



Test Report Serial Number:	<b>45461624 R1.0</b>
Test Report Date:	<b>4 December 2020</b>
Project Number:	<b>1511</b>

## Appendix J - Radiated Tx Spurious Emissions Measurement Plots

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**Summary of Radiated Tx Emissions (Restricted Band)**

Measured Frequency Range (MHz)	Channel Frequency	Antenna Polarization	Emission Frequency	Measured Emission [E <sub>Meas</sub> ] (dBuV)	Antenna ACF [ACF] (dB)	Cable Loss [L <sub>c</sub> ] (dB)	Amplifier Gain [G <sub>A</sub> ] (dB)	Corrected Emission [E <sub>Corr</sub> ] (dBuV/m)	Limit (dBuV)	Margin (dB)
9kHz - 30MHz	2412.0	Front	ND	ND (1)	0.00	0.00	0.00 (3)	ND (2)	n/a	n/a
9kHz - 30MHz	2412.0	Side	ND	ND (1)	0.00	0.00	0.00 (3)	ND (2)	n/a	n/a
30-1000MHz	2412.0	Horizontal	867.7MHz	40.88	0.00	0.00	0.00 (3)	40.9 (2)	46.0	5.1
30-1000MHz	2412.0	Vertical	171.5MHz	25.65	0.00	0.00	0.00 (3)	25.7 (2)	43.5	17.9
1 - 3GHz	2412.0	Horizontal	ND	ND (1)	27.40	4.58	0.00 (3)	ND	54.0	n/a
1 - 3GHz	2412.0	Vertical	ND	ND (1)	27.40	4.58	0.00 (3)	ND	54.0	n/a
3-13GHz	2412.0	Horizontal	ND	ND (1)	36.76	9.86	0.00 (3)	ND	54.0	n/a
3-13GHz	2412.0	Vertical	ND	ND (1)	36.76	9.86	0.00 (3)	ND	54.0	n/a
13-18GHz	2412.0	Horizontal	ND	ND (1)	38.75	16.54	0.00 (3)	ND	54.0	n/a
13-18GHz	2412.0	Vertical	ND	ND (1)	38.75	16.54	0.00 (3)	ND	54.0	n/a
18-26GHz	2412.0	Horizontal	ND	ND (1)	43.50	21.86	26.00	ND	54.0	n/a
18-26GHz	2412.0	Vertical	ND	ND (1)	43.50	21.86	26.00	ND	54.0	n/a
<b>Results:</b>									<b>Complies</b>	

(1) No Emissions Detected (ND) above ambient or within 20dB of the limit

(2) Antenna ACF, Cable Loss and Amplifier Gain corrected in Spectrum Analyzer Transducer Factor

(3) External Amplifier not used

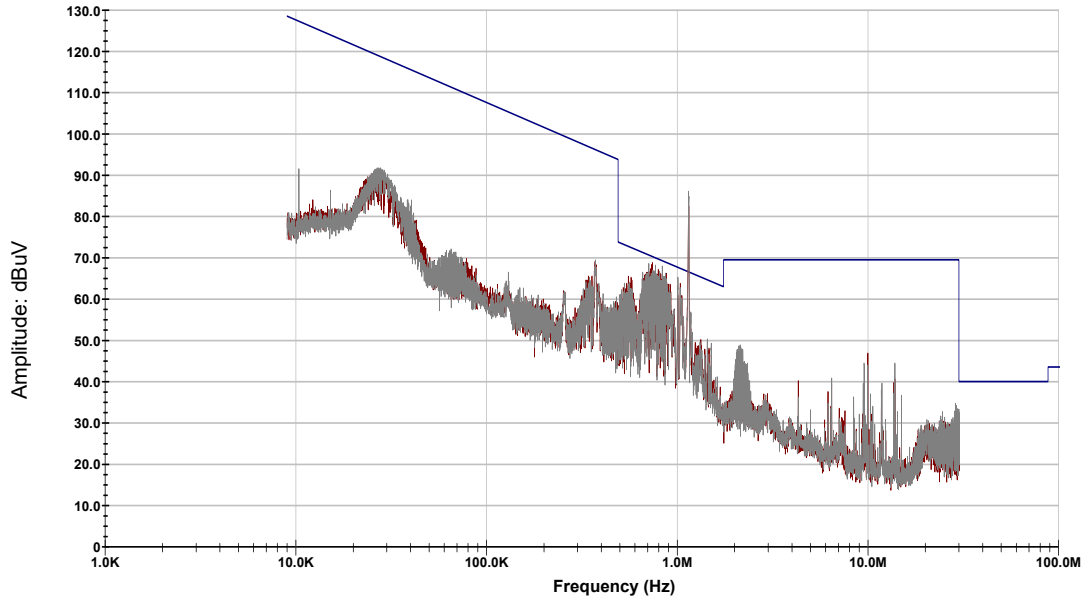
$$E_{\text{Corr}} = E_{\text{Meas}} + \text{ACF} + L_c - G_A$$

**Radiated Emissions - Restricted Band**

**Garmin A03947 - DTS**

**Radiated Tx Emissions - 9kHz - 30MHz**

**OATS - Loop Front**



01:36:06 PM, Monday, December 07, 2020

Profile Build: 2020.10.19

Trace 1	
Trace 2	

Frequency Range:  
**9kHz - 30MHz**

Antenna Polarization:  
**Front**

Emission Frequency:  
**ND**

Channel Frequency:  
**2412.00** MHz

Modulation:  
**DSSS**

Measured Emission:  
**ND** dBuV

Trace 1: Ambient

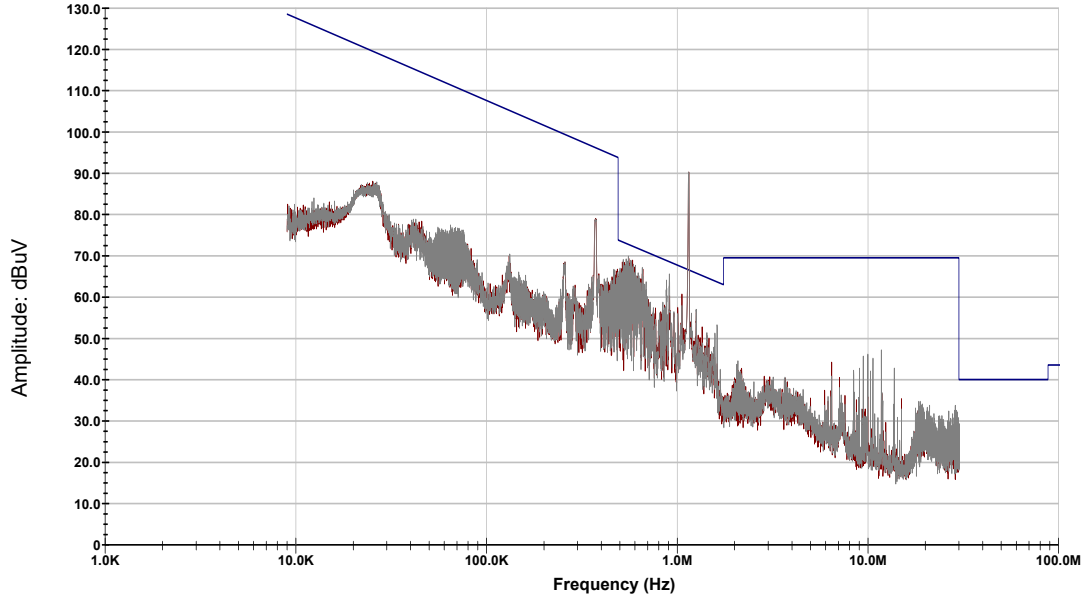
Trace 2: Ambient + DUT

## Radiated Emissions - Restricted Band

Garmin A03947 - DTS

Radiated Tx Emissions - 9kHz - 30MHz

OATS - Loop Side



01:35:58 PM, Monday, December 07, 2020

Profile Build: 2020.10.19

Trace 1 —  
Trace 2 —

Frequency Range:

**9kHz - 30MHz**

Antenna Polarization:

**Side**

Emission Frequency:

**ND**

Channel Frequency:

**2412.00** MHz

Modulation:

**DSSS**

Measured Emission:

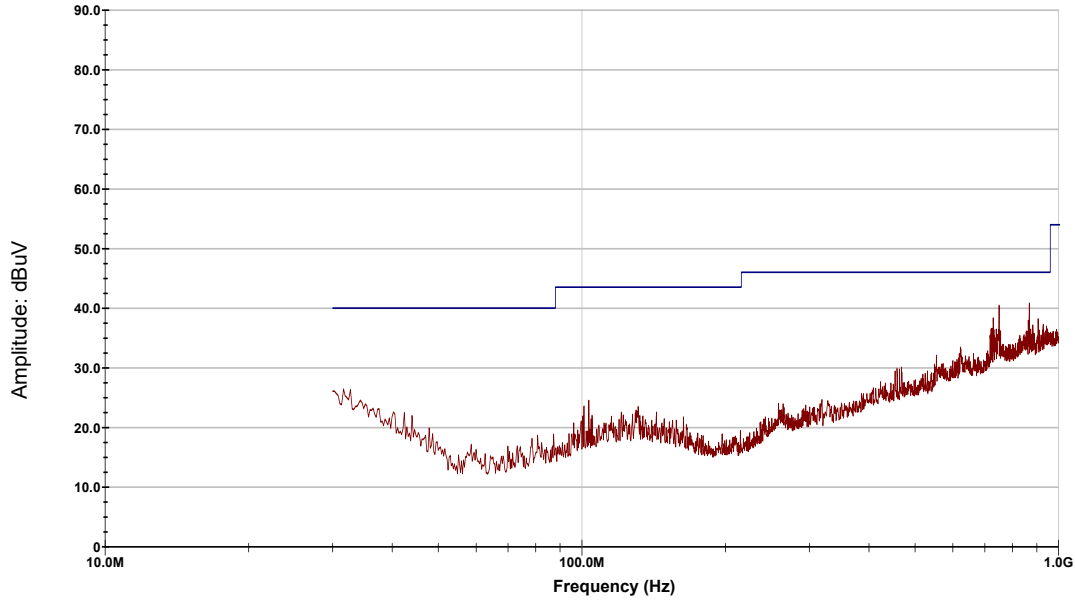
**ND** dBuV

Trace 1: Ambient

Trace 2: Ambient + DUT

**Radiated Emissions - Restricted Band**

**Garmin A03947 - DTS**  
Radiated Tx Emissions - 30MHz-1GHz  
OATS Horizontal



03:25:33 PM, Monday, December 07, 2020

Profile Build: 2020.10.19

Frequency Range:

**30-1000MHz**

Antenna Polarization:

**Horizontal**

Emission Frequency:

**867.7MHz**

Channel Frequency:

**2412.00** MHz

Modulation:

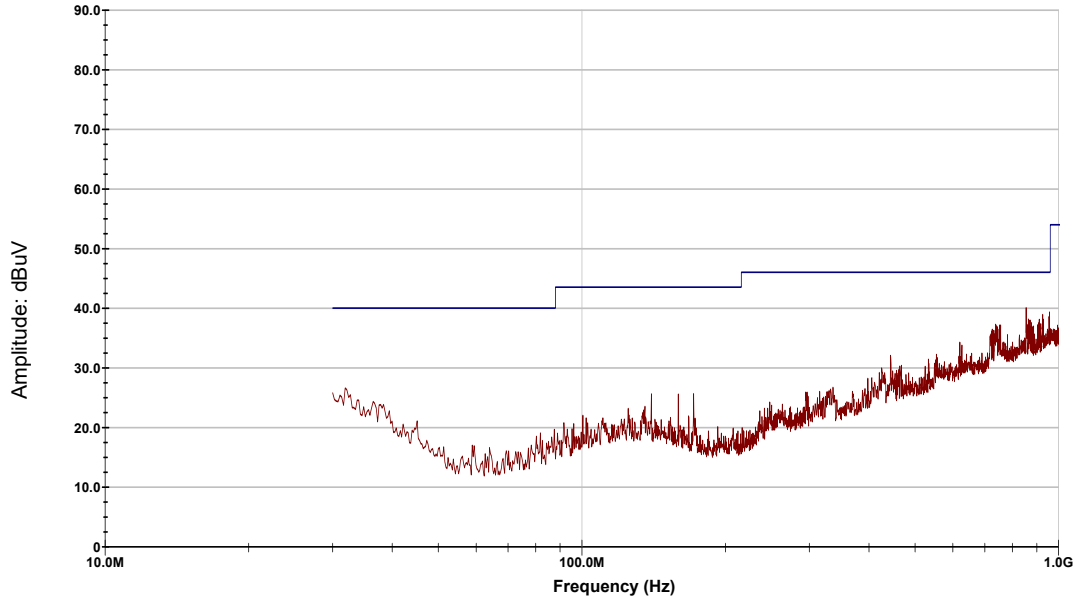
**DSSS**

Measured Emission:

**40.88** dBuV

**Radiated Emissions - Restricted Band**

**Garmin A03947 - DTS**  
**Radiated Tx Emissions 30 MHz - 1 GHz**  
**OATS Vertical**



03:25:33 PM, Monday, December 07, 2020

Profile Build: 2020.10.19

Frequency Range:

**30-1000MHz**

Antenna Polarization:

**Vertical**

Emission Frequency:

**171.5MHz**

Channel Frequency:

**2412.00** MHz

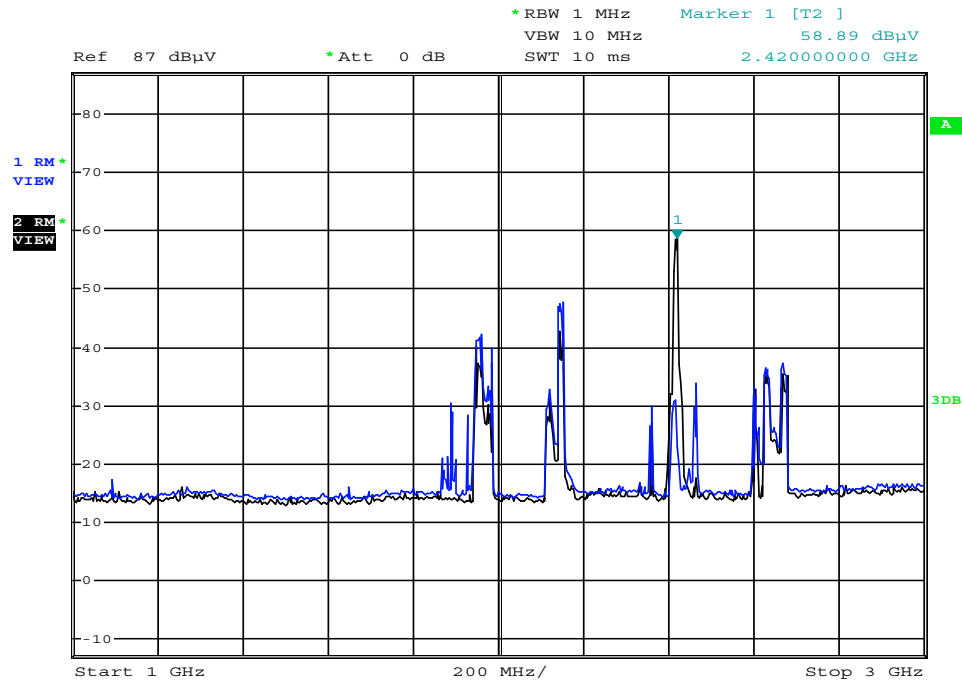
Modulation:

**DSSS**

Measured Emission:

**25.65** dBuV

## Radiated Emissions - Restricted Band



Date: 20.NOV.2020 15:27:23

Frequency Range:

**1 - 3GHz**

Antenna Polarization:

**Horizontal**

Emission Frequency:

**ND**

Channel Frequency:

**2412.00** MHz

Modulation:

**DSSS**

Measured Emission:

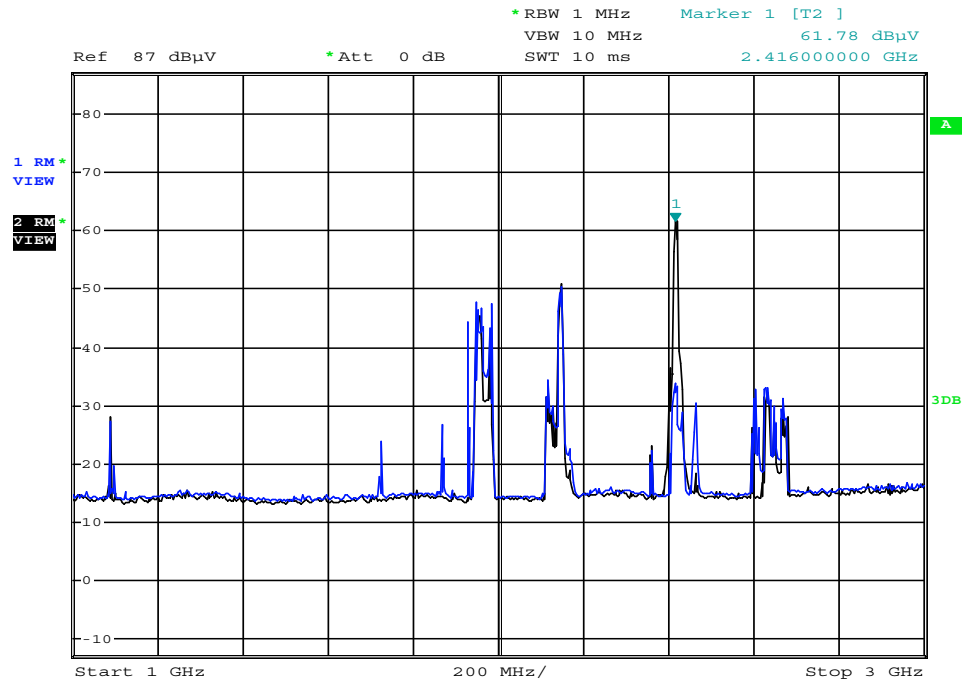
**ND** dBuV

Trace 1: Ambient

Trace 2: Ambient + DUT

Marker 1: Fundamental

## Radiated Emissions - Restricted Band



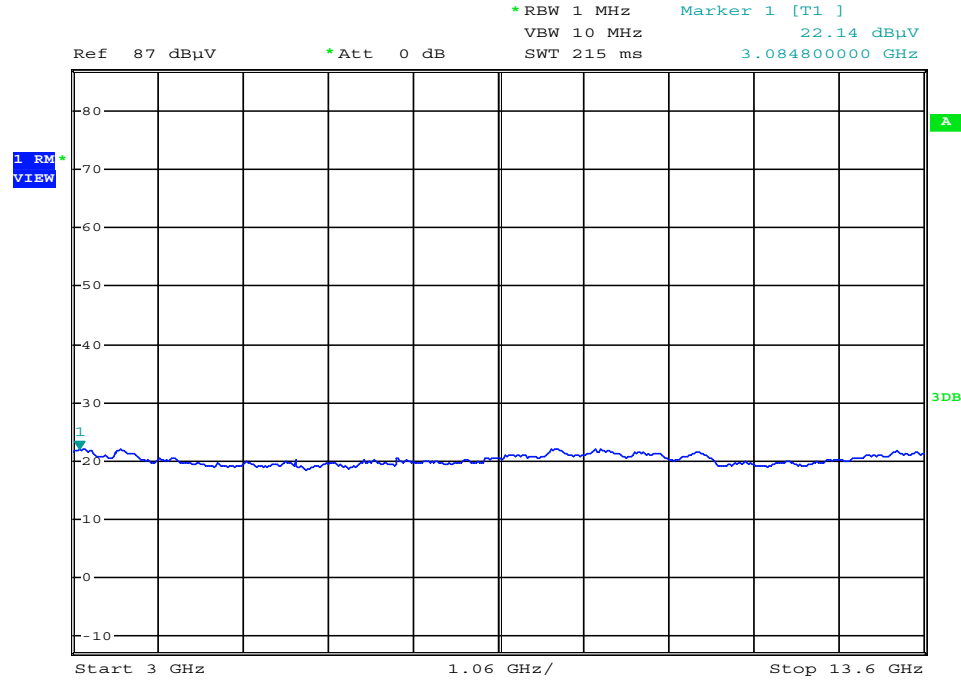
Date: 20.NOV.2020 15:21:09

Frequency Range: <b>1 - 3GHz</b>	Antenna Polarization: <b>Vertical</b>	Emission Frequency: <b>ND</b>
Channel Frequency: <b>2412.00</b> MHz	Modulation: <b>DSSS</b>	Measured Emission: <b>ND</b> dBuV

Trace 1: Ambient  
 Trace 2: Ambient + DUT  
 Marker 1: Fundamental



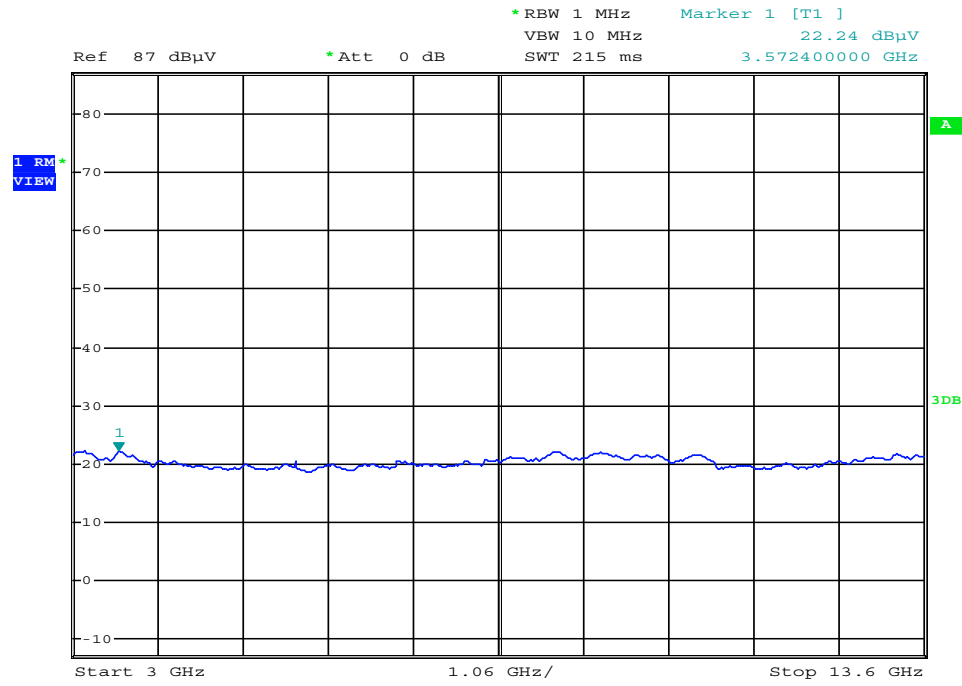
## Radiated Emissions - Restricted Band



Date: 20.NOV.2020 15:28:06

Frequency Range: <b>3-13GHz</b>	Antenna Polarization: <b>Horizontal</b>	Emission Frequency: <b>ND</b>
Channel Frequency: <b>2412.00</b> MHz	Modulation: <b>DSSS</b>	Measured Emission: <b>ND</b> dBuV

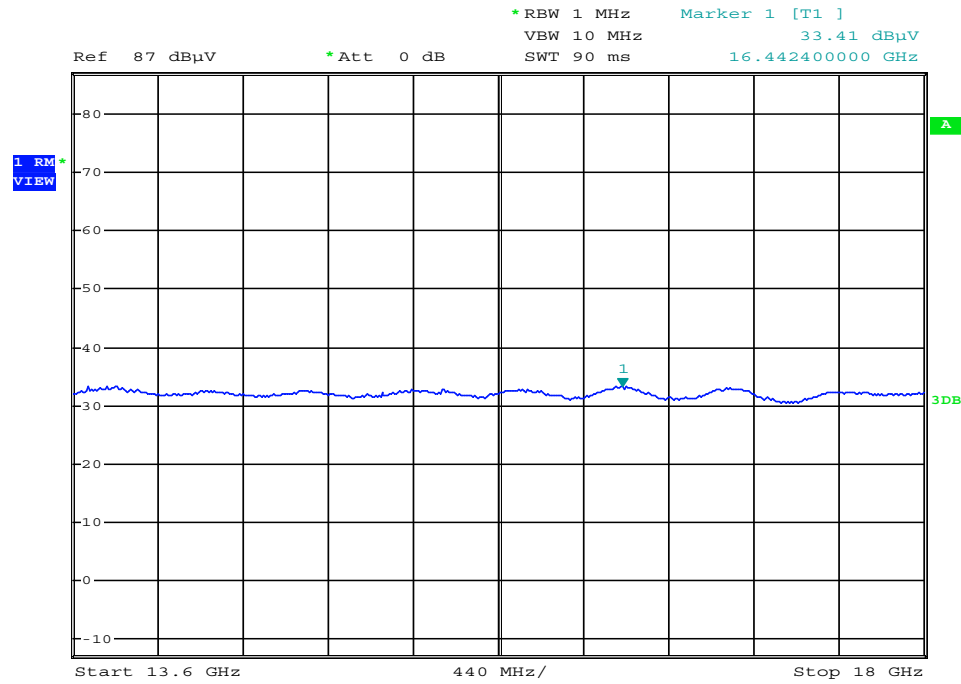
## Radiated Emissions - Restricted Band



Date: 20.NOV.2020 15:22:07

Frequency Range: <b>3-13GHz</b>	Antenna Polarization: <b>Vertical</b>	Emission Frequency: <b>ND</b>
Channel Frequency: <b>2412.00</b> MHz	Modulation: <b>DSSS</b>	Measured Emission: <b>ND</b> dBuV

## Radiated Emissions - Restricted Band



Date: 20.NOV.2020 15:28:35

Frequency Range:

**13-18GHz**

Antenna Polarization:

**Horizontal**

Emission Frequency:

**ND**

Channel Frequency:

**2412.00** MHz

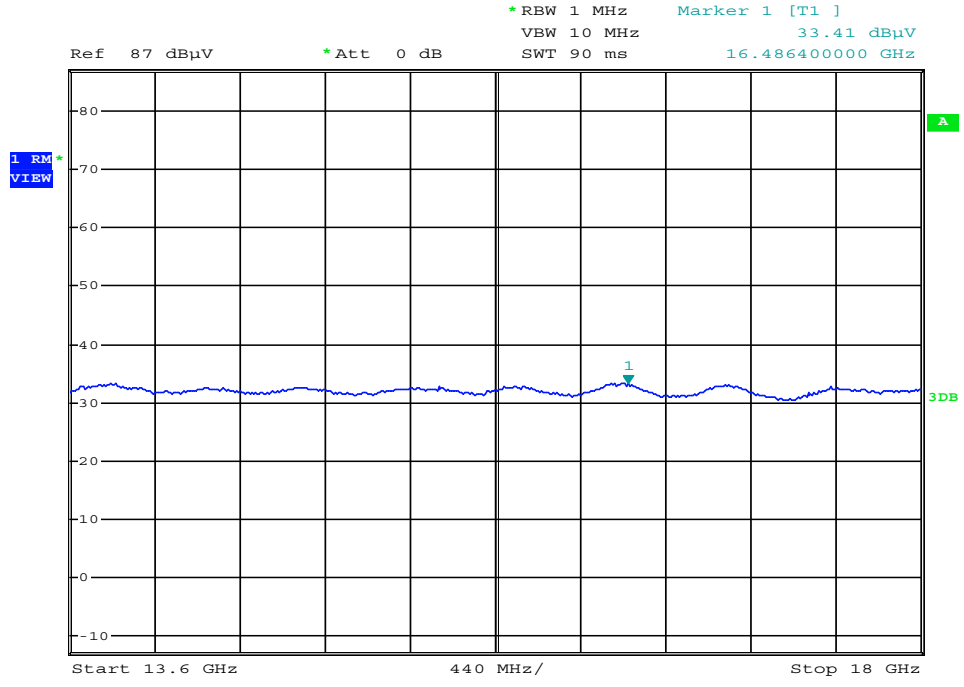
Modulation:

**DSSS**

Measured Emission:

**ND** dBuV

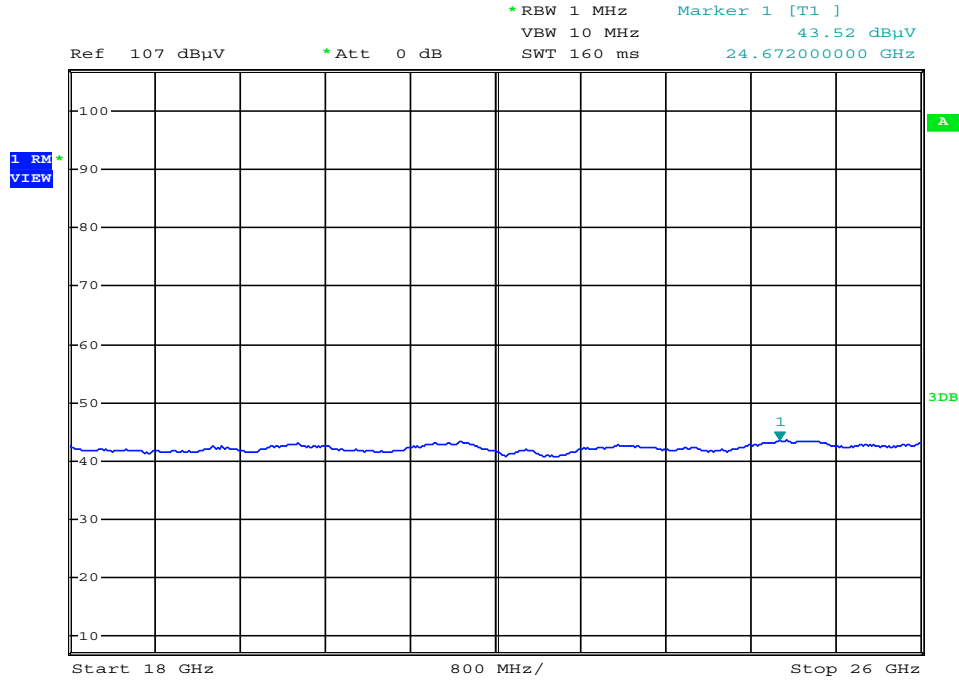
## Radiated Emissions - Restricted Band



Date: 20.NOV.2020 15:22:37

Frequency Range: <b>13-18GHz</b>	Antenna Polarization: <b>Vertical</b>	Emission Frequency: <b>ND</b>
Channel Frequency: <b>2412.00</b> MHz	Modulation: <b>DSSS</b>	Measured Emission: <b>ND</b> dBuV

## Radiated Emissions - Restricted Band



Date: 26.NOV.2020 15:06:54

Frequency Range:

**18-26GHz**

Antenna Polarization:

**Horizontal**

Emission Frequency:

**ND**

Channel Frequency:

**2412.00** MHz

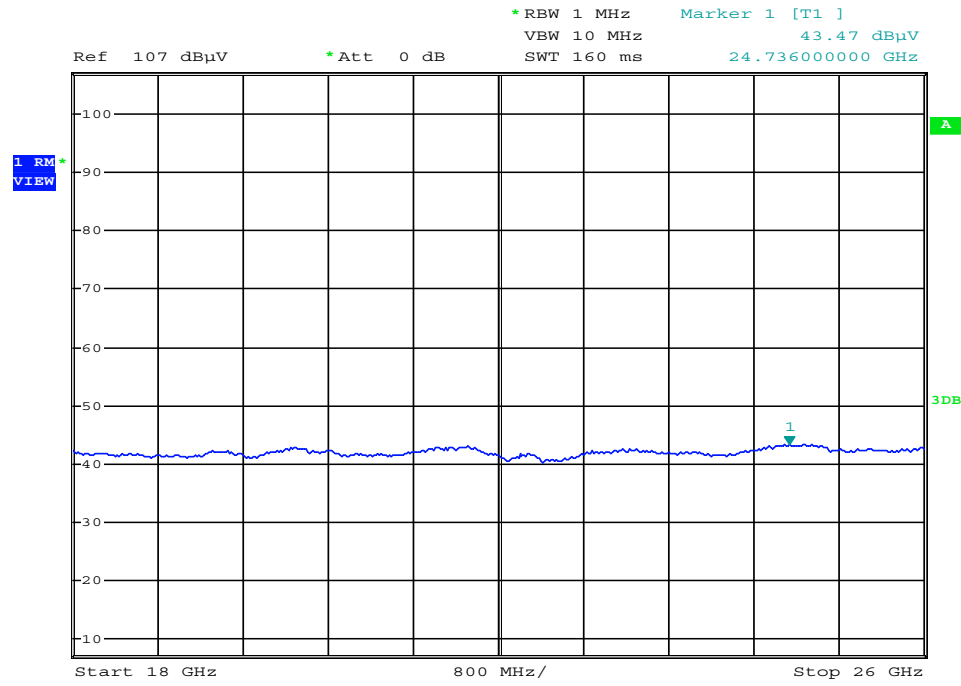
Modulation:

**DSSS**

Measured Emission:

**ND** dBuV

## Radiated Emissions - Restricted Band



Date: 26.NOV.2020 15:16:03

Frequency Range:

**18-26GHz**

Antenna Polarization:

**Vertical**

Emission Frequency:

**ND**

Channel Frequency:

**2412.00** MHz

Modulation:

**DSSS**

Measured Emission:

**ND** dBuV

**Summary of Radiated Tx Emissions (Restricted Band)**

Measured Frequency Range (MHz)	Channel Frequency	Antenna Polarization	Emission Frequency	Measured Emission [E <sub>Meas</sub> ] (dBuV)	Antenna ACF [ACF] (dB)	Cable Loss [L <sub>c</sub> ] (dB)	Amplifier Gain [G <sub>A</sub> ] (dB)	Corrected Emission [E <sub>Corr</sub> ] (dBuV/m)	Limit (dBuV)	Margin (dB)
9kHz - 30MHz	2442.0	Front	ND	ND (1)	0.00	0.00	0.00 (3)	ND (2)	n/a	n/a
9kHz - 30MHz	2442.0	Side	ND	ND (1)	0.00	0.00	0.00 (3)	ND (2)	n/a	n/a
30-1000MHz	2442.0	Horizontal	755.7MHz	39.10	0.00	0.00	0.00 (3)	39.1 (2)	46.0	6.9
30-1000MHz	2442.0	Vertical	750.1MHz	39.69	0.00	0.00	0.00 (3)	39.7 (2)	46.0	6.3
1 - 3GHz	2442.0	Horizontal	ND	ND (1)	27.40	4.58	0.00 (3)	ND	54.0	n/a
1 - 3GHz	2442.0	Vertical	ND	ND (1)	27.40	4.58	0.00 (3)	ND	54.0	n/a
3-13GHz	2442.0	Horizontal	ND	ND (1)	36.76	9.86	0.00 (3)	ND	54.0	n/a
3-13GHz	2442.0	Vertical	ND	ND (1)	36.76	9.86	0.00 (3)	ND	54.0	n/a
13-18GHz	2442.0	Horizontal	ND	ND (1)	38.75	16.54	0.00 (3)	ND	54.0	n/a
13-18GHz	2442.0	Vertical	ND	ND (1)	38.75	16.54	0.00 (3)	ND	54.0	n/a
18-26GHz	2442.0	Horizontal	ND	ND (1)	43.50	21.86	26.00	ND	54.0	n/a
18-26GHz	2442.0	Vertical	ND	ND (1)	43.50	21.86	26.00	ND	54.0	n/a
<b>Results:</b>									<b>Complies</b>	

(1) No Emissions Detected (ND) above ambient or within 20dB of the limit

(2) Antenna ACF, Cable Loss and Amplifier Gain corrected in Spectrum Analyzer Transducer Factor

(3) External Amplifier not used

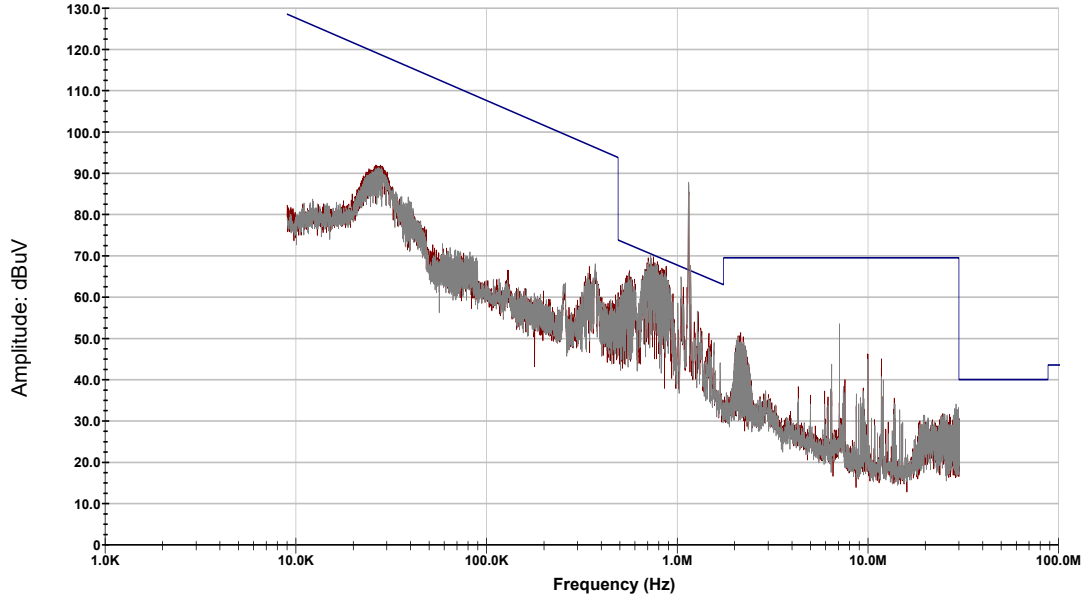
$$E_{\text{Corr}} = E_{\text{Meas}} + \text{ACF} + L_C - G_A$$

**Radiated Emissions - Restricted Band**

**Garmin A03947 - DSS**

**Radiated Tx Emissions - 9kHz - 30MHz**

**OATS - Loop Front**



01:25:34 PM, Monday, December 07, 2020

Profile Build: 2020.10.19

Trace 1	
Trace 2	

Frequency Range:  
**9kHz - 30MHz**

Antenna Polarization:  
**Front**

Emission Frequency:  
**ND**

Channel Frequency:  
**2442.00** MHz

Modulation:  
**8-DPSK**

Measured Emission:  
**ND** dBuV

Trace 1: Ambient

Trace 2: Ambient + DUT

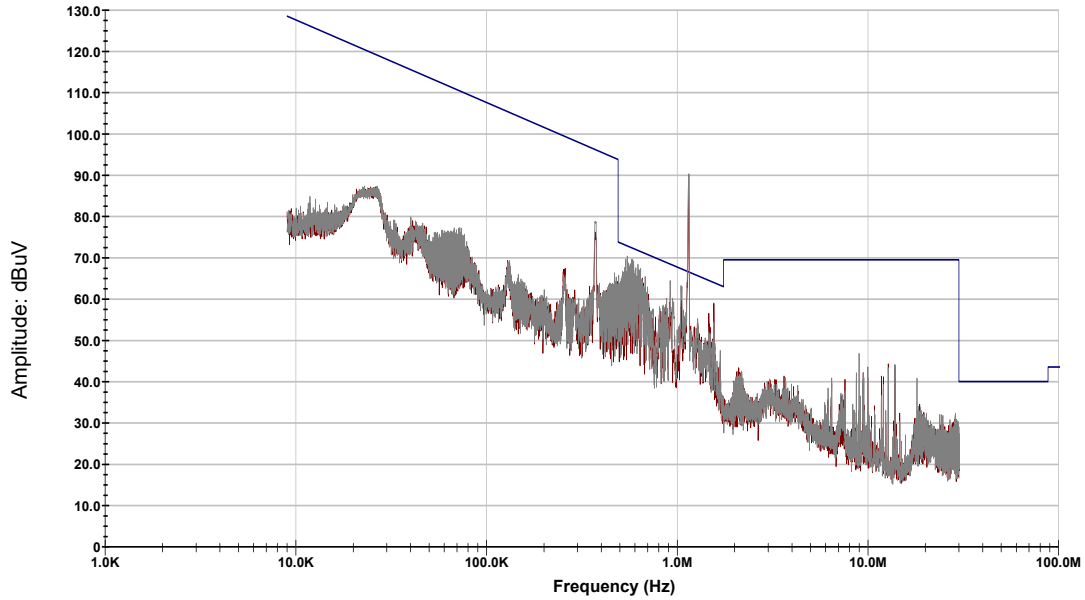


## Radiated Emissions - Restricted Band

**Garmin A03947 - DSS**

**Radiated Tx Emissions - 9kHz - 30MHz**

**OATS - Loop Side**



01:25:27 PM, Monday, December 07, 2020

Profile Build: 2020.10.19

Trace 1 —  
Trace 2 —

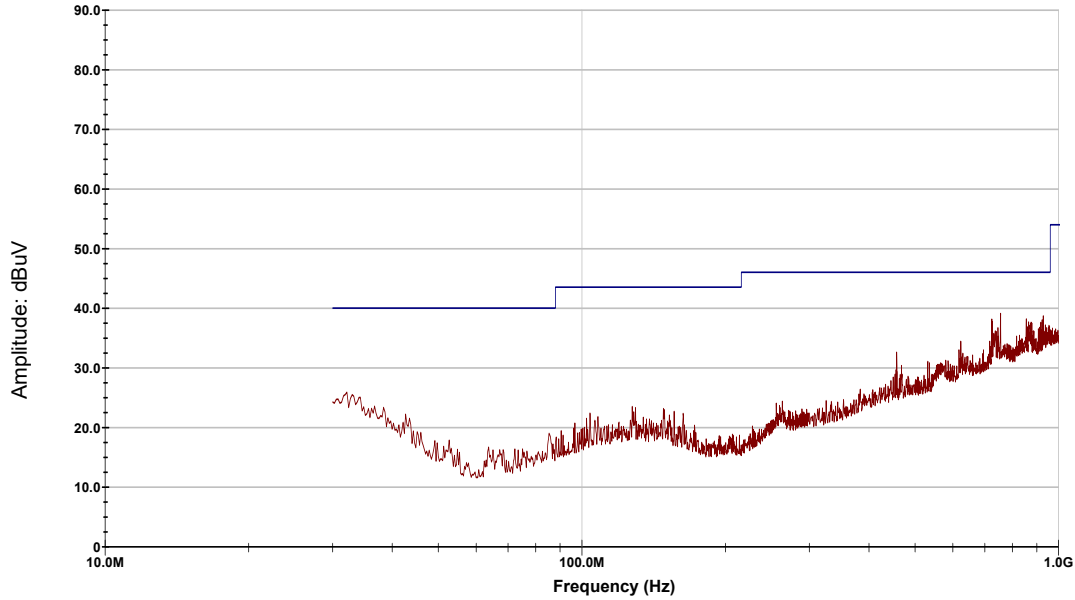
Frequency Range: <b>9kHz - 30MHz</b>	Antenna Polarization: <b>Side</b>	Emission Frequency: <b>ND</b>
Channel Frequency: <b>2442.00</b> MHz	Modulation: <b>8-DPSK</b>	Measured Emission: <b>ND</b> dBuV

Trace 1: Ambient

Trace 2: Ambient + DUT

**Radiated Emissions - Restricted Band**

**Garmin A03947 - DSS**  
Radiated Tx Emissions - 30MHz-1GHz  
OATS Horizontal



01:54:37 PM, Monday, December 07, 2020

Profile Build: 2020.10.19

Frequency Range:

**30-1000MHz**

Antenna Polarization:

**Horizontal**

Emission Frequency:

**755.7MHz**

Channel Frequency:

**2442.00** MHz

Modulation:

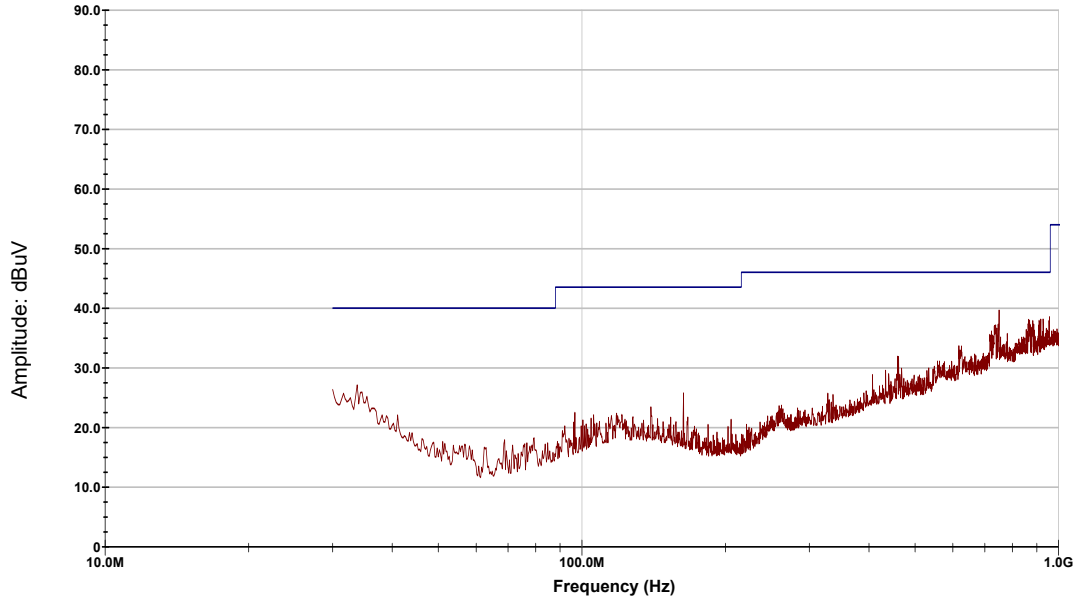
**8-DPSK**

Measured Emission:

**39.10** dBuV

**Radiated Emissions - Restricted Band**

**Garmin A03947 - DSS**  
**Radiated Tx Emissions 30 MHz - 1 GHz**  
**OATS Vertical**



01:54:37 PM, Monday, December 07, 2020

Profile Build: 2020.10.19

Frequency Range:

**30-1000MHz**

Antenna Polarization:

**Vertical**

Emission Frequency:

**750.1MHz**

Channel Frequency:

**2442.00** MHz

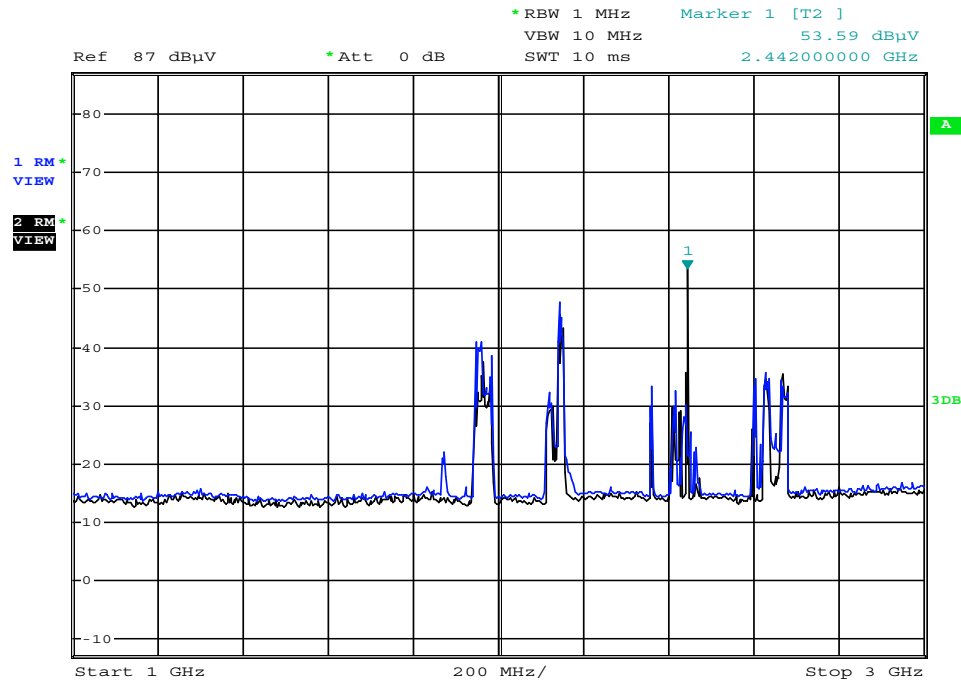
Modulation:

**8-DPSK**

Measured Emission:

**39.69** dBuV

## Radiated Emissions - Restricted Band

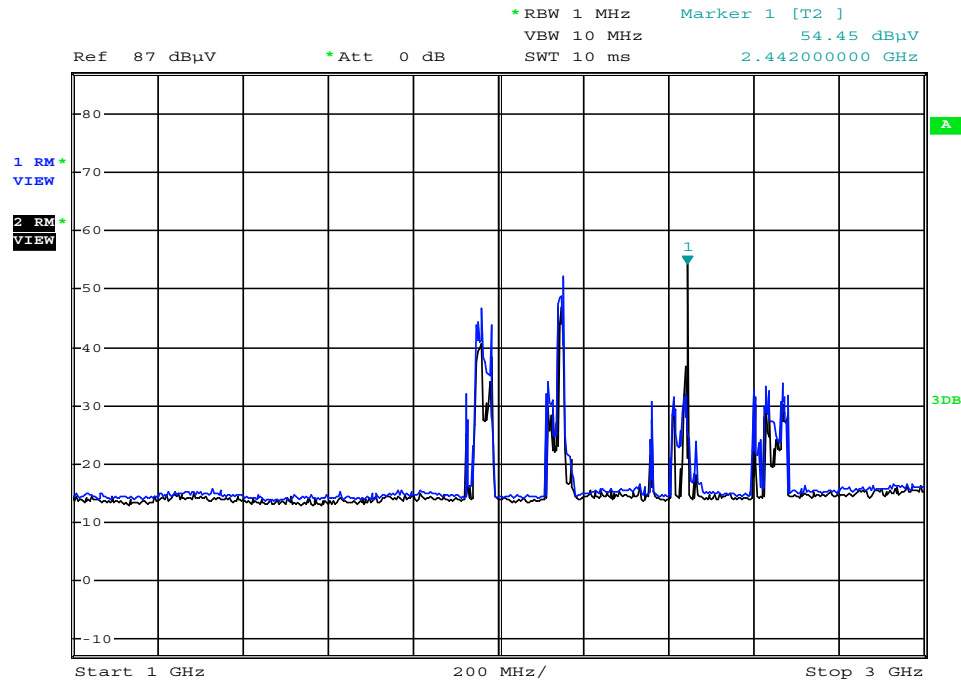


Date: 23.NOV.2020 12:22:41

Frequency Range: <b>1 - 3GHz</b>	Antenna Polarization: <b>Horizontal</b>	Emission Frequency: <b>ND</b>
Channel Frequency: <b>2442.00</b> MHz	Modulation: <b>8-DPSK</b>	Measured Emission: <b>ND</b> dBuV

Trace 1: Ambient  
 Trace 2: Ambient + DUT  
 Marker 1: Fundamental

## Radiated Emissions - Restricted Band



Date: 23.NOV.2020 12:16:07

Frequency Range:

**1 - 3GHz**

Antenna Polarization:

**Vertical**

Emission Frequency:

**ND**

Channel Frequency:

**2442.00** MHz

Modulation:

**8-DPSK**

Measured Emission:

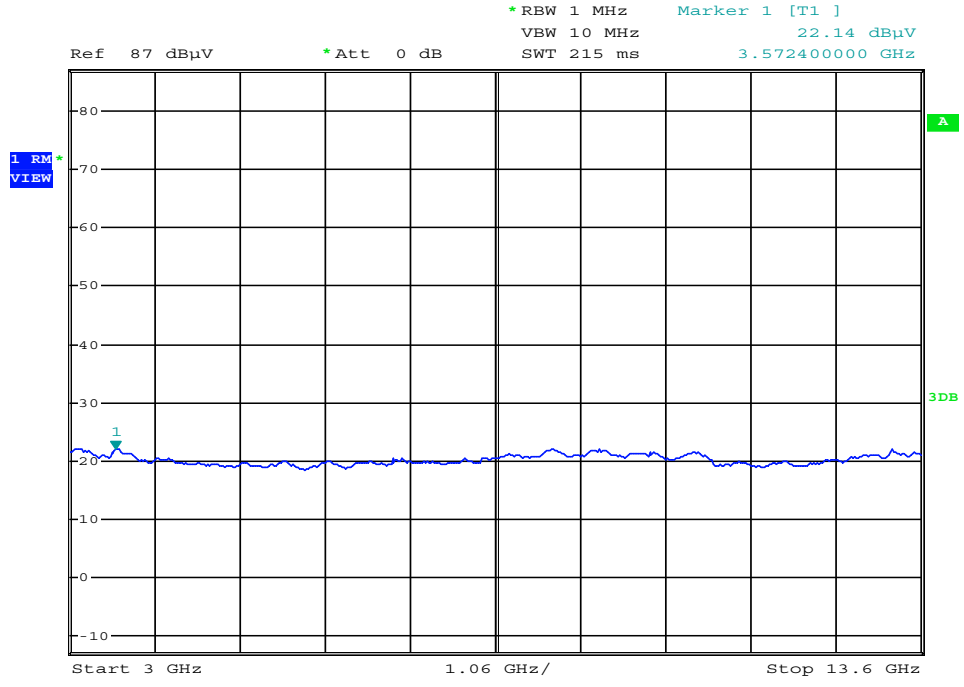
**ND** dBuV

Trace 1: Ambient

Trace 2: Ambient + DUT

Marker 1: Fundamental

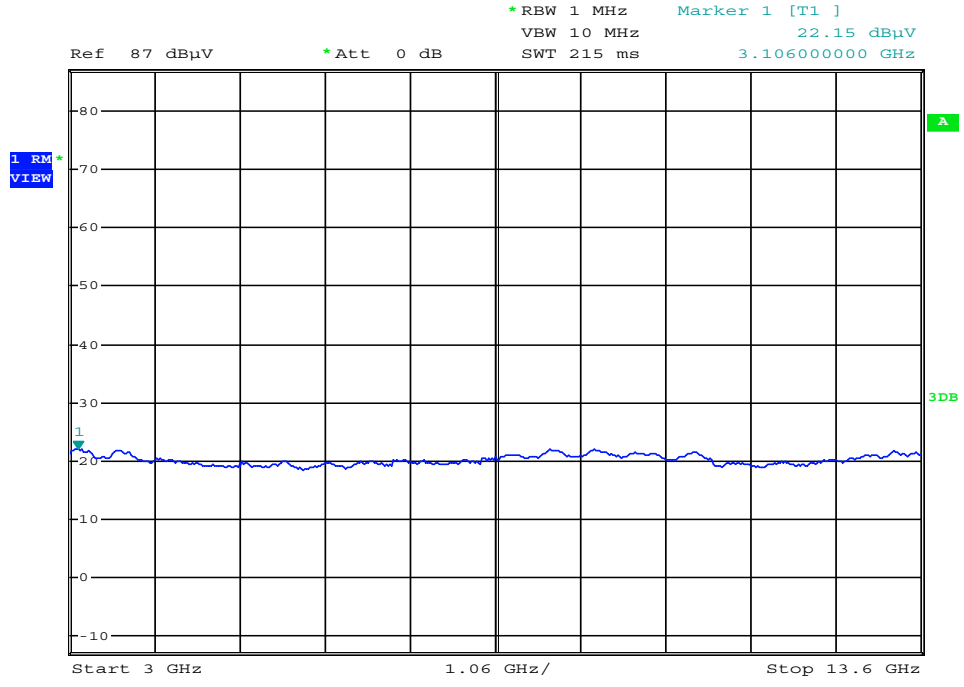
## Radiated Emissions - Restricted Band



Date: 23.NOV.2020 12:23:49

Frequency Range: <b>3-13GHz</b>	Antenna Polarization: <b>Horizontal</b>	Emission Frequency: <b>ND</b>
Channel Frequency: <b>2442.00</b> MHz	Modulation: <b>8-DPSK</b>	Measured Emission: <b>ND</b> dBuV

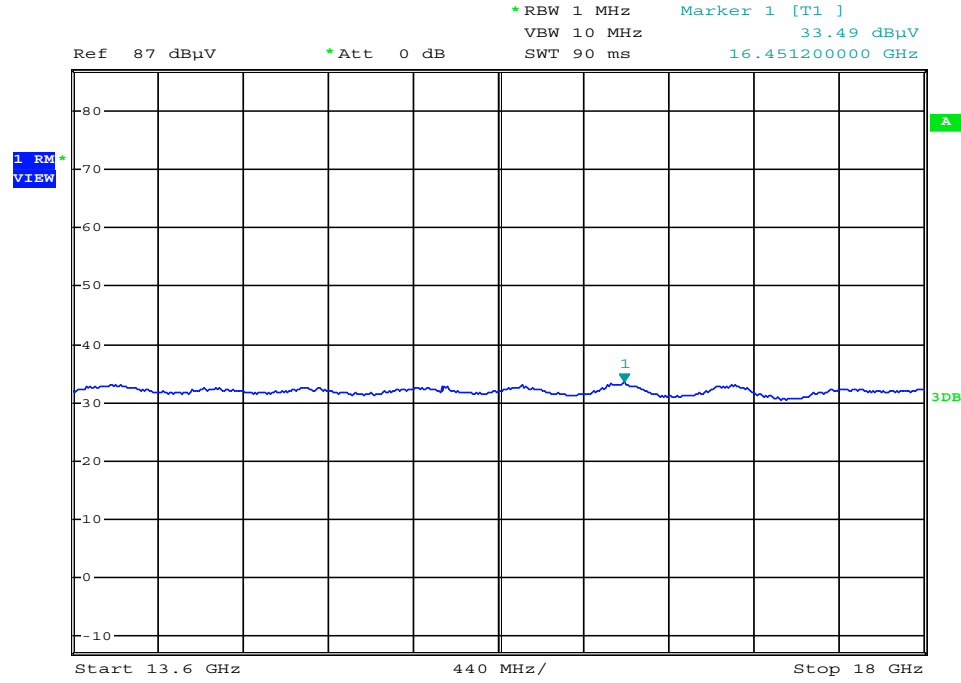
## Radiated Emissions - Restricted Band



Date: 23.NOV.2020 12:26:20

Frequency Range: <b>3-13GHz</b>	Antenna Polarization: <b>Vertical</b>	Emission Frequency: <b>ND</b>
Channel Frequency: <b>2442.00</b> MHz	Modulation: <b>8-DPSK</b>	Measured Emission: <b>ND</b> dBuV

## Radiated Emissions - Restricted Band



Date: 23.NOV.2020 12:24:25

Frequency Range:

**13-18GHz**

Antenna Polarization:

**Horizontal**

Emission Frequency:

**ND**

Channel Frequency:

**2442.00** MHz

Modulation:

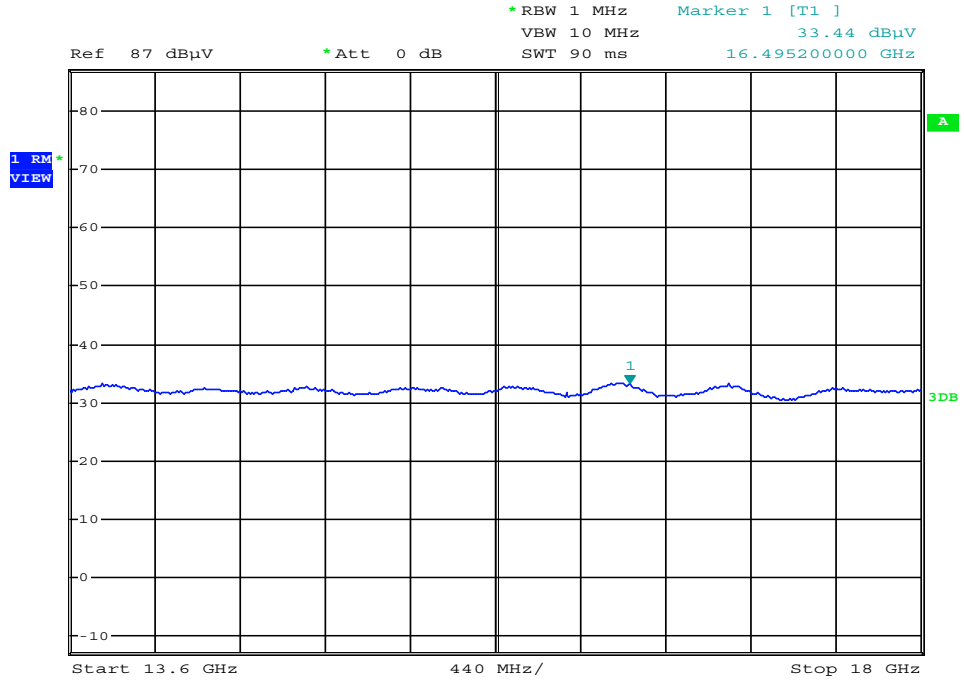
**8-DPSK**

Measured Emission:

**ND** dBuV



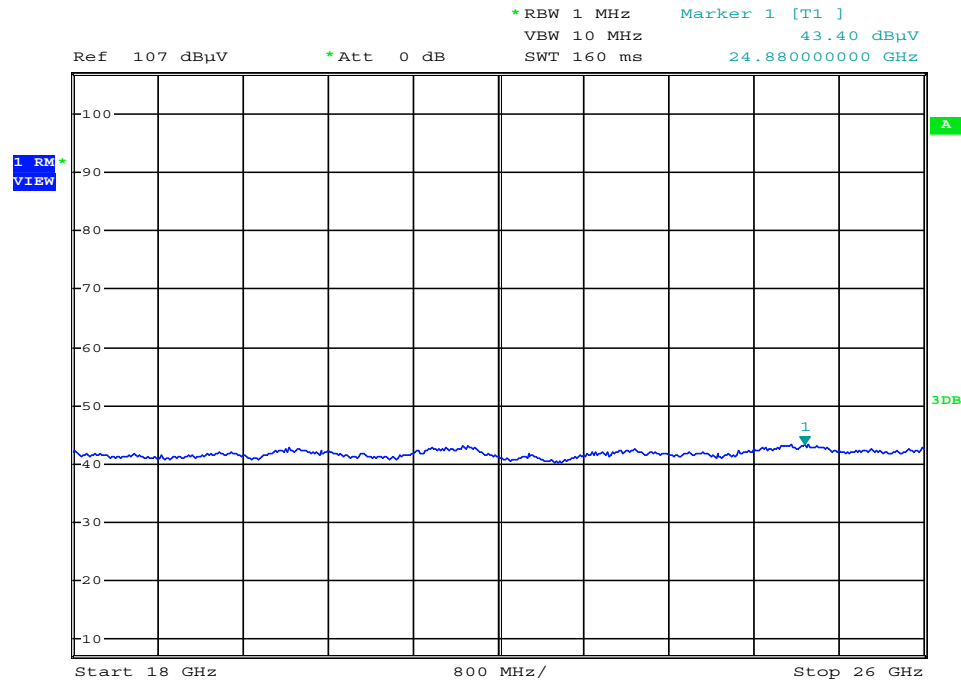
## Radiated Emissions - Restricted Band



Date: 23.NOV.2020 12:26:51

Frequency Range: <b>13-18GHz</b>	Antenna Polarization: <b>Vertical</b>	Emission Frequency: <b>ND</b>
Channel Frequency: <b>2442.00</b> MHz	Modulation: <b>8-DPSK</b>	Measured Emission: <b>ND</b> dBuV

## Radiated Emissions - Restricted Band



Date: 26.NOV.2020 15:05:17

Frequency Range:

**18-26GHz**

Antenna Polarization:

**Horizontal**

Emission Frequency:

**ND**

Channel Frequency:

**2442.00** MHz

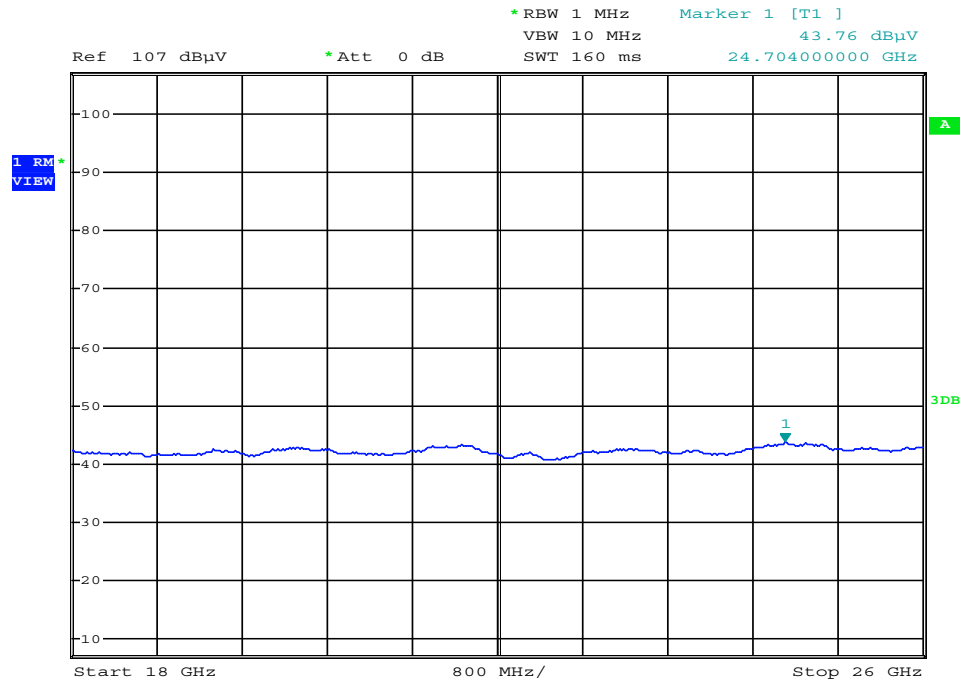
Modulation:

**8-DPSK**

Measured Emission:

**ND** dBuV

## Radiated Emissions - Restricted Band



Date: 26.NOV.2020 15:17:37

Frequency Range:

**18-26GHz**

Antenna Polarization:

**Vertical**

Emission Frequency:

**ND**

Channel Frequency:

**2442.00** MHz

Modulation:

**8-DPSK**

Measured Emission:

**ND** dBuV