



Test Report Serial Number:

45461690 R6.0

Test Report Date:

15 February 2022

Project Number:

1557

EMC Test Report - Appendix E

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

Celltech Labs Inc.
21-364 Lougheed Rd.
Kelowna, BC, V1X 7R8
Canada



Test Lab Certificate: 2470.01



Industry
Canada

IC Registration 3874A-1



FCC Registration: CA3874

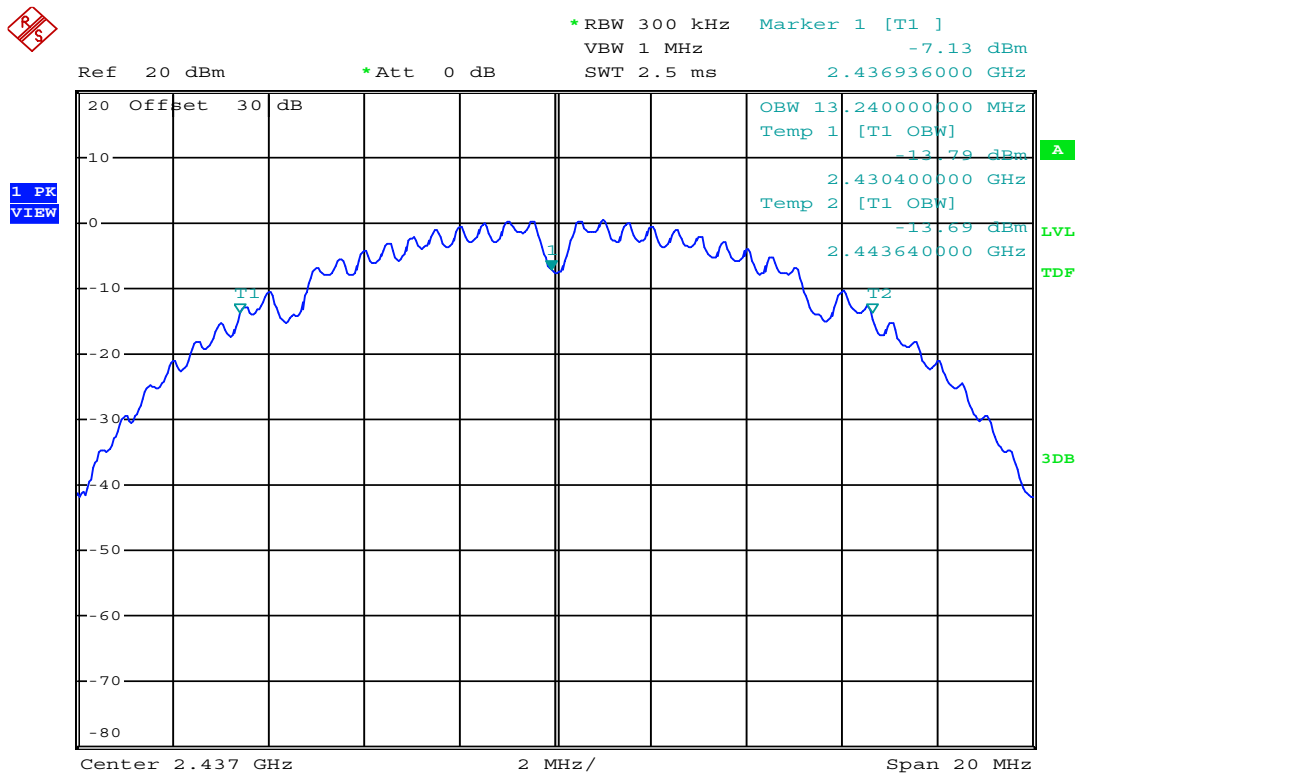
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Revision History				
Samples Tested By:		Art Voss, P.Eng.		Date(s) of Evaluation:
Report Prepared By:		Art Voss, P.Eng.		1 Oct - 1 Dec, 2021
		Report Reviewed By:		Ben Hewson
Report Revision	Description of Revision	Revised Section	Revised By	Revision Date
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		

Occupied Bandwidth Results: WiFi

Mode	Channel Number	Frequency (MHz)	Modulation	Data Rate (Mbps)	Measured Occupied Bandwidth (MHz)	Emission Designator	
802.11b	6	2437.00	CCK	1	13.2	13M2G1D	
				2	13.2	13M2G1D	
			DSSS	5.5	13.2	13M2G1D	
				11	13.2	13M2G1D	
802.11g			OFDM	6	16.8	16M8G1D	
				9	16.8	16M8G1D	
				12	16.7	16M7G1D	
				24	16.8	16M8G1D	
				24	16.6	16M6G1D	
802.11n				MCS0	6.5	16.6	16M6G1D
				MCS4	39	17.8	17M8G1D
				MCS7	65	17.8	17M8G1D
Result:					Complies		

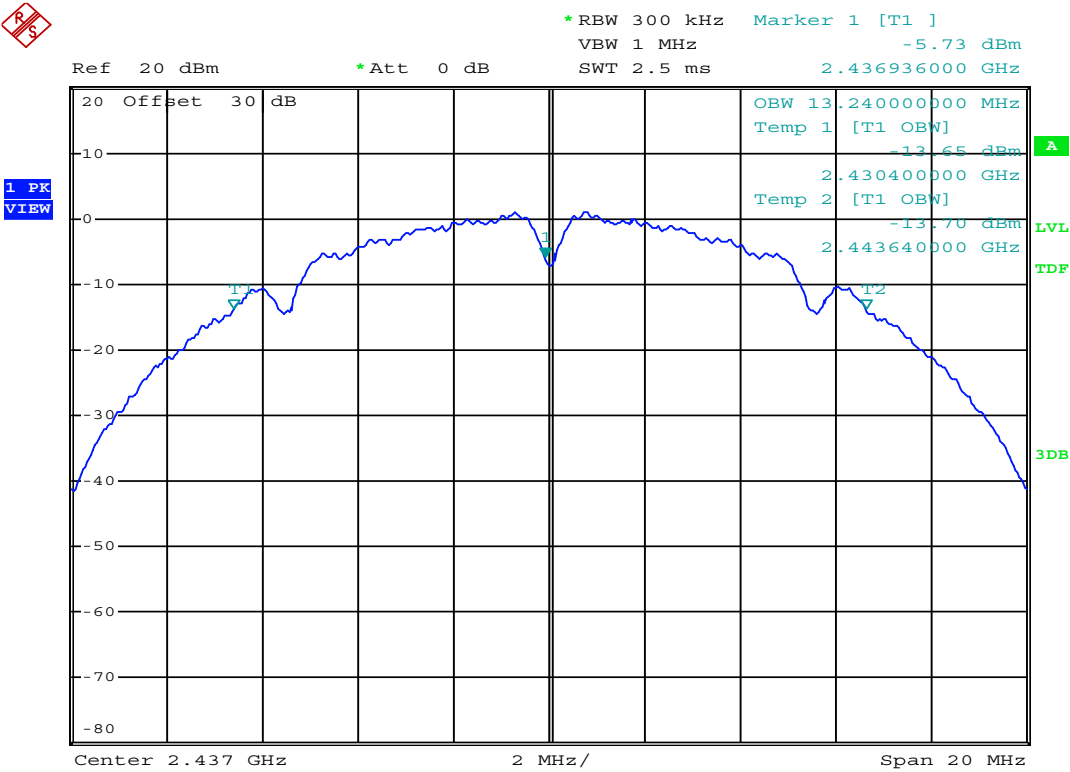
Occupied Bandwidth: WiFi



Date: 18.NOV.2021 12:05:33

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.11b	6	2437	CCK	1	13.2

Occupied Bandwidth: WiFi



Date: 18.NOV.2021 12:06:24

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.11b	6	2437	CCK	2	13.2



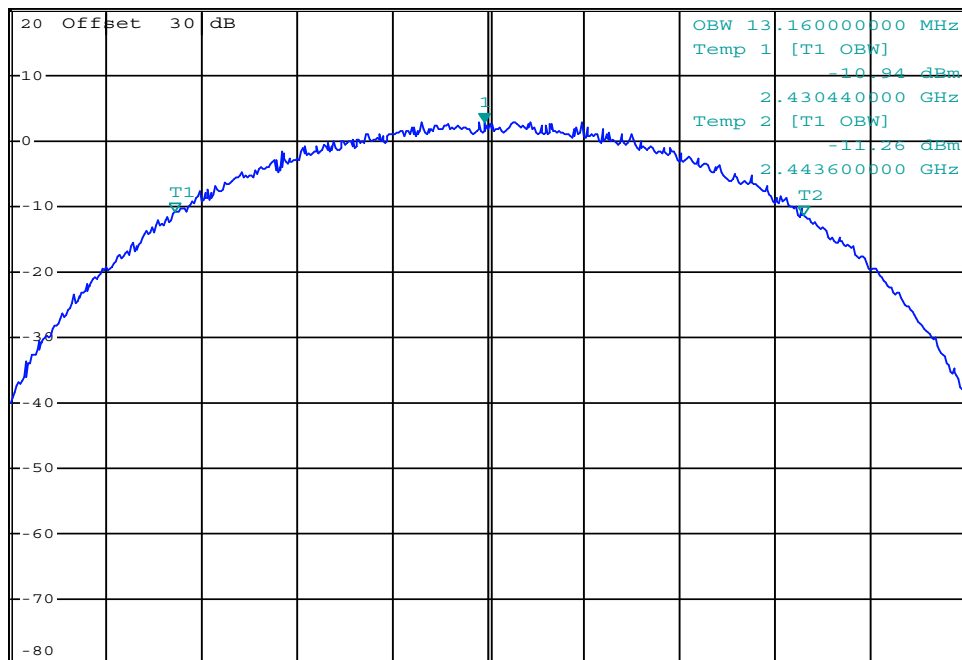
Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.11b	6	2437	DSSS	5.5	13.2

Occupied Bandwidth: WiFi



*RBW 300 kHz Marker 1 [T1]
 VBW 1 MHz 2.70 dBm
 Ref 20 dBm *Att 0 dB SWT 2.5 ms 2.436936000 GHz

1 PK
 VIEW

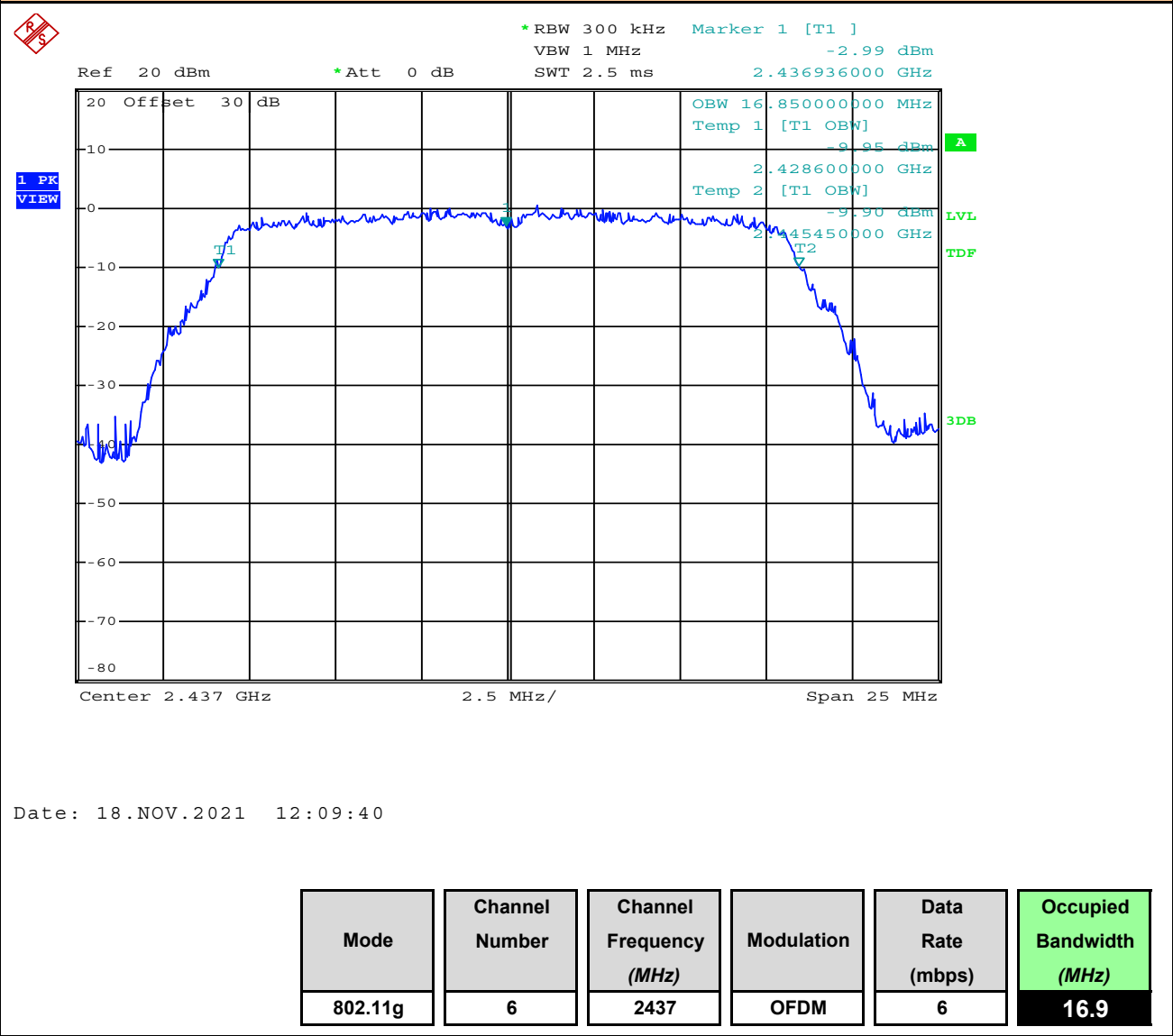


Center 2.437 GHz 2 MHz/ Span 20 MHz

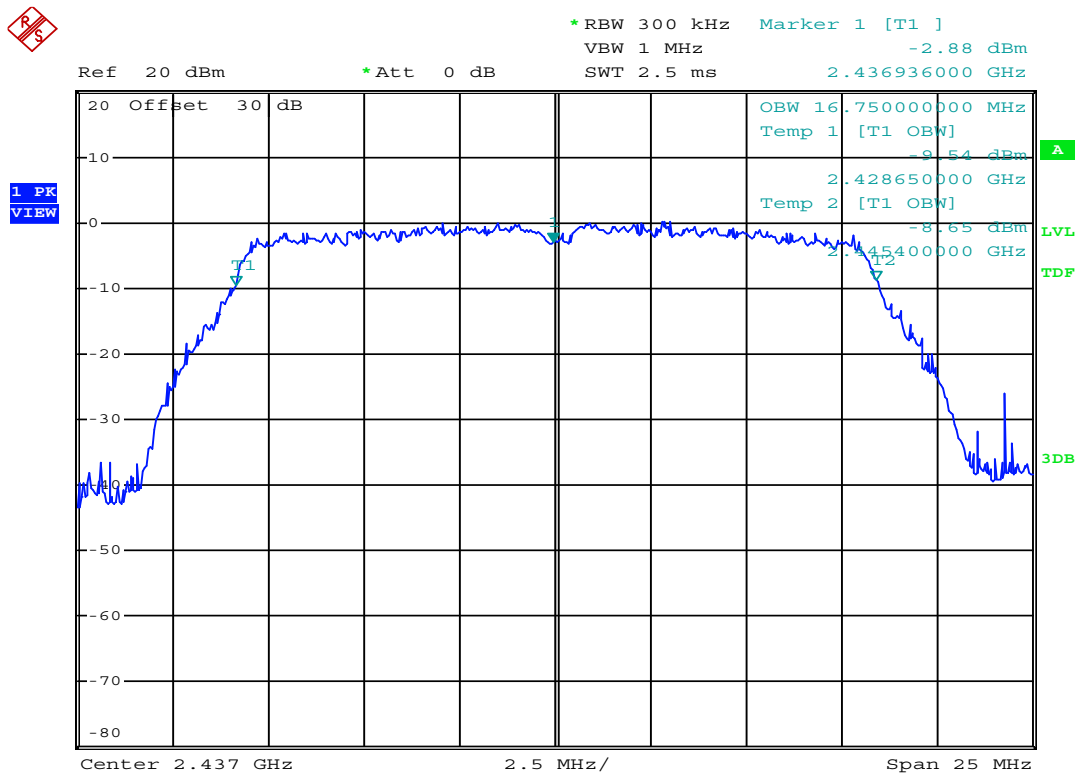
Date: 18.NOV.2021 12:08:11

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.11b	6	2437	DSSS	11	13.2

Occupied Bandwidth: WiFi



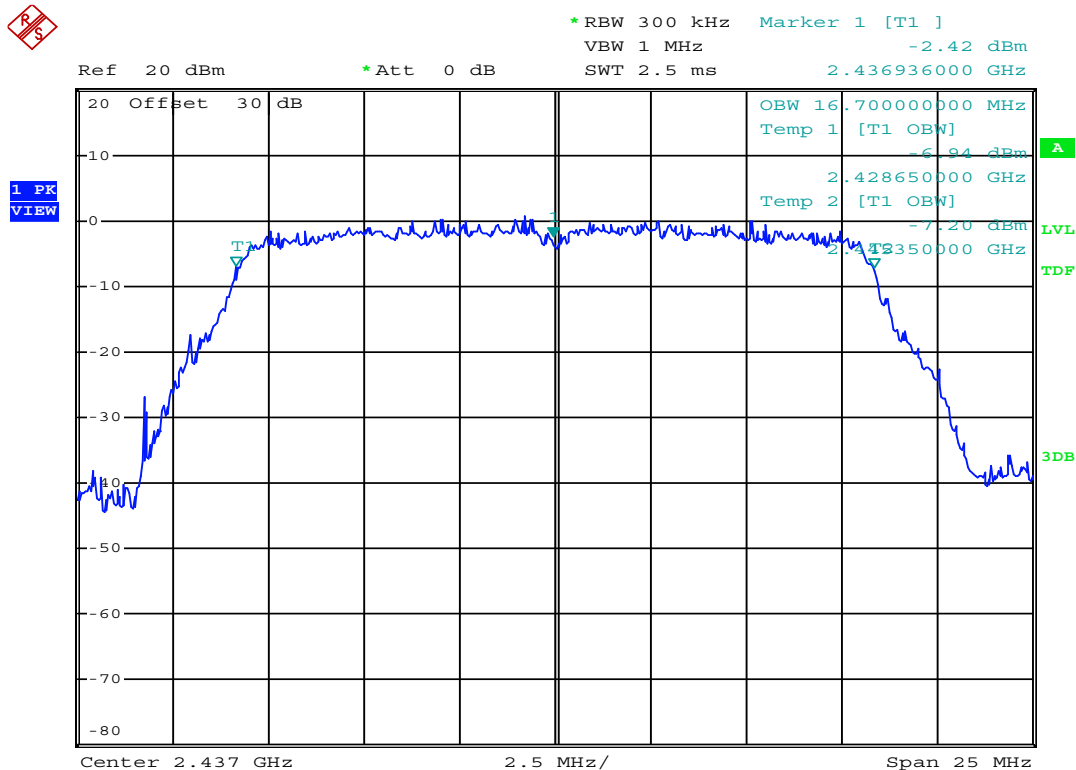
Occupied Bandwidth: WiFi



Date: 18.NOV.2021 12:10:45

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.11g	6	2437	OFDM	9	16.8

Occupied Bandwidth: WiFi



Date: 18.NOV.2021 12:11:28

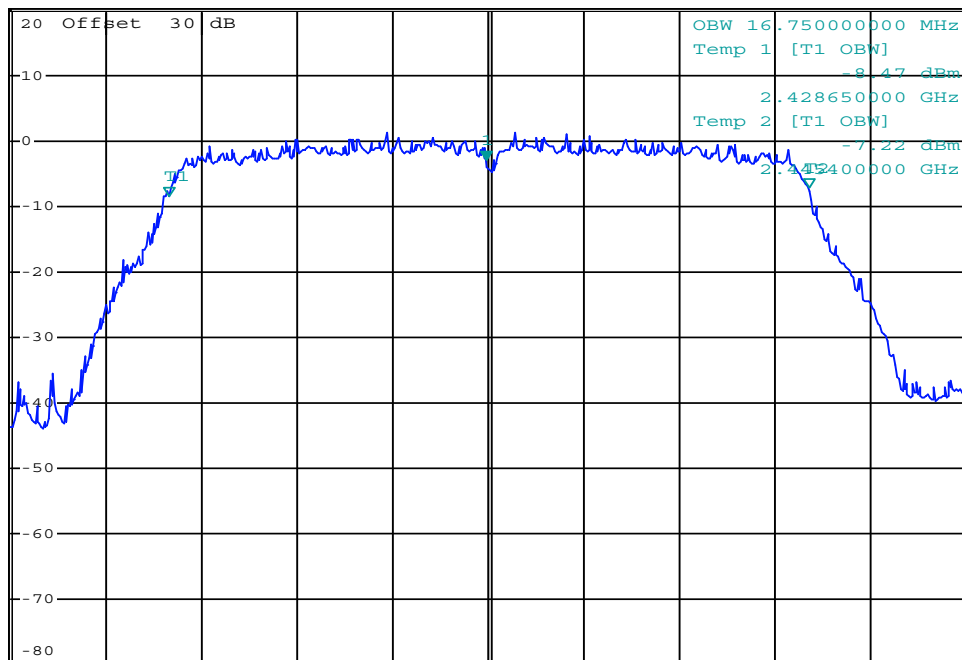
Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.11g	6	2437	OFDM	12	16.7

Occupied Bandwidth: WiFi



*RBW 300 kHz Marker 1 [T1]
 VBW 1 MHz -3.05 dBm
 Ref 20 dBm *Att 0 dB SWT 2.5 ms 2.436936000 GHz

1 PK
 VIEW



A

LVL

TDF

3DB

Center 2.437 GHz 2.5 MHz/ Span 25 MHz

Date: 18.NOV.2021 12:14:21

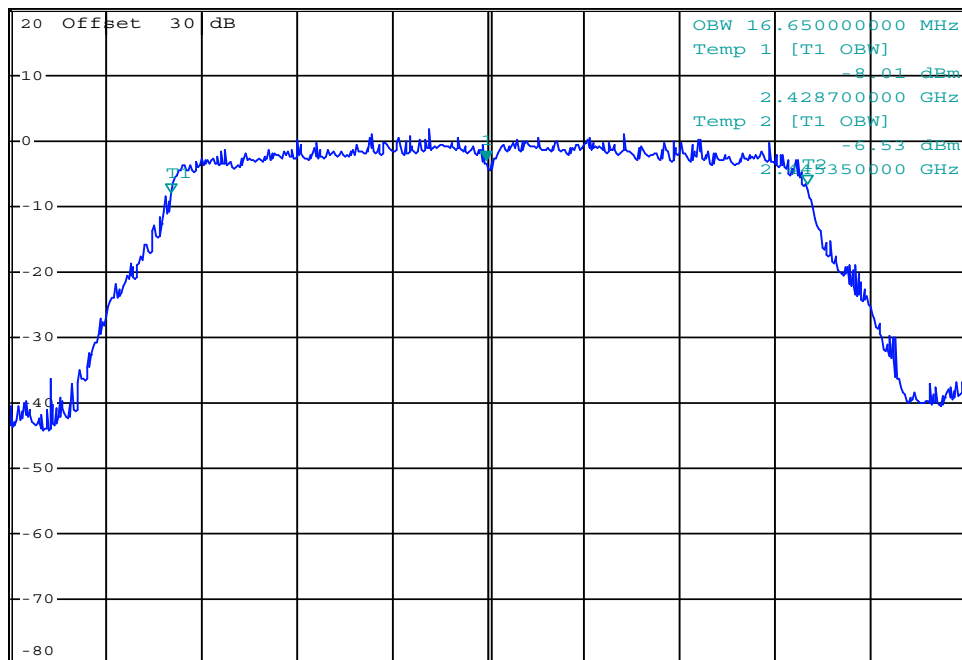
Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.11g	6	2437	OFDM	24	16.8

Occupied Bandwidth: WiFi



*RBW 300 kHz Marker 1 [T1]
 VBW 1 MHz -3.09 dBm
 Ref 20 dBm *Att 0 dB SWT 2.5 ms 2.436936000 GHz

1 PK
 VIEW

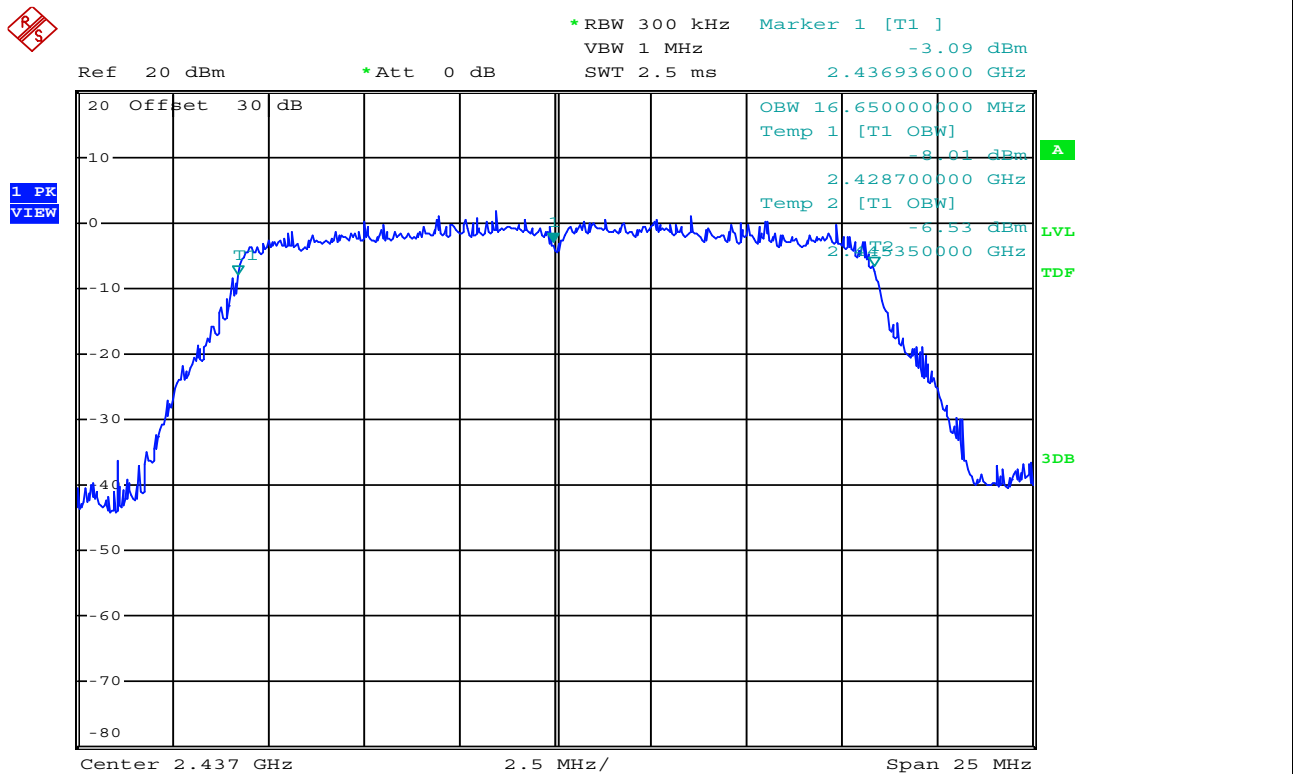


Center 2.437 GHz 2.5 MHz/ Span 25 MHz

Date: 18.NOV.2021 12:15:11

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.11g	6	2437	OFDM	24	16.7

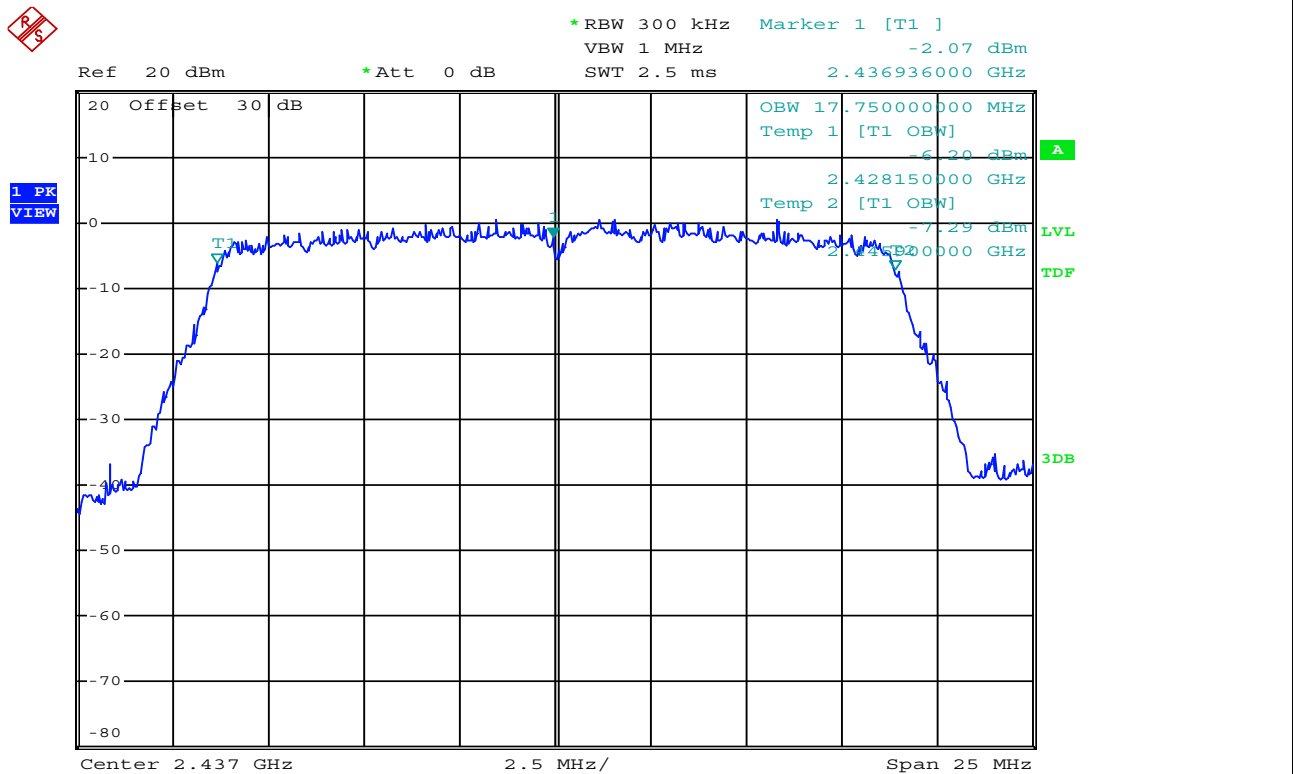
Occupied Bandwidth: WiFi



Date: 18.NOV.2021 12:15:11

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.11n	6	2437	MCS0	6.5	16.7

Occupied Bandwidth: WiFi



Date: 18.NOV.2021 12:17:38

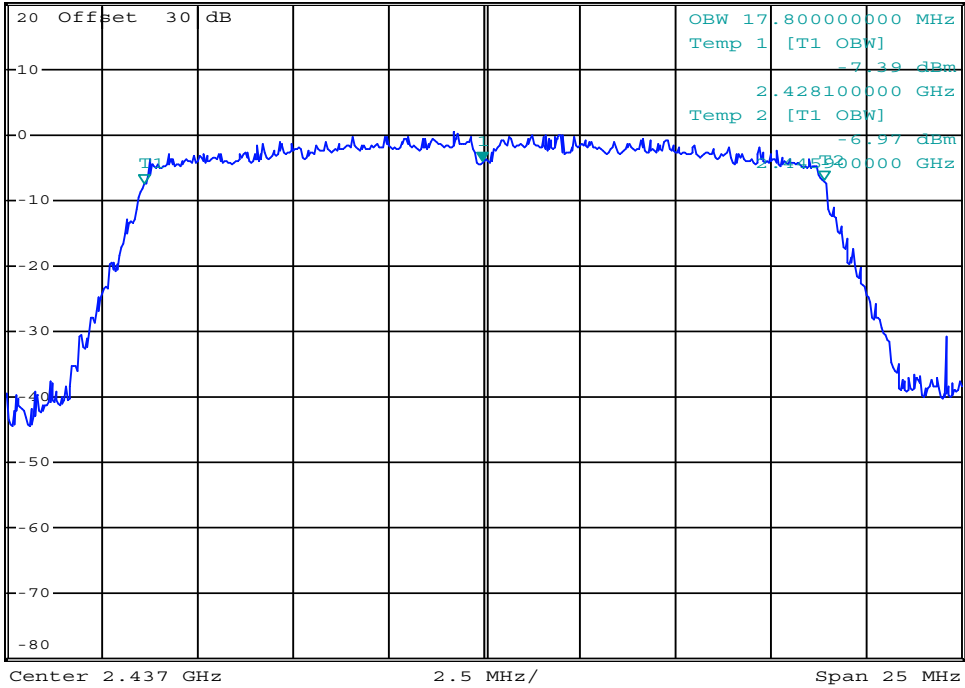
Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.11n	6	2437	MCS4	39	17.8

Occupied Bandwidth: WiFi



*RBW 300 kHz Marker 1 [T1]
VBW 1 MHz -4.00 dBm
Ref 20 dBm *Att 0 dB SWT 2.5 ms 2.436936000 GHz

1 PK
VIEW



Date: 18.NOV.2021 12:18:24

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.11n	6	2437	MCS7	65	17.8

Occupied Bandwidth Results: BLE						
Mode	Channel Number	Frequency (MHz)	Modulation	Data Rate (Mbps)	Measured Occupied Bandwidth (MHz)	Emission Designator
802.15	2	2402.00	GMSK	-	1.05	1M04G1D
	18	2442.00		-	1.04	1M04G1D
	39	2480.00		-	1.05	1M04G1D
Result:					Complies	

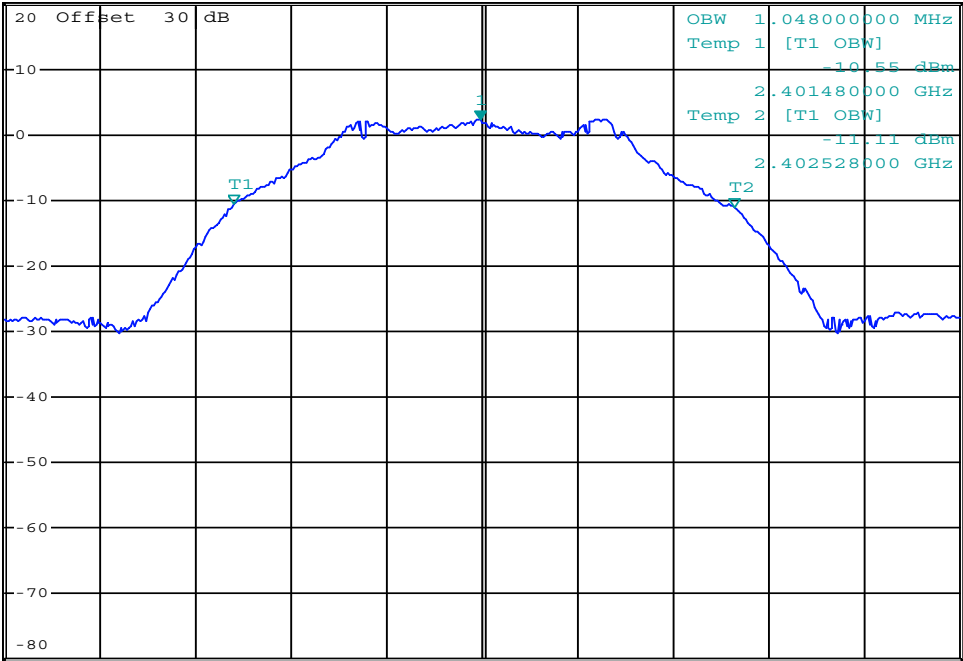
Occupied Bandwidth: BLE



*RBW 100 kHz Marker 1 [T1]
VBW 300 kHz 2.33 dBm
SWT 2.5 ms 2.401996000 GHz

Ref 20 dBm *Att 0 dB

1 PK
VIEW



Center 2.402 GHz 200 kHz/ Span 2 MHz

Date: 17.NOV.2021 15:30:35

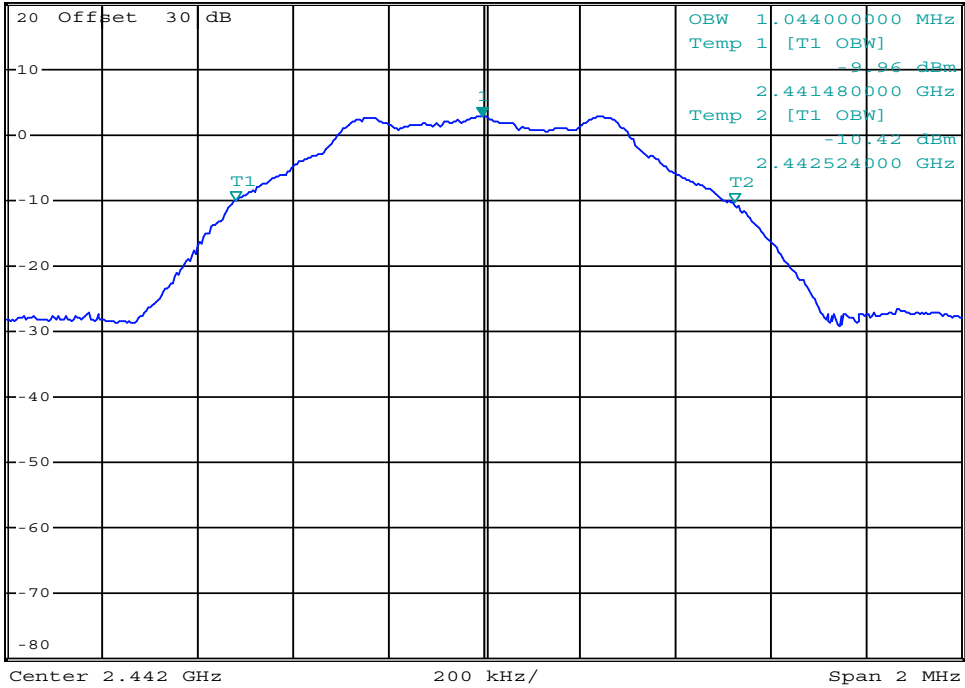
Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.15	2	2402	GMSK	-	1.05

Occupied Bandwidth: BLE



*RBW 100 kHz Marker 1 [T1]
VBW 300 kHz 2.83 dBm
Ref 20 dBm *Att 0 dB SWT 2.5 ms 2.441996000 GHz

1 PK
VIEW



Date: 17.NOV.2021 15:29:26

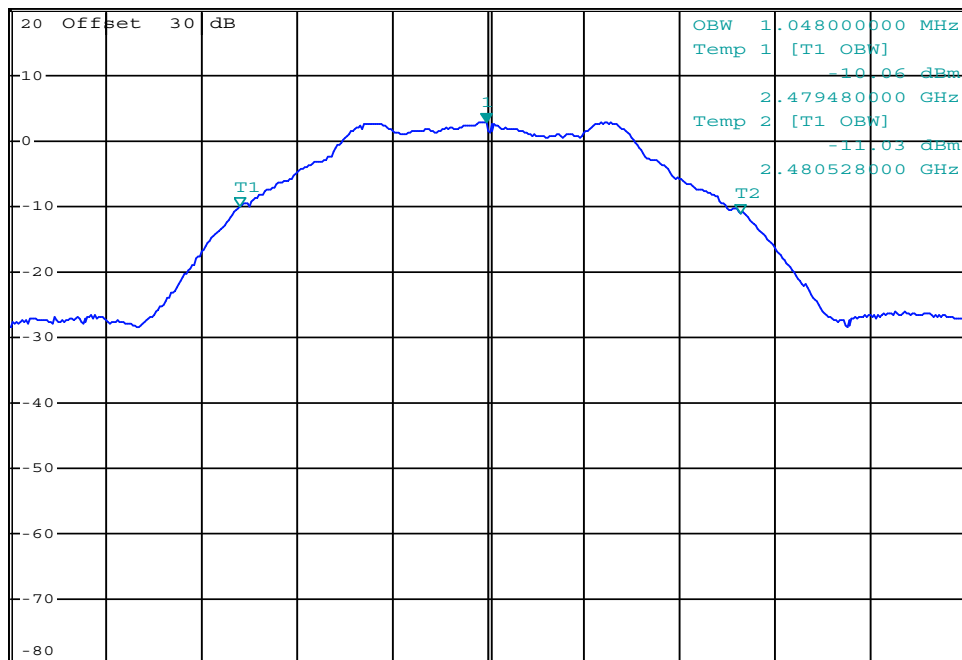
Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.15	18	2442	GMSK	-	1.04

Occupied Bandwidth: BLE



*RBW 100 kHz Marker 1 [T1]
 VBW 300 kHz 2.81 dBm
 Ref 20 dBm *Att 0 dB
 SWT 2.5 ms 2.479996000 GHz

1 PK
 VIEW



Center 2.48 GHz 200 kHz/ Span 2 MHz

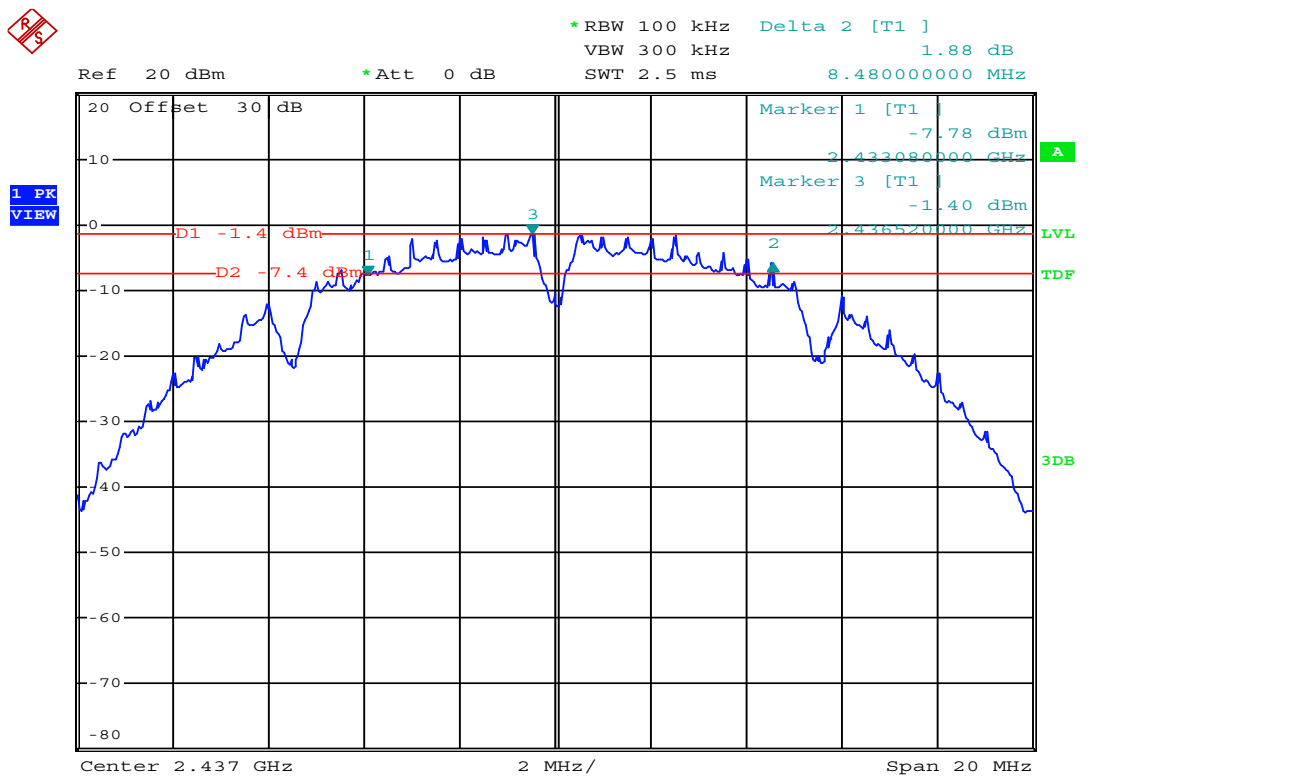
Date: 17.NOV.2021 15:28:23

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	Occupied Bandwidth (MHz)
802.15	39	2480	GMSK	-	1.05

6dB (DTS) Bandwidth Results: WiFi

Mode	Channel Number	Frequency (MHz)	Modulation	Data Rate (Mbps)	Measured DTS Bandwidth (MHz)
802.11b	6	2437.00	CCK	1	8.5
802.11b	6	2437.00	DSSS	5.5	6.4
802.11g	6	2437.00	OFDM	6	16.6
802.11n	6	2437.00	MCS0	6.5	17.8
Result:					Complies

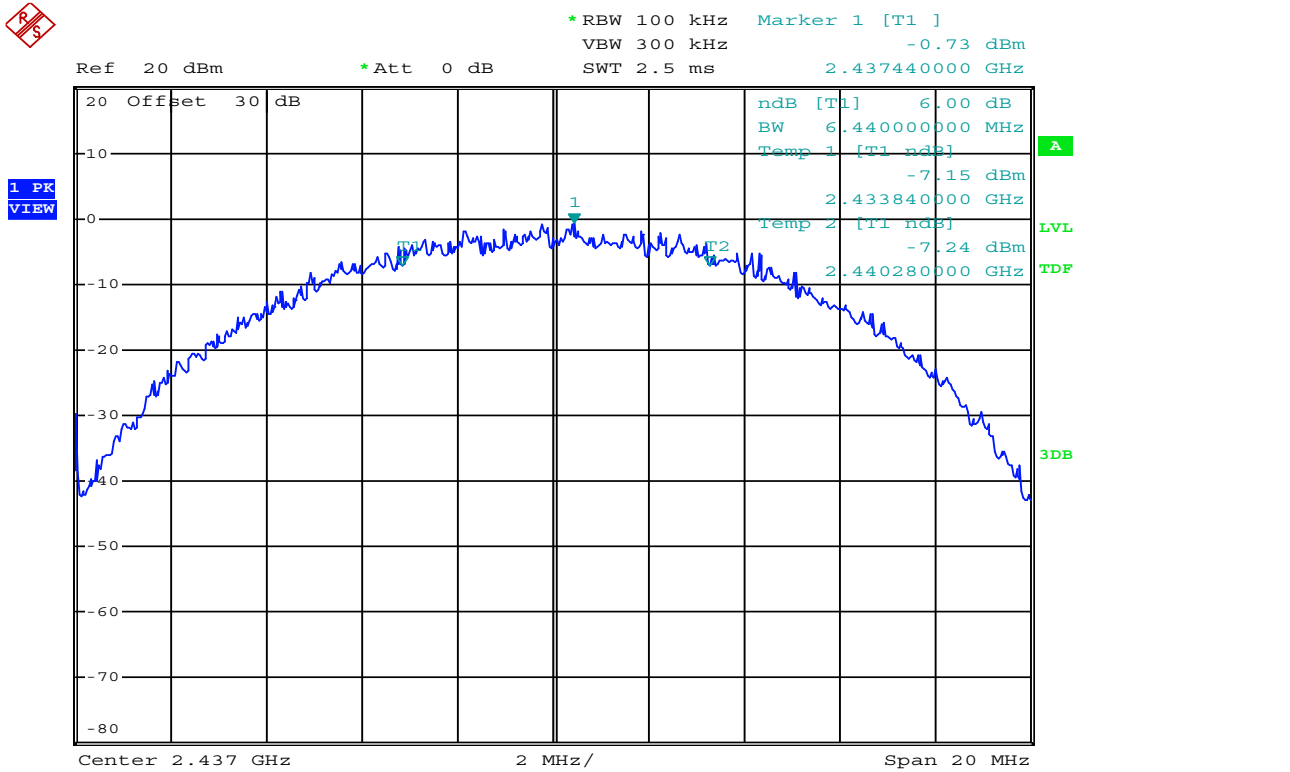
6dB (DTS) Bandwidth: WiFi



Date: 18.NOV.2021 12:36:17

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	DTS Bandwidth (MHz)
802.11b	6	2437	CCK	1	8.5

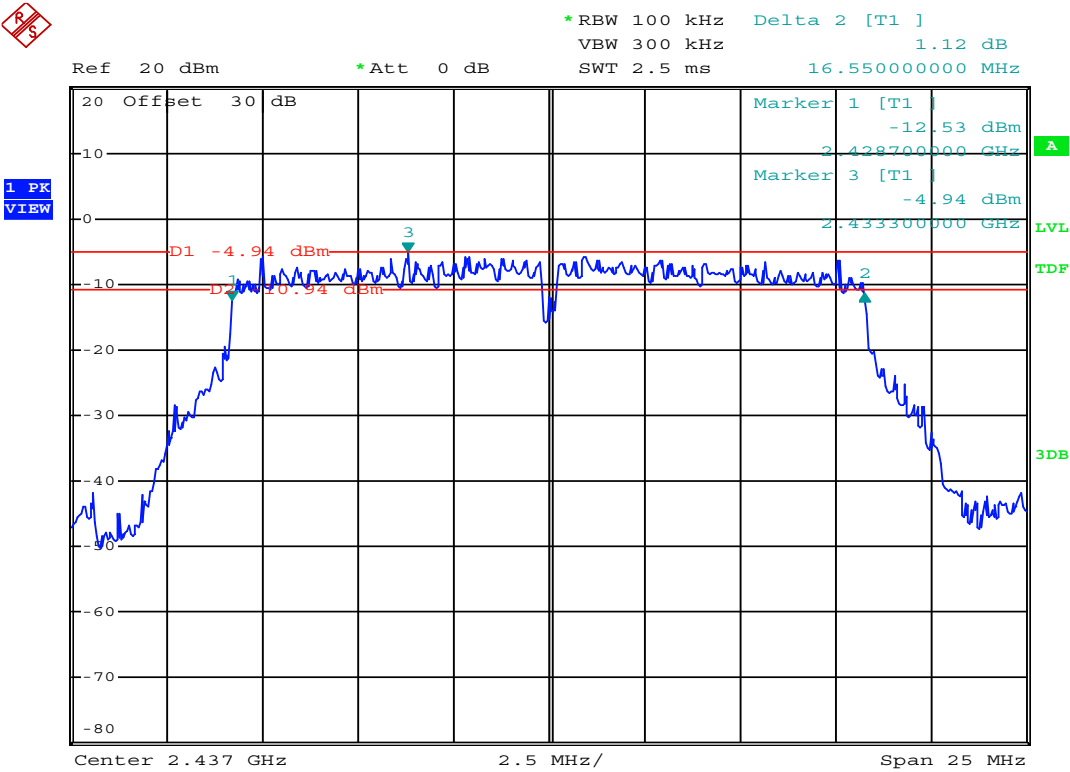
6dB (DTS) Bandwidth: WiFi



Date: 18.NOV.2021 12:39:20

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	DTS Bandwidth (MHz)
802.11b	6	2437	DSSS	5.5	6.44

6dB (DTS) Bandwidth: WiFi



6dB (DTS) Bandwidth: WiFi

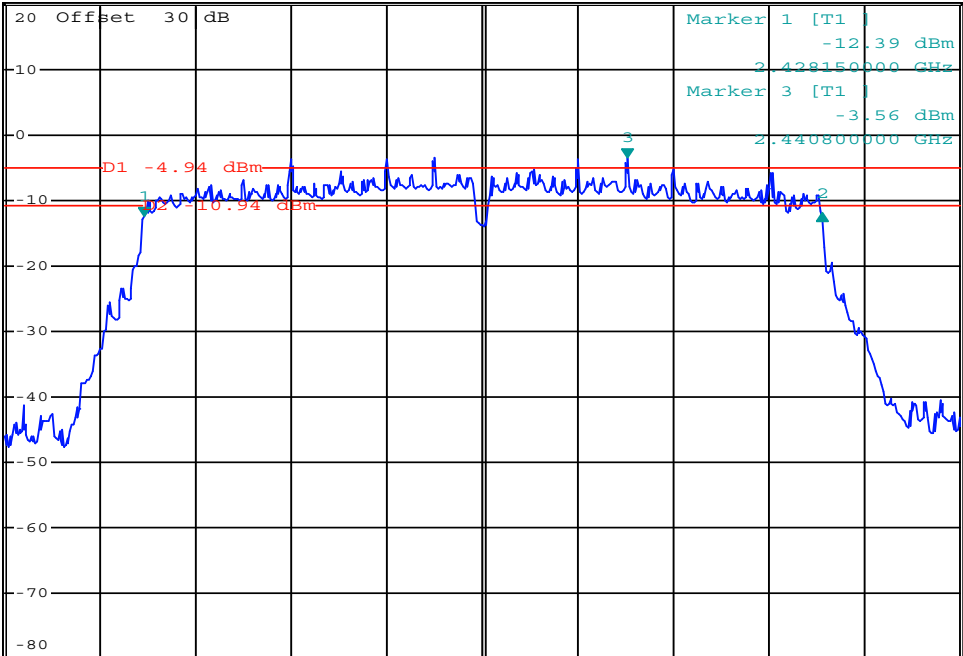


*RBW 100 kHz Delta 2 [T1]
VBW 300 kHz 0.42 dB
SWT 2.5 ms 17.750000000 MHz

Ref 20 dBm

*Att 0 dB

1 PK
VIEW



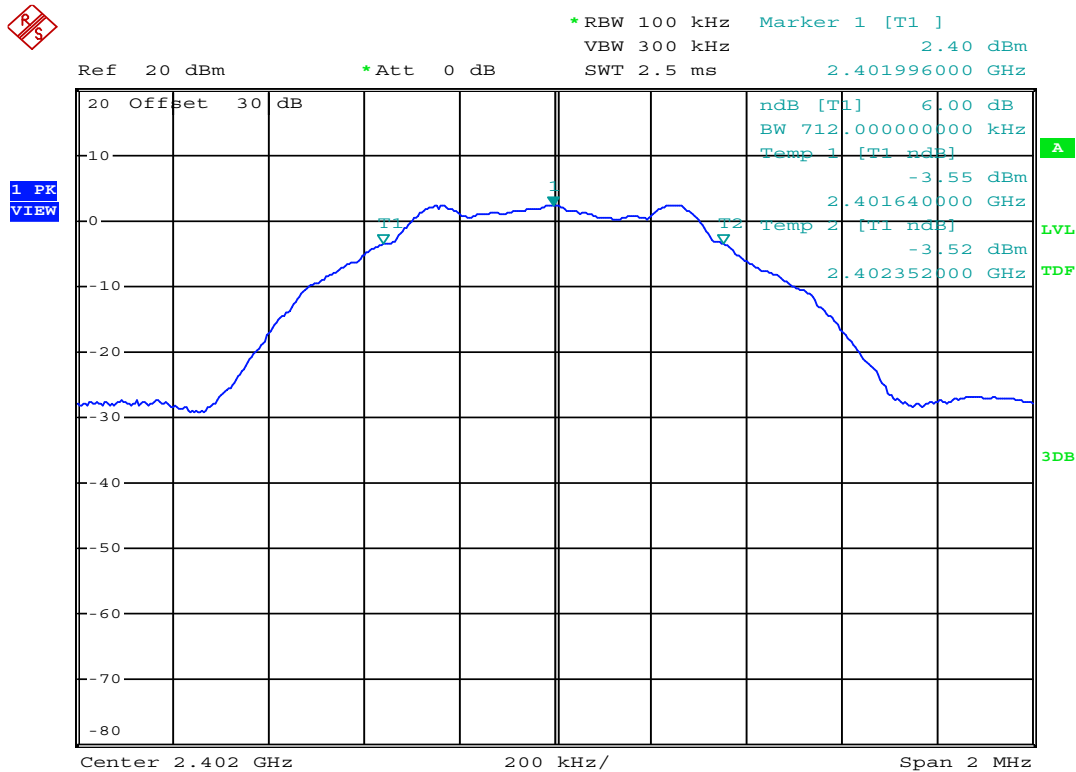
Center 2.437 GHz 2.5 MHz/ Span 25 MHz

Date: 18.NOV.2021 12:46:42

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	DTS Bandwidth (MHz)
802.11n	6	2437	MCS0	6.5	17.75

6dB (DTS) Bandwidth Results: BLE					
Mode	Channel Number	Frequency (MHz)	Modulation	Data Rate (Mbps)	Measured DTS Bandwidth (MHz)
BLE	2	2402.00	GMSK	1	712.0
	18	2442.00			704.0
	39	2480.00			708.0
Result:					Complies

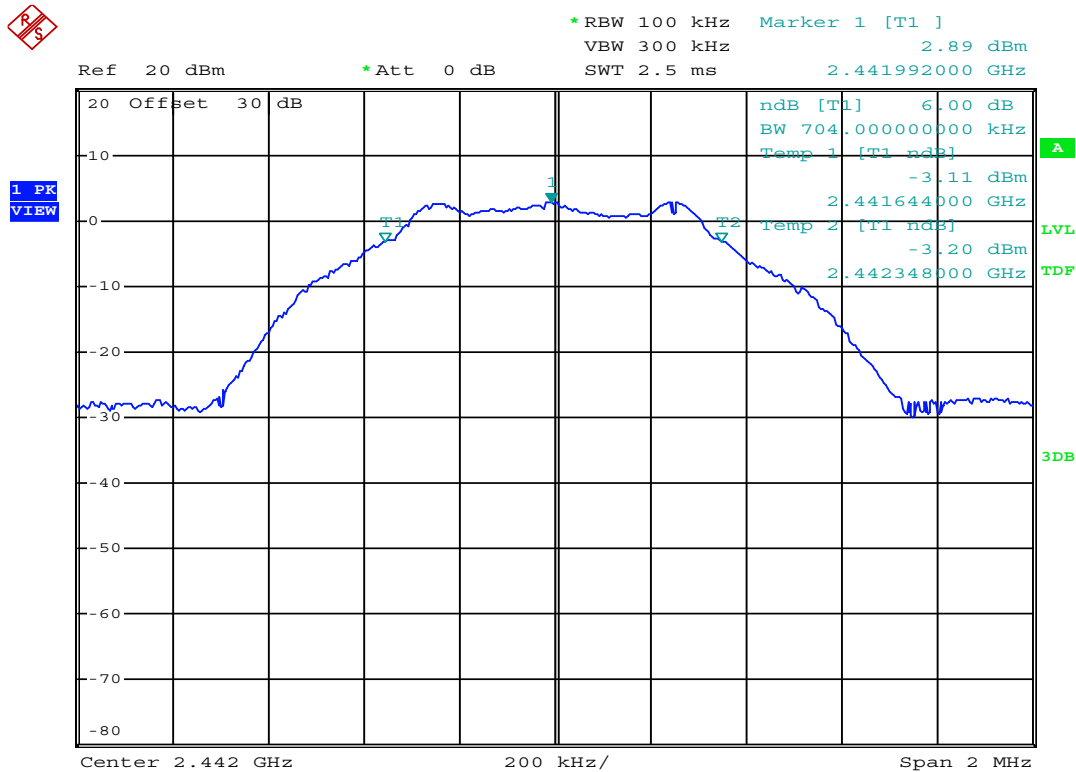
6dB (DTS) Bandwidth: BLE



Date: 17.NOV.2021 15:22:54

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	DTS Bandwidth (kHz)
BLE	2	2480	GMSK	1	712.0

6dB (DTS) Bandwidth: BLE



Date: 17.NOV.2021 15:25:40

Mode	Channel Number	Channel Frequency (MHz)	Modulation	Data Rate (mbps)	DTS Bandwidth (kHz)
BLE	18	2442	GMSK	1	704.0

6dB (DTS) Bandwidth: BLE

