	+0.0	46.8	54.0	-7.2	Vert
^	4811.185M	68.0	+33.4 +0.4	+2.0 +1.1	+3.6	-54.0	+0.0	54.5	54.0	+0.5	Vert
5	4808.925M Ave	60.3	+33.4 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	46.7	54.0	-7.3	Vert
^	4808.925M	68.0	+33.4 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	54.4	54.0	+0.4	Vert
7	7216.350M	53.0	+36.0 +0.4	+2.5 +1.5	+4.5	-54.4	+0.0	43.5	54.0	-10.5	Vert
8	7230.050M Ave	46.4	+36.1 +0.4	+2.5 +1.5	+4.5	-54.5	+0.0	36.9	54.0	-17.1	Vert
^	7230.050M	63.2	+36.1 +0.4	+2.5 +1.5	+4.5	-54.5	+0.0	53.7	54.0	-0.3	Vert

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/21/2024
Test Type:	**Radiated Scan**	Time:	11:08:57
Tested By:	Hieu Song Nguyenpham	Sequence#:	53
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4			

Test Conditions / Notes:

RSE
Frequency Range: 9kHz to 1GHz

Test Environment Conditions:
Temperature: 21.1°C
Humidity: 42%
Atmospheric Pressure: 101.9kPa

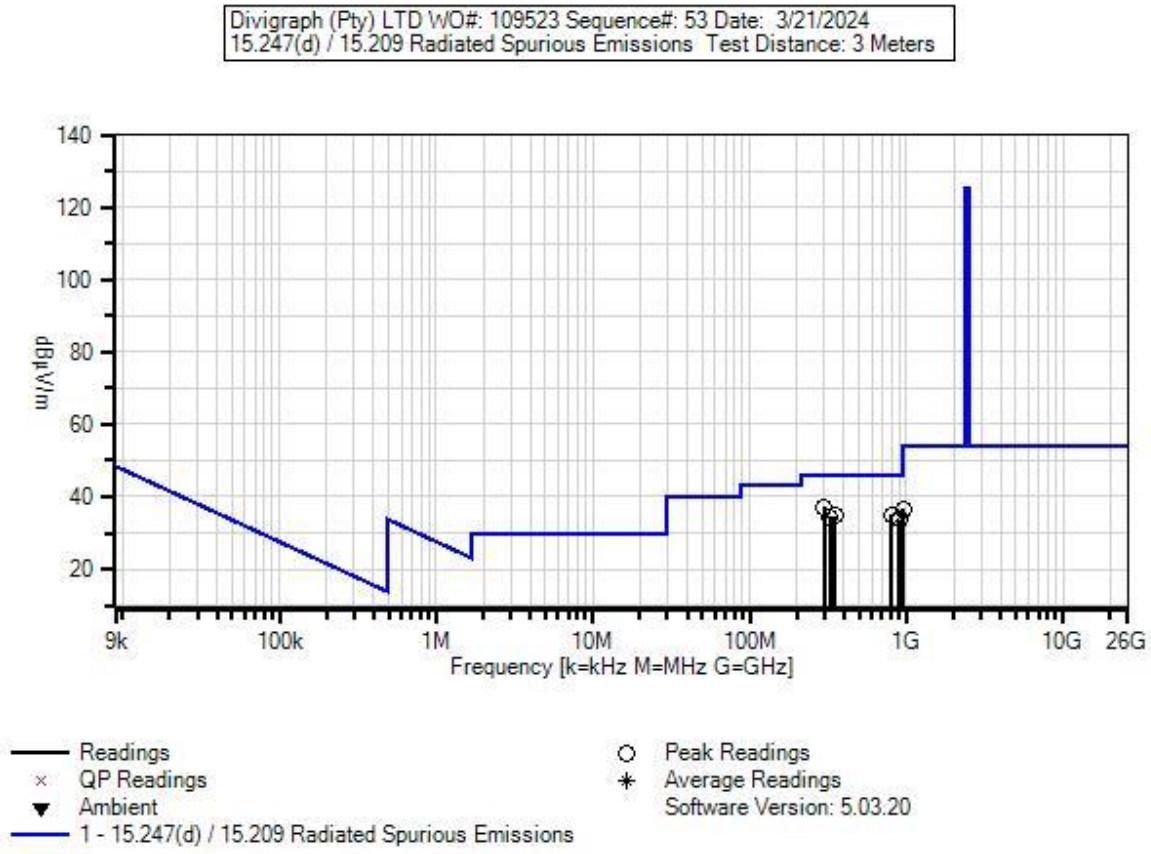
Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Perform 3 orientations of a receiving antenna from 9kHz to 30MHz. No emissions detected within 20dB of the limit in frequency range 9kHz to 30MHz.

Note:
Middle Channel
Yagi Antenna (HUBER+SUHNER 1324.17.0116) 14dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	5/9/2022	5/9/2024
T2	ANP00880	Cable	RG214U	3/25/2022	3/25/2024
T3	ANP01187	Cable	CNT-195	7/12/2022	7/12/2024
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
	AN00432	Loop Antenna	6502	7/10/2023	7/10/2025
T4	AN01995	Biconilog Antenna	CBL6111C	4/19/2022	4/19/2024
T5	ANP06691	Cable	PE3062-180	3/20/2024	3/20/2026

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	300.038M	46.8	-31.9 +0.6	+1.8	+0.5	+19.4	+0.0	37.2	46.0	-8.8	Horiz
2	953.878M	29.9	-30.8 +1.3	+3.5	+0.9	+31.9	+0.0	36.7	46.0	-9.3	Horiz
3	799.749M	32.9	-31.8 +1.1	+3.1	+0.7	+28.9	+0.0	34.9	46.0	-11.1	Vert
4	350.090M	42.9	-31.8 +0.7	+1.9	+0.5	+20.6	+0.0	34.8	46.0	-11.2	Vert
5	325.064M	43.7	-31.8 +0.6	+1.8	+0.5	+19.8	+0.0	34.6	46.0	-11.4	Vert
6	901.918M	29.7	-31.3 +1.3	+3.4	+0.8	+29.8	+0.0	33.7	46.0	-12.3	Horiz

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/15/2024
Test Type:	**Radiated Scan**	Time:	11:32:36
Tested By:	Hieu Song Nguyenpham	Sequence#:	32
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4			

Test Conditions / Notes:

RSE
Frequency Range: 1GHz to 25GHz

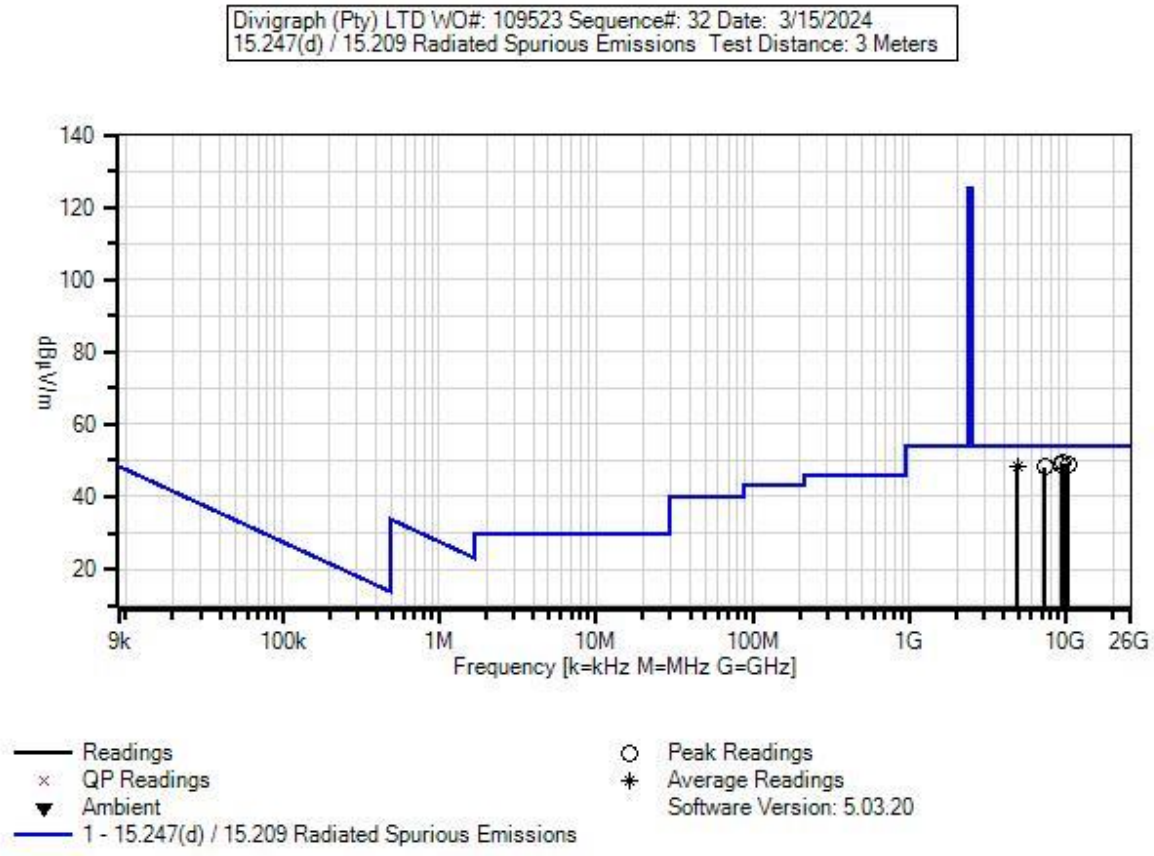
Test Environment Conditions:
Temperature: 21.1°C
Humidity: 45%
Atmospheric Pressure: 101.5kPa

Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Note:
Middle Channel
Yagi Antenna (HUBER+SUHNER 1324.17.0116) 14dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/11/2023	1/11/2025
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2024	1/9/2026
T3	ANP01210	Cable	FSJ1P-50A-4A	1/9/2024	1/9/2026
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
T4	AN03738	Preamp	BZRYE-00101800-221055-202323	2/5/2024	2/5/2026
T5	AN03386	High Pass Filter	11SH10-3000/T10000-O/O	3/22/2022	3/22/2024
T6	AN03013	Cable	32022-2-2909K-36TC	1/9/2024	1/9/2026
	AN02693	Active Horn Antenna	AMFW-5F-12001800-20-10P	1/9/2024	1/9/2026

	AN02694	Horn Antenna	AMFW-5F-18002650-20-10P	1/9/2024	1/9/2026
	ANP00928	Cable	various	1/26/2024	1/26/2026
	ANP00929	Cable	various	1/26/2024	1/26/2026
	ANP07698	Cable	32022-29094K-29094K-72TC	9/1/2022	9/1/2024
	ANP07704	Cable	32022-29094K-29094K-120TC	9/1/2022	9/1/2024

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9648.653M	53.4	+39.4 +0.4	+3.0 +1.6	+5.8	-54.3	+0.0	49.3	54.0	-4.7	Vert
2	10386.744 M	52.4	+39.5 +0.5	+3.1 +1.7	+5.7	-54.0	+0.0	48.9	54.0	-5.1	Horiz
3	9304.211M	53.6	+38.9 +0.4	+2.9 +1.6	+5.8	-54.5	+0.0	48.7	54.0	-5.3	Horiz
4	7318.800M	57.5	+36.3 +0.4	+2.6 +1.5	+4.5	-54.6	+0.0	48.2	54.0	-5.8	Vert
5	4878.902M Ave	61.6	+33.6 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	48.2	54.0	-5.8	Vert
^	4878.902M	69.3	+33.6 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	55.9	54.0	+1.9	Vert
7	4881.162M Ave	61.5	+33.6 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	48.1	54.0	-5.9	Vert
^	4881.162M	69.1	+33.6 +0.4	+2.0 +1.1	+3.6	-54.1	+0.0	55.7	54.0	+1.7	Vert

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/21/2024
Test Type:	**Radiated Scan**	Time:	10:47:51
Tested By:	Hieu Song Nguyenpham	Sequence#:	50
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4			

Test Conditions / Notes:

RSE
Frequency Range: 9kHz to 1GHz

Test Environment Conditions:
Temperature: 21.1°C
Humidity: 42%
Atmospheric Pressure: 101.9kPa

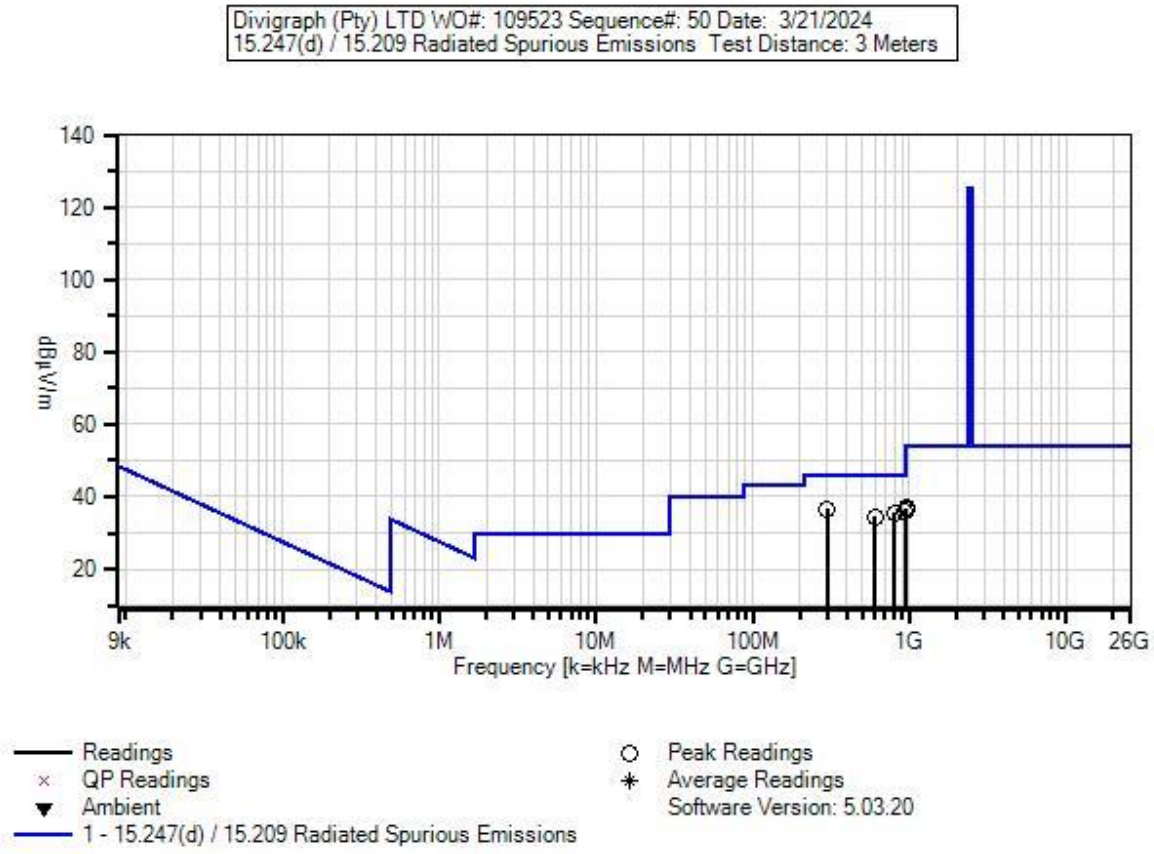
Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Perform 3 orientations of a receiving antenna from 9kHz to 30MHz. No emissions detected within 20dB of the limit in frequency range 9kHz to 30MHz.

Note:
High Channel
Yagi Antenna (HUBER+SUHNER 1324.17.0116) 14dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	5/9/2022	5/9/2024
T2	ANP00880	Cable	RG214U	3/25/2022	3/25/2024
T3	ANP01187	Cable	CNT-195	7/12/2022	7/12/2024
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
	AN00432	Loop Antenna	6502	7/10/2023	7/10/2025
T4	AN01995	Biconilog Antenna	CBL6111C	4/19/2022	4/19/2024
T5	ANP06691	Cable	PE3062-180	3/20/2024	3/20/2026

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	949.535M	30.4	-30.9 +1.3	+3.5	+0.9	+31.8	+0.0	37.0	46.0	-9.0	Horiz
2	300.032M	46.3	-31.9 +0.6	+1.8	+0.5	+19.4	+0.0	36.7	46.0	-9.3	Horiz
3	959.866M	29.7	-30.8 +1.3	+3.5	+0.9	+32.0	+0.0	36.6	46.0	-9.4	Vert
4	940.707M	29.6	-30.9 +1.3	+3.4	+0.9	+31.5	+0.0	35.8	46.0	-10.2	Vert
5	799.972M	33.6	-31.8 +1.1	+3.1	+0.7	+28.9	+0.0	35.6	46.0	-10.4	Vert
6	599.972M	36.7	-32.0 +0.9	+2.6	+0.6	+25.8	+0.0	34.6	46.0	-11.4	Vert

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**109523**	Date:	3/15/2024
Test Type:	**Radiated Scan**	Time:	11:53:03
Tested By:	Hieu Song Nguyenpham	Sequence#:	35
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4			

Test Conditions / Notes:

RSE
Frequency Range: 1GHz to 25GHz

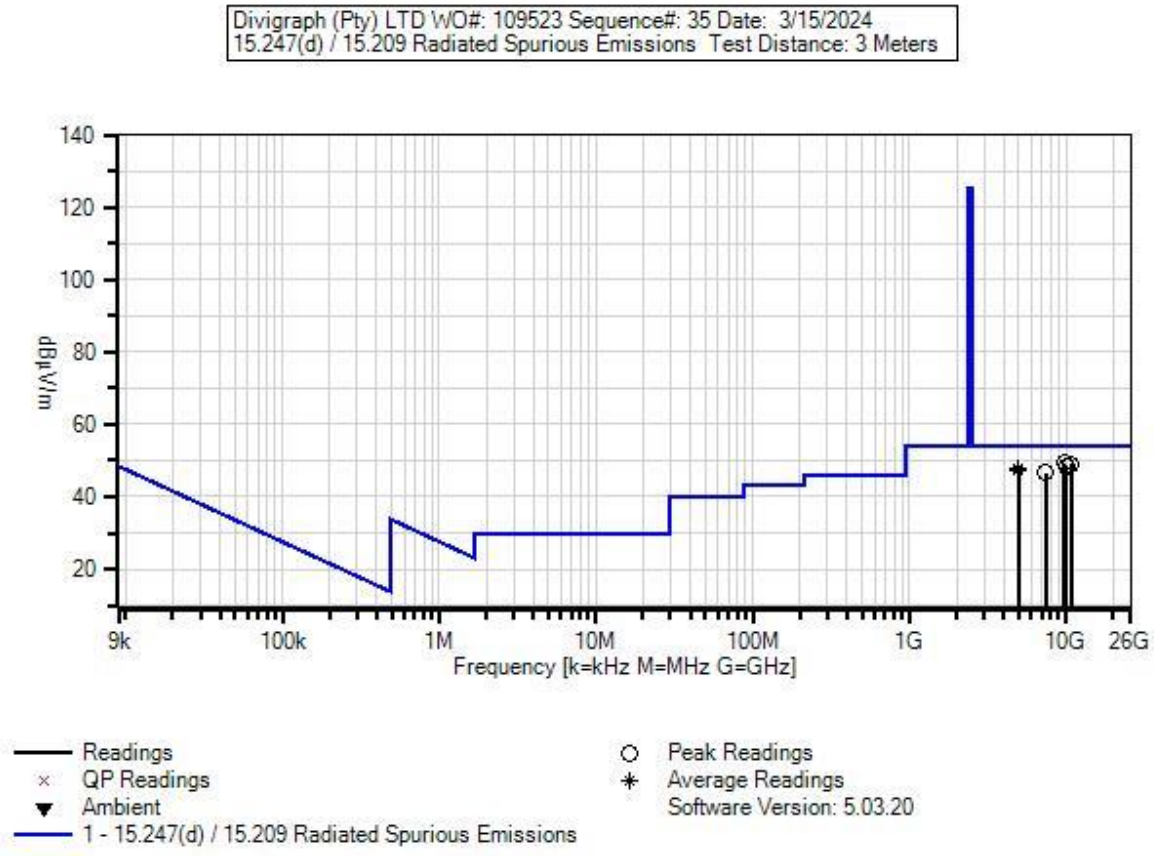
Test Environment Conditions:
Temperature: 21.1°C
Humidity: 45%
Atmospheric Pressure: 101.5kPa

Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector is a support equipment and outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Note:
High Channel
Yagi Antenna (HUBER+SUHNER 1324.17.0116) 14dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/11/2023	1/11/2025
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2024	1/9/2026
T3	ANP01210	Cable	FSJ1P-50A-4A	1/9/2024	1/9/2026
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
T4	AN03738	Preamp	BZRYE-00101800-221055-202323	2/5/2024	2/5/2026
T5	AN03386	High Pass Filter	11SH10-3000/T10000-O/O	3/22/2022	3/22/2024
T6	AN03013	Cable	32022-2-2909K-36TC	1/9/2024	1/9/2026
	AN02693	Active Horn Antenna	AMFW-5F-12001800-20-10P	1/9/2024	1/9/2026

	AN02694	Horn Antenna	AMFW-5F-18002650-20-10P	1/9/2024	1/9/2026
	ANP00928	Cable	various	1/26/2024	1/26/2026
	ANP00929	Cable	various	1/26/2024	1/26/2026
	ANP07698	Cable	32022-29094K-29094K-72TC	9/1/2022	9/1/2024
	ANP07704	Cable	32022-29094K-29094K-120TC	9/1/2022	9/1/2024

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9757.610M	53.1	+39.5 +0.4	+3.0 +1.6	+5.9	-54.3	+0.0	49.2	54.0	-4.8	Horiz
2	10819.055 M	51.9	+39.4 +0.6	+3.2 +1.7	+6.0	-53.7	+0.0	49.1	54.0	-4.9	Horiz
3	9957.948M	52.1	+39.7 +0.4	+3.0 +1.7	+5.7	-54.2	+0.0	48.4	54.0	-5.6	Vert
4	4948.969M Ave	60.8	+33.8 +0.4	+2.0 +1.2	+3.6	-54.0	+0.0	47.8	54.0	-6.2	Vert
^	4948.969M	68.6	+33.8 +0.4	+2.0 +1.2	+3.6	-54.0	+0.0	55.6	54.0	+1.6	Vert
6	4951.209M Ave	60.3	+33.8 +0.4	+2.0 +1.2	+3.6	-54.0	+0.0	47.3	54.0	-6.7	Vert
^	4951.209M	68.3	+33.8 +0.4	+2.0 +1.2	+3.6	-54.0	+0.0	55.3	54.0	+1.3	Vert
8	7423.550M	55.6	+36.5 +0.3	+2.6 +1.5	+4.6	-54.6	+0.0	46.5	54.0	-7.5	Vert

Band Edge

Configuration 3

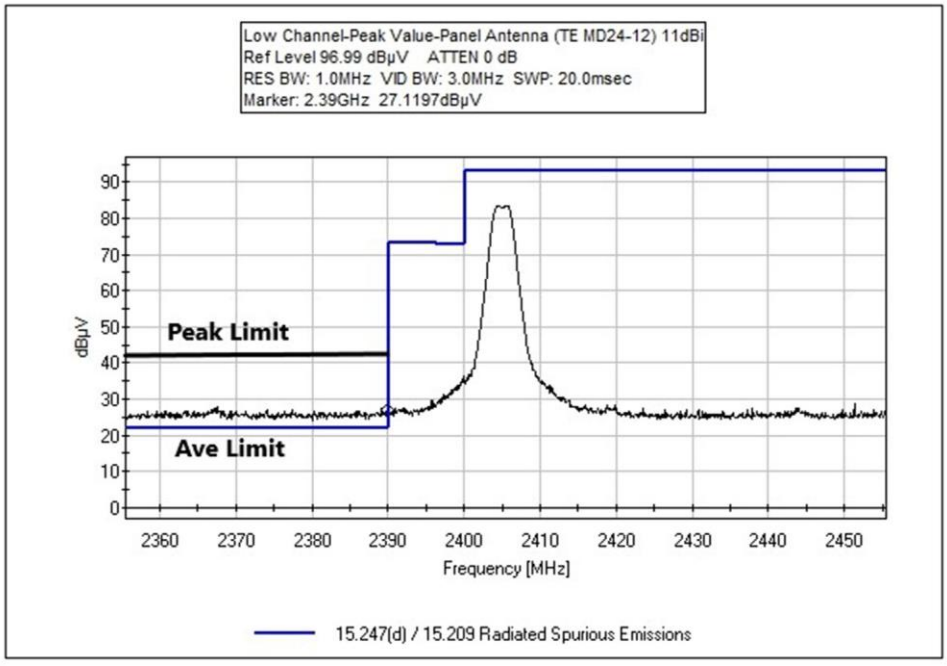
Band Edge Summary							
Limit applied at restricted bands: 15.209 Limit applied for other than restricted bands: Max Power/100kHz - 20dB.							
Frequency (MHz)	**Modulation**	**Ant. Type / Gain (dBi)**	**Average (dBuV/m @3m)**		**Peak (dBuV/m @3m)**		**Results**
			Measured	**Limit**	**Measured**	**Limit**	
2390.0	OQPSK, DSSS	External/11	45.7	≤54	59.2	≤74	Pass
2400.0	OQPSK, DSSS	External/11	NA	NA	57.0	≤92	Pass
2483.5	OQPSK, DSSS	External/11	49.0	≤54	61.9	≤74	Pass

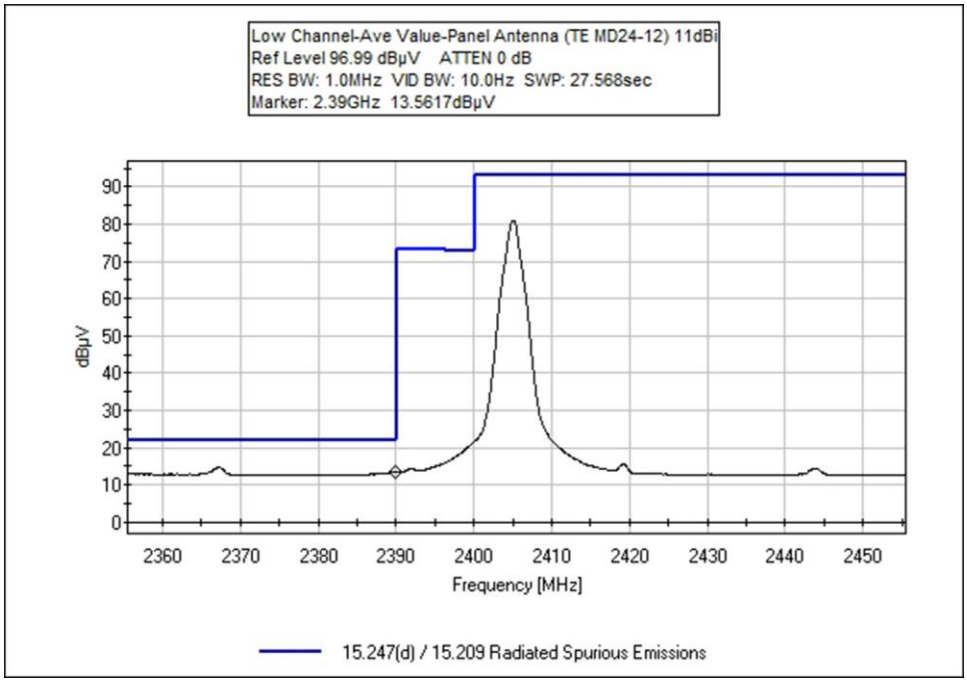
Configuration 4

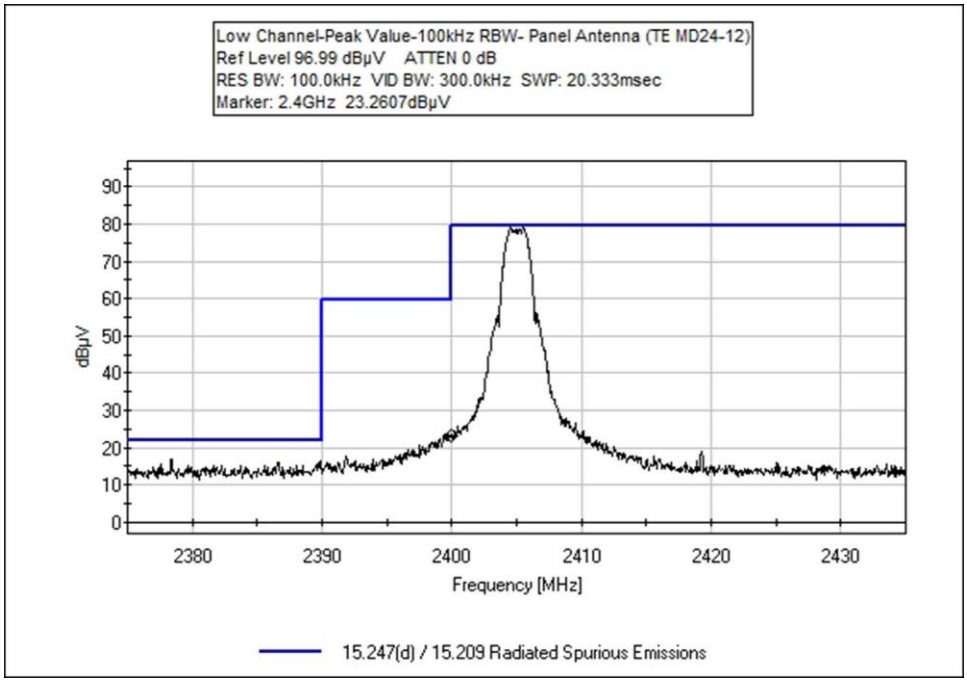
Band Edge Summary							
Limit applied at restricted bands: 15.209 Limit applied for other than restricted bands: Max Power/100kHz - 20dB.							
Frequency (MHz)	**Modulation**	**Ant. Type / Gain (dBi)**	**Average (dBuV/m @3m)**		**Peak (dBuV/m @3m)**		**Results**
			Measured	**Limit**	**Measured**	**Limit**	
2390.0	OQPSK, DSSS	External/14	45.8	≤54	57.6	≤74	Pass
2400.0	OQPSK, DSSS	External/14	NA	NA	60.4	≤94.4	Pass
2483.5	OQPSK, DSSS	External/14	49.3	≤54	62.2	≤74	Pass

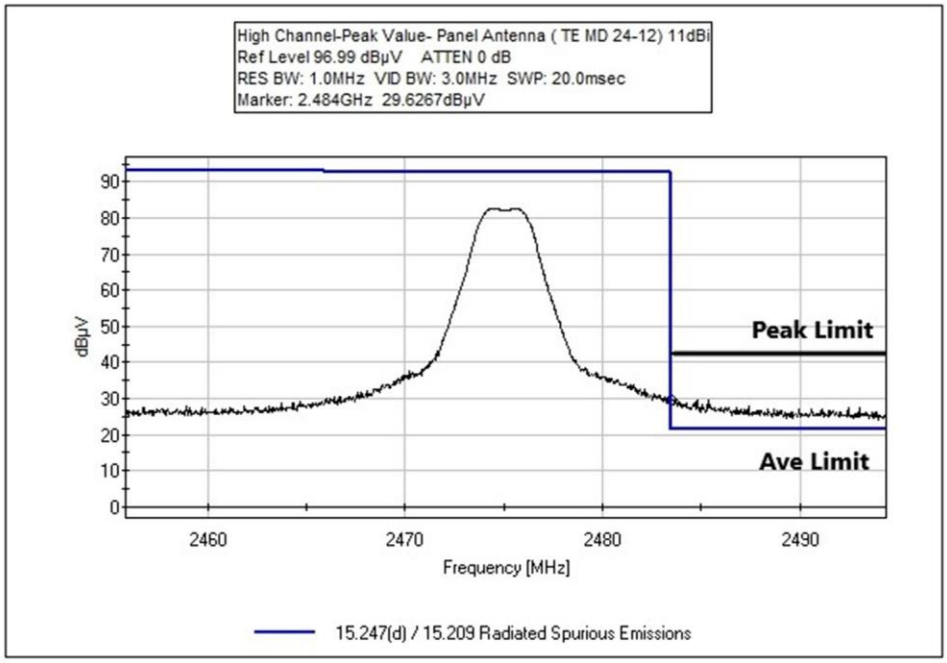
Band Edge Plots

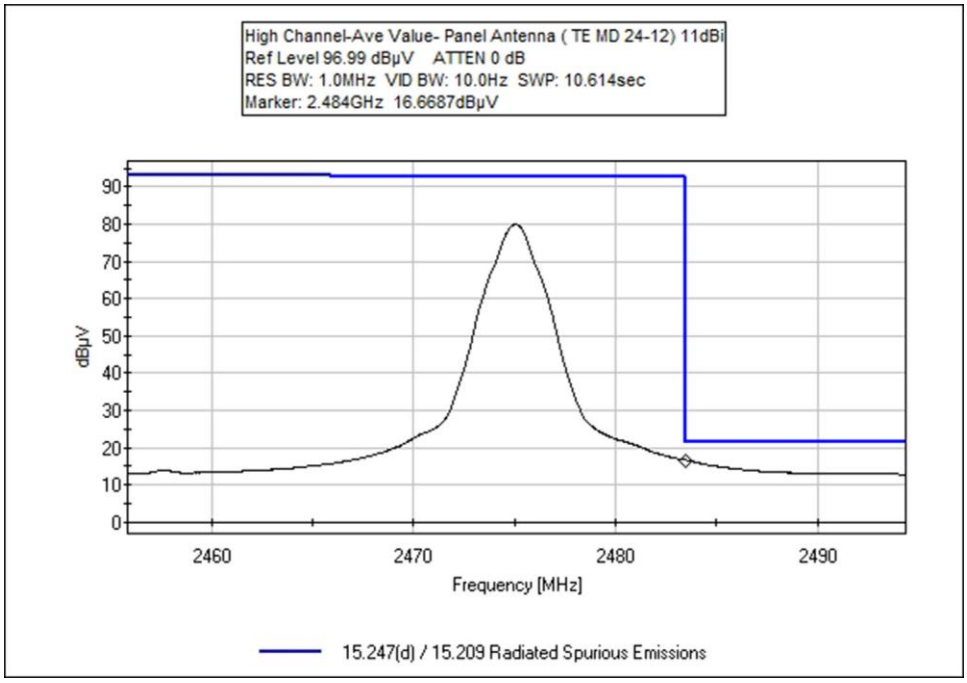
Configuration 3



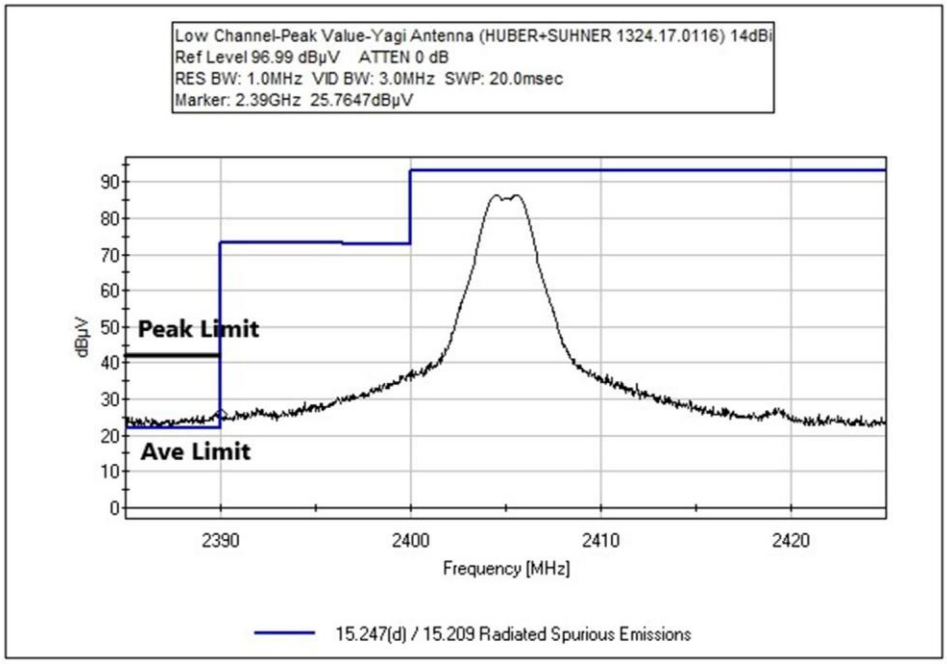


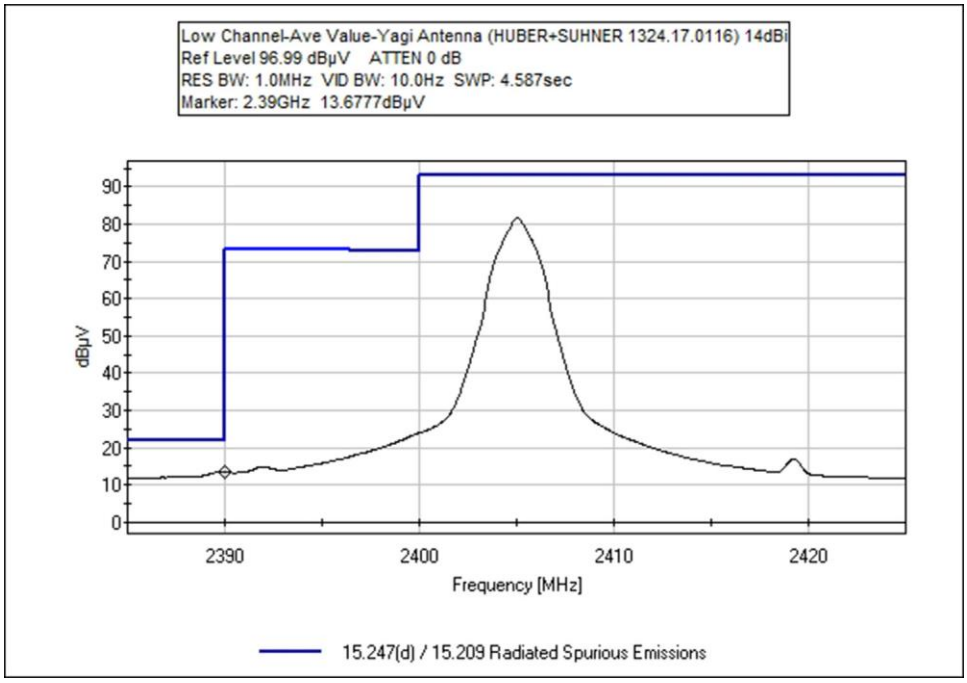

Low Channel-Peak Value-100kHz RBW- Panel Antenna (TE MD24-12)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.333msec
Marker: 2.4GHz 23.2607dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

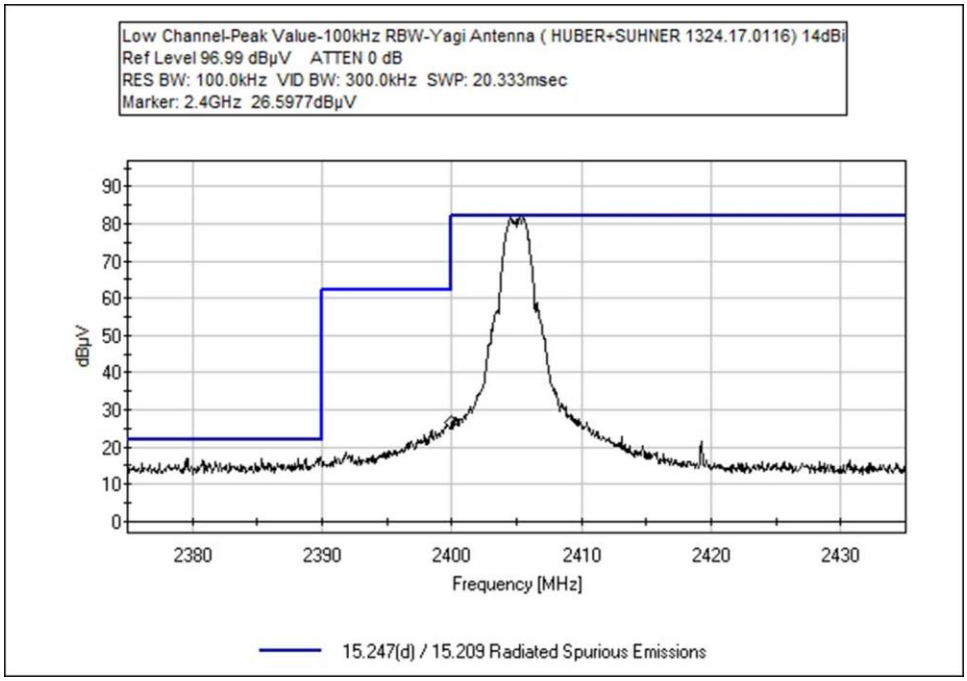

High Channel-Peak Value- Panel Antenna (TE MD 24-12) 11dBi
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.484GHz 29.6267dBµV
Peak Limit
Ave Limit
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

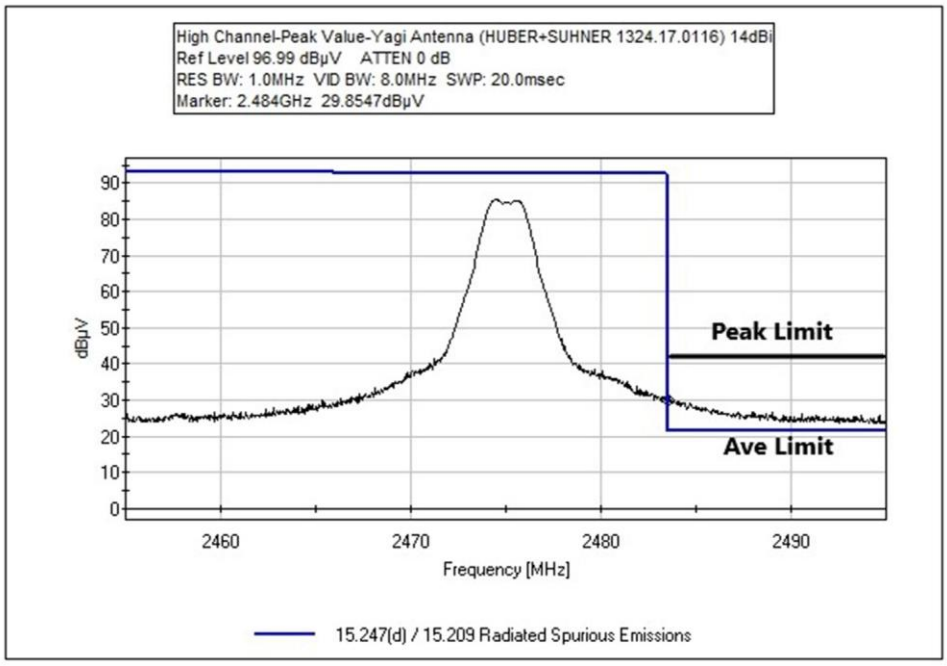

High Channel-Ave Value- Panel Antenna (TE MD 24-12) 11dBi
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 10.614sec
Marker: 2.484GHz 16.6687dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
2460
2470
2480
2490
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

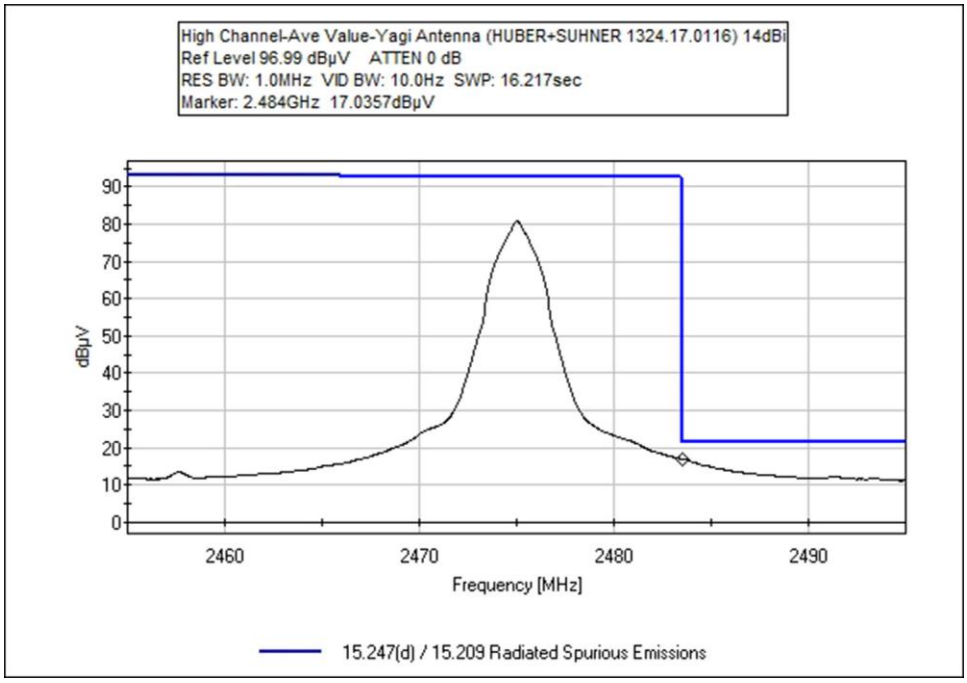
Configuration 4






Low Channel-Peak Value-100kHz RBW-Yagi Antenna (HUBER+SUHNER 1324.17.0116) 14dBi
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.333msec
Marker: 2.4GHz 26.5977dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


High Channel-Peak Value-Yagi Antenna (HUBER+SUHNER 1324.17.0116) 14dBi
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 8.0MHz SWP: 20.0msec
Marker: 2.484GHz 29.8547dBµV
Peak Limit
Ave Limit
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


High Channel-Ave Value-Yagi Antenna (HUBER+SUHNER 1324.17.0116) 14dBi
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 16.217sec
Marker: 2.484GHz 17.0357dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
2460
2470
2480
2490
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	Band Edge		
Work Order #:	**109523**	Date:	3/15/2024
Test Type:	**Radiated Scan**	Time:	12:23:05
Tested By:	Hieu Song Nguyenpham	Sequence#:	17
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

Test Conditions / Notes:

Band Edge Setup

Test Environment Conditions:
Temperature: 21.1°C
Humidity: 45%
Atmospheric Pressure: 101.5kPa

Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector which is a support equipment which is outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/11/2023	1/11/2025
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2024	1/9/2026
T3	ANP01210	Cable	FSJ1P-50A-4A	1/9/2024	1/9/2026
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	2390.000M	27.1	+28.3	+1.3	+2.5		+0.0	59.2	54.0	+5.2	Horiz
2	2390.000M Ave	13.6	+28.3	+1.3	+2.5		+0.0	45.7	54.0	-8.3	Horiz
3	2400.000M	24.8	+28.3	+1.4	+2.5		+0.0	57.0	92.0	-35.0	Horiz
4	2483.500M	29.6	+28.3	+1.4	+2.6		+0.0	61.9	54.0	+7.9	Horiz
5	2483.500M Ave	16.7	+28.3	+1.4	+2.6		+0.0	49.0	54.0	-5.0	Horiz

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	Band Edge		
Work Order #:	**109523**	Date:	3/15/2024
Test Type:	**Radiated Scan**	Time:	12:46:22
Tested By:	Hieu Song Nguyenpham	Sequence#:	36
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4			

Test Conditions / Notes:

Band Edge Setup

Test Environment Conditions:
Temperature: 21.1°C
Humidity: 45%
Atmospheric Pressure: 101.5kPa

Highest Generation Frequency: 2.48GHz

Test Method: ANSI C63.10 (2020), KDB 558074

The EUT is set up and operated as intended. It is powered by PoE Injector which is a support equipment which is outside of the chamber. The PoE injector is connected to the Ethernet Switch which is also outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure

Test Equipment:

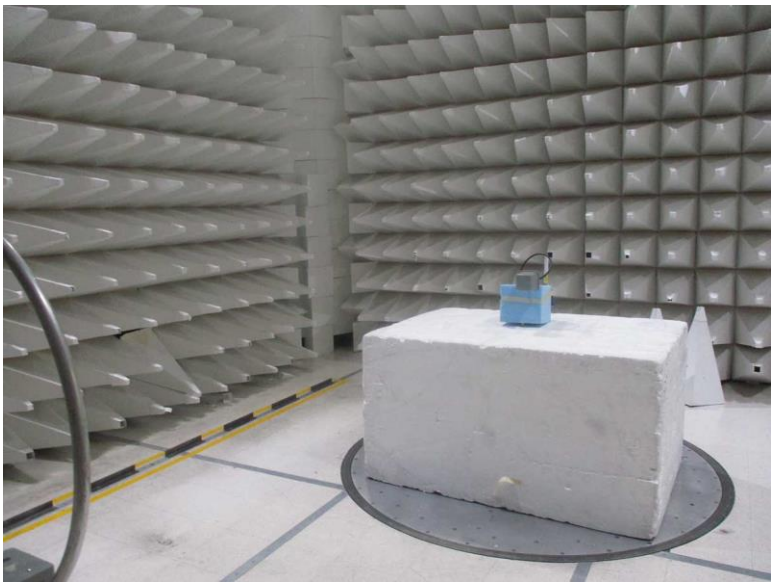
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/11/2023	1/11/2025
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2024	1/9/2026
T3	ANP01210	Cable	FSJ1P-50A-4A	1/9/2024	1/9/2026
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024

Measurement Data: Reading listed by order taken. Test Distance: 3 Meters

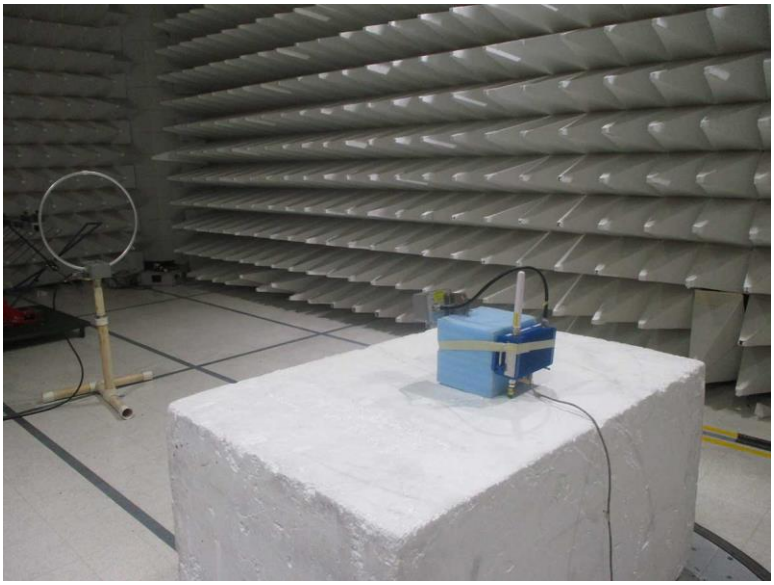
#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	2390.000M	25.5	+28.3	+1.3	+2.5		+0.0	57.6	54.0	+3.6	Vert
2	2390.000M Ave	13.7	+28.3	+1.3	+2.5		+0.0	45.8	54.0	-8.2	Vert
3	2483.500M	29.9	+28.3	+1.4	+2.6		+0.0	62.2	54.0	+8.2	Vert
4	2483.500M Ave	17.0	+28.3	+1.4	+2.6		+0.0	49.3	54.0	-4.7	Vert
5	2400.000M	28.2	+28.3	+1.4	+2.5		+0.0	60.4	94.4	-34.0	Vert

Test Setup Photo(s)

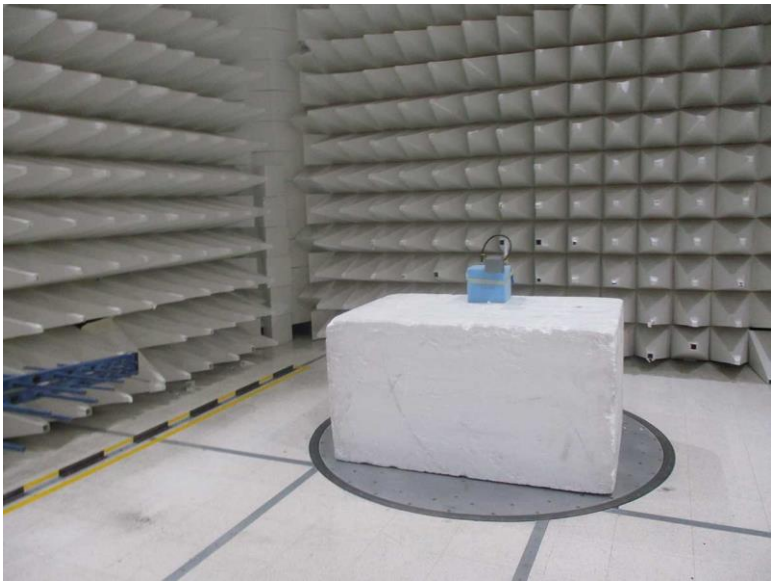
Configuration 3



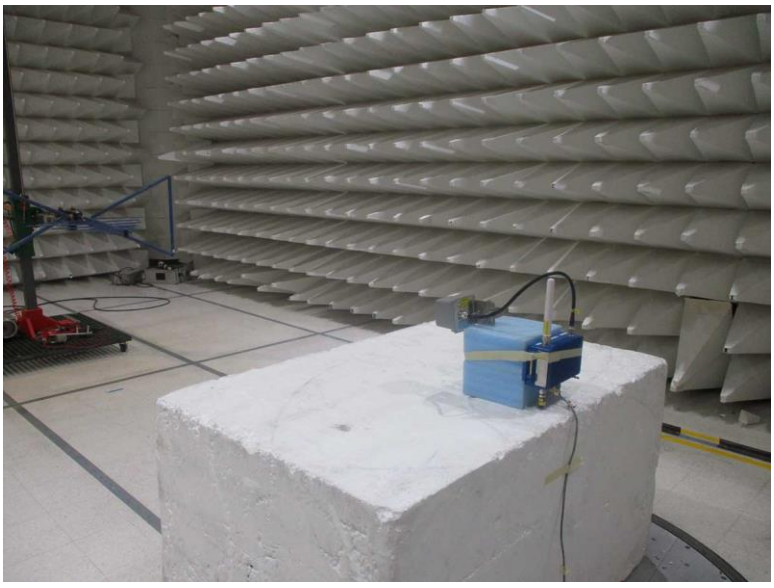
9kHz to 30MHz; Front View



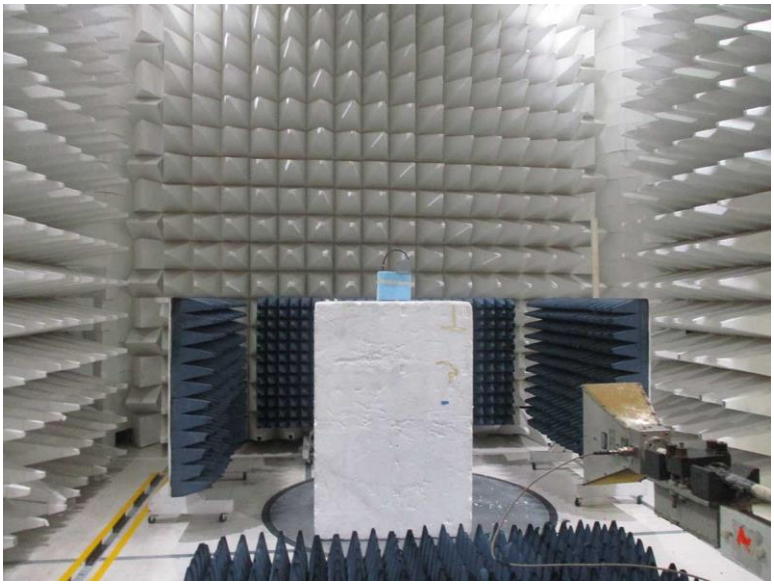
9kHz to 30MHz; Back View



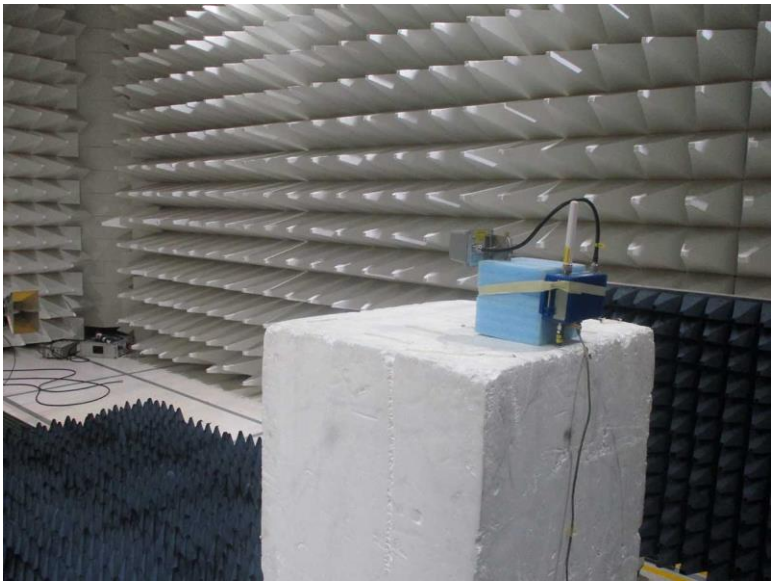
30MHz to 1GHz; Front View



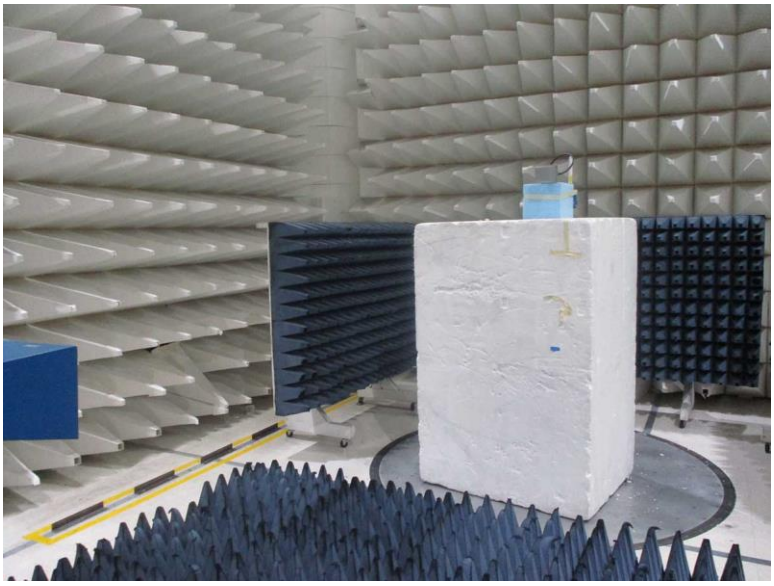
30MHz to 1GHz; Back View



1GHz to 12GHz; Front View



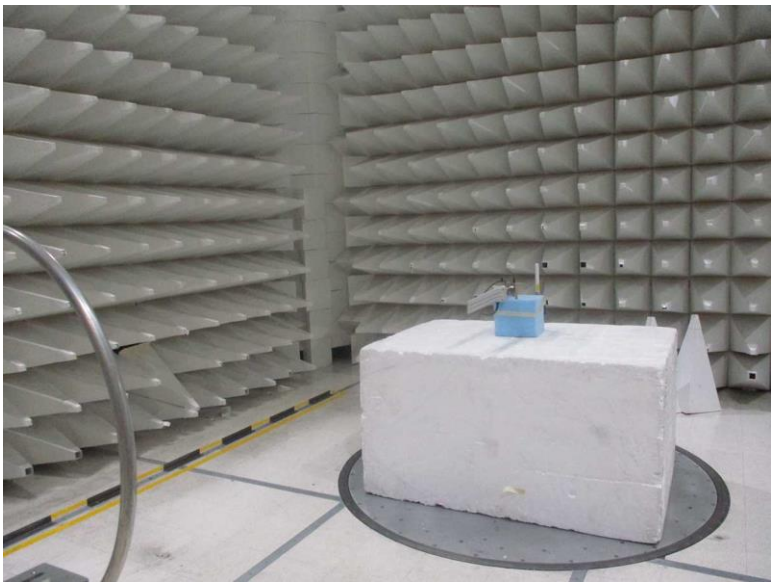
1GHz to 12GHz; Back View



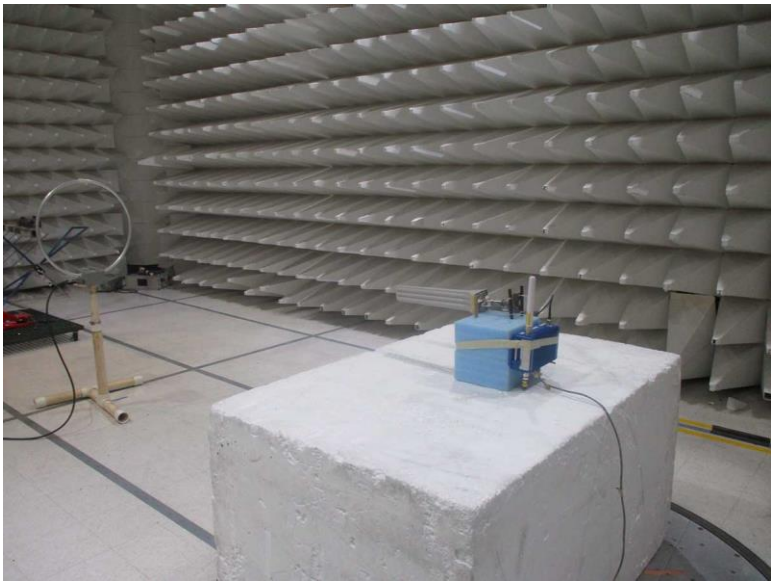
12GHz to 25GHz; Front View

12GHz to 25GHz; Back View

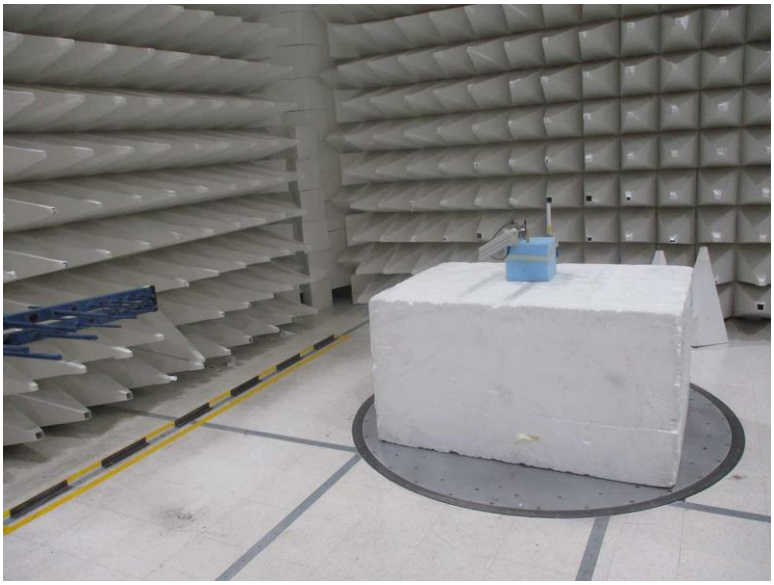
Configuration 4



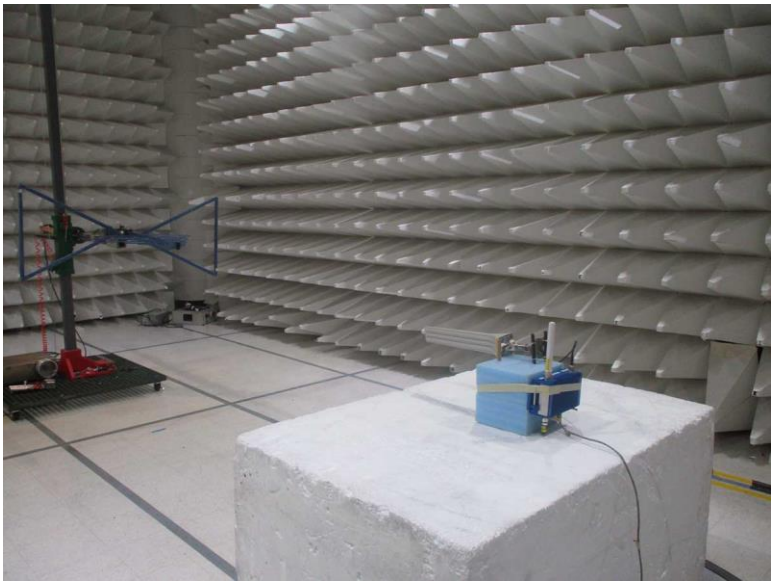
9kHz to 30MHz; Front View



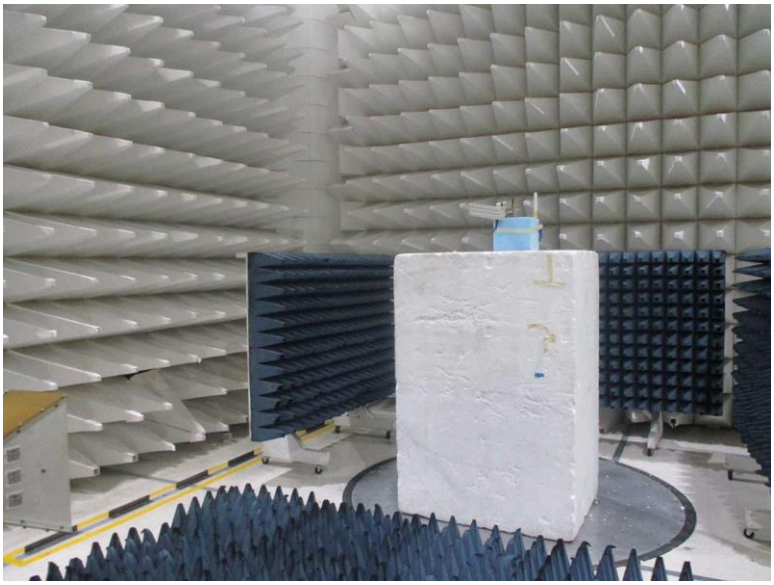
9kHz to 30MHz; Back View



30MHz to 1GHz; Front View

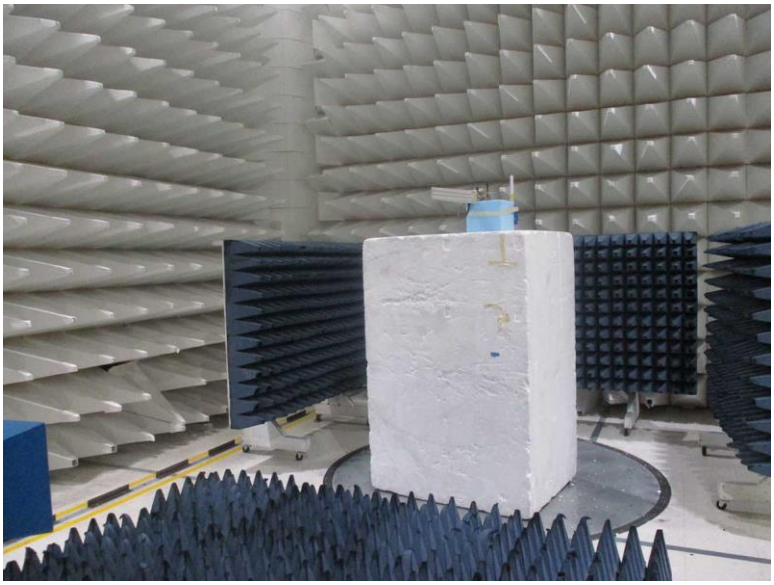


30MHz to 1GHz; Back View

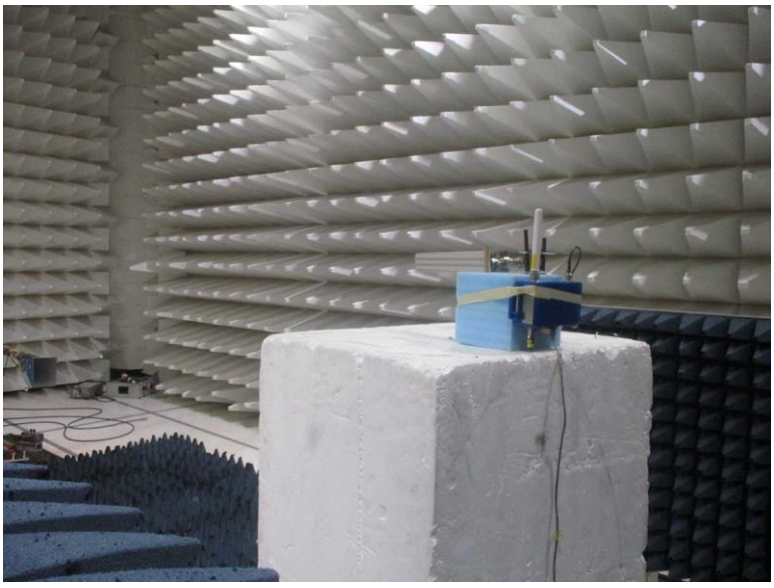


1GHz to 12GHz; Front View

1GHz to 12GHz; Back View



12GHz to 25GHz; Front View



12GHz to 25GHz; Back View

15.207 AC Conducted Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**109523**	Date:	3/26/2024
Test Type:	**Conducted Emissions**	Time:	2:24:42 PM
Tested By:	Hieu Song Nguyenpham	Sequence#:	128
Software:	EMITest 5.03.20		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 6			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 6			

Test Conditions / Notes:

Conducted Emission
Frequency Range: 150kHz to 30MHz

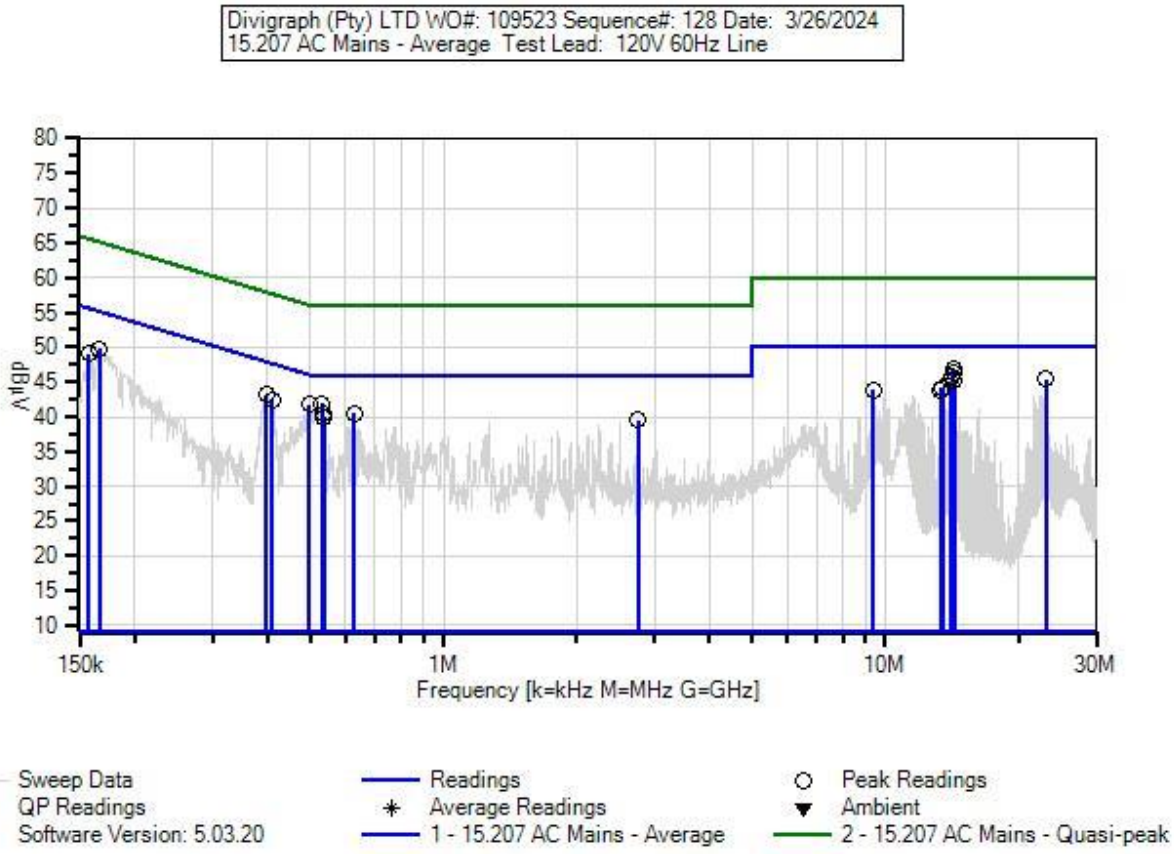
Test Environment Conditions:
Temperature: 21.1°C
Humidity: 45%
Atmospheric Pressure: 101.5kPa

Test Method: ANSI C63.10 (2020)

The EUT is set up and operated as intended. It is powered by PoE Injector which is next to it. The PoE injector is connected to the Ethernet Switch which is outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure

Using the highest gain antenna for testing

Note:
802.15.04- Middle Channel Continuously Transmitting
Yagi Antenna (HUBER+SUHNER 1324.17.0116) 14dBi



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03814	50uH LISN-1PH-Line (dB)	NSLK 8126	1/4/2023	1/4/2025
	AN03814	50uH LISN-1PH-Neutral (dB)	NSLK 8126	1/4/2023	1/4/2025
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
T2	ANP05258	High Pass Filter	HE9615-150K-50-720B	5/18/2022	5/18/2024
T3	ANP01211	Attenuator	23-10-34	12/2/2022	12/2/2024
T4	ANP00987	Cable		1/12/2024	1/12/2026
T5	ANP06691	Cable	PE3062-180	3/20/2024	3/20/2026

Measurement Data: Reading listed by margin. Test Lead: Line

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	14.211M	36.4	+0.2 +0.1	+0.1	+9.8	+0.4	+0.0	47.0	50.0	-3.0	Line
2	14.274M	35.6	+0.2 +0.1	+0.1	+9.8	+0.4	+0.0	46.2	50.0	-3.8	Line
3	529.601k	31.8	+0.0 +0.0	+0.1	+9.9	+0.1	+0.0	41.9	46.0	-4.1	Line
4	14.148M	35.2	+0.2 +0.1	+0.1	+9.8	+0.4	+0.0	45.8	50.0	-4.2	Line
5	496.877k	31.8	+0.0 +0.0	+0.1	+9.9	+0.0	+0.0	41.8	46.1	-4.3	Line
6	23.130M	34.5	+0.2 +0.2	+0.2	+9.8	+0.5	+0.0	45.4	50.0	-4.6	Line
7	397.977k	33.3	+0.0 +0.0	+0.1	+9.8	+0.0	+0.0	43.2	47.9	-4.7	Line
8	14.031M	34.6	+0.2 +0.1	+0.1	+9.8	+0.4	+0.0	45.2	50.0	-4.8	Line
9	14.337M	34.6	+0.2 +0.1	+0.1	+9.8	+0.4	+0.0	45.2	50.0	-4.8	Line
10	166.725k	39.5	+0.1 +0.0	+0.3	+9.9	+0.0	+0.0	49.8	55.1	-5.3	Line
11	409.612k	32.4	+0.0 +0.0	+0.1	+9.8	+0.0	+0.0	42.3	47.7	-5.4	Line
12	532.510k	30.4	+0.0 +0.0	+0.1	+9.9	+0.1	+0.0	40.5	46.0	-5.5	Line
13	626.319k	30.3	+0.1 +0.0	+0.1	+9.9	+0.1	+0.0	40.5	46.0	-5.5	Line
14	13.418M	33.4	+0.2 +0.1	+0.1	+9.9	+0.4	+0.0	44.1	50.0	-5.9	Line
15	13.481M	33.4	+0.2 +0.1	+0.1	+9.9	+0.4	+0.0	44.1	50.0	-5.9	Line
16	536.146k	29.8	+0.0 +0.0	+0.1	+9.9	+0.1	+0.0	39.9	46.0	-6.1	Line
17	9.391M	33.3	+0.2 +0.1	+0.1	+9.9	+0.3	+0.0	43.9	50.0	-6.1	Line
18	13.355M	33.2	+0.2 +0.1	+0.1	+9.9	+0.4	+0.0	43.9	50.0	-6.1	Line
19	2.757M	29.2	+0.1 +0.0	+0.1	+9.9	+0.2	+0.0	39.5	46.0	-6.5	Line
20	157.272k	38.5	+0.1 +0.0	+0.5	+9.9	+0.0	+0.0	49.0	55.6	-6.6	Line

Test Location:	CKC Laboratories, Inc. • 1120 Fulton Pl • Fremont, CA 94539 • (510) 249-1170		
Customer:	**Divigraph (Pty) LTD**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**109523**	Date:	3/26/2024
Test Type:	**Conducted Emissions**	Time:	2:38:27 PM
Tested By:	Hieu Song Nguyenpham	Sequence#:	129
Software:	EMITest 5.03.20		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 6			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 6			

Test Conditions / Notes:

Conducted Emission
Frequency range: 150kHz to 30MHz

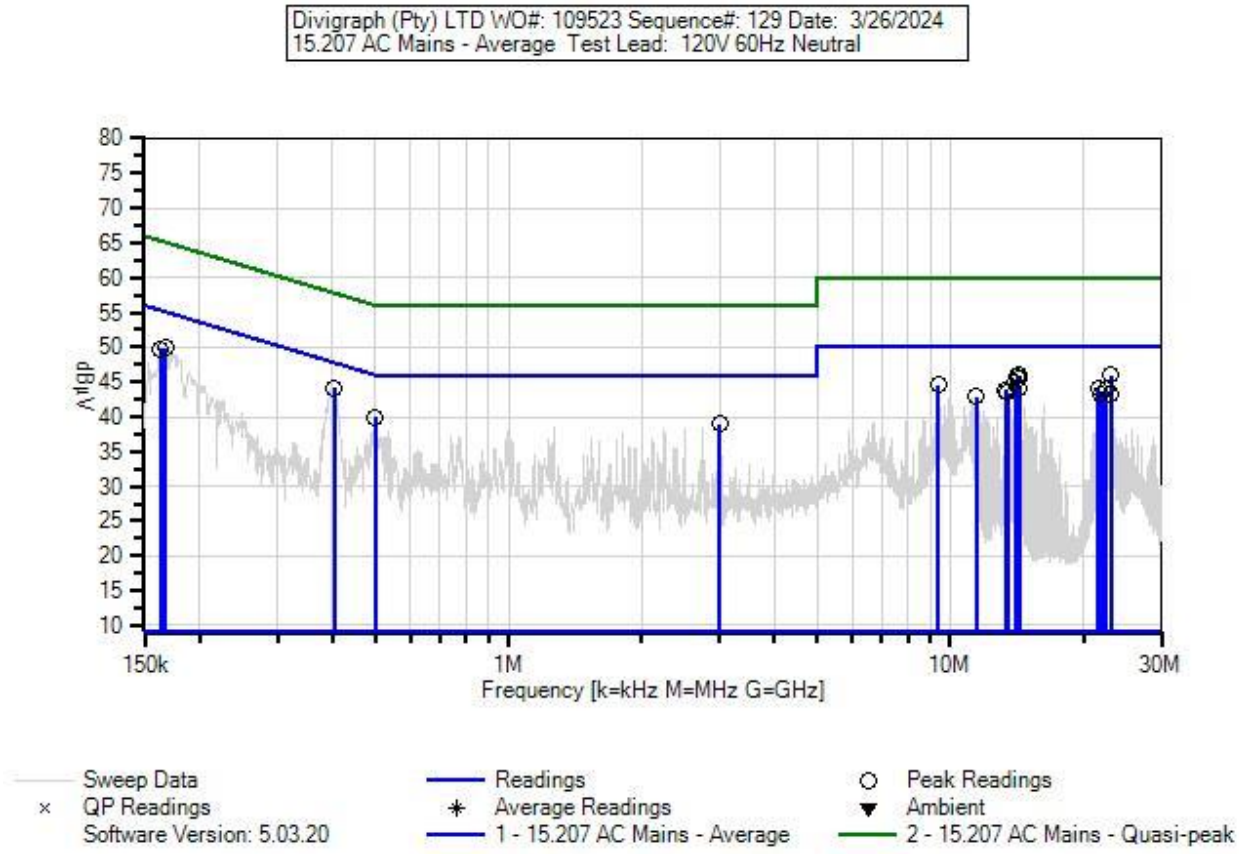
Test Environment Conditions:
Temperature: 21.1°C
Humidity: 45%
Atmospheric Pressure: 101.5kPa

Test Method: ANSI C63.10 (2020)

The EUT is set up and operated as intended. It is powered by PoE Injector which is next to it. The PoE injector is connected to the Ethernet Switch which is outside of the chamber through an Ethernet cable. The Ethernet switch is connected to the NUC to monitor and control the EUT during exposure.

Using the highest gain antenna for testing

Note:
802.15.04- Middle Channel Continuously Transmitting
Yagi Antenna (HUBER+SUHNER 1324.17.0116) 14dBi



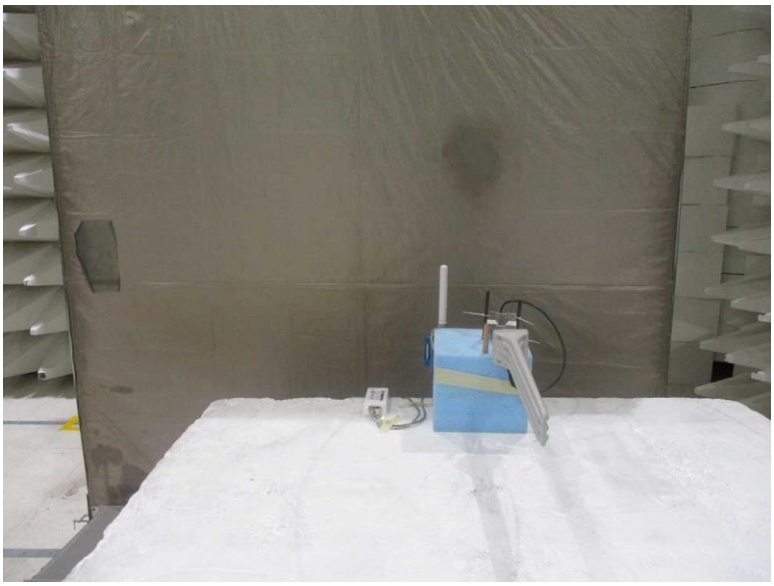
Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN03814	50uH LISN-1PH-Line (dB)	NSLK 8126	1/4/2023	1/4/2025
T1	AN03814	50uH LISN-1PH-Neutral (dB)	NSLK 8126	1/4/2023	1/4/2025
	AN02660	Spectrum Analyzer	E4446A	12/6/2022	12/6/2024
T2	ANP05258	High Pass Filter	HE9615-150K-50-720B	5/18/2022	5/18/2024
T3	ANP01211	Attenuator	23-10-34	12/2/2022	12/2/2024
T4	ANP00987	Cable		1/12/2024	1/12/2026
T5	ANP06691	Cable	PE3062-180	3/20/2024	3/20/2026

Measurement Data: Reading listed by margin. Test Lead: Neutral

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	402.340k	34.2	+0.0 +0.0	+0.1	+9.8	+0.0	+0.0	44.1	47.8	-3.7	Neutr
2	14.211M	35.4	+0.2 +0.1	+0.1	+9.8	+0.4	+0.0	46.0	50.0	-4.0	Neutr
3	23.130M	35.0	+0.3 +0.2	+0.2	+9.8	+0.5	+0.0	46.0	50.0	-4.0	Neutr
4	14.157M	35.1	+0.2 +0.1	+0.1	+9.8	+0.4	+0.0	45.7	50.0	-4.3	Neutr
5	14.274M	34.9	+0.2 +0.1	+0.1	+9.8	+0.4	+0.0	45.5	50.0	-4.5	Neutr
6	167.452k	39.7	+0.0 +0.0	+0.3	+9.9	+0.0	+0.0	49.9	55.1	-5.2	Neutr
7	14.031M	34.2	+0.2 +0.1	+0.1	+9.8	+0.4	+0.0	44.8	50.0	-5.2	Neutr
8	9.391M	34.0	+0.2 +0.1	+0.1	+9.9	+0.3	+0.0	44.6	50.0	-5.4	Neutr
9	163.089k	39.5	+0.0 +0.0	+0.4	+9.9	+0.0	+0.0	49.8	55.3	-5.5	Neutr
10	22.454M	33.3	+0.2 +0.2	+0.2	+9.8	+0.5	+0.0	44.2	50.0	-5.8	Neutr
11	21.661M	33.4	+0.2 +0.1	+0.2	+9.8	+0.5	+0.0	44.2	50.0	-5.8	Neutr
12	499.786k	30.0	+0.0 +0.0	+0.1	+9.9	+0.0	+0.0	40.0	46.0	-6.0	Neutr
13	14.337M	33.4	+0.2 +0.1	+0.1	+9.8	+0.4	+0.0	44.0	50.0	-6.0	Neutr
14	13.355M	33.1	+0.2 +0.1	+0.1	+9.9	+0.4	+0.0	43.8	50.0	-6.2	Neutr
15	13.418M	32.9	+0.2 +0.1	+0.1	+9.9	+0.4	+0.0	43.6	50.0	-6.4	Neutr
16	13.481M	32.8	+0.2 +0.1	+0.1	+9.9	+0.4	+0.0	43.5	50.0	-6.5	Neutr
17	21.905M	32.5	+0.2 +0.1	+0.2	+9.8	+0.5	+0.0	43.3	50.0	-6.7	Neutr
18	23.067M	32.1	+0.3 +0.2	+0.2	+9.8	+0.5	+0.0	43.1	50.0	-6.9	Neutr
19	3.008M	28.5	+0.1 +0.1	+0.1	+9.9	+0.2	+0.0	38.9	46.0	-7.1	Neutr
20	11.463M	32.2	+0.2 +0.1	+0.1	+9.9	+0.4	+0.0	42.9	50.0	-7.1	Neutr

Test Setup Photo(s)



Front View

Side View

Supplemental Information

Measurement Uncertainty

Uncertainty Value	Parameter
5.77 dB	Radiated Emissions
0.673 dB	RF Conducted Measurements
5.77 x 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 dBµV/m, the spectrum analyzer reading in dBµV 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	(dBµV)
+	Antenna Factor	(dB/m)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/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.

End of Report