

Appendix

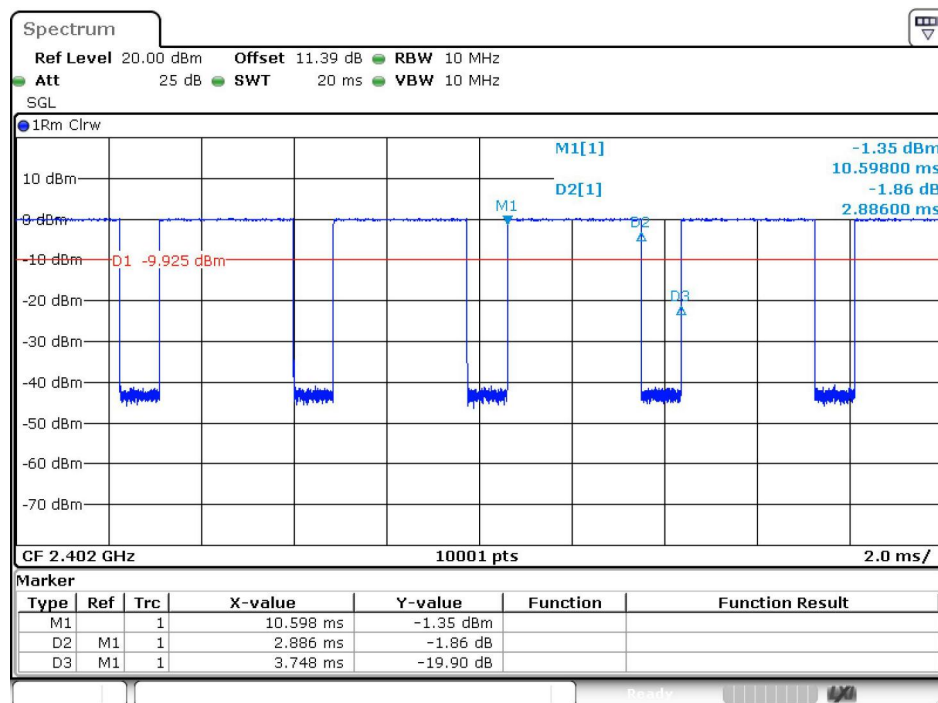
Report No.:	CISRR24112315805
FCC ID:	2BMDY-CL8
Product Name:	Helmet Bluetooth Earphones
Model No.:	CL8
Test Engineer:	Lucas Huang
Supervised by:	Rory Huang

1) Duty Cycle

Test Result

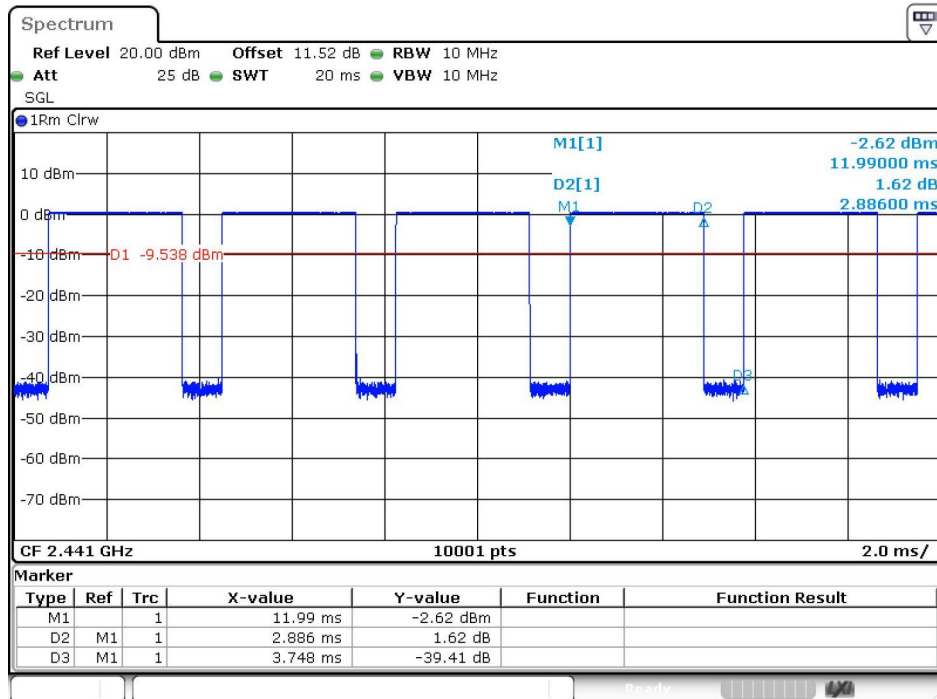
Modulation	Packets	Channel	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
GFSK	DH5	0	2.886	3.748	77.00	0.7700	1.1351	0.3465
		39	2.886	3.748	77.00	0.7700	1.1351	0.3465
		78	2.886	3.748	77.00	0.7700	1.1351	0.3465
$\pi/4$ DQPSK	2-DH5	0	2.890	3.748	77.11	0.7711	1.1289	0.3460
		39	2.892	3.748	77.16	0.7716	1.1261	0.3458
		78	2.892	3.748	77.16	0.7716	1.1261	0.3458

Test Graphs



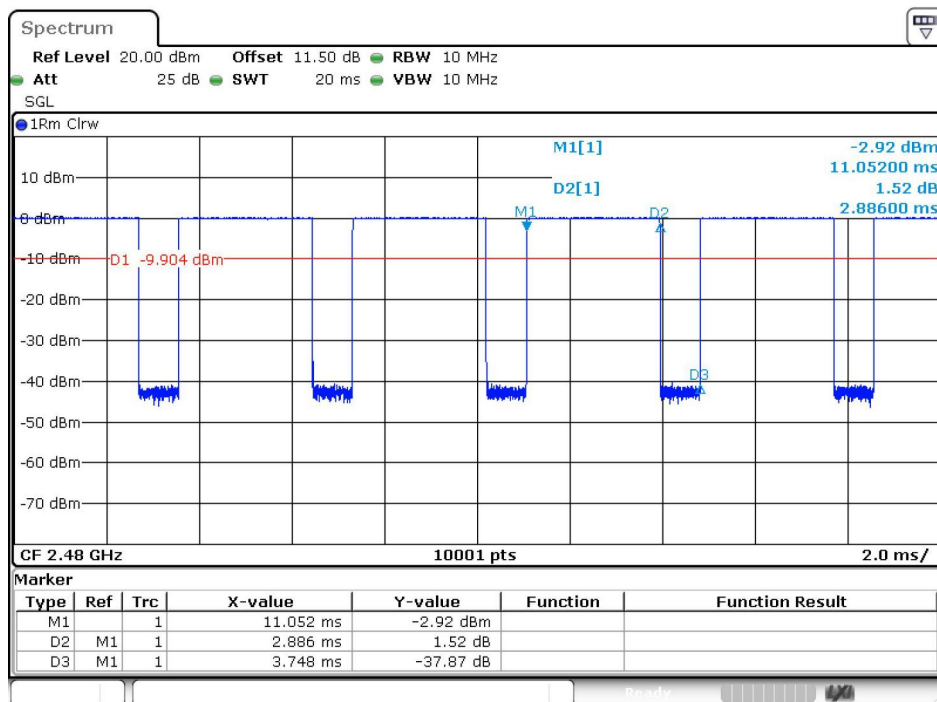
Date: 27.NOV.2024 10:04:45

GFSK(DH5)_Channel 0



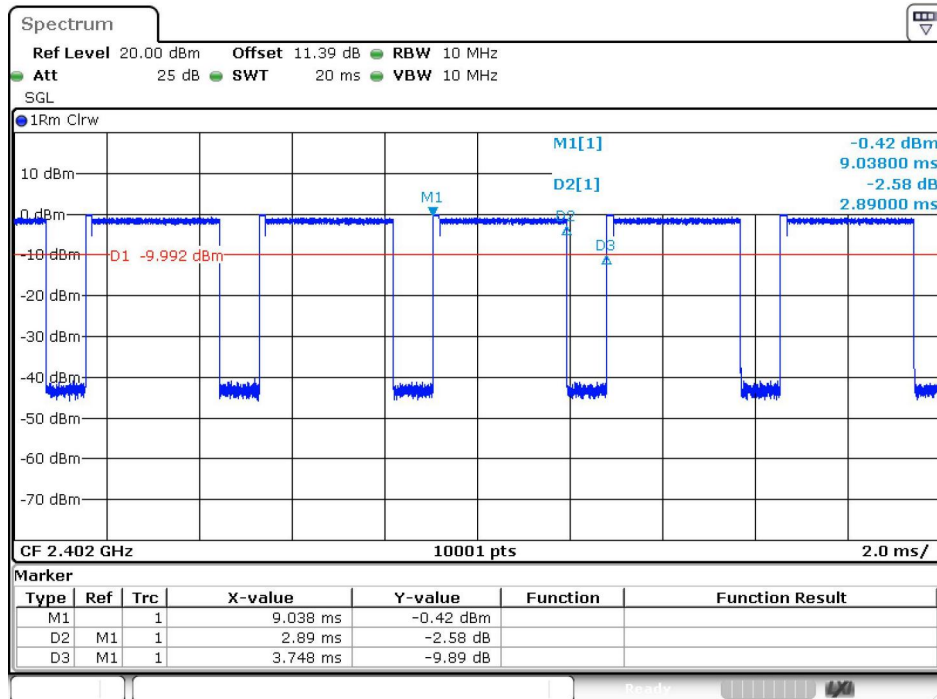
Date: 27.NOV.2024 10:14:37

GFSK(DH5)_Channel 39



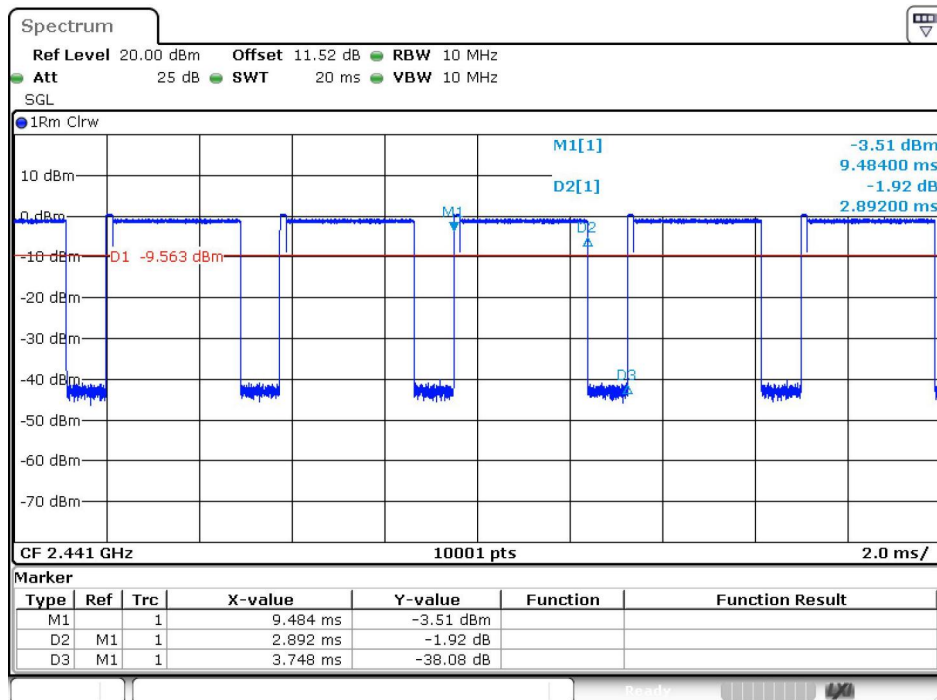
Date: 27.NOV.2024 10:16:57

GFSK(DH5)_Channel 78



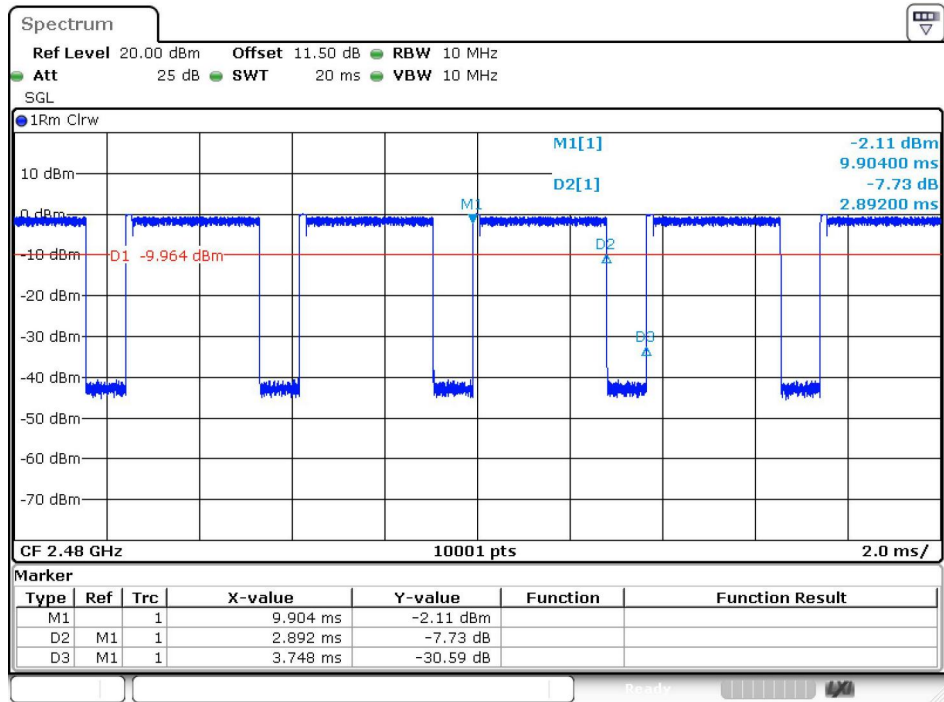
Date: 27.NOV.2024 10:19:09

$\pi/4$ DQPSK(2-DH5)_Channel 0



Date: 27.NOV.2024 10:27:45

$\pi/4$ DQPSK(2-DH5)_Channel 39



Date: 27.NOV.2024 10:30:30

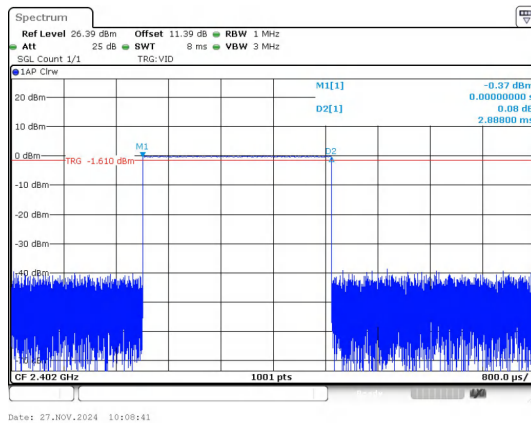
$\pi/4$ QPSK(2-DH5)_Channel 78

2) Dwell Time

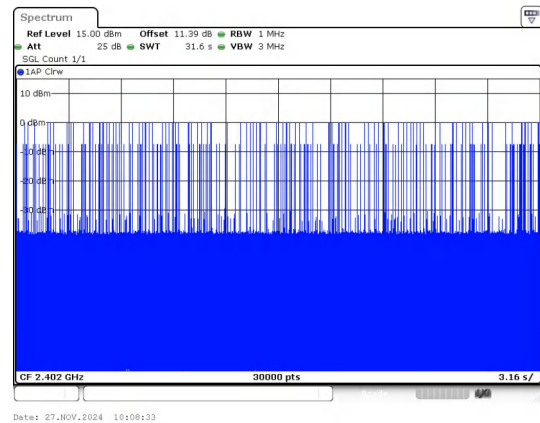
Test Result

Modulation	Packet	Channel	Pulse Width (ms)	Number of Pulses in 31.6 seconds	Dwell Time (ms)	Limit (ms)	Result
GFSK	DH5	CH0	2.888	106	306.13	< 400	PASS
$\pi/4$ DQPSK	2-DH5	(2402MHz)	2.896	112	324.35		PASS

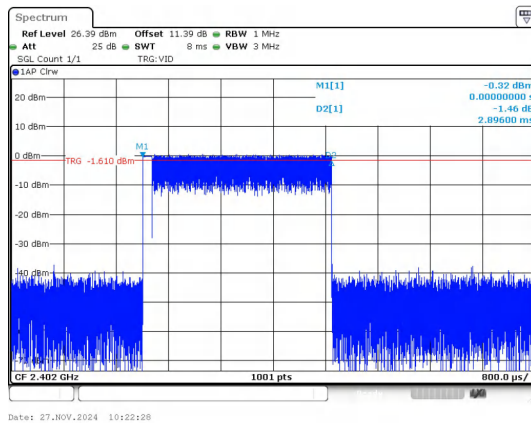
Test Graphs



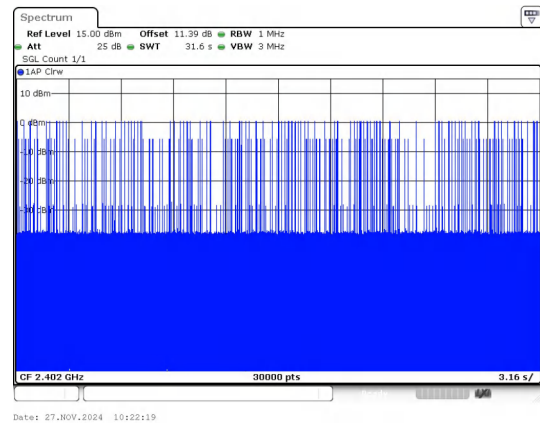
Pulse Width
GFSK_DH5



Number of Pulses in 31.6 seconds
GFSK_DH5



Pulse Width
 $\pi/4$ DQPSK_2-DH5



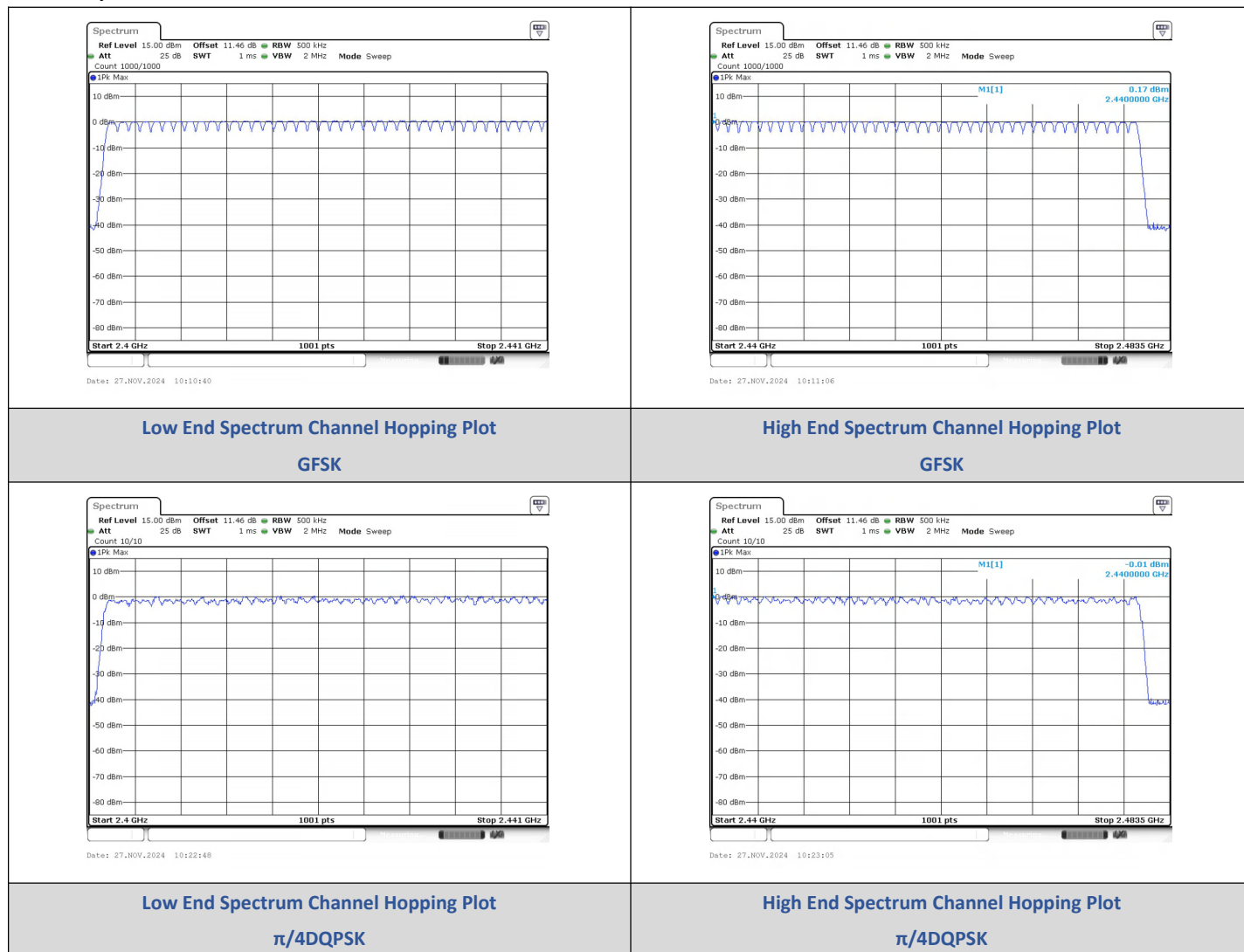
Number of Pulses in 31.6 seconds
 $\pi/4$ DQPSK_2-DH5

3) Number Of Hopping Channel

Test Result

Modulation	Packet	Number of Hopping Channel	Limit	Result
GFSK	DH5	79	15	PASS
$\pi/4$ DQPSK	2-DH5	79	15	PASS

Test Graphs

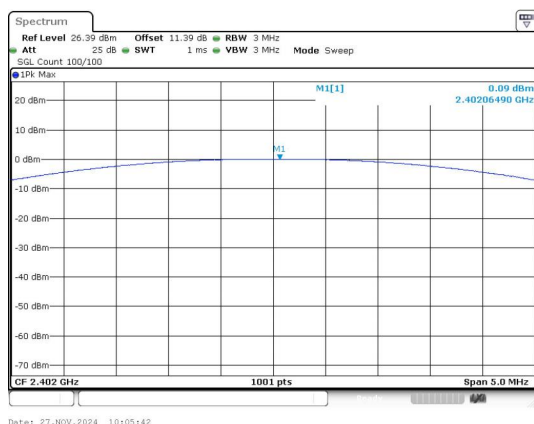


4) Conducted Peak Output Power

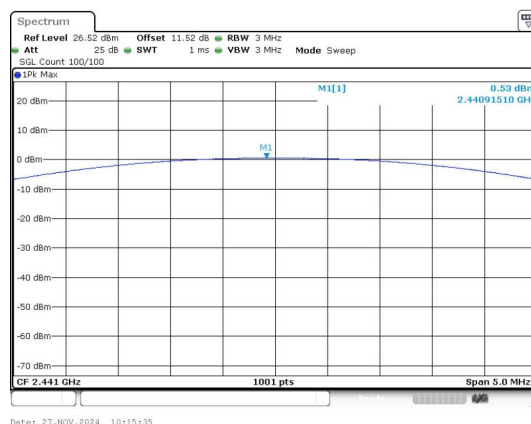
Test Result

Modulation	Packet Type	Channel	Peak Output Power (dBm)	Peak Output Power (mW)	Limit (dBm)	Result
GFSK	DH5	0	0.09	1.02	≤30	PASS
		39	0.53	1.13		PASS
		78	0.17	1.04		PASS
$\pi/4$ DQPSK	2-DH5	0	1.02	1.26	≤20.97	PASS
		39	1.46	1.40		PASS
		78	1.09	1.29		PASS

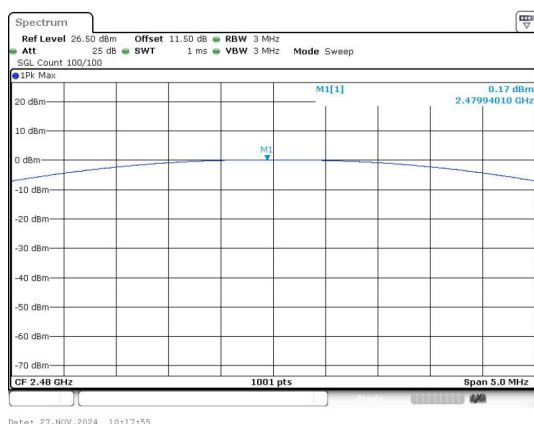
Test Graphs



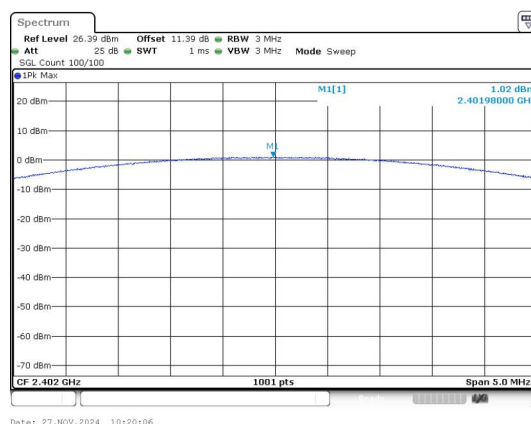
Peak Output Power
GFSK_Channel 0



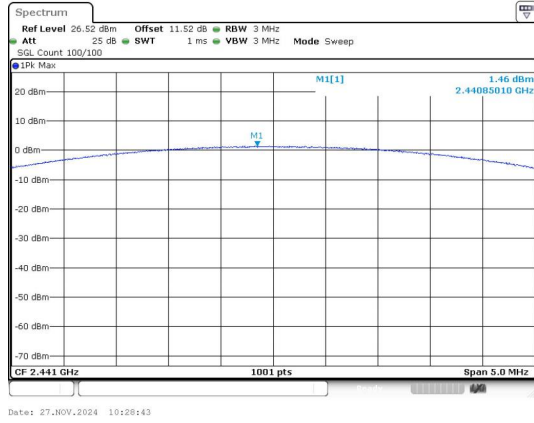
Peak Output Power
GFSK_Channel 39



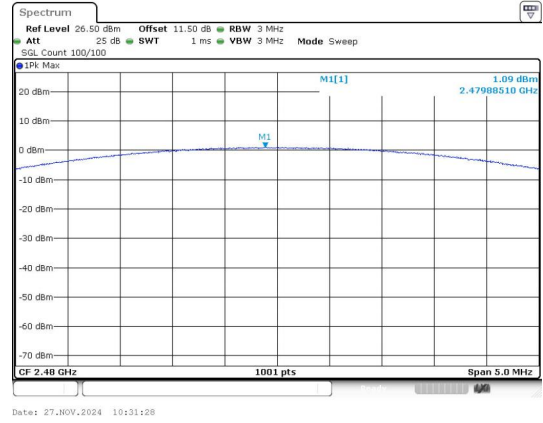
Peak Output Power
GFSK_Channel 78



Peak Output Power
 $\pi/4$ DQPSK_Channel 0



Peak Output Power
 $\pi/4$ DQPSK_Channel 39



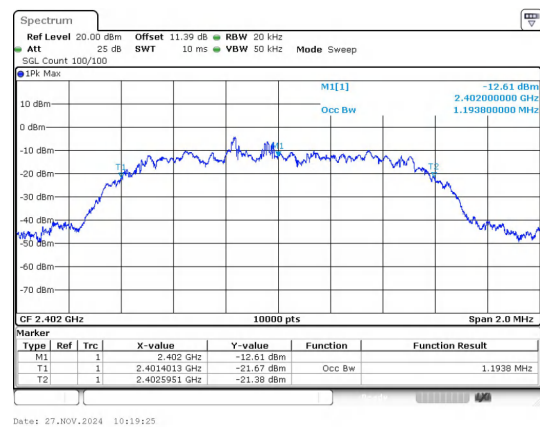
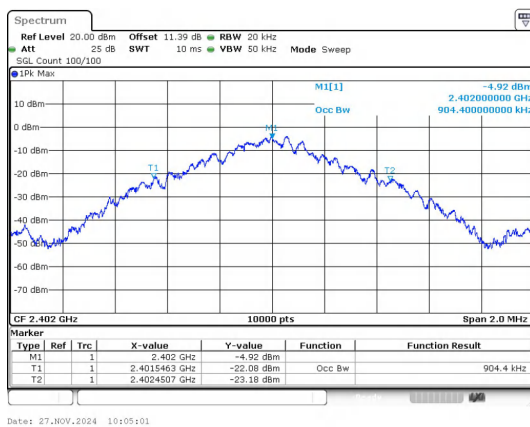
Peak Output Power
 $\pi/4$ DQPSK_Channel 78

5) 99% Bandwidth

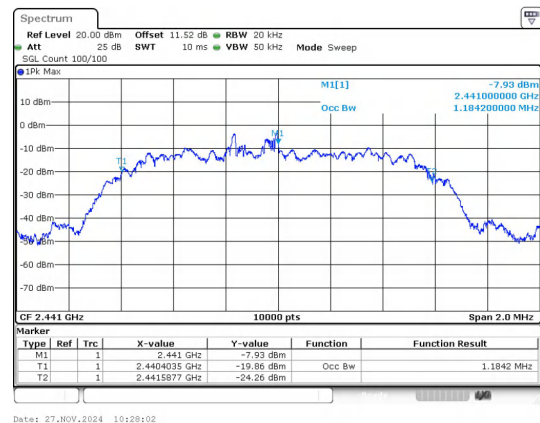
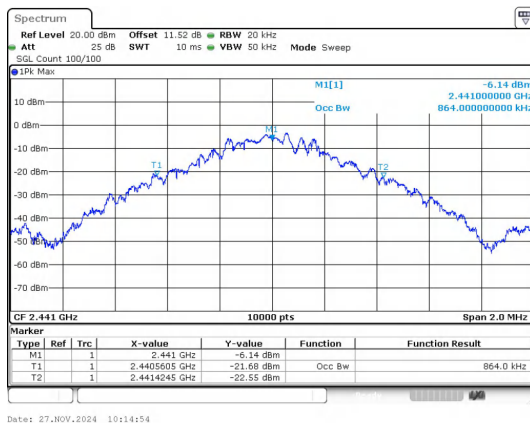
Test Result

Modulation	Channel	Center Frequency (MHz)	99% BW (MHz)
GFSK	0	2402	0.90440
	39	2441	0.86400
	78	2480	0.88620
$\pi/4$ DQPSK	0	2402	1.1938
	39	2441	1.1842
	78	2480	1.1778

Test Graphs

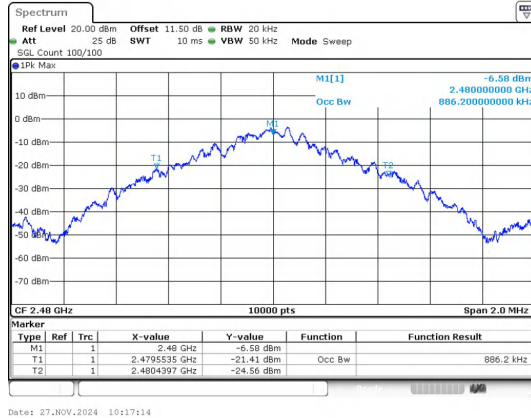


GFSK_DH5_Channel 0

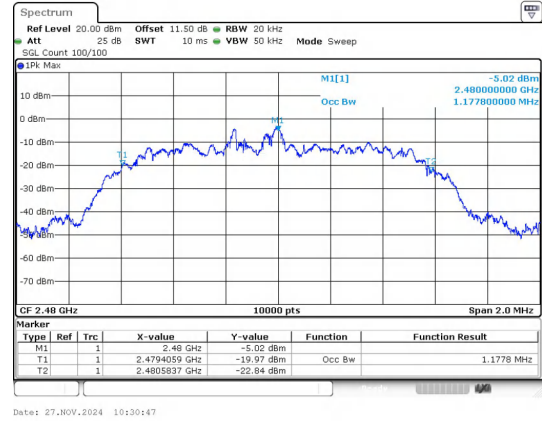
 $\pi/4$ DQPSK_2-DH5_Channel 0


GFSK_DH5_Channel 39

 $\pi/4$ DQPSK_2-DH5_Channel 39



GFSK_DH5_Channel 78



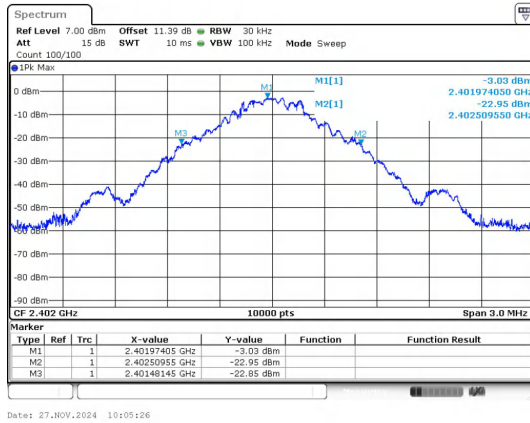
$\pi/4$ DQPSK_2-DH5_Channel 78

6) 20dB Bandwidth

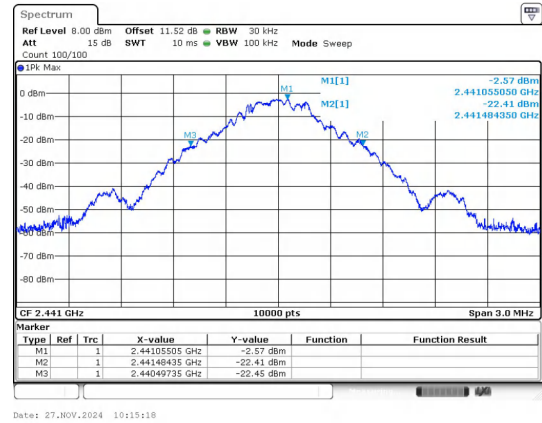
Test Result

Modulation	Channel	Center Frequency (MHz)	20 dB Bandwidth (MHz)
GFSK	0	2402 MHz	1.030
	39	2441 MHz	0.9800
	78	2480 MHz	0.9800
$\pi/4$ DQPSK	0	2402 MHz	1.310
	39	2441 MHz	1.310
	78	2480 MHz	1.310

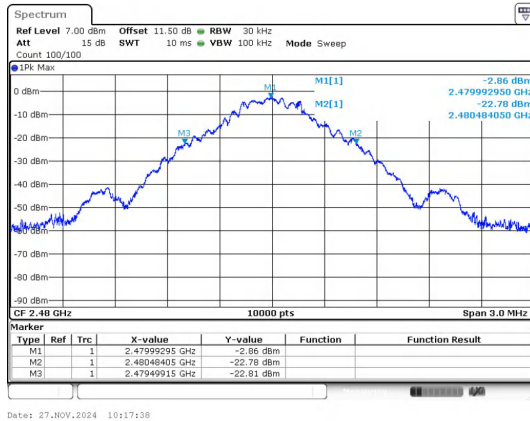
Test Graphs



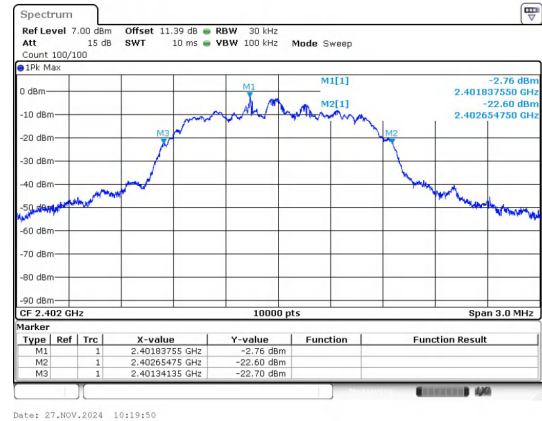
GFSK_DH5_Channel 0

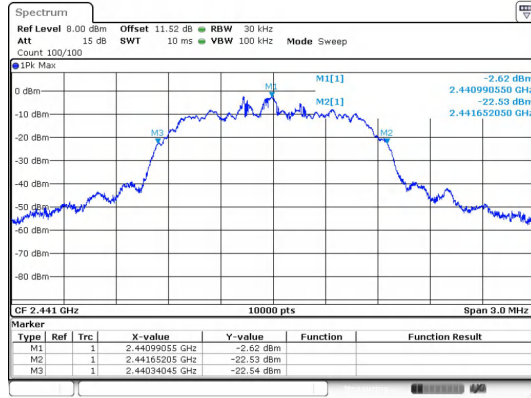


GFSK_DH5_Channel 39

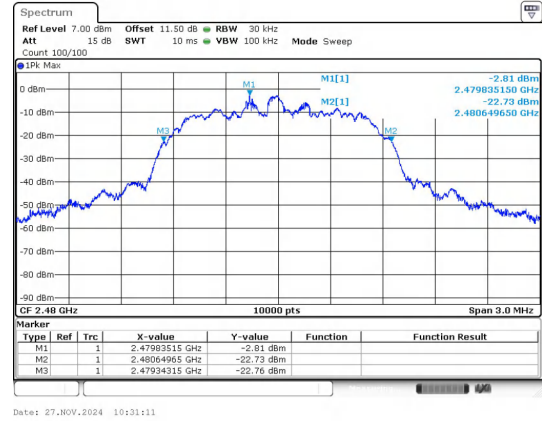


GFSK_DH5_Channel 78


 $\pi/4$ DQPSK_2-DH5_Channel 0



$\pi/4$ DQPSK_2-DH5_Channel 39



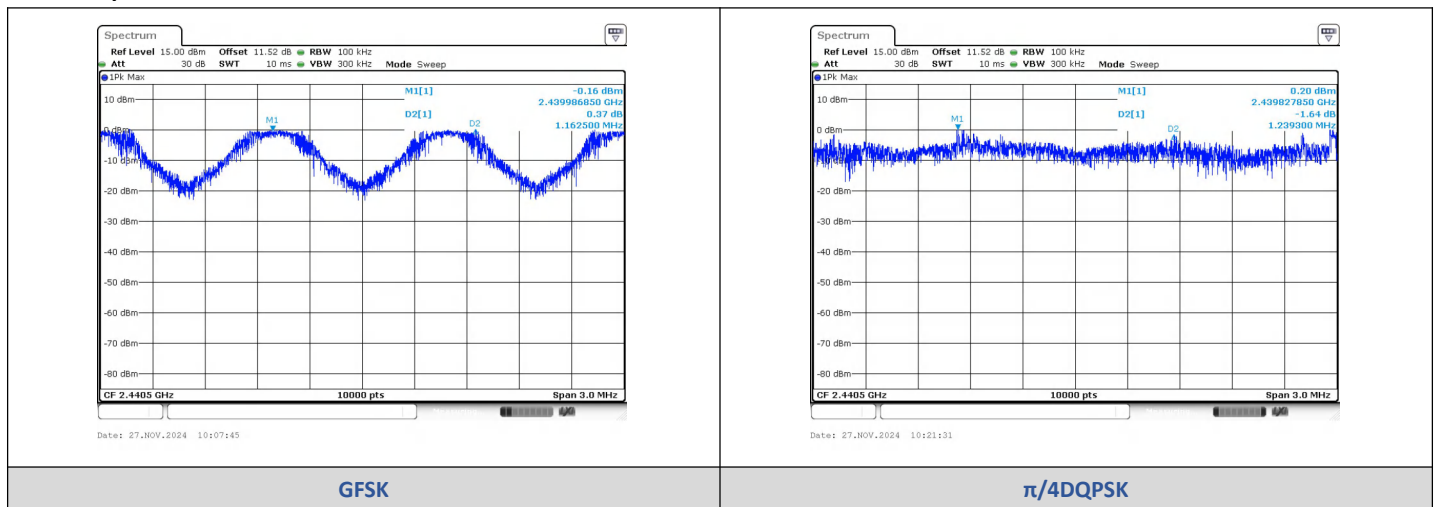
$\pi/4$ DQPSK_2-DH5_Channel 78

7) Carrier Frequencies Separation

Test Result

Modulation	Packet	Left Center frequency (MHz)	Right Center frequency (MHz)	Hopping Frequency Separation (MHz)	Limit (MHz)	Result
GFSK	DH5	2439.9868	2441.1494	1.1625	1.03	PASS
$\pi/4$ DQPSK	2-DH5	2439.8279	2441.0671	1.2393	0.873	PASS

Test Graphs



8) Conducted Out Of Band Emission

Test Result

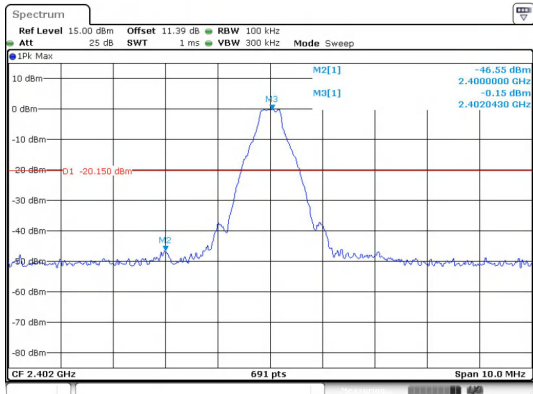
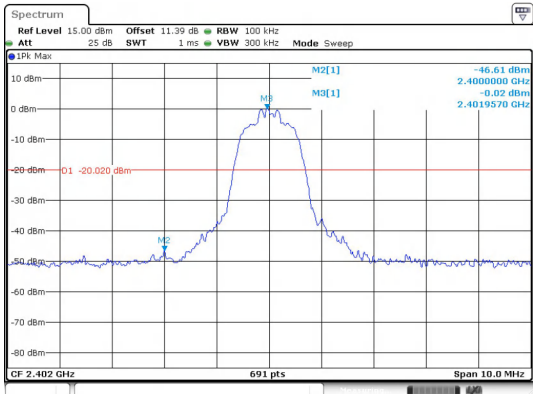
Non-Hopping

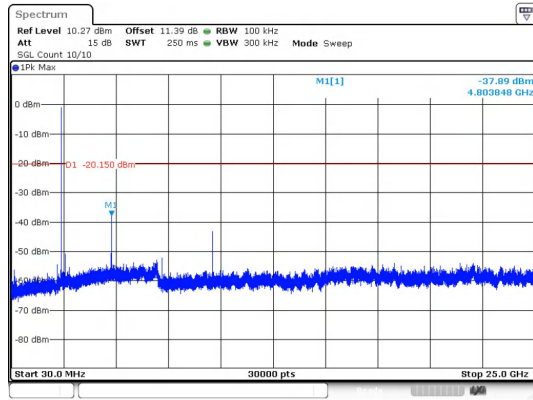
Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	0	2400.00	-46.550	-20.15	-26.400	PASS
			4803.85	-37.885	-20.15	-17.735	PASS
		39	9763.72	-38.751	-19.65	-19.101	PASS
		78	2483.50	-50.330	-20.04	-30.290	PASS
			4960.33	-36.926	-20.04	-16.886	PASS
$\pi/4$ DQPSK	2-DH5	0	2400.00	-46.610	-20.02	-26.590	PASS
			4803.85	-38.151	-20.02	-18.131	PASS
		39	9763.72	-38.241	-19.53	-18.711	PASS
		78	2483.50	-48.500	-20.17	-28.330	PASS
			4960.33	-37.588	-20.17	-17.418	PASS

Hopping

Modulation	Packet	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
GFSK	DH5	Hopping	2397.70	-48.149	-19.9	-28.249	PASS
			2400.00	-48.300	-19.9	-28.400	PASS
			2483.50	-49.300	-19.98	-29.320	PASS
π/4DQPSK	2-DH5		2395.93	-48.088	-20.22	-27.868	PASS
			2400.00	-49.150	-20.22	-28.930	PASS
			2483.50	-48.780	-20.18	-28.600	PASS

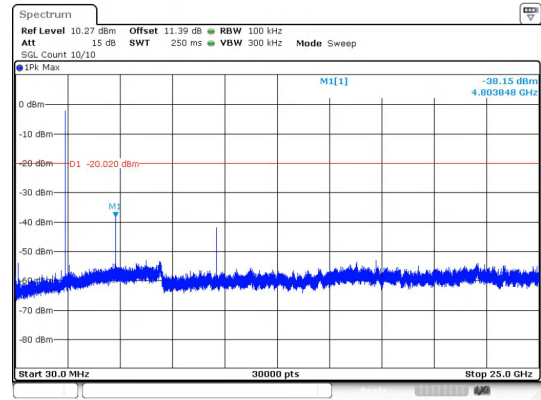
Test Graphs

 Date: 27.NOV.2024 10:06:04	 Date: 27.NOV.2024 10:20:28
Out Of Band Emission GFSK_DH5_Channel 0	Out Of Band Emission $\pi/4$DQPSK_2-DH5_Channel 0



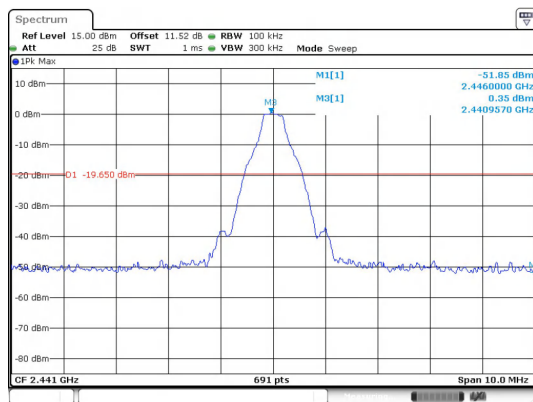
Date: 27.NOV.2024 10:06:26

30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 0



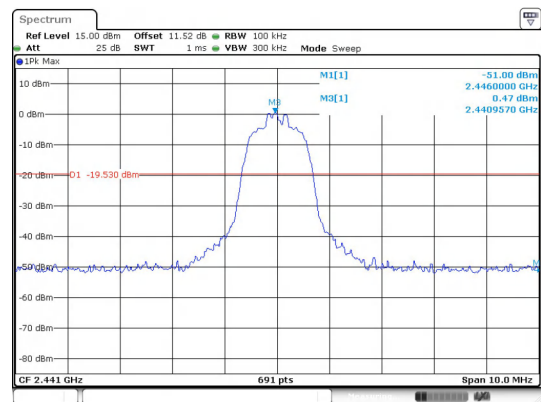
Date: 27.NOV.2024 10:20:50

30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 0



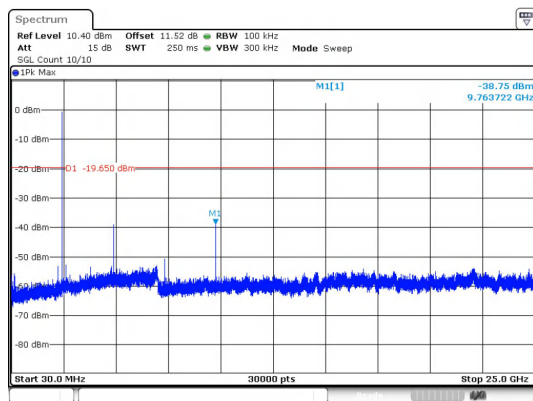
Date: 27.NOV.2024 10:15:51

Out Of Band Emission
GFSK_DH5_Channel 39



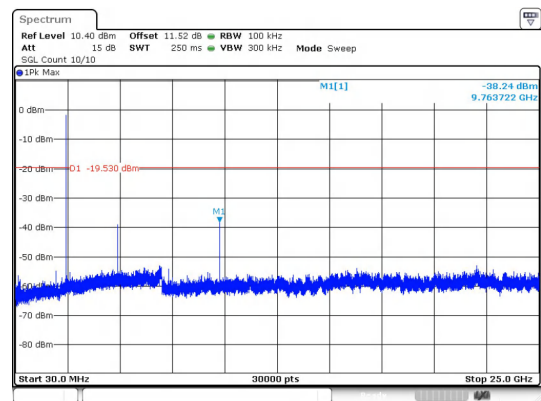
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Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 39



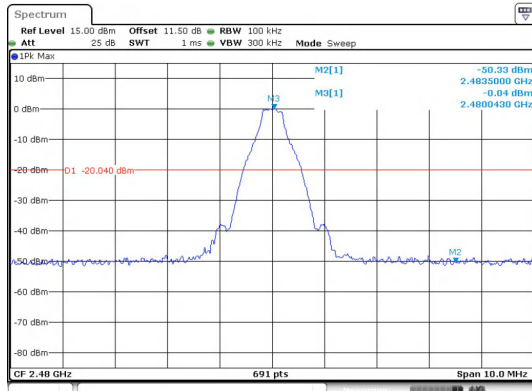
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30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 39



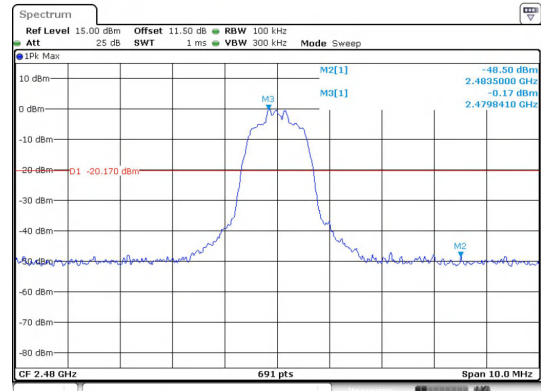
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30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 39



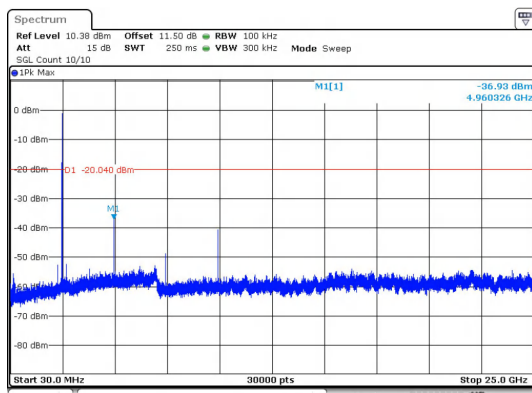
Date: 27.NOV.2024 10:18:16

Out Of Band Emission
GFSK_DH5_Channel 78



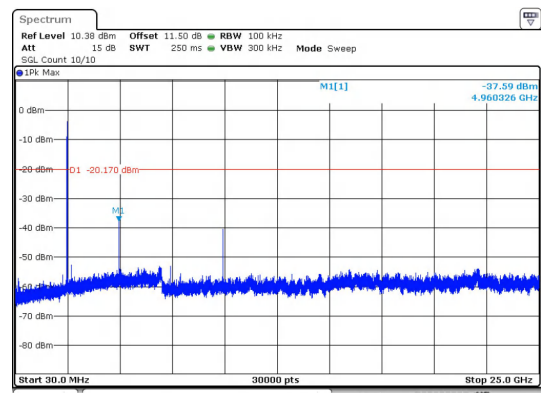
Date: 27.NOV.2024 10:31:49

Out Of Band Emission
 $\pi/4$ DQPSK_2-DH5_Channel 78



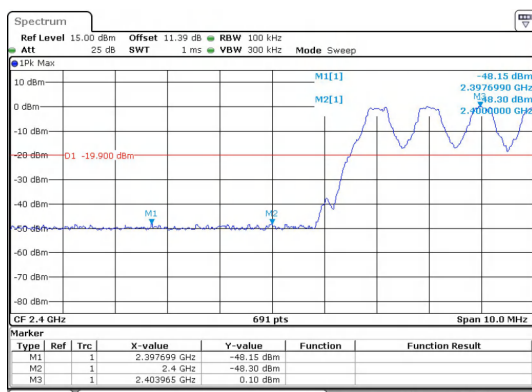
Date: 27.NOV.2024 10:18:39

30.0 MHz - 25000.0 MHz
GFSK_DH5_Channel 78



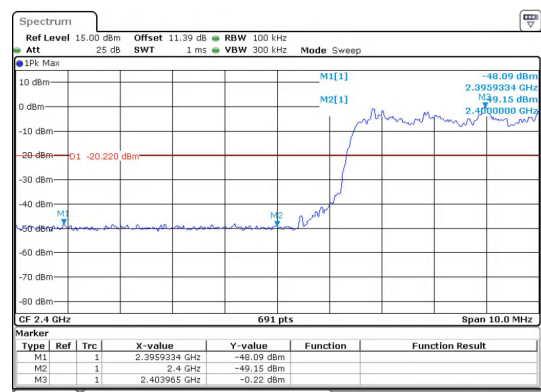
Date: 27.NOV.2024 10:32:11

30.0 MHz - 25000.0 MHz
 $\pi/4$ DQPSK_2-DH5_Channel 78



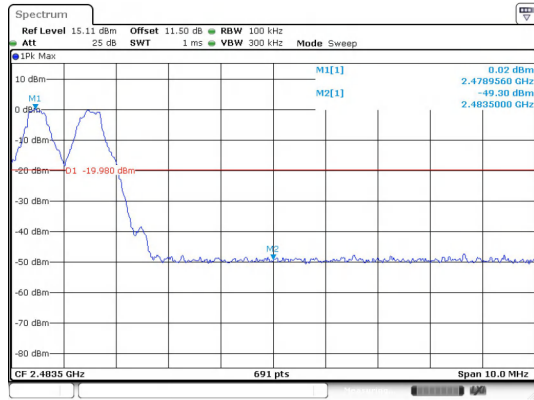
Date: 27.NOV.2024 10:13:05

Out Of Band Emission(Left)
GFSK_DH5_Channel Hopping

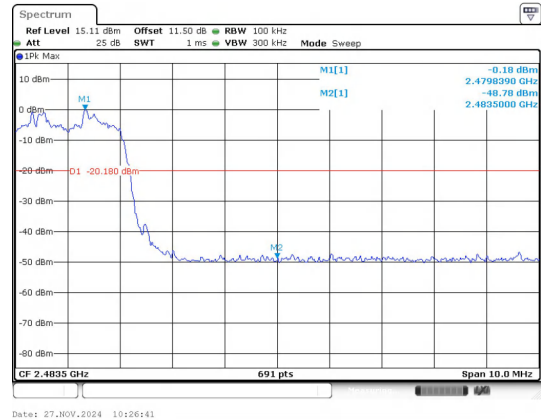


Date: 27.NOV.2024 10:25:06

Out Of Band Emission(Left)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping



Out Of Band Emission(Right)
GFSK_DH5_Channel Hopping



Out Of Band Emission(Right)
 $\pi/4$ DQPSK_2-DH5_Channel Hopping

-----End of the report-----