



Test Report Serial Number:	45461690 R6.0
Test Report Date:	15 February 2022
Project Number:	1557

## EMC Test Report - Appendix G

Applicant:



**Garmin International Inc.**  
**1200 East 151 St**  
**Olathe, KS, 66062**  
**USA**

FCC ID:

**IPH-04247**

Product Model Number / HVIN

**A04247**

IC Registration Number

**1792A-04247**

Product Marketing Name / PMN

**A04247**

In Accordance With:

### **CFR Title 47, Part 15 Subpart C (§15.247), Part 15 Subpart B**

Digital Transmission System (DTS)

### **RSS-Gen, RSS-247 Issue 2**

Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

Approved By:

**Ben Hewson, President**

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Canada



Test Lab Certificate: 2470.01



Industry  
Canada

IC Registration 3874A-1



FCC Registration: CA3874

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**Revision History**

<b>Report Revision</b>	<b>Description of Revision</b>	<b>Revised Section</b>	<b>Revised By</b>	<b>Revision Date</b>
<b>Samples Tested By:</b>		Art Voss, P.Eng.	<b>Date(s) of Evaluation:</b> 1 Oct - 1 Dec, 2021	
<b>Report Prepared By:</b>		Art Voss, P.Eng.	<b>Report Reviewed By:</b> Ben Hewson	
0.1	Draft Release	n/a	Art Voss	4 December, 2022
1.0	Initial Release	n/a	Art Voss	25 January, 2022
2.0	Revised Plot Headings	16.0	Art Voss	2 February, 2022
3.0	Revised Scope	3.0	Art Voss	3 February, 2022
4.0	Added DSS Equipment Class	Cover	Art Voss	9 February, 2022
5.0	Revised BLE Info	7-14	Art Voss	14 February, 2022
6.0	Revised Appendices	D-H	Art Voss	15 February, 2022
	Revised Filing from DSS to DTS	n/a		

**Band Edge Measurement Results: 802.11**

Mode	Channel Number	Frequency (MHz)	Modulation	Bit Rate (Mbps)	Emission Power [P <sub>Em</sub> ] (dBm)	Fundamental Power [P <sub>Fund</sub> ] (dBm)	Attenuation [Atten] (dB)	Limit (dB)	Margin (dB)
802.11g	1	2412.00	OFDM	6	-58.12	-3.50	54.62	30	24.6
	11	2462.00			-61.57		58.07		28.1
<b>Result:</b>								<b>Complies</b>	

Attenuation [Atten] = [P<sub>Fund</sub>] - [P<sub>Em</sub>]

Margin = Attenuation - Limit

\* Information regarding antenna gain provided by applicant

Lower Band Edge: 802.11b

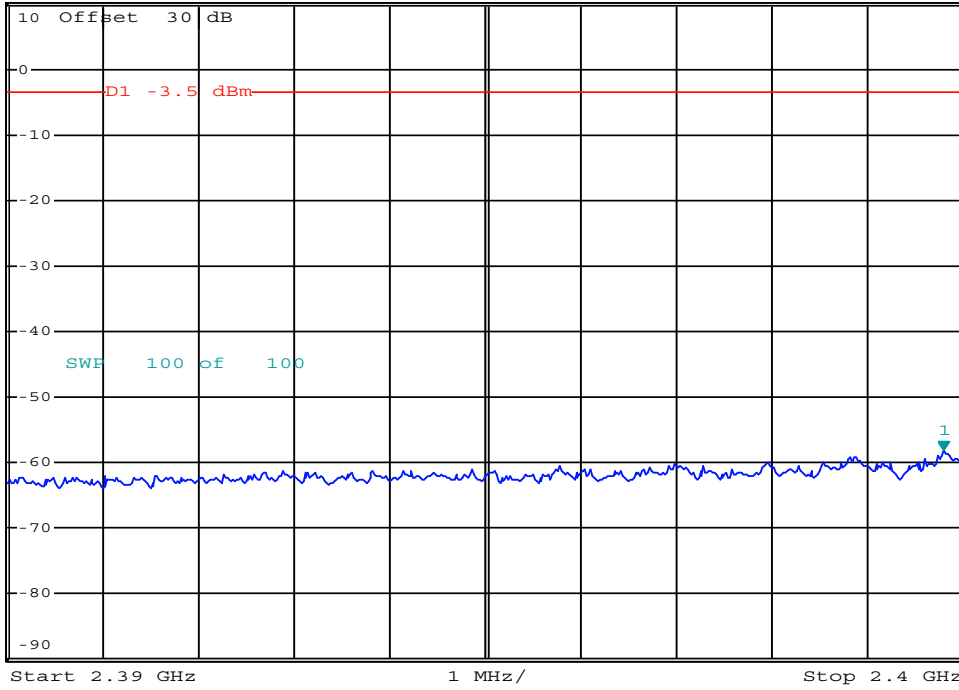


\*RBW 100 kHz Marker 1 [T1 ]  
VBW 1 MHz -58.12 dBm  
SWT 2.5 ms 2.399800000 GHz

Ref 10 dBm

\*Att 10 dB

1 RM  
VIEW



Date: 21.NOV.2021 13:03:54

Channel Number: 1

Channel Frequency (MHz): 2412

Modulation: OFDM

Bit Rate (Mbps): 6

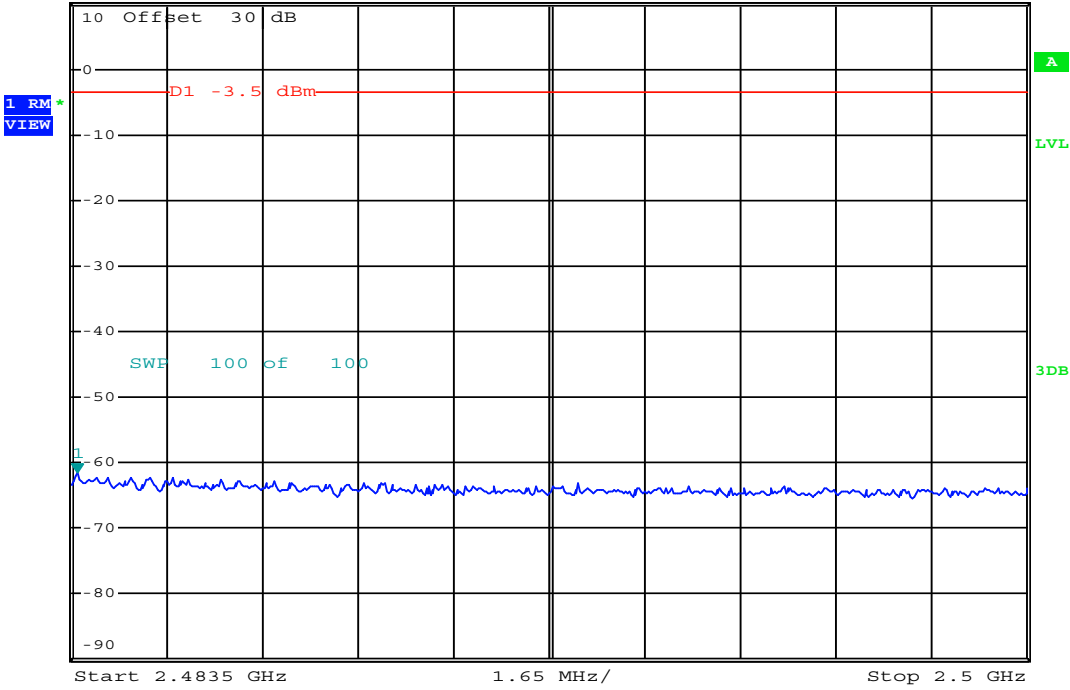
Measured Emission -58.12

# Upper Band Edge: 802.11b



\*RBW 100 kHz    Marker 1 [T1 ]  
VBW 1 MHz                    -61.57 dBm  
SWT 2.5 ms                    2.483599000 GHz

Ref 10 dBm                    \*Att 10 dB



Date: 21.NOV.2021 13:05:31

Channel Number: **11**

Channel Frequency (MHz): **2462**

Modulation: **OFDM**

Bit Rate (Mbps): **6**

Measured Emission **-61.57**

**Band Edge Measurement Results: BLE**

Mode	Channel Number	Frequency (MHz)	Modulation	Bit Rate (Mbps)	Emission Power [P <sub>Em</sub> ] (dBm)	Fundamental Power [P <sub>Fund</sub> ] (dBm)	Attenuation [Atten] (dB)	Limit (dB)	Margin (dB)
BLE	2	2402.00	GMSK	1	-59.02	0.70	59.72	30	29.7
	39	2480.00			-59.18		59.88		29.9
<b>Result:</b>								<b>Complies</b>	

Attenuation [Atten] = [P<sub>Fund</sub>] - [P<sub>Em</sub>]

Margin = Attenuation - Limit

\* Information regarding antenna gain provided by applicant

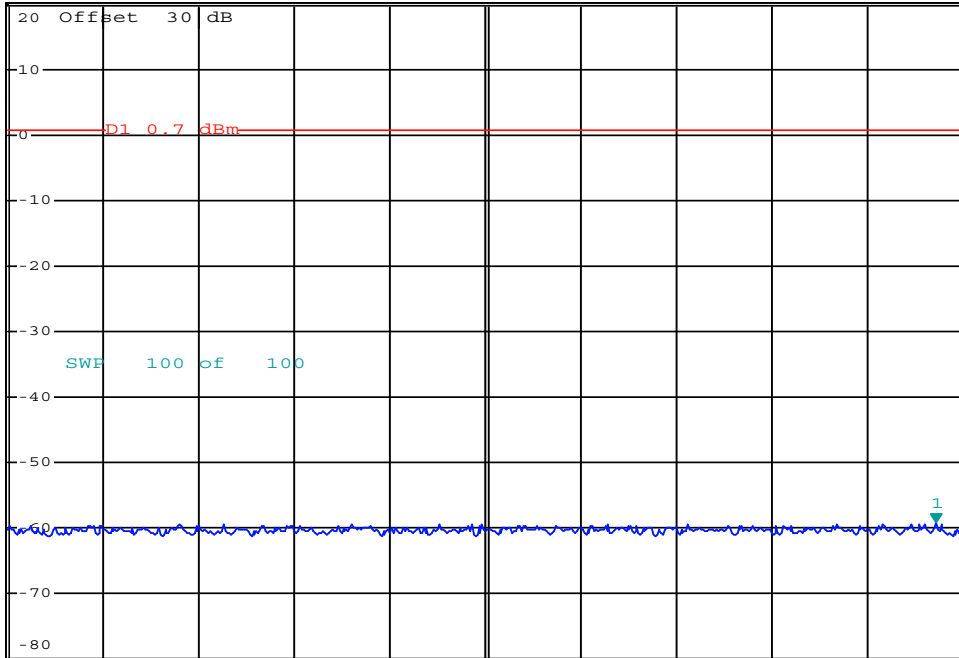
# Lower Band Edge: BLE



\*RBW 100 kHz    Marker 1 [T1 ]  
VBW 1 MHz                    -59.02 dBm  
SWT 2.5 ms                    2.399720000 GHz

Ref 20 dBm                    \*Att 10 dB

1 RM\*  
VIEW



Start 2.39 GHz                    1 MHz/                    Stop 2.4 GHz

Date: 21.NOV.2021 13:12:12

Channel Number: **2**

Channel Frequency (MHz): **2402**

Measured Emission (dBm): **-59.02**

Modulation: **GMSK**

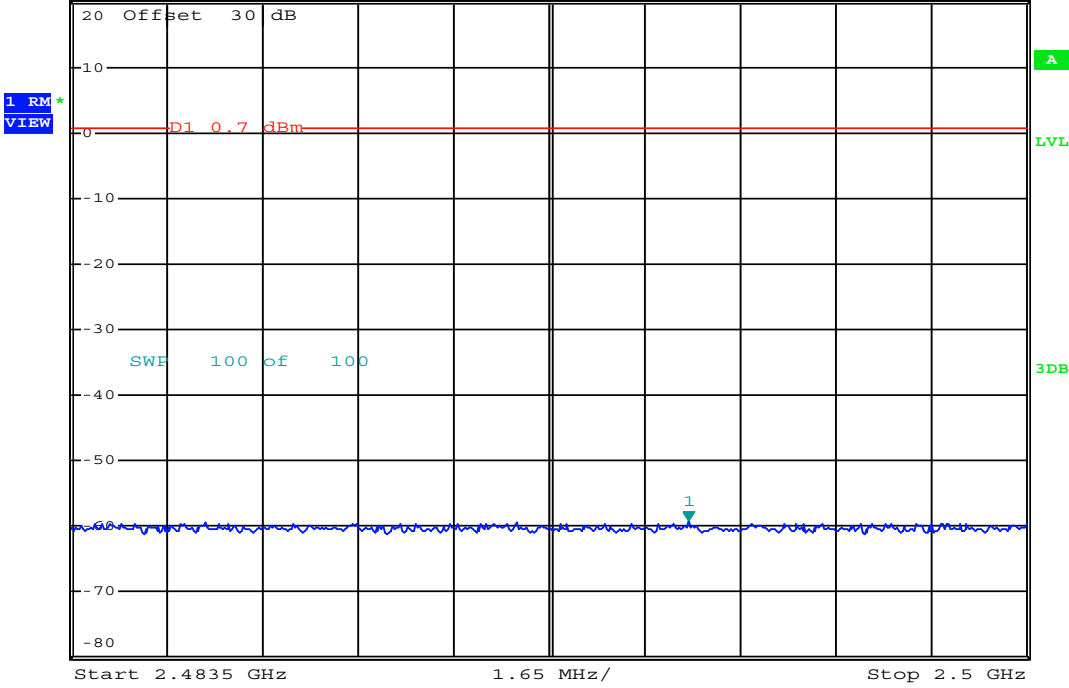
Bit Rate (Mbps): **1**

# Upper Band Edge: BLE



\*RBW 100 kHz    Marker 1 [T1 ]  
 VBW 1 MHz                    -59.18 dBm  
 SWT 2.5 ms                    2.494159000 GHz

Ref 20 dBm                    \*Att 10 dB



Date: 21.NOV.2021 13:14:11

Channel Number: **39**

Channel Frequency (MHz): **2480**

Measured Emission (dBm): **-59.18**

Modulation: **GMSK**

Bit Rate (Mbps): **1**



**Spurious Domain Emissions: WiFi**

Mode	Channel Number	Frequency (MHz)	Modulation	Bit Rate (Mbps)	Emission Frequency (MHz)	Measured Emission [P <sub>Meas</sub> ] (dBm)	Emission Limit [P <sub>Lim</sub> ] (dBm)	Margin
802.11g	1	2412	OFDM	6.0	ND	ND	30	n/a
<b>Result:</b>							<b>Complies</b>	

ND: No Emissions Detected

## Conducted Spurious Emissions: WiFi

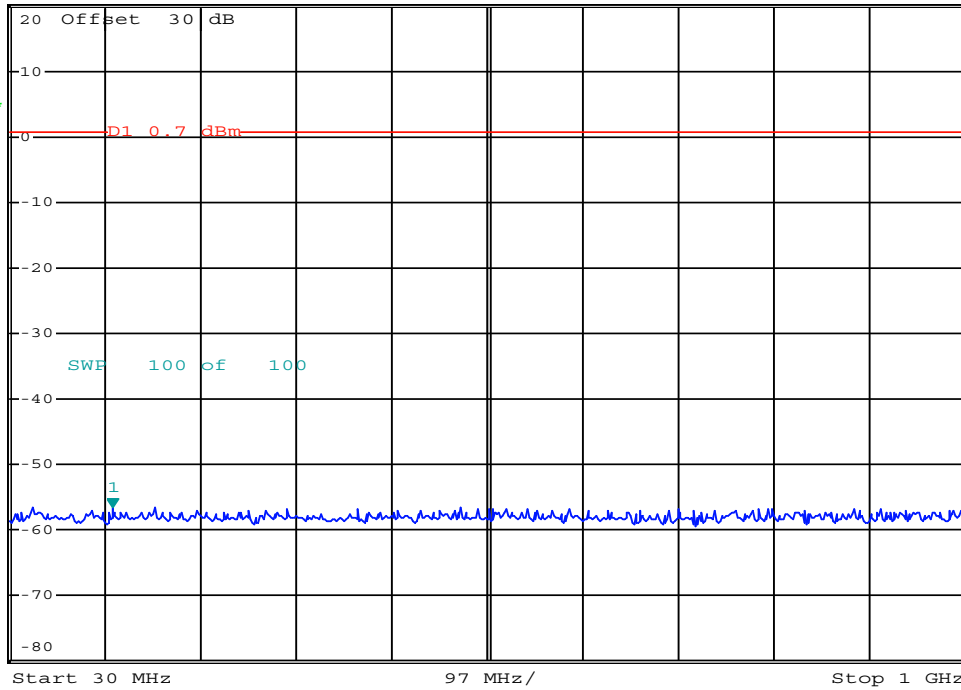


\*RBW 100 kHz Marker 1 [T1 ]  
 VBW 1 MHz -56.43 dBm  
 SWT 100 ms 134.76000000 MHz

Ref 20 dBm

\*Att 10 dB

1 RM\*  
 VIEW



Date: 21.NOV.2021 13:07:36

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Measured Emission
802.11g	1	2412	OFDM	6	ND

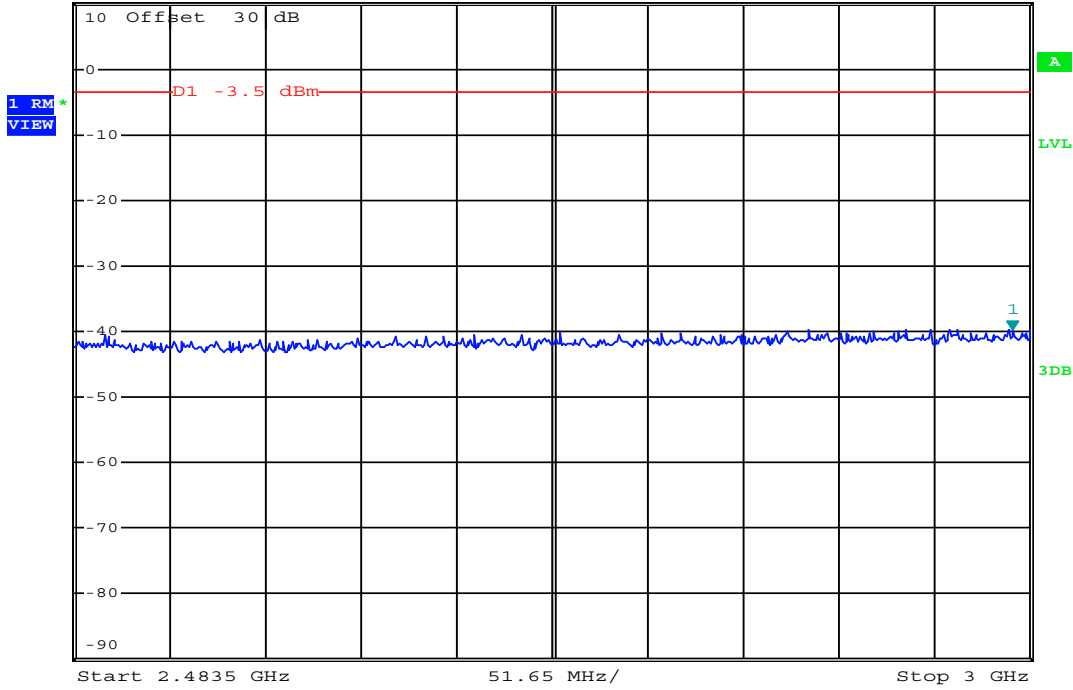


## Conducted Spurious Emissions: WiFi



\*RBW 100 kHz    Marker 1 [T1 ]  
 VBW 1 MHz                    -39.65 dBm  
 SWT 55 ms                    2.990703000 GHz

Ref 10 dBm                    \*Att 30 dB



Date: 21.NOV.2021 12:55:46

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Measured Emission
802.11g	1	2412	OFDM	6	ND





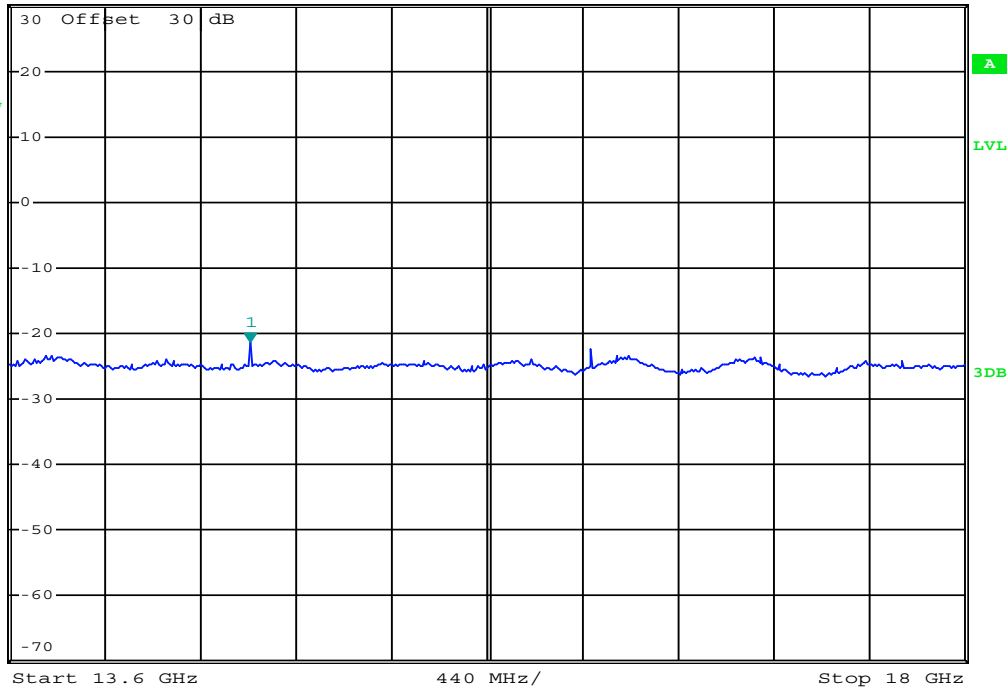
## Conducted Spurious Emissions: WiFi



\*RBW 100 kHz    Marker 1 [T1 ]  
 VBW 1 MHz                    -21.32 dBm  
 SWT 440 ms                    14.708800000 GHz

Ref 30 dBm                    \*Att 30 dB

1 RM\*  
 VIEW



Date: 21.NOV.2021 12:57:46

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Measured Emission
802.11g	1	2412	OFDM	6	ND







**Spurious Domain Emissions: BLE**

Mode	Channel Number	Frequency (MHz)	Modulation	Bit Rate (Mbps)	Emission Frequency (MHz)	Measured Emission [P <sub>Meas</sub> ] (dBm)	Emission Limit [P <sub>Lim</sub> ] (dBm)	Margin
BLE	18	2442	GMSK	1.0	ND	ND	30	n/a
<b>Result:</b>							<b>Complies</b>	

ND: No Emissions Detected



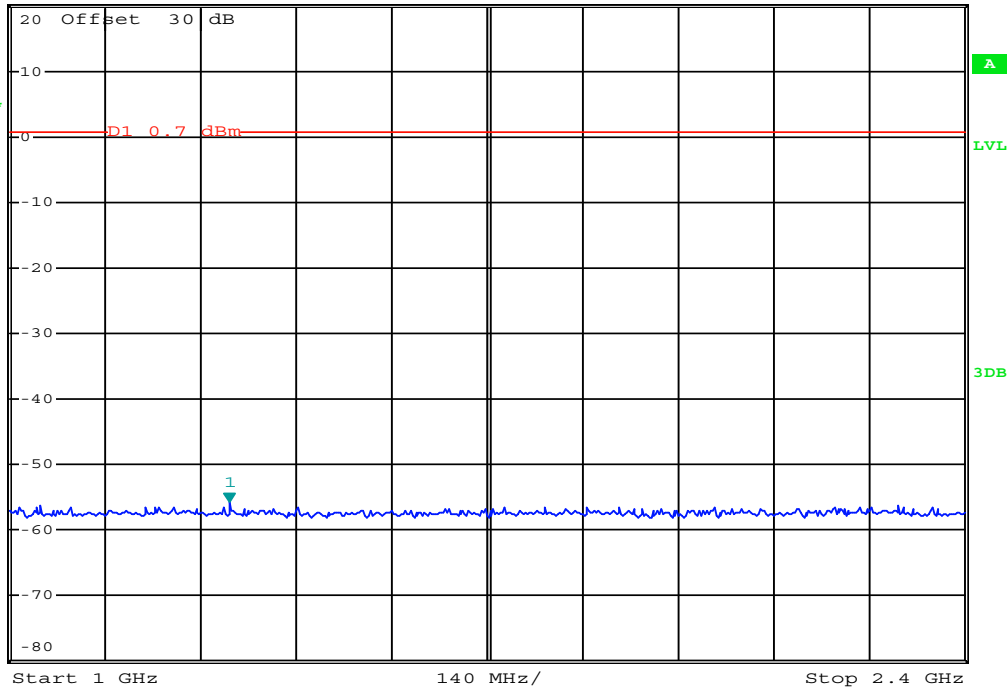
## Conducted Spurious Emissions: BLE



\*RBW 100 kHz Marker 1 [T1 ]  
 VBW 1 MHz -55.68 dBm  
 SWT 140 ms 1.322000000 GHz

Ref 20 dBm \*Att 10 dB

1 RM \*  
 VIEW



Date: 21.NOV.2021 13:08:14

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Measured Emission
BLE	18	2442	GMSK	1	ND

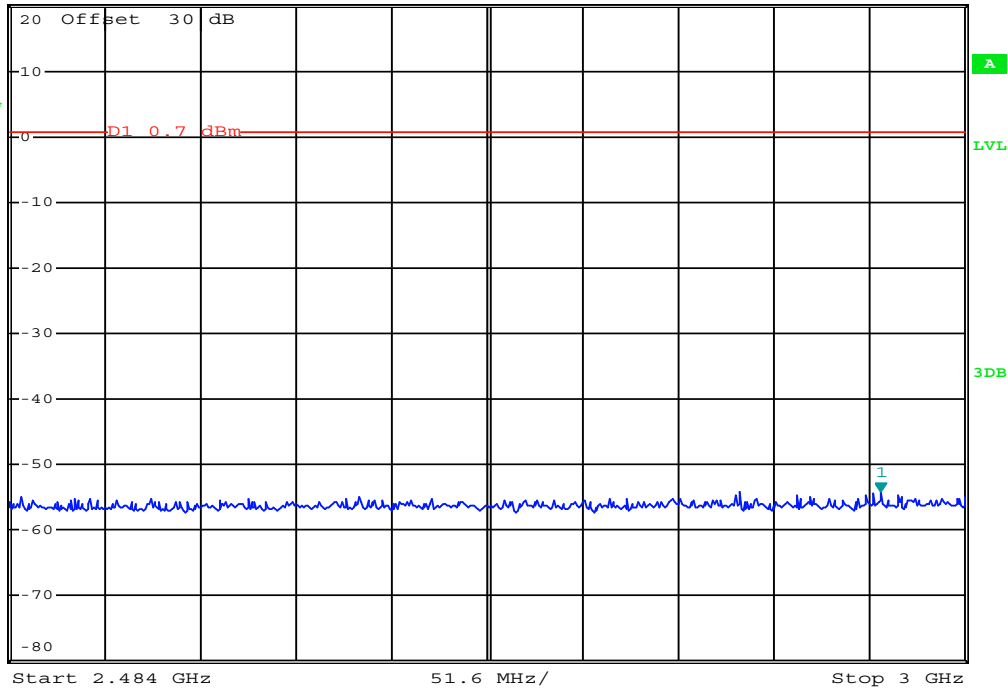
## Conducted Spurious Emissions: BLE



\*RBW 100 kHz Marker 1 [T1 ]  
 VBW 1 MHz -54.20 dBm  
 SWT 55 ms 2.954592000 GHz

Ref 20 dBm \*Att 10 dB

1 RM \*  
 VIEW



Date: 21.NOV.2021 13:09:38

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Measured Emission
BLE	18	2442	GMSK	1	ND

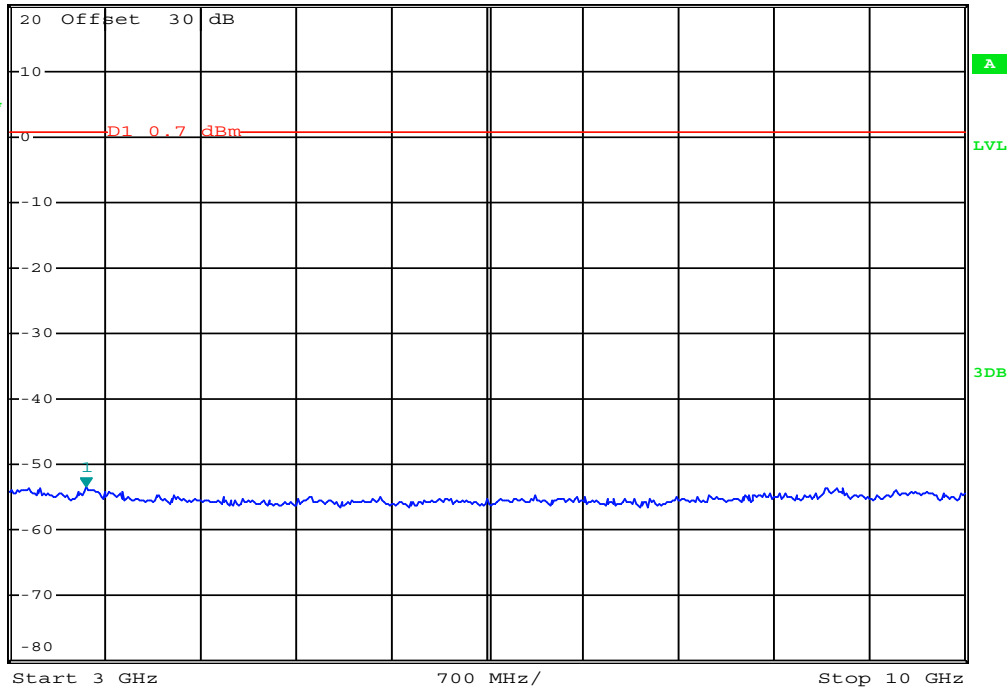
## Conducted Spurious Emissions: BLE



\*RBW 100 kHz    Marker 1 [T1 ]  
 VBW 1 MHz                    -53.45 dBm  
 SWT 700 ms                    3.560000000 GHz

Ref 20 dBm                    \*Att 10 dB

1 RM\*  
 VIEW



Date: 21.NOV.2021 13:10:04

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Measured Emission
BLE	18	2442	GMSK	1	ND

## Conducted Spurious Emissions: BLE

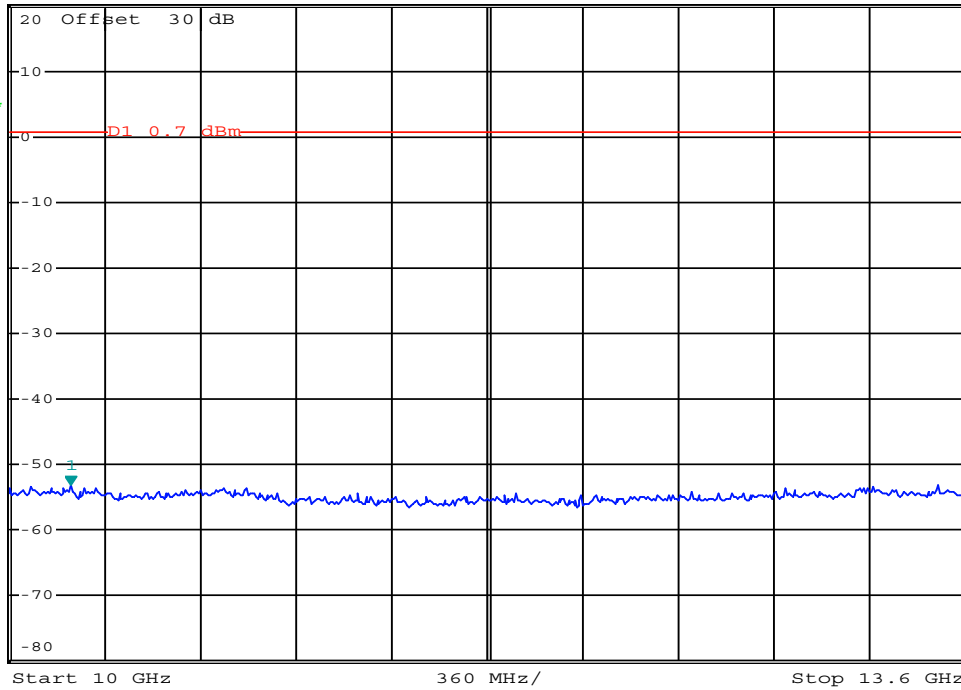


\*RBW 100 kHz Marker 1 [T1 ]  
 VBW 1 MHz -53.01 dBm  
 SWT 360 ms 10.230400000 GHz

Ref 20 dBm

\*Att 10 dB

1 RM \*  
 VIEW



Date: 21.NOV.2021 13:10:19

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Measured Emission
BLE	18	2442	GMSK	1	ND

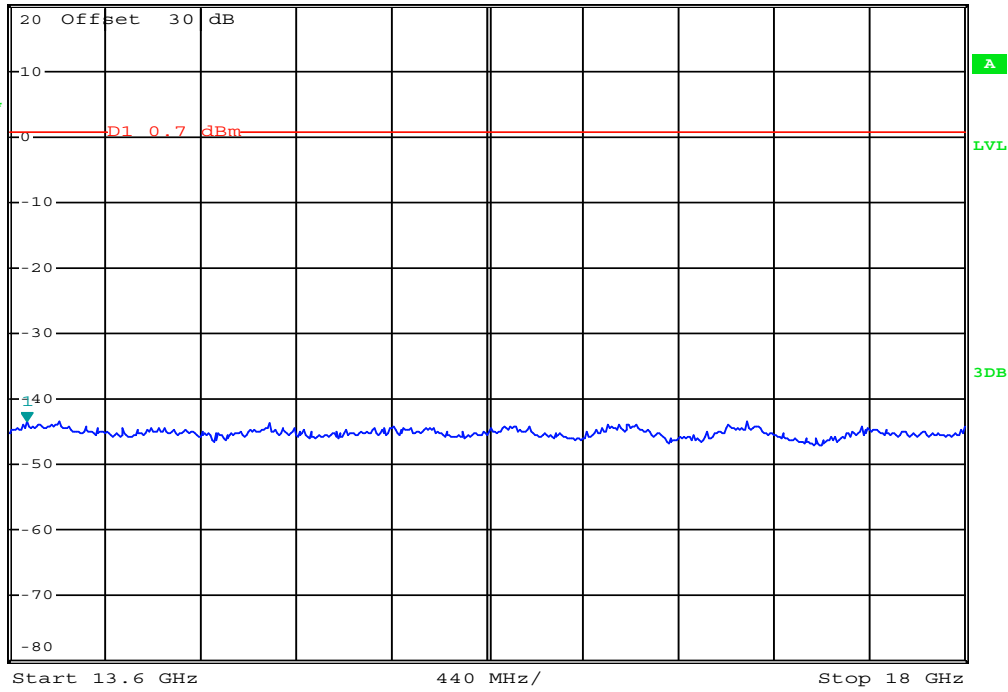
## Conducted Spurious Emissions: BLE



\*RBW 100 kHz    Marker 1 [T1 ]  
 VBW 1 MHz                    -43.42 dBm  
 SWT 440 ms                    13.679200000 GHz

Ref 20 dBm                    \*Att 10 dB

1 RM \*  
 VIEW



Date: 21.NOV.2021 13:10:34

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Measured Emission
BLE	18	2442	GMSK	1	ND



## Conducted Spurious Emissions: BLE

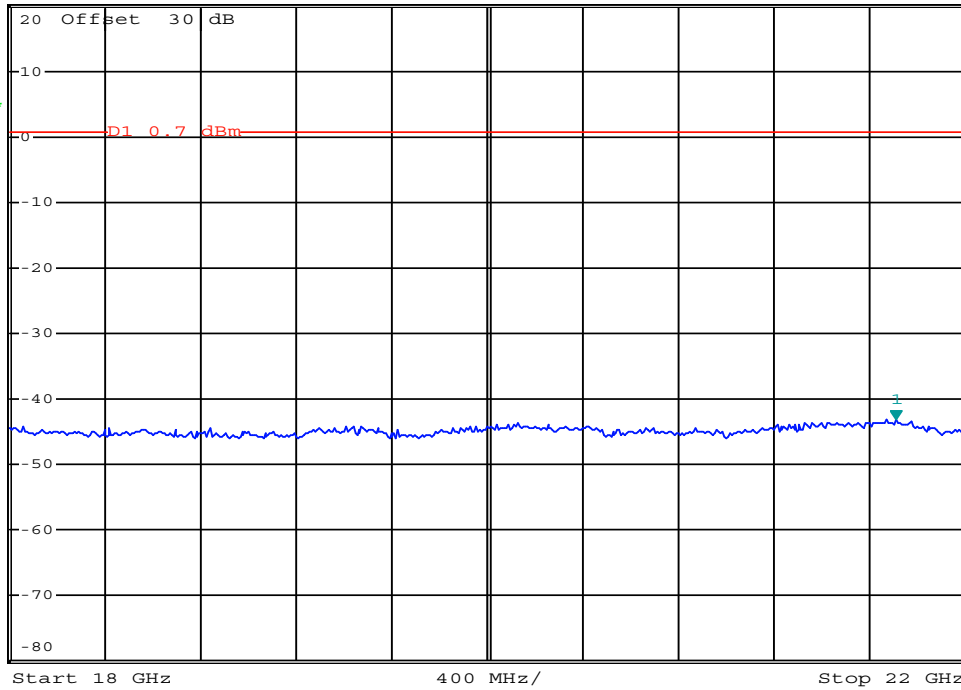


\*RBW 100 kHz Marker 1 [T1 ]  
 VBW 1 MHz -43.07 dBm  
 SWT 400 ms 21.71200000 GHz

Ref 20 dBm

\*Att 10 dB

1 RM \*  
 VIEW



Date: 21.NOV.2021 13:10:50

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Measured Emission
BLE	18	2442	GMSK	1	ND

