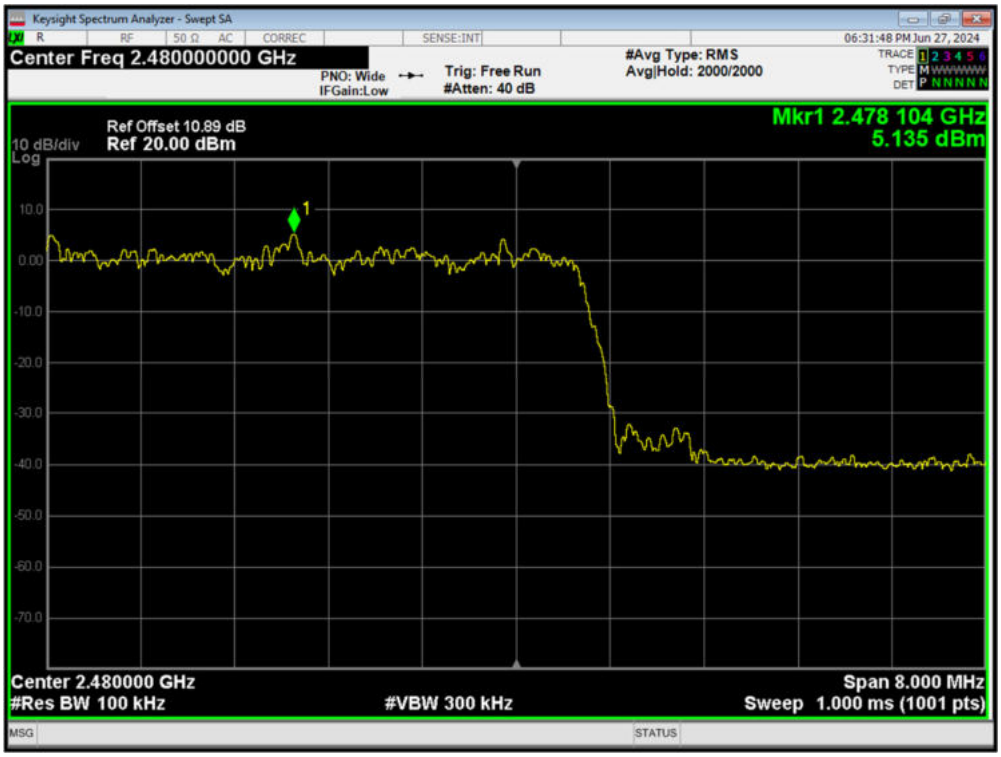
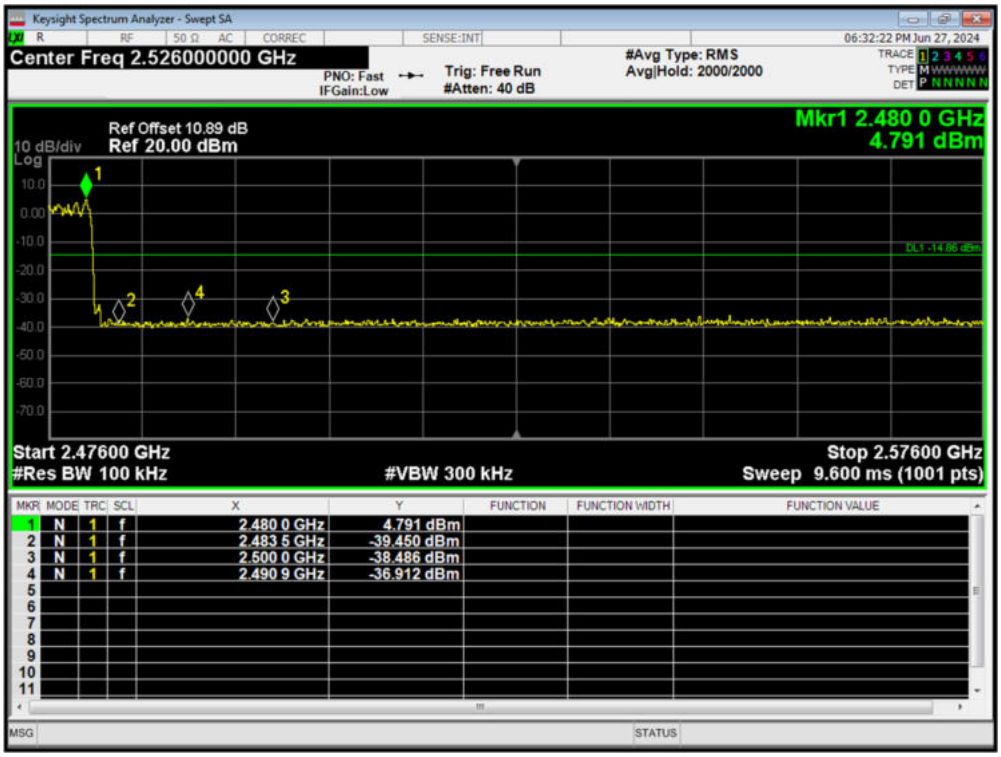
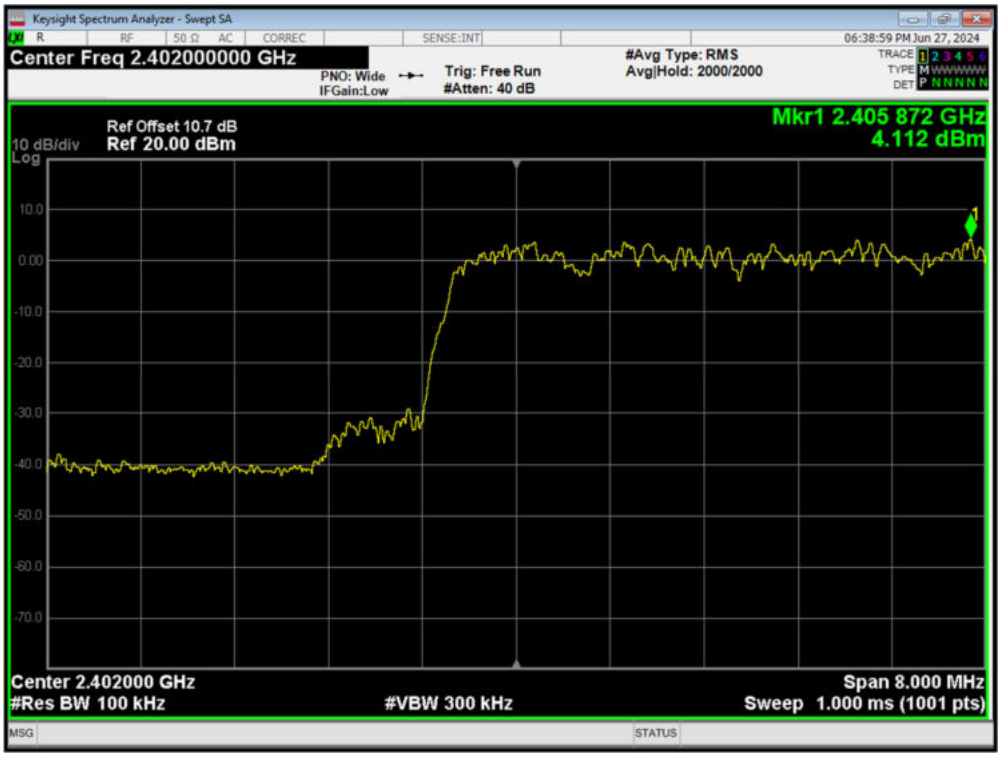
Band Edge(Hopping) 2-DH5 2480MHz Hopping Ref



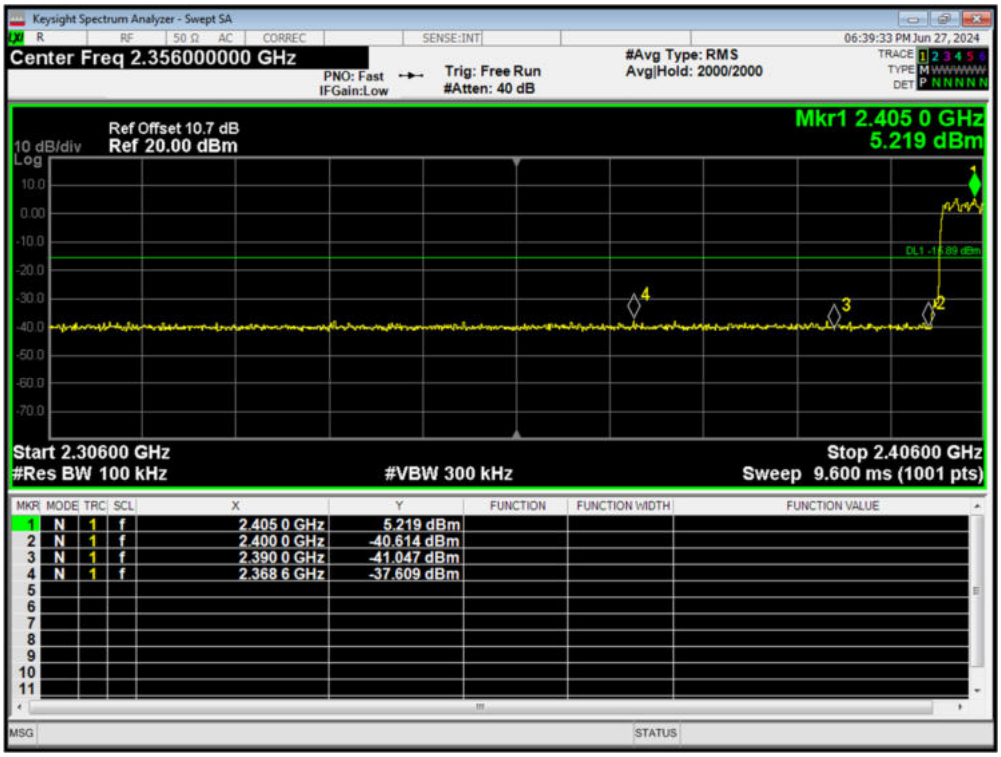
Band Edge(Hopping) 2-DH5 2480MHz Hopping Emission



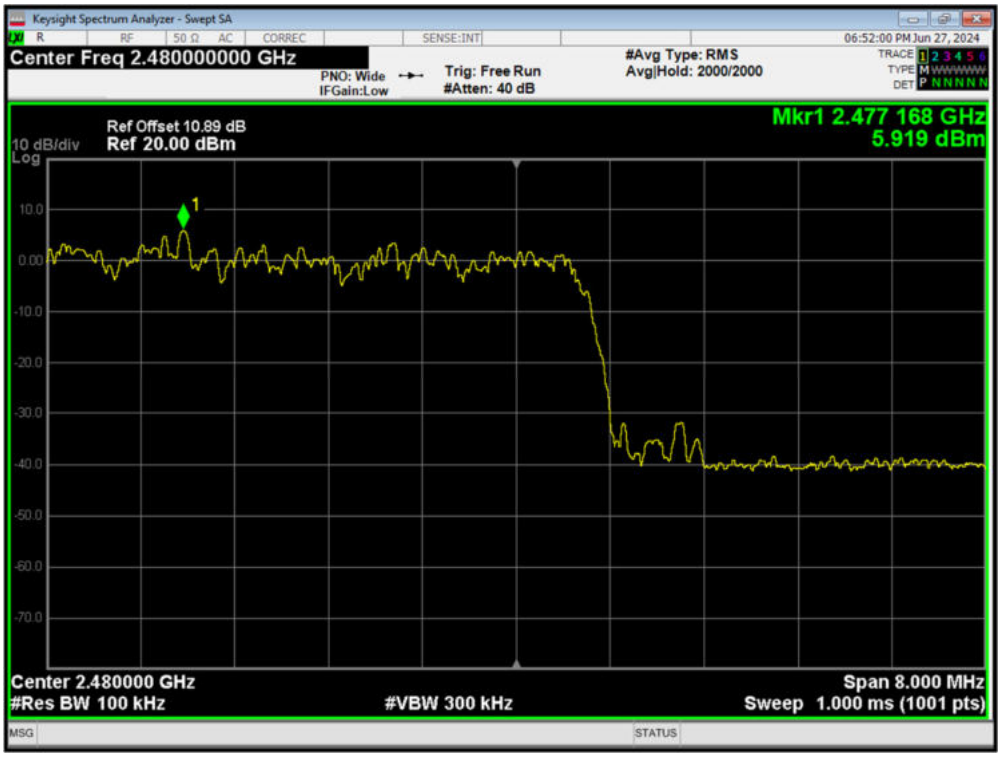
Band Edge(Hopping) 3-DH5 2402MHz Hopping Ref



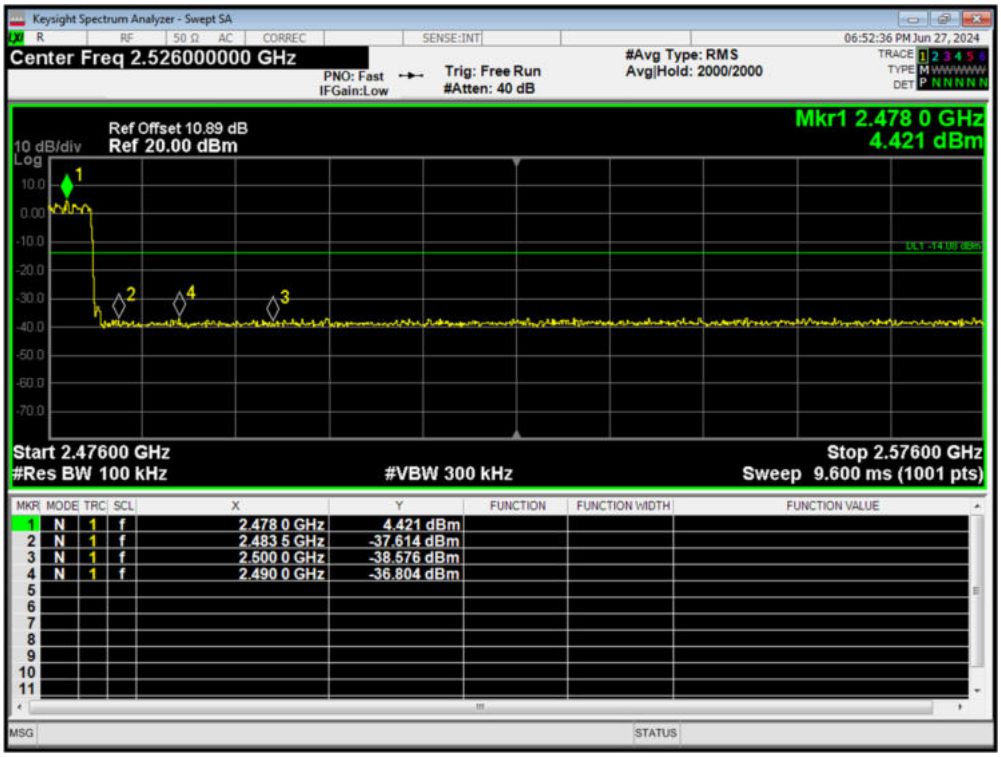
Band Edge(Hopping) 3-DH5 2402MHz Hopping Emission



Band Edge(Hopping) 3-DH5 2480MHz Hopping Ref

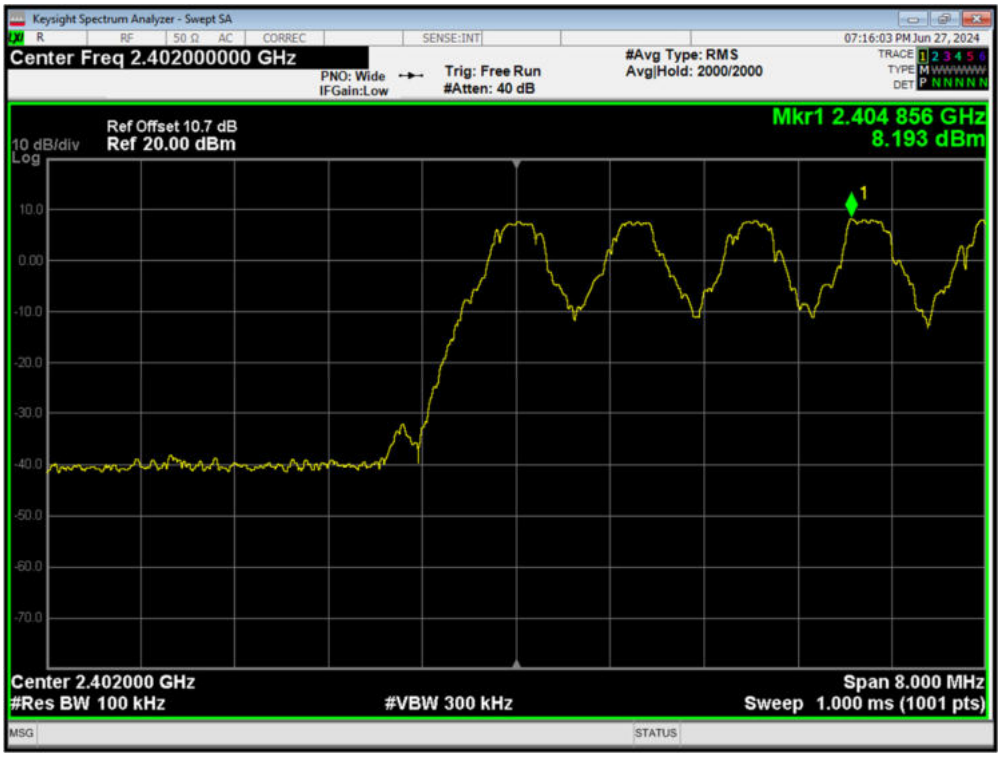


Band Edge(Hopping) 3-DH5 2480MHz Hopping Emission

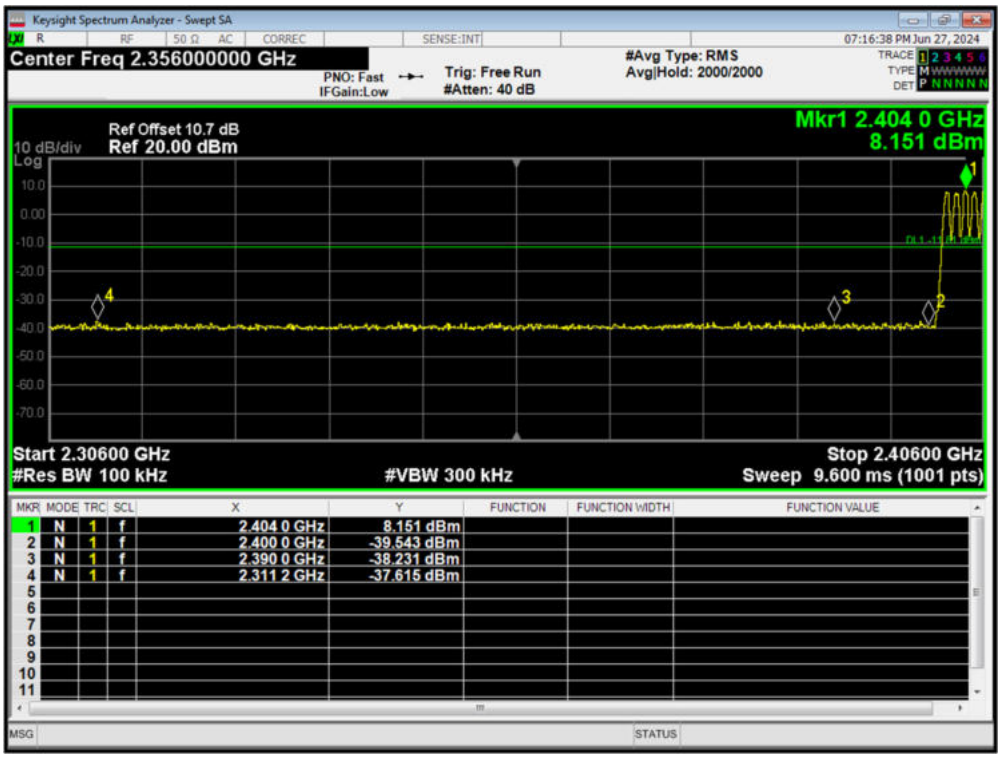


Antenna 2

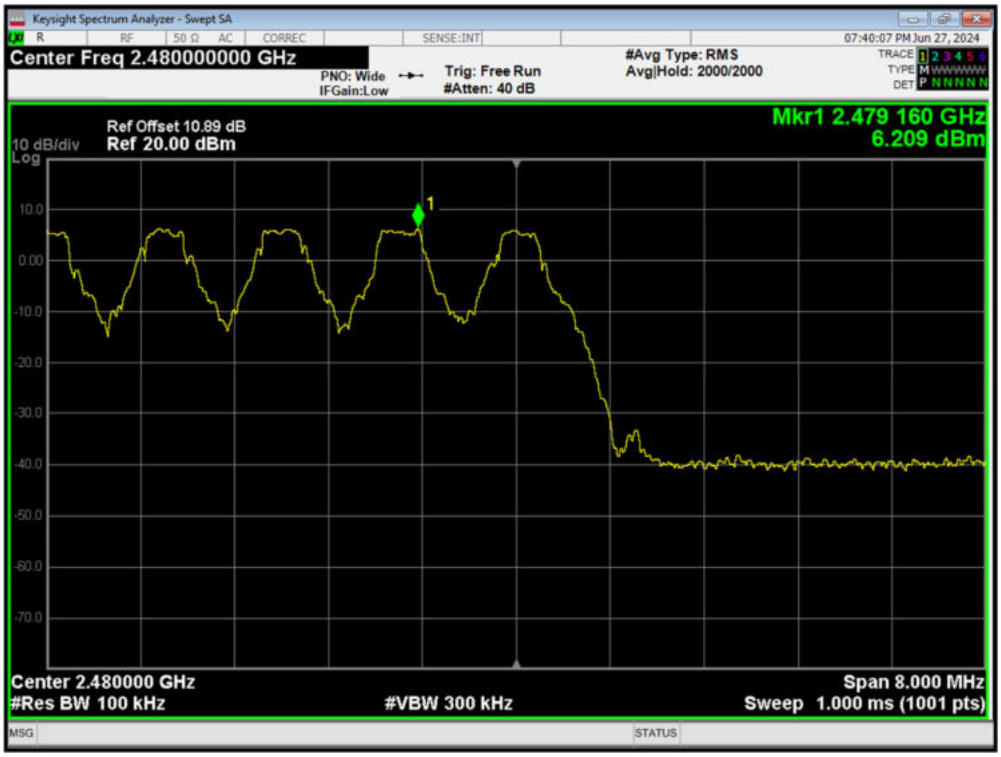
Band Edge(Hopping) 1-DH5 2402MHz Hopping Ref



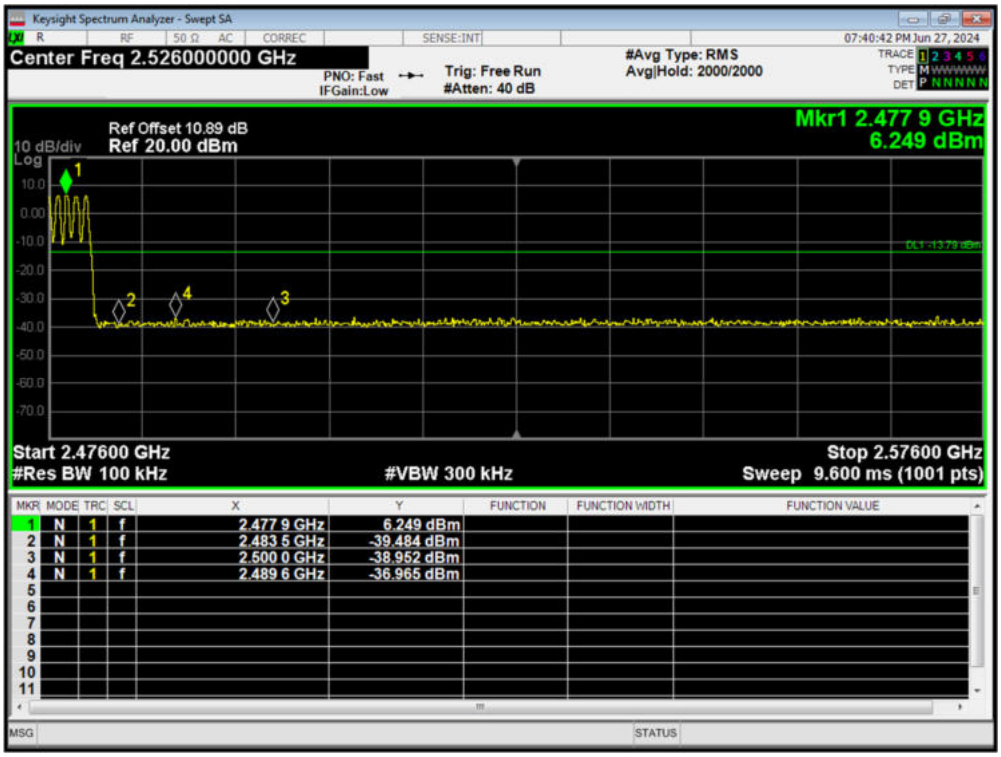
Band Edge(Hopping) 1-DH5 2402MHz Hopping Emission



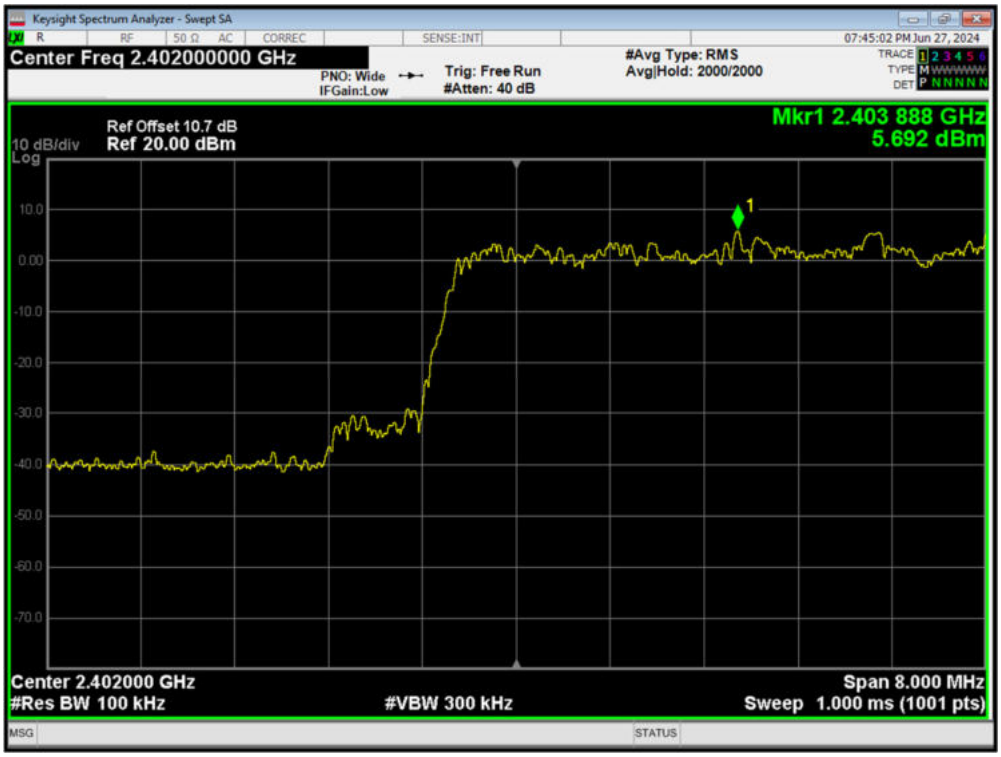
Band Edge(Hopping) 1-DH5 2480MHz Hopping Ref



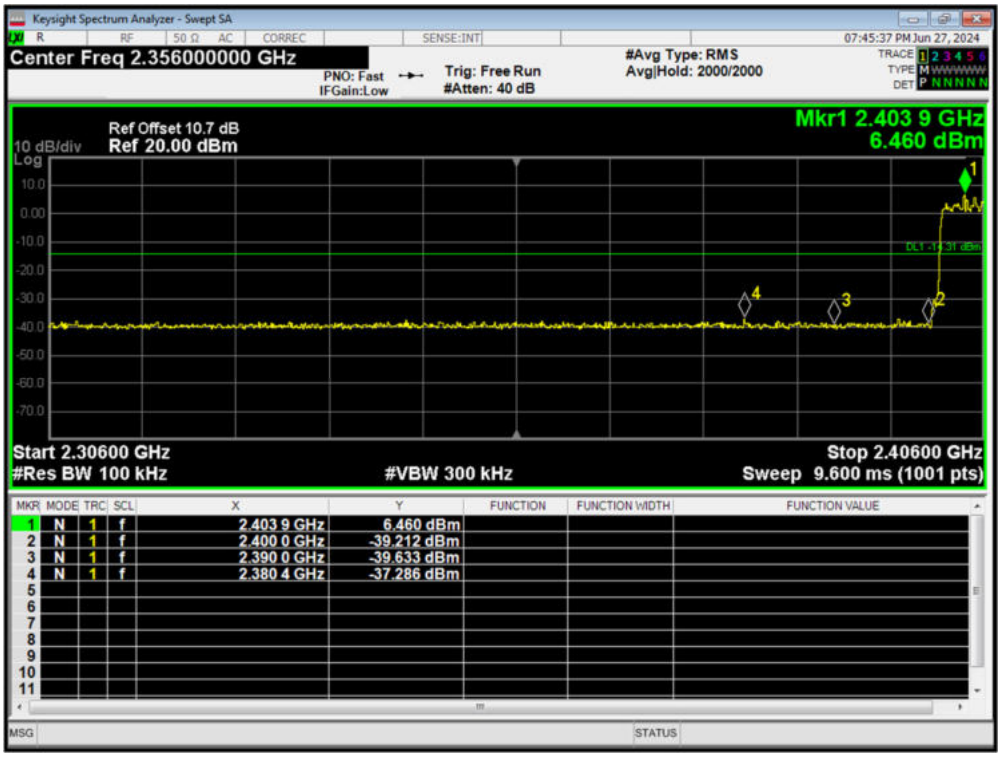
Band Edge(Hopping) 1-DH5 2480MHz Hopping Emission



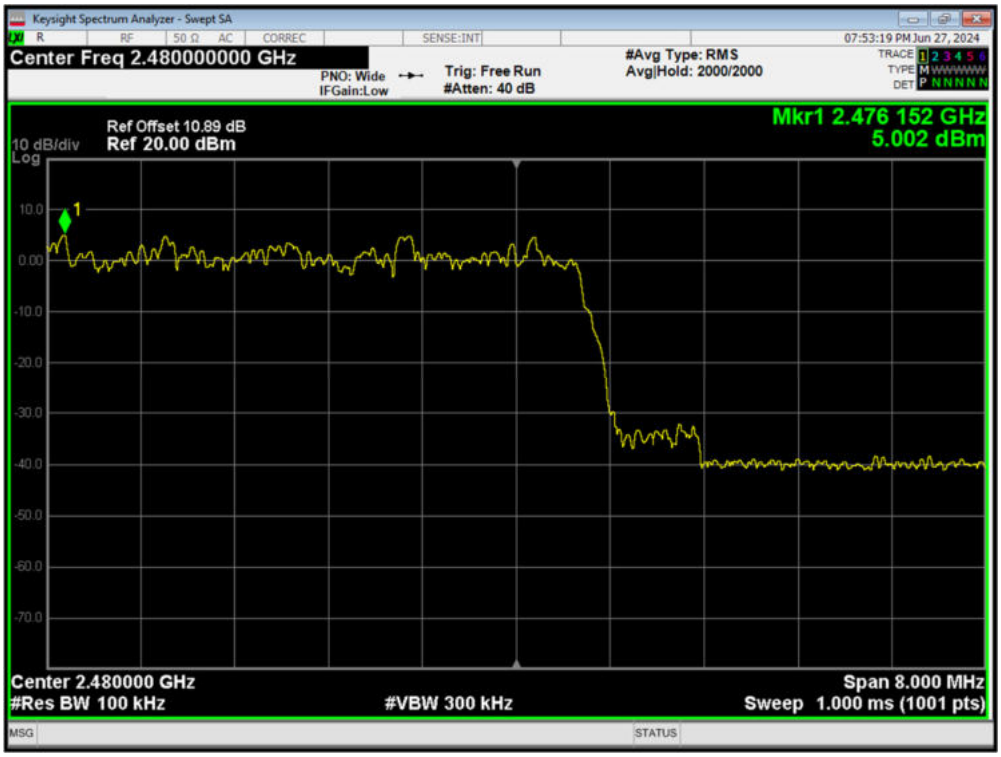
Band Edge(Hopping) 2-DH5 2402MHz Hopping Ref



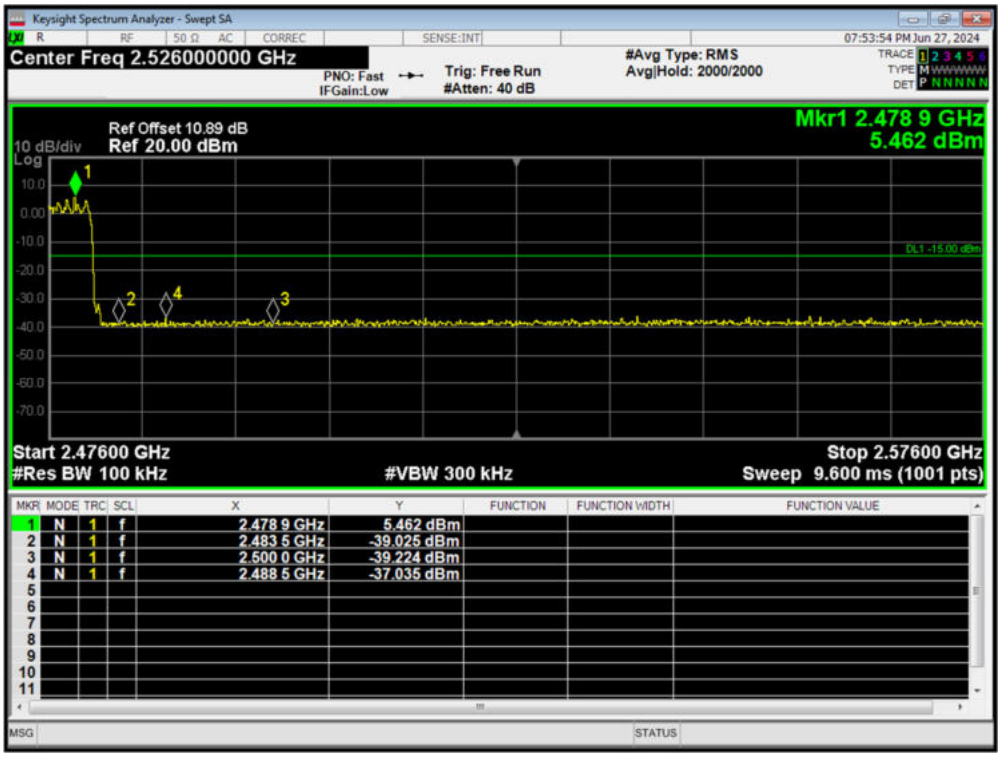
Band Edge(Hopping) 2-DH5 2402MHz Hopping Emission



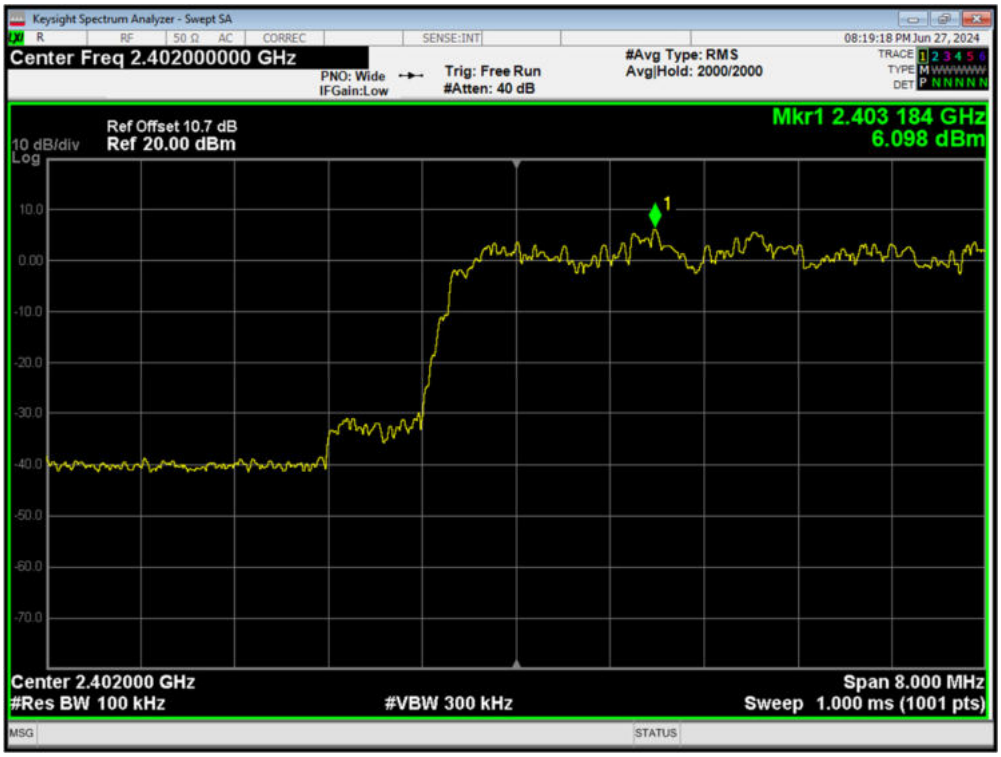
Band Edge(Hopping) 2-DH5 2480MHz Hopping Ref



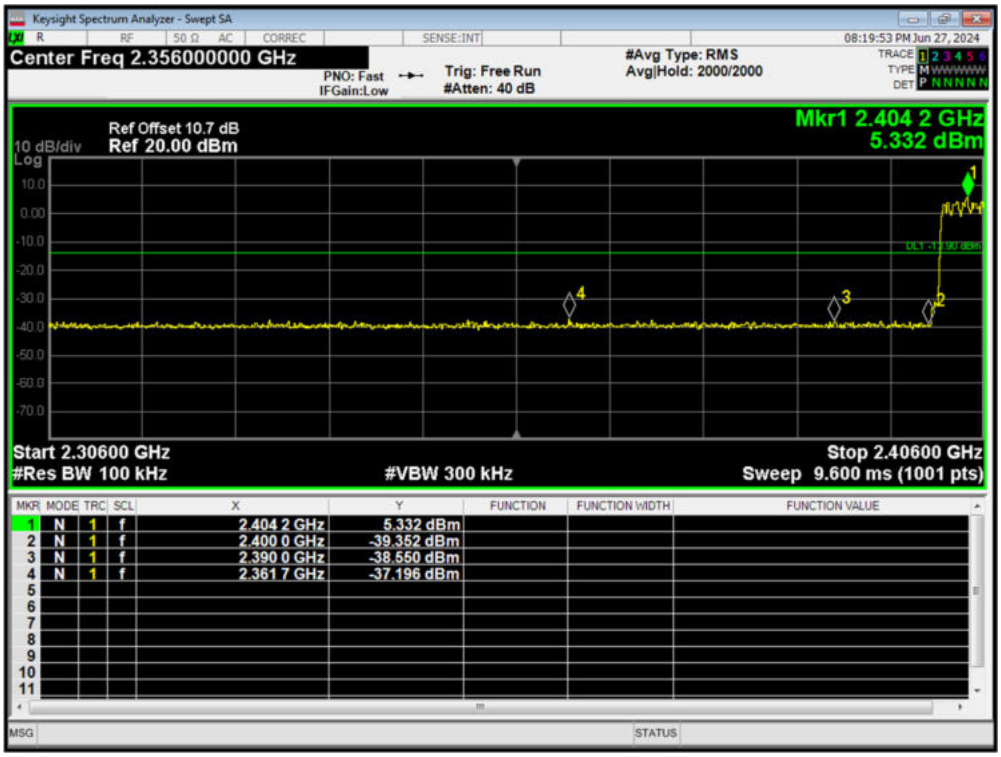
Band Edge(Hopping) 2-DH5 2480MHz Hopping Emission



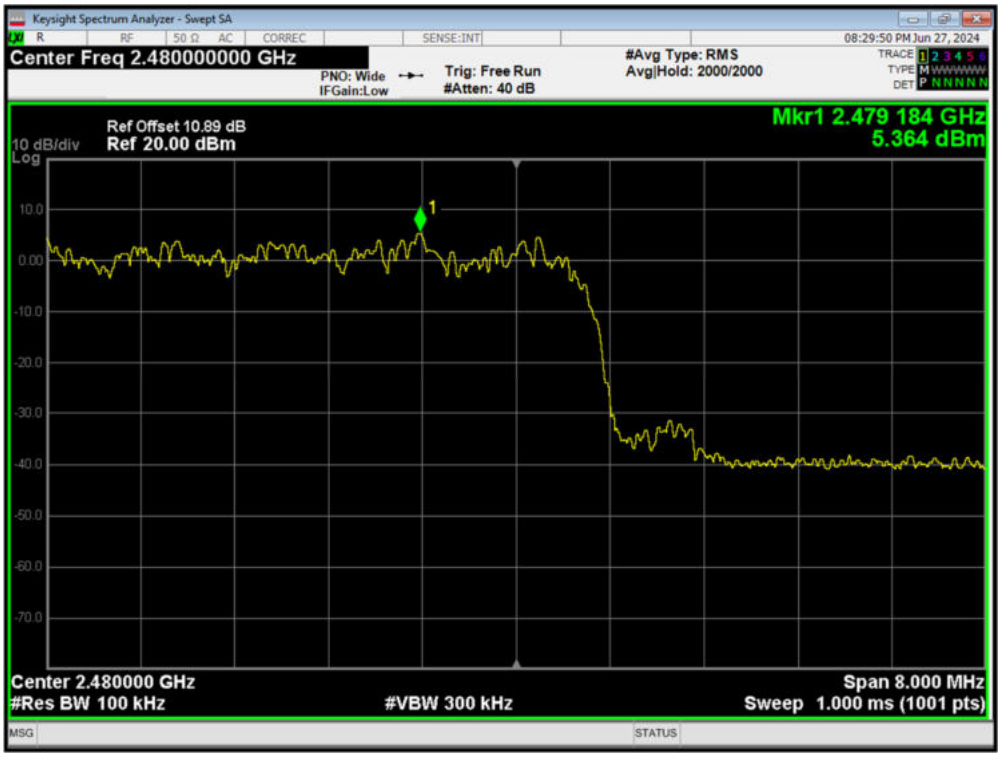
Band Edge(Hopping) 3-DH5 2402MHz Hopping Ref



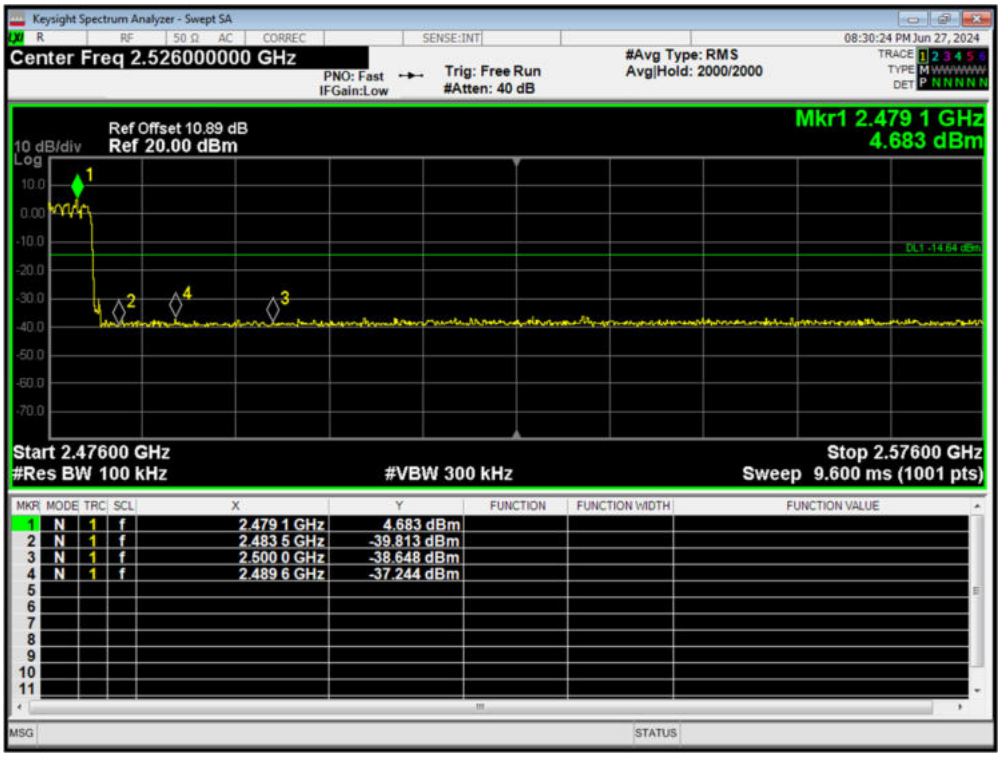
Band Edge(Hopping) 3-DH5 2402MHz Hopping Emission



Band Edge(Hopping) 3-DH5 2480MHz Hopping Ref



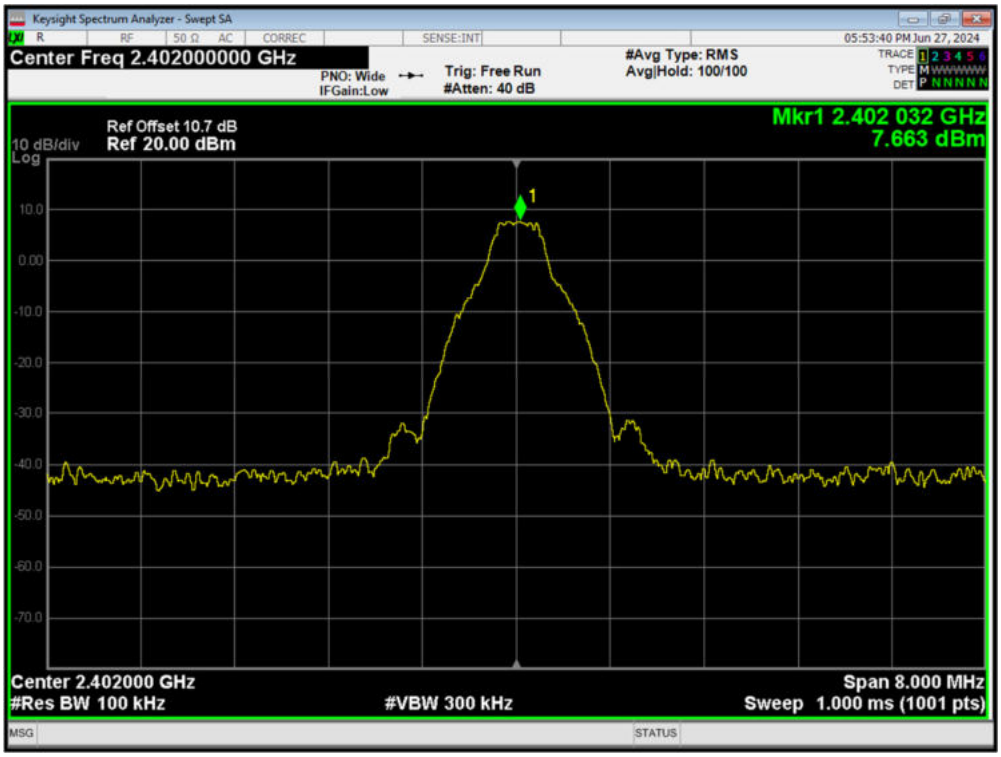
Band Edge(Hopping) 3-DH5 2480MHz Hopping Emission



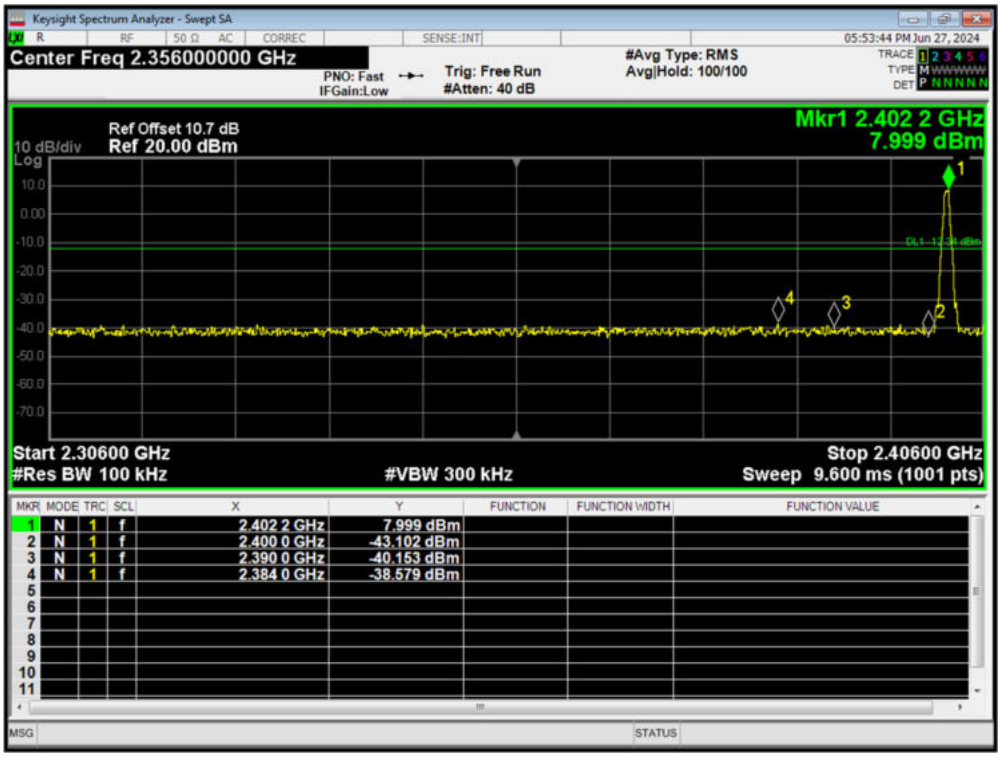
Hopping Off

Antenna 1

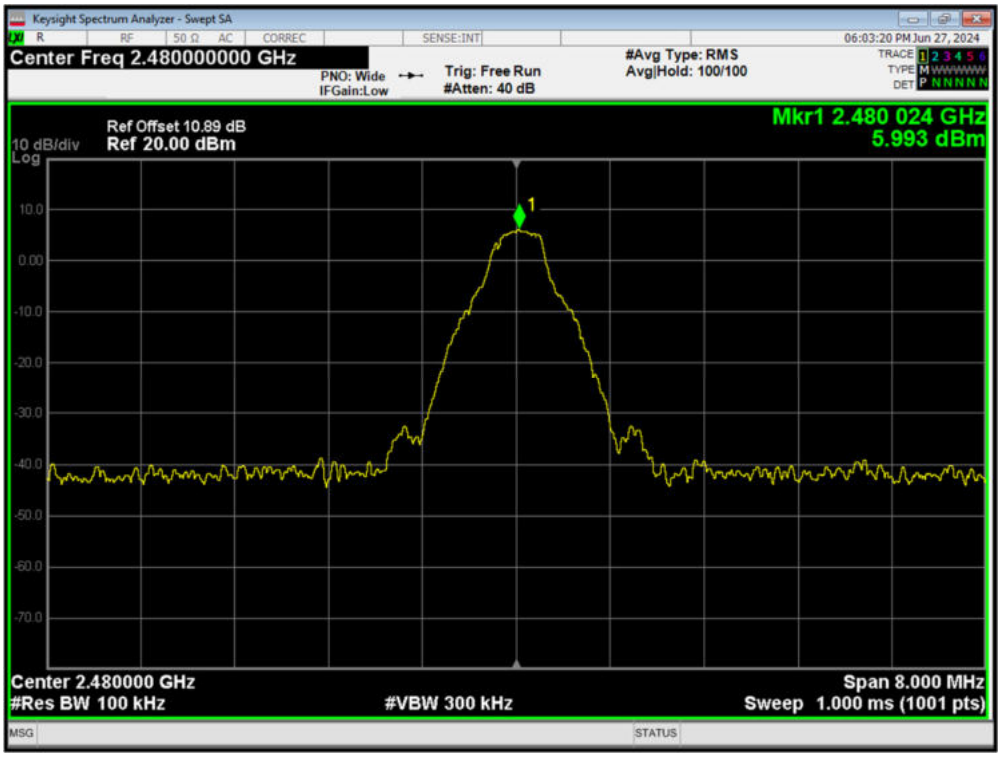
Band Edge 1-DH5 2402MHz No-Hopping Ref



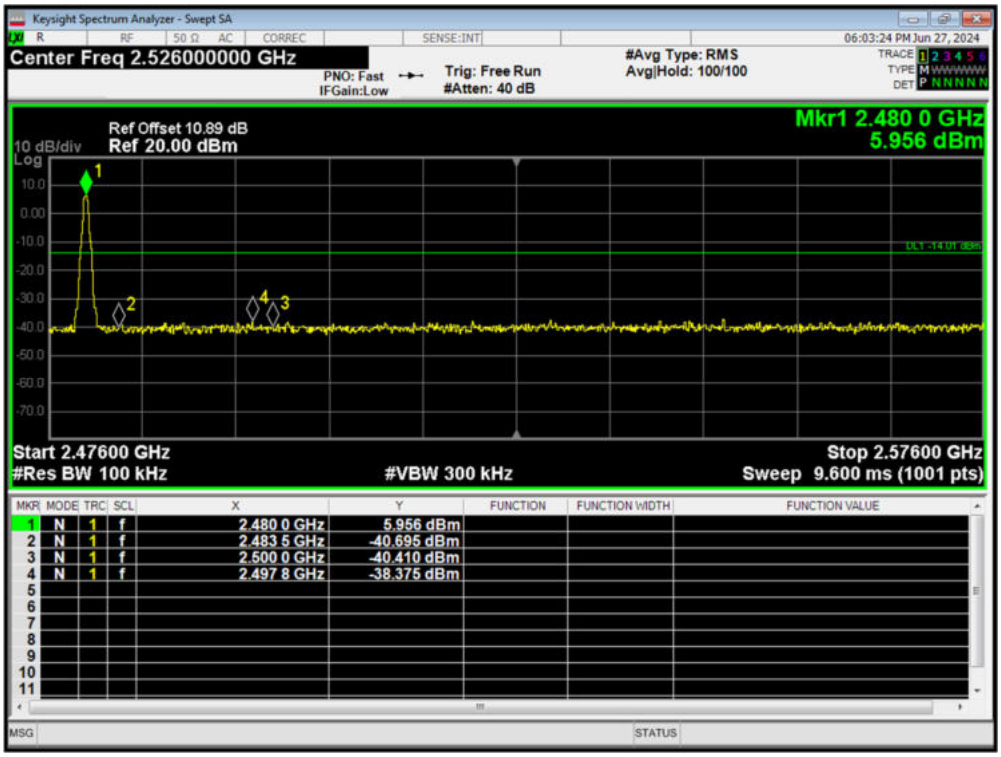
Band Edge 1-DH5 2402MHz No-Hopping Emission



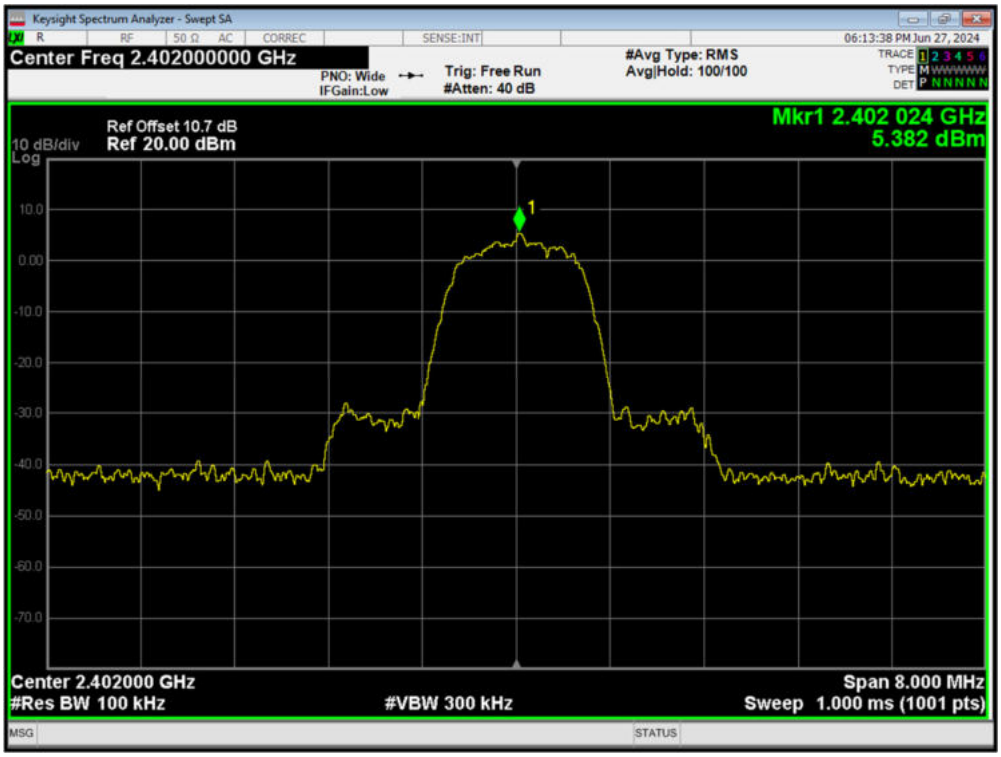
Band Edge 1-DH5 2480MHz No-Hopping Ref



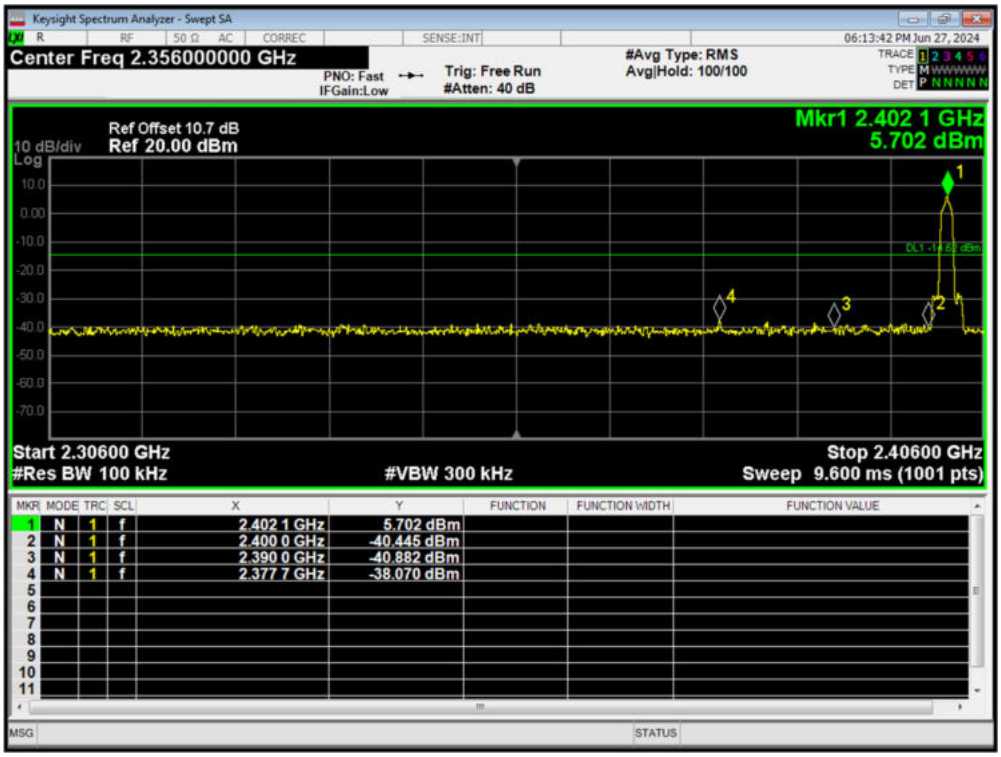
Band Edge 1-DH5 2480MHz No-Hopping Emission



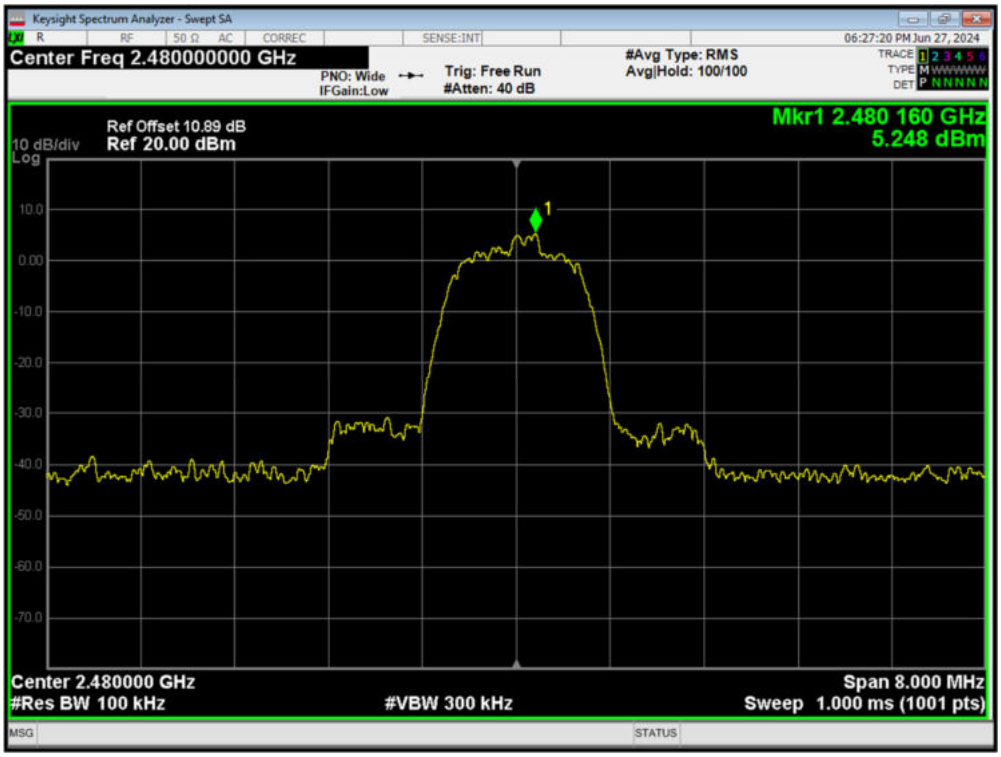
Band Edge 2-DH5 2402MHz No-Hopping Ref



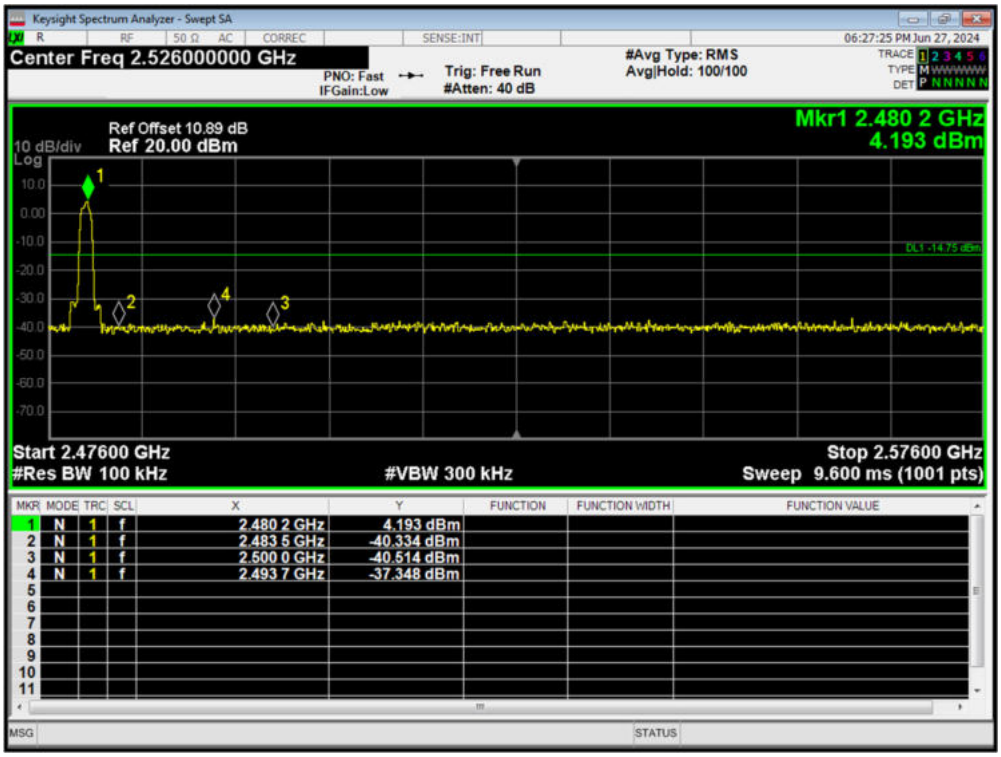
Band Edge 2-DH5 2402MHz No-Hopping Emission



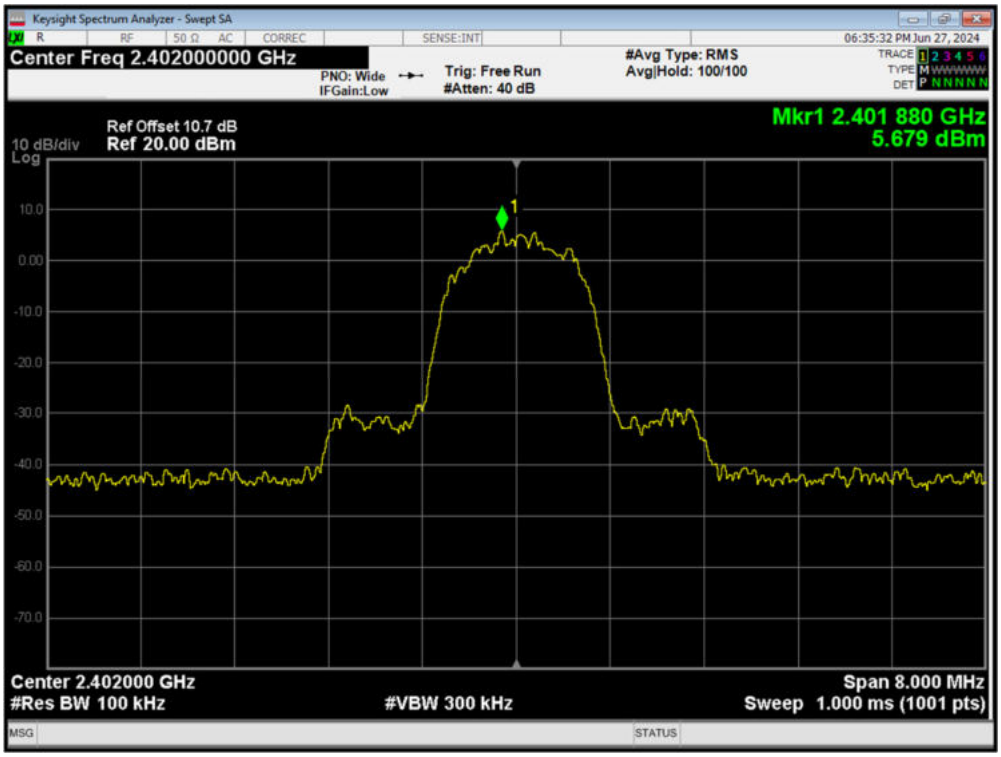
Band Edge 2-DH5 2480MHz No-Hopping Ref



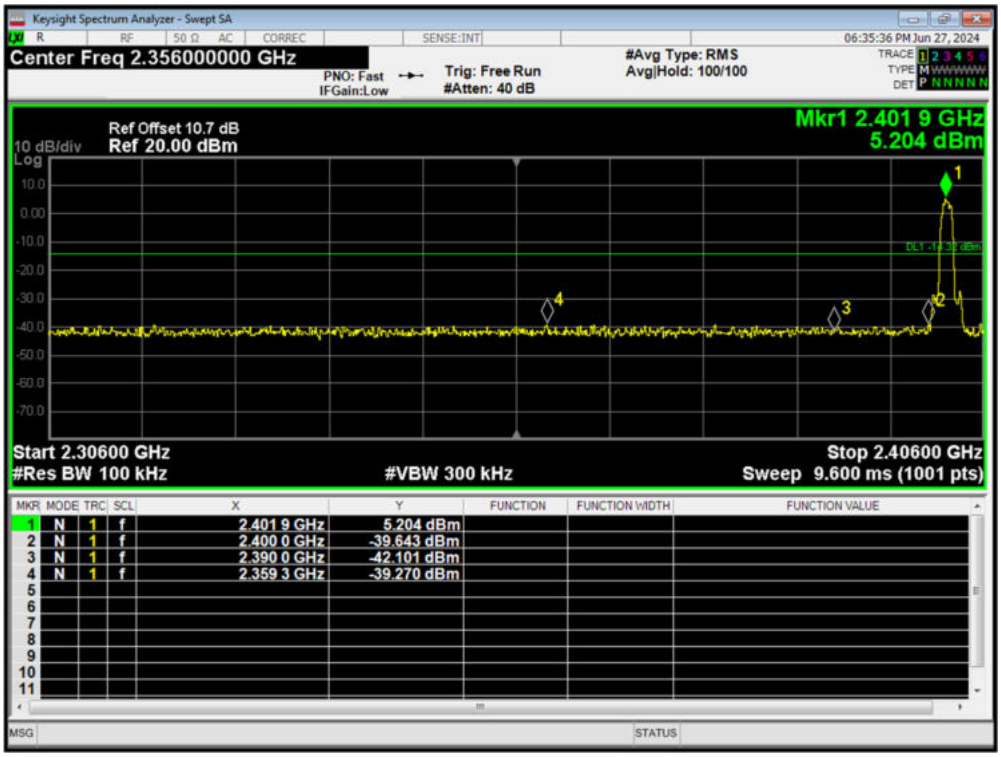
Band Edge 2-DH5 2480MHz No-Hopping Emission



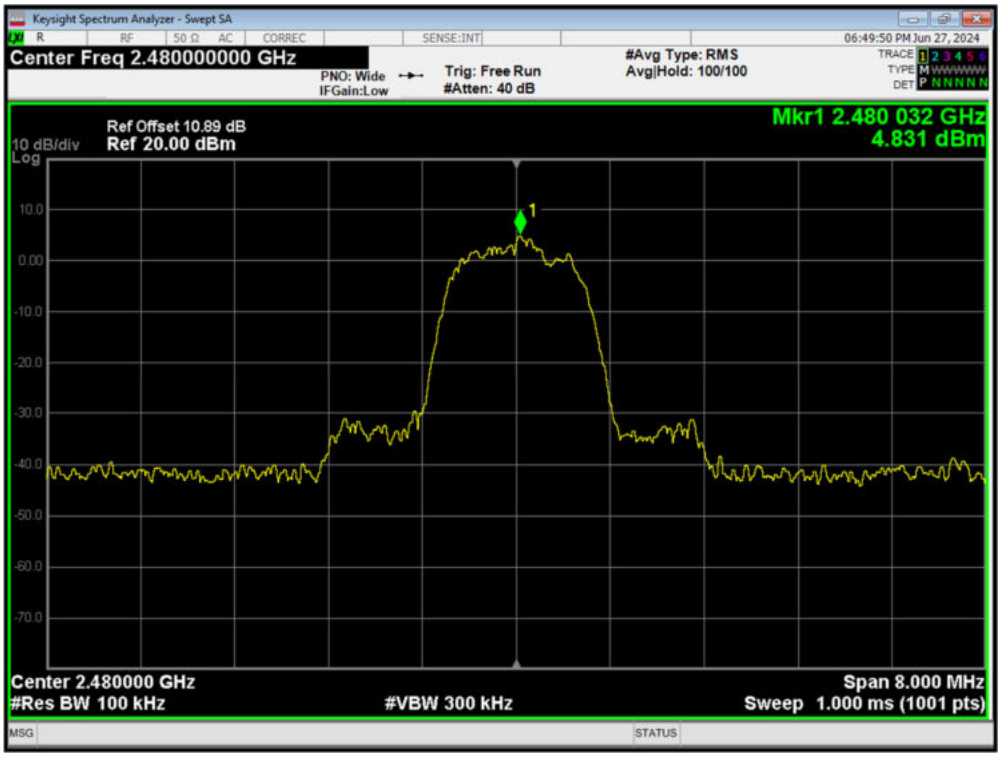
Band Edge 3-DH5 2402MHz No-Hopping Ref



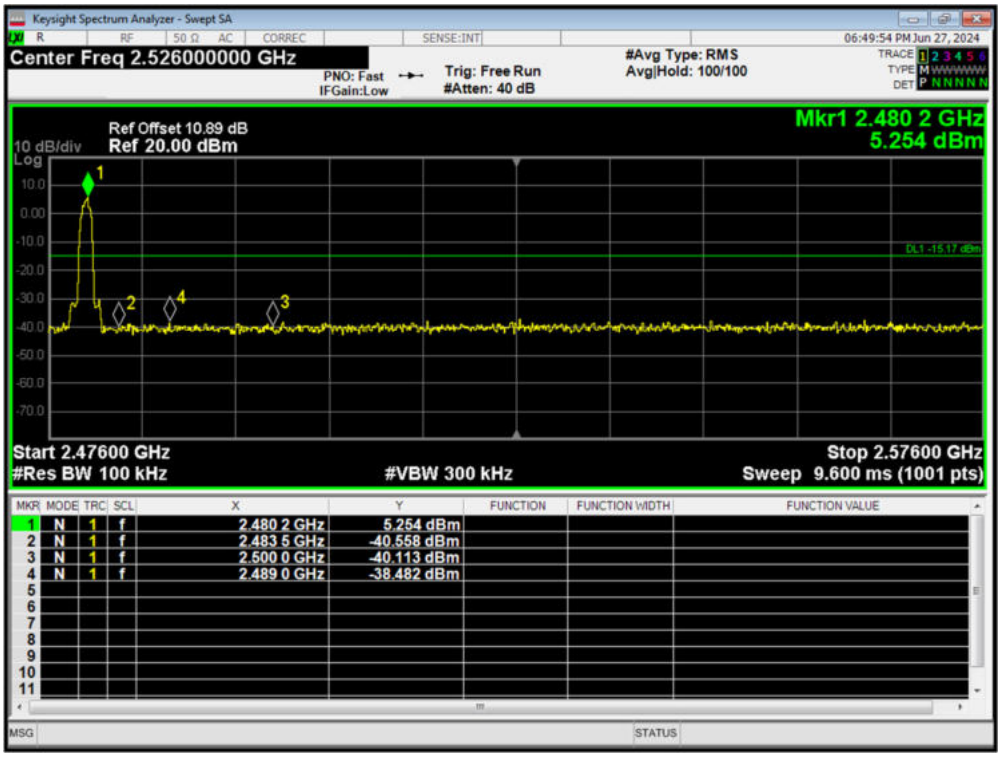
Band Edge 3-DH5 2402MHz No-Hopping Emission



Band Edge 3-DH5 2480MHz No-Hopping Ref

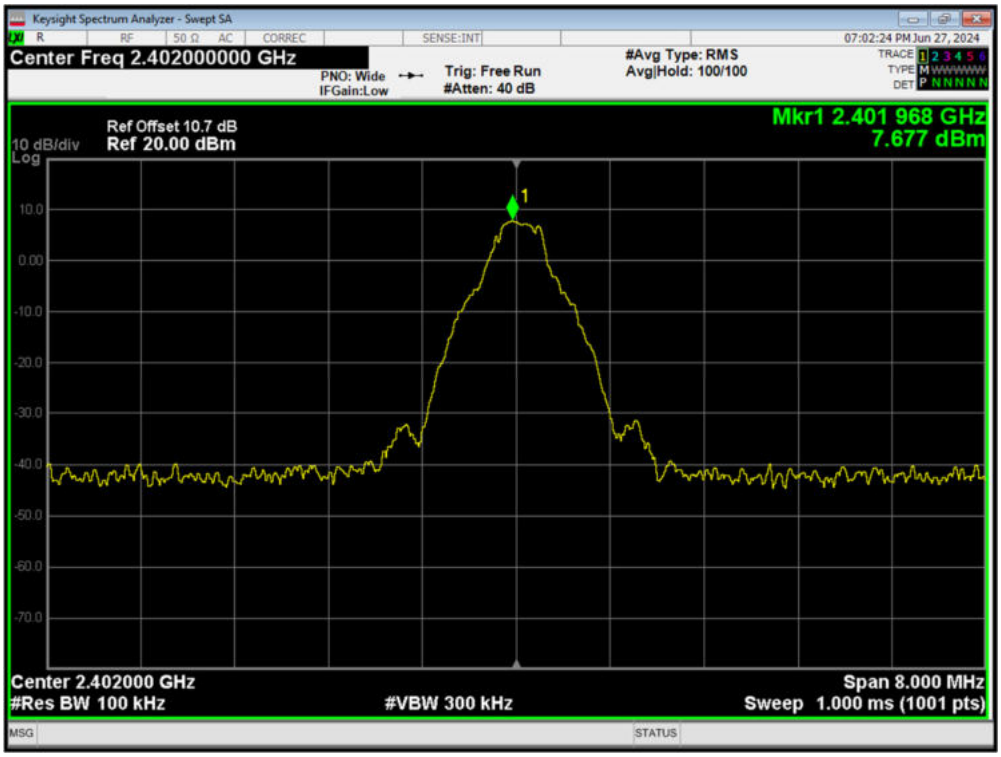


Band Edge 3-DH5 2480MHz No-Hopping Emission

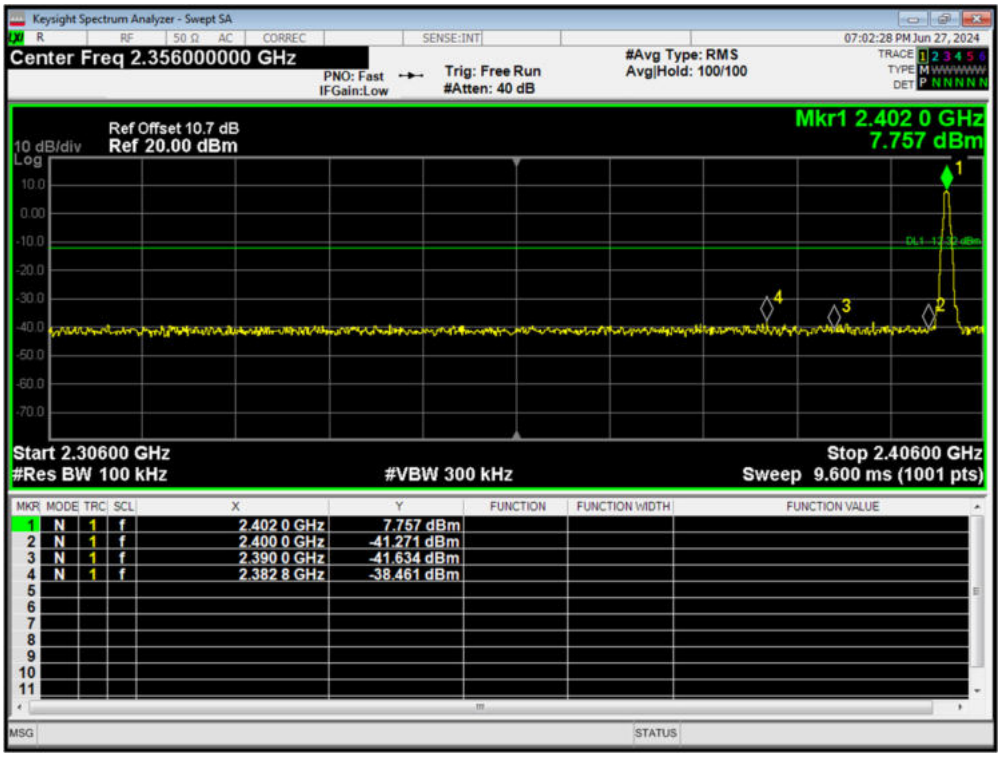


Antenna 2

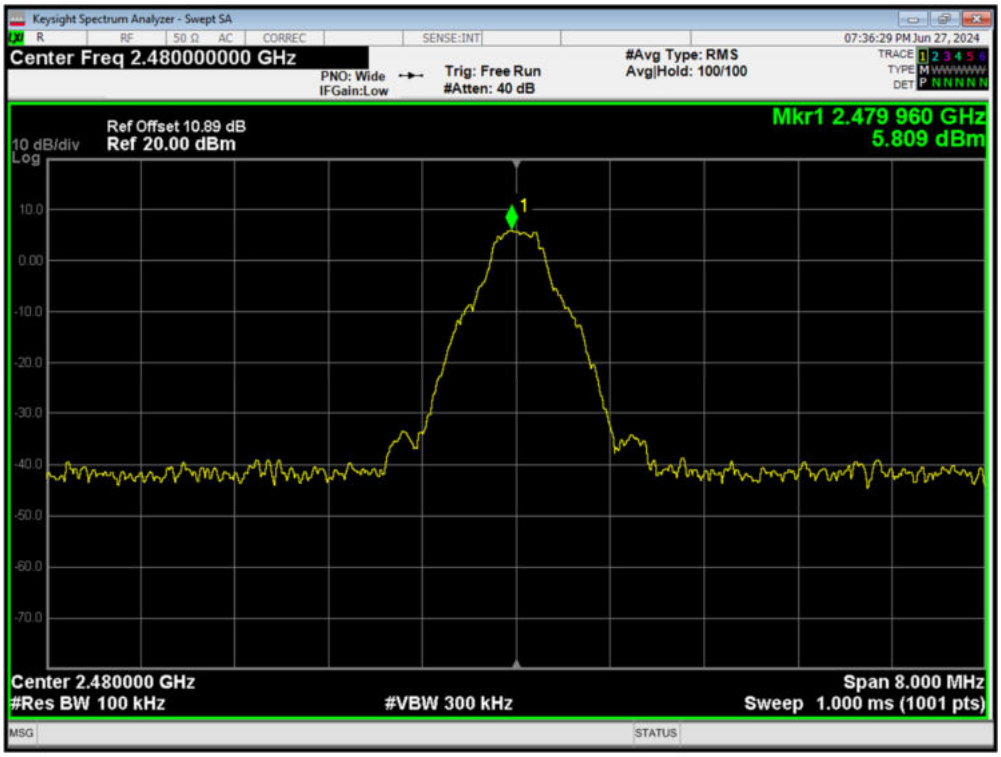
Band Edge 1-DH5 2402MHz No-Hopping Ref



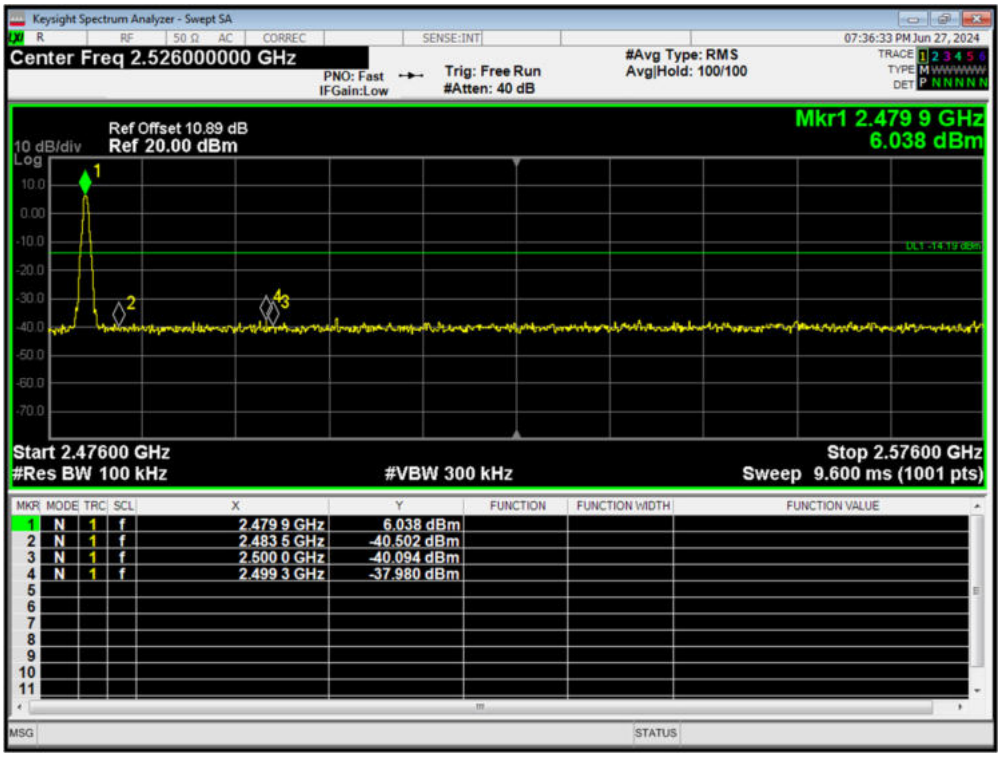
Band Edge 1-DH5 2402MHz No-Hopping Emission



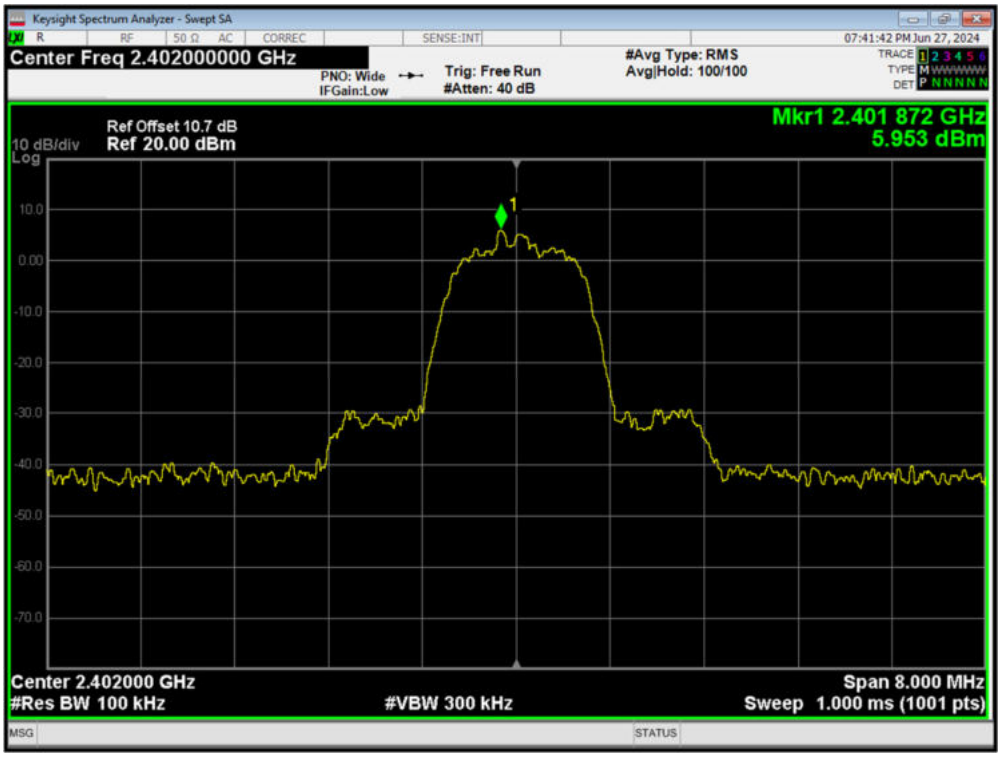
Band Edge 1-DH5 2480MHz No-Hopping Ref



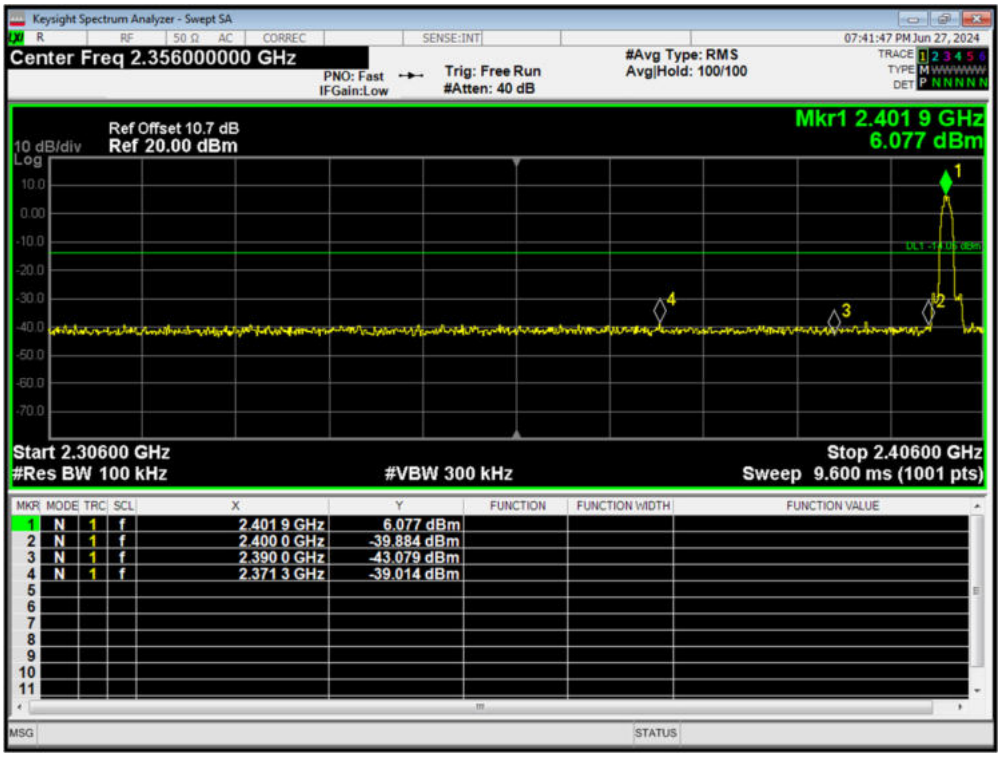
Band Edge 1-DH5 2480MHz No-Hopping Emission



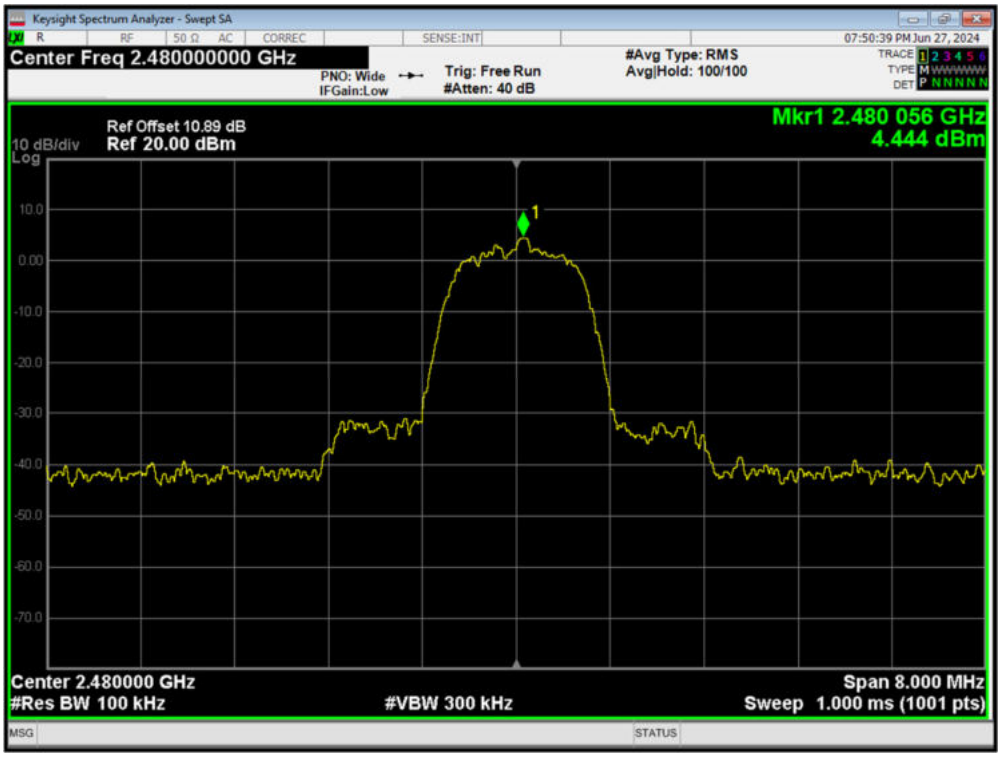
Band Edge 2-DH5 2402MHz No-Hopping Ref



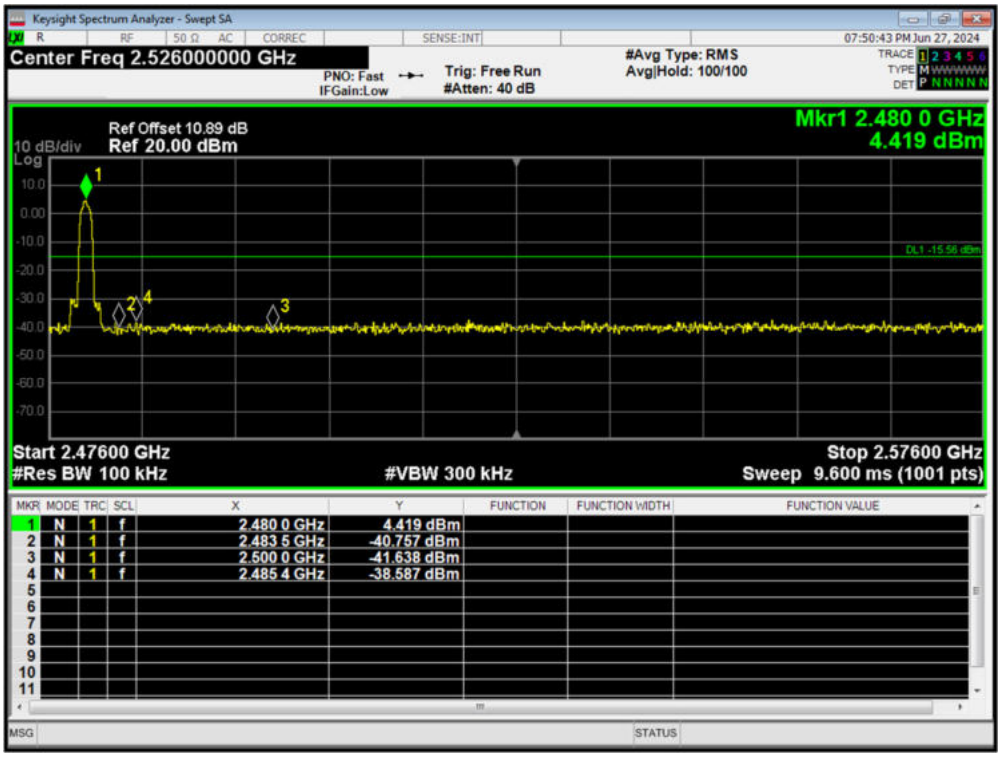
Band Edge 2-DH5 2402MHz No-Hopping Emission



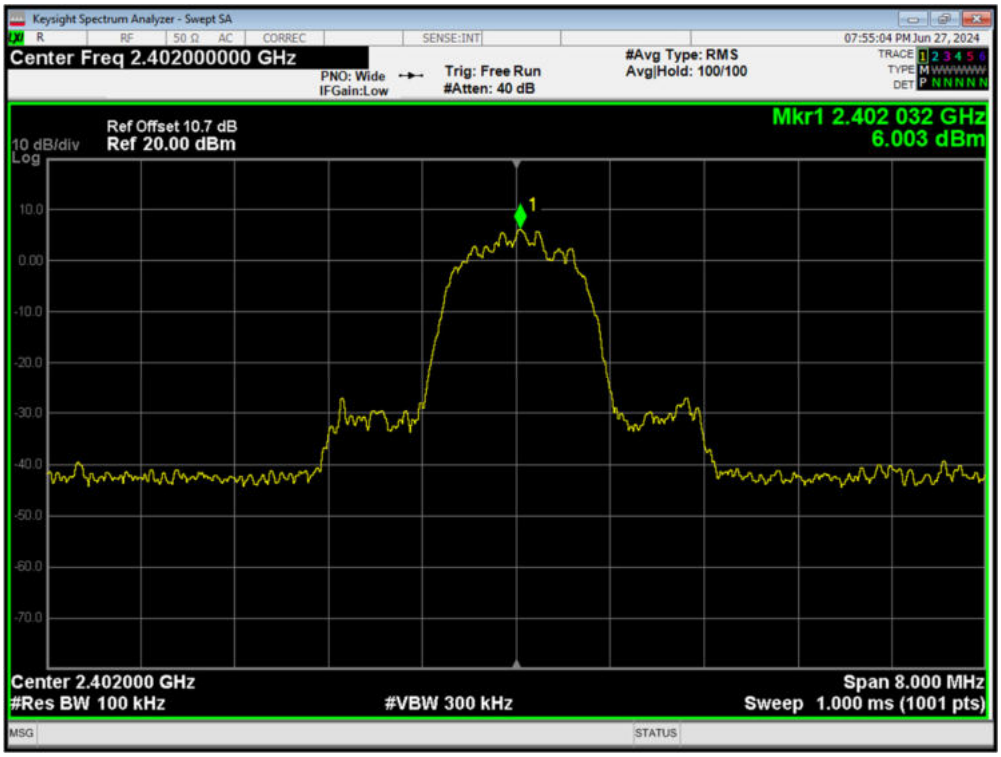
Band Edge 2-DH5 2480MHz No-Hopping Ref



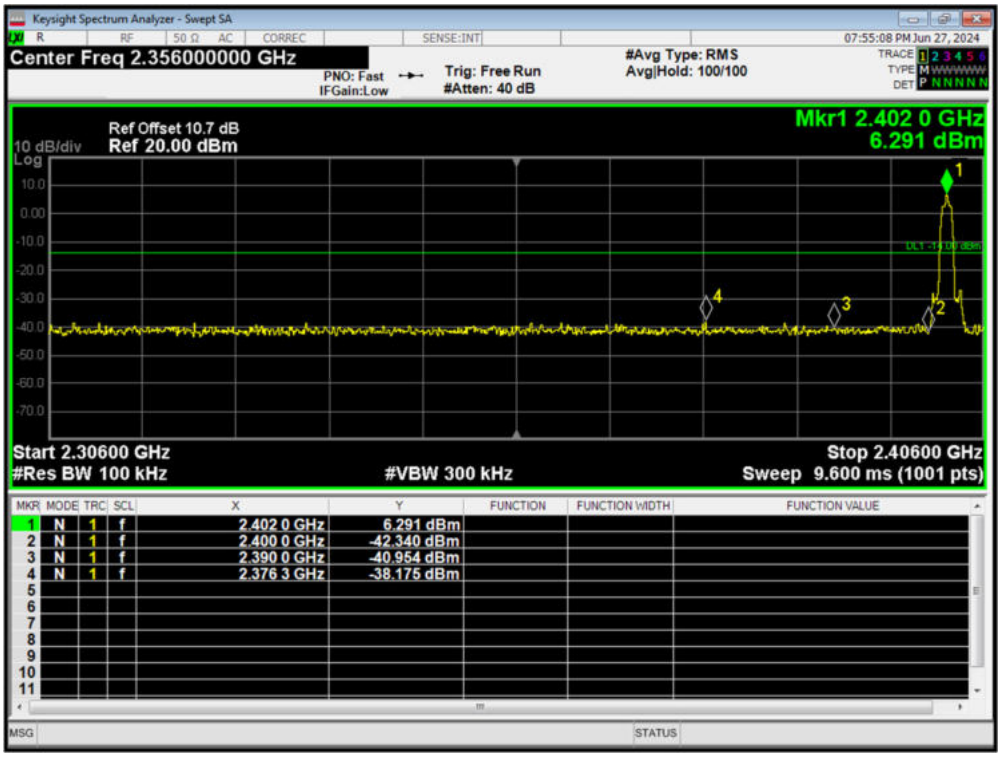
Band Edge 2-DH5 2480MHz No-Hopping Emission



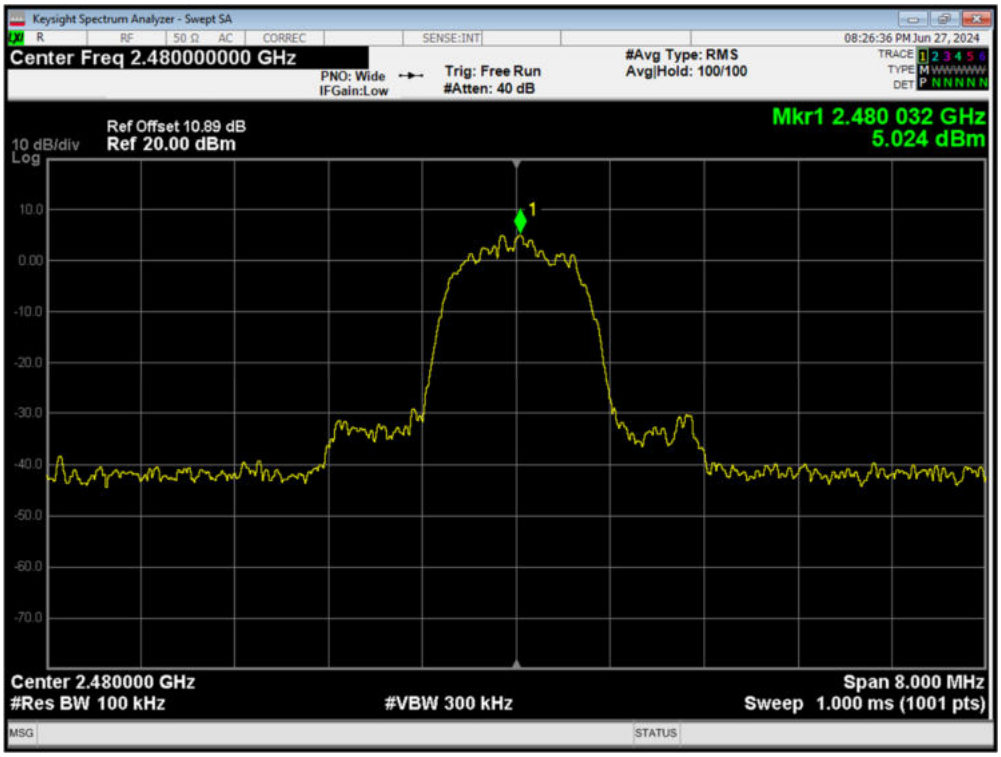
Band Edge 3-DH5 2402MHz No-Hopping Ref



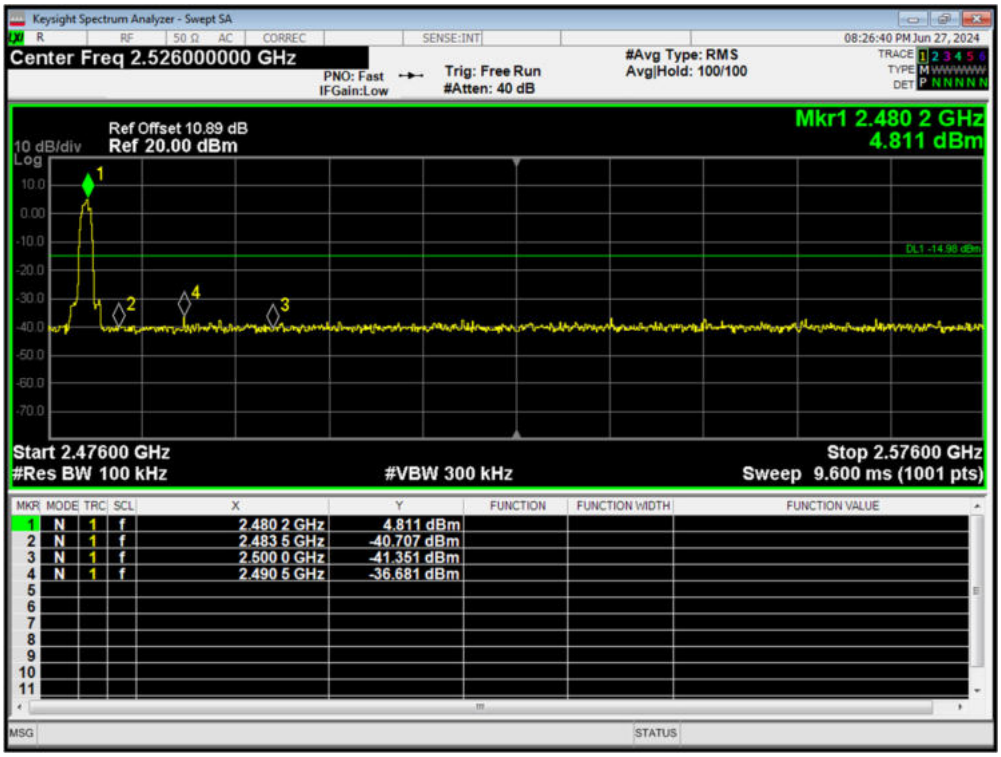
Band Edge 3-DH5 2402MHz No-Hopping Emission



Band Edge 3-DH5 2480MHz No-Hopping Ref



Band Edge 3-DH5 2480MHz No-Hopping Emission



5.6 Number of hopping Frequency

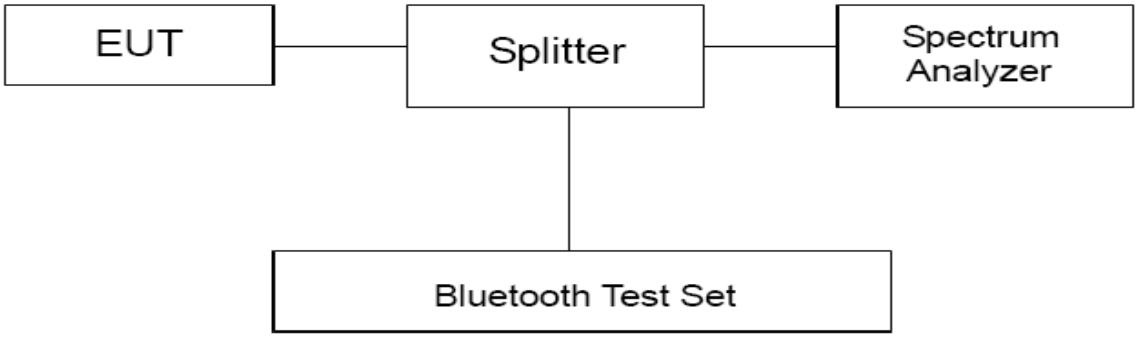
Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 100kHz and VBW is set to 300kHz on spectrum analyzer. Set EUT on Hopping on mode.

Test setup



Limits

Rule Part 15.247(a) (1) (iii) specifies that" Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels."

Limits	≥ 15 channels

Test Results:

Antenna 1

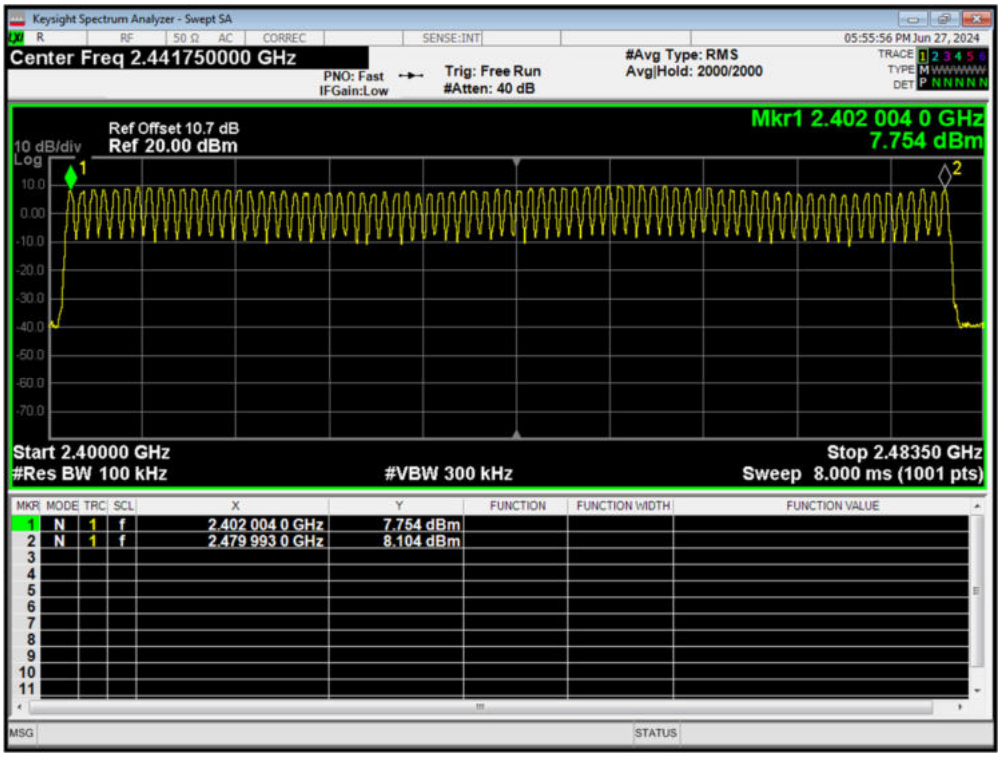
Test Mode		Number of hopping channels	conclusion
Bluetooth	DH5	79	PASS
	2DH5	79	PASS
	3DH5	79	PASS

Antenna 2

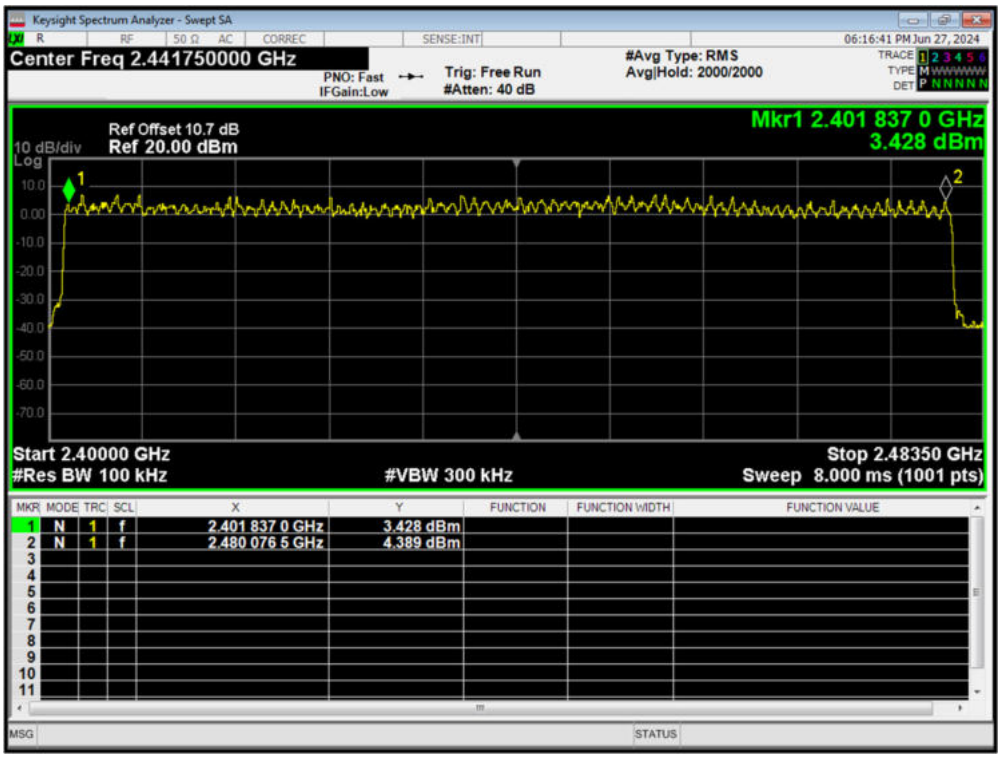
Test Mode		Number of hopping channels	conclusion
Bluetooth	DH5	79	PASS
	2DH5	79	PASS
	3DH5	79	PASS

Antenna 1

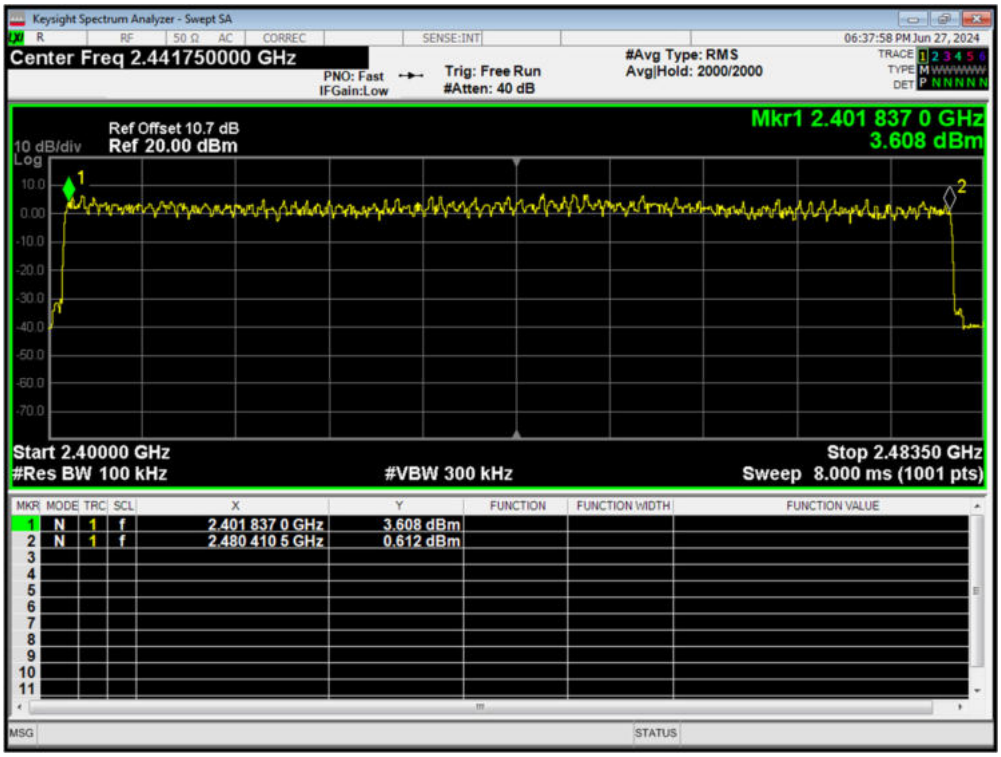
Hopping No. 1-DH5 2402MHz



Hopping No. 2-DH5 2402MHz

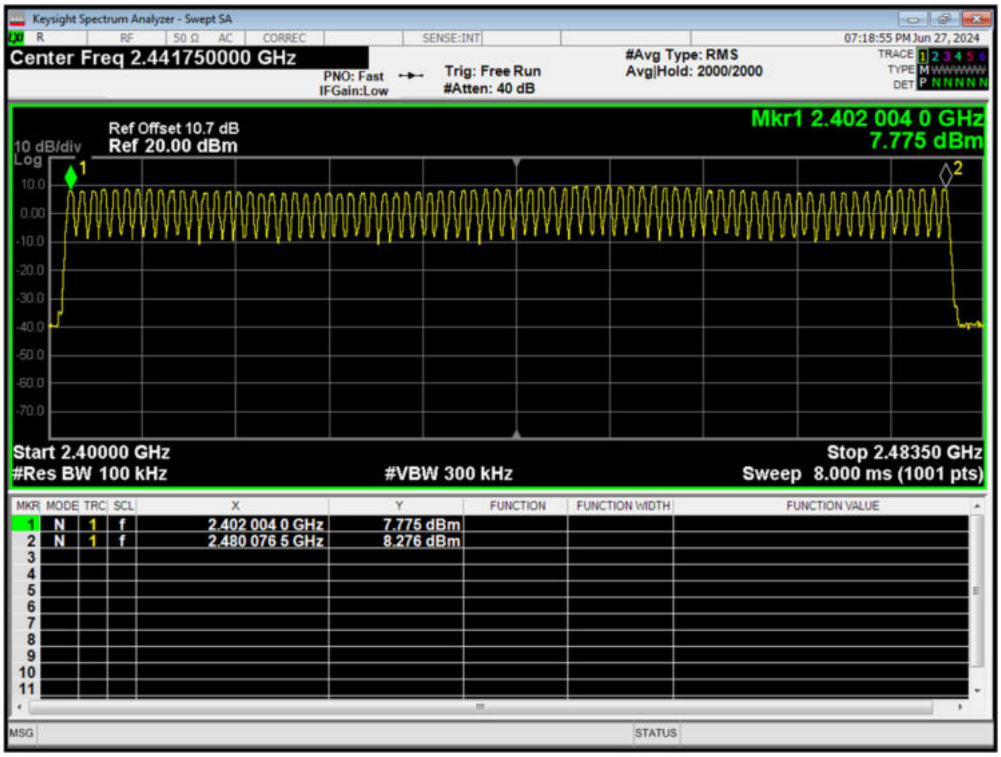


Hopping No. 3-DH5 2402MHz

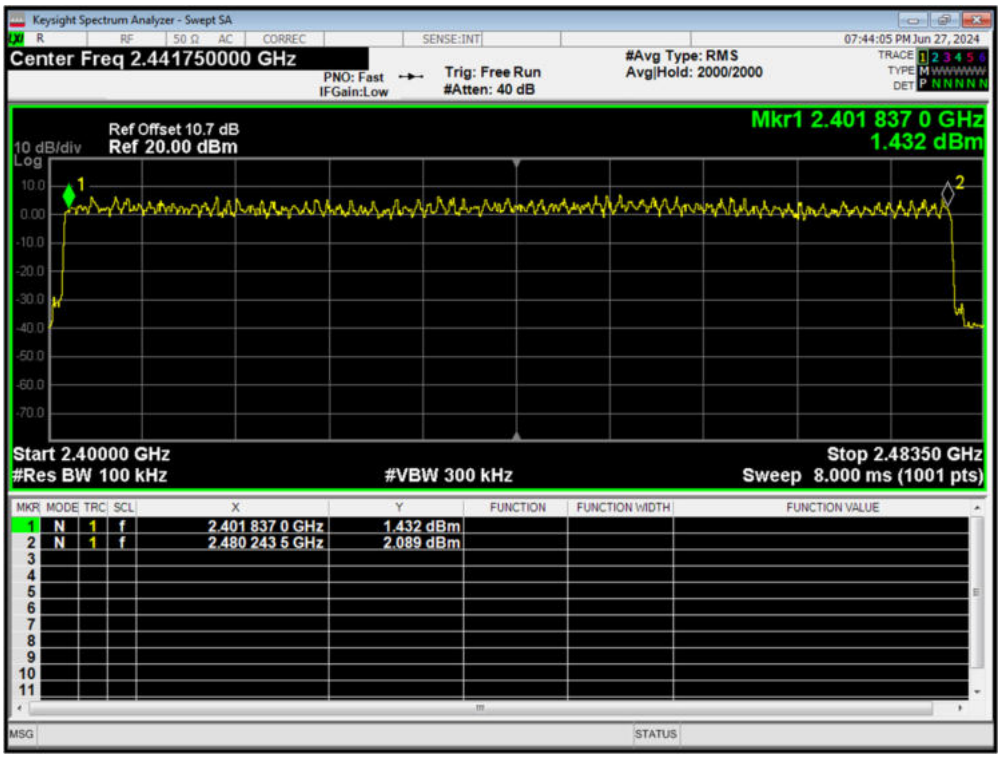


Antenna 2

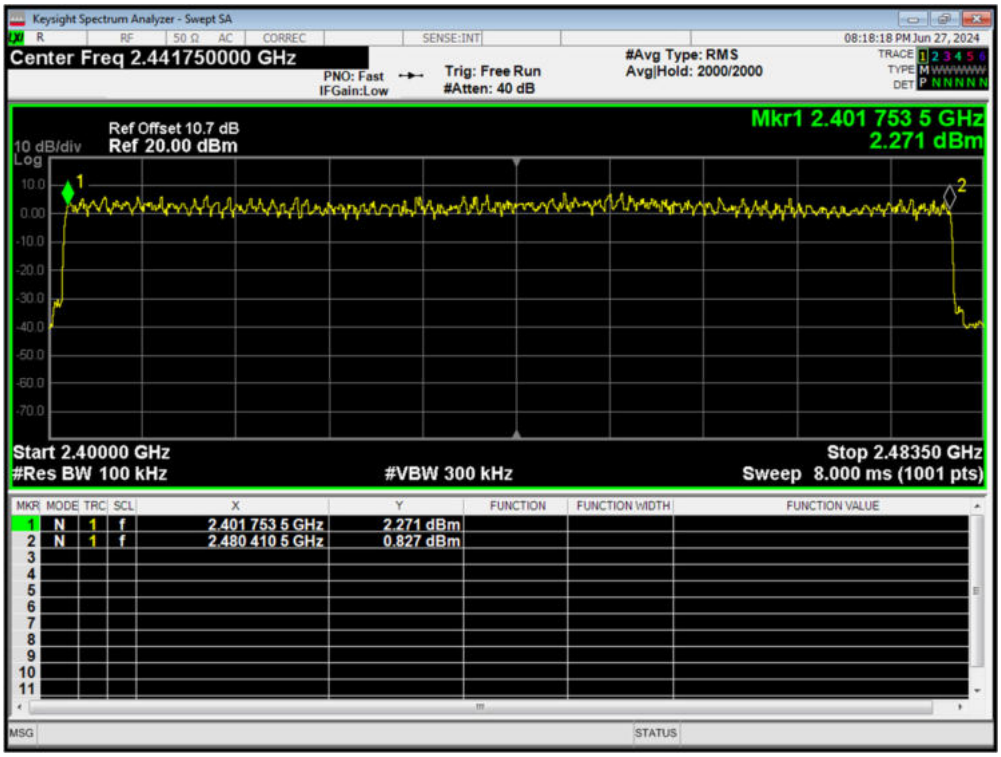
Hopping No. 1-DH5 2402MHz



Hopping No. 2-DH5 2402MHz



Hopping No. 3-DH5 2402MHz



5.7 Spurious RF Conducted Emissions

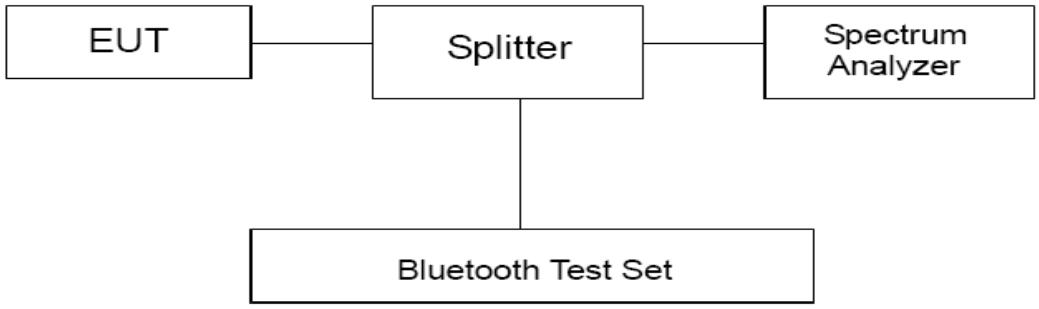
Ambient condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. Set RBW 100kHz and VBW 300 kHz, Sweep is set to AUTO.
The test is in transmitting mode.

Test setup



Limits

Rule Part 15.247(d) pacifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.”

Antenna 1

Test Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit
DH5	2402	7.800	-12.20
	2441	7.480	-12.52
	2480	5.830	-14.17
2DH5	2402	6.460	-13.54
	2441	6.710	-13.29
	2480	5.290	-14.71
3DH5	2402	6.070	-13.93
	2441	6.330	-13.67
	2480	5.140	-14.86

Antenna 2

Test Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit
DH5	2402	7.700	-12.30
	2441	7.030	-12.97
	2480	6.020	-13.98
2DH5	2402	6.000	-14.00
	2441	6.460	-13.54
	2480	5.200	-14.80
3DH5	2402	6.020	-13.98
	2441	5.920	-14.08
	2480	5.480	-14.52

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor *k* = 1.96.

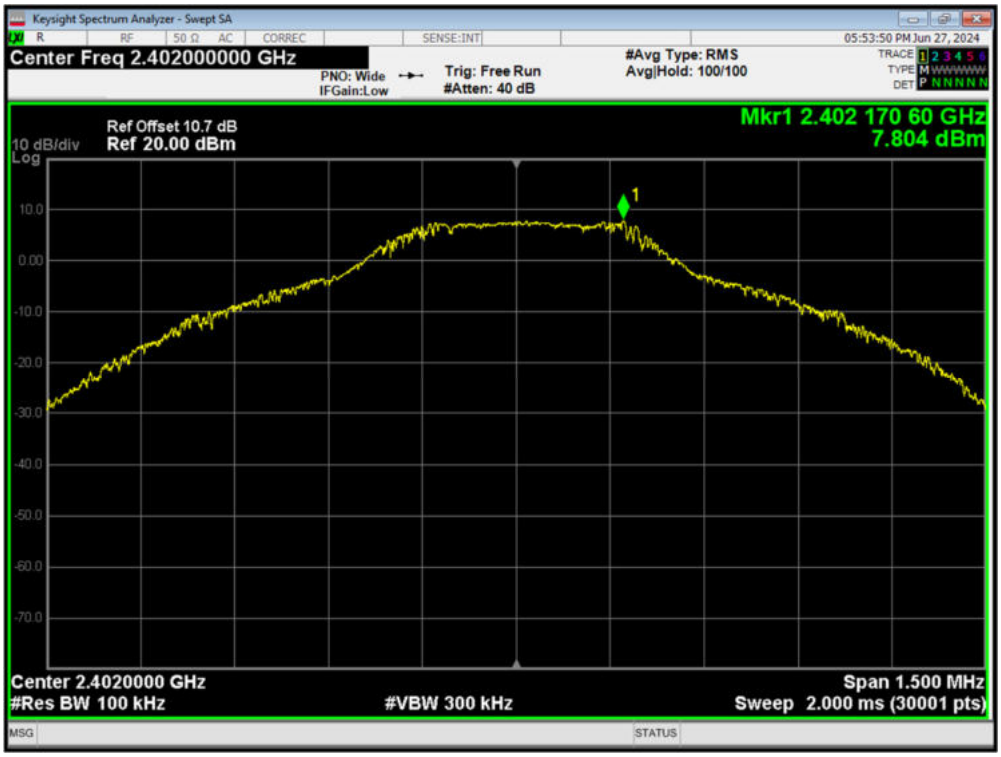
Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-26GHz	1.407 dB

Test Results:

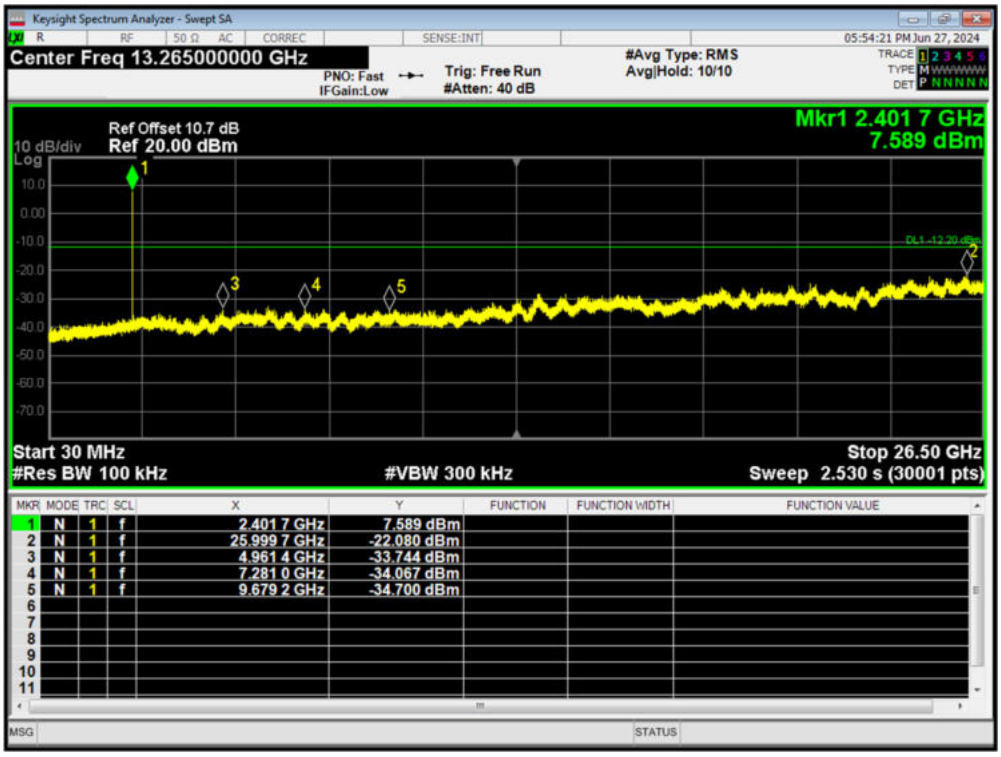
The signal beyond the limit is carrier.

Antenna 1

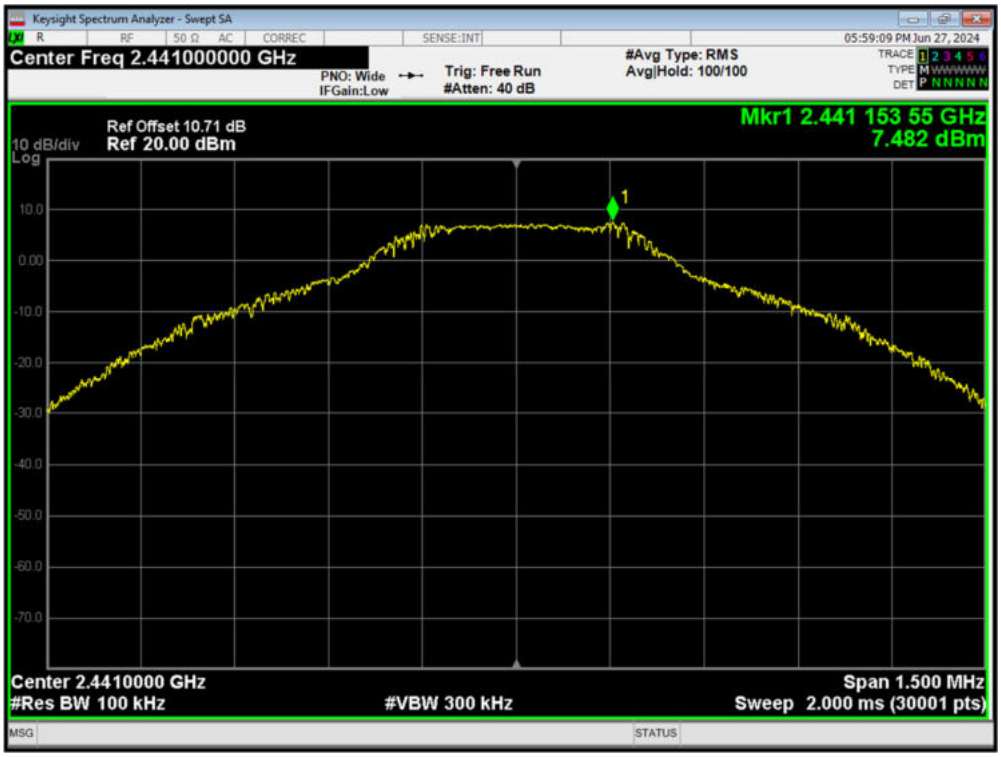
Tx. Spurious 1-DH5 2402MHz Ref



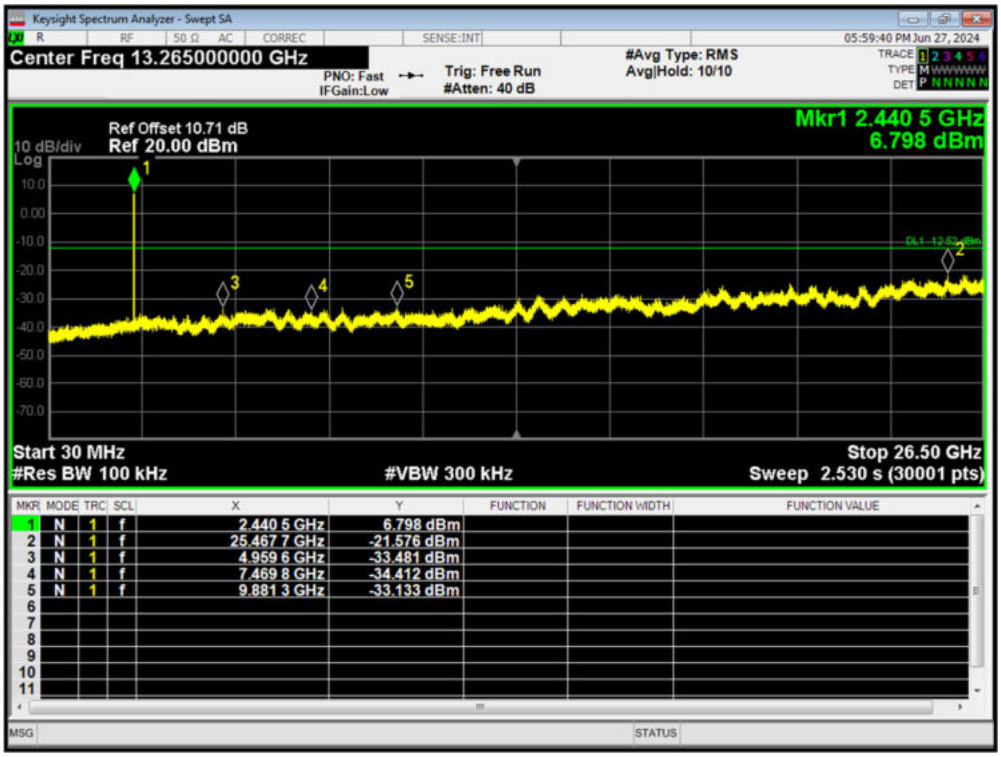
Tx. Spurious 1-DH5 2402MHz Emission



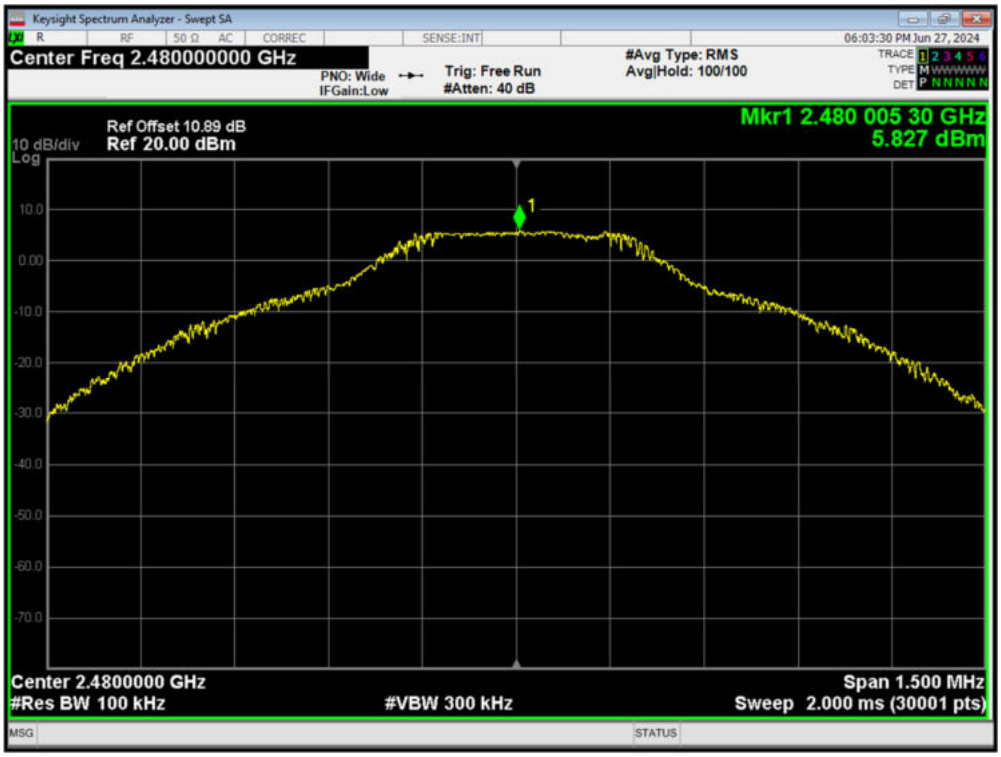
Tx. Spurious 1-DH5 2441MHz Ref



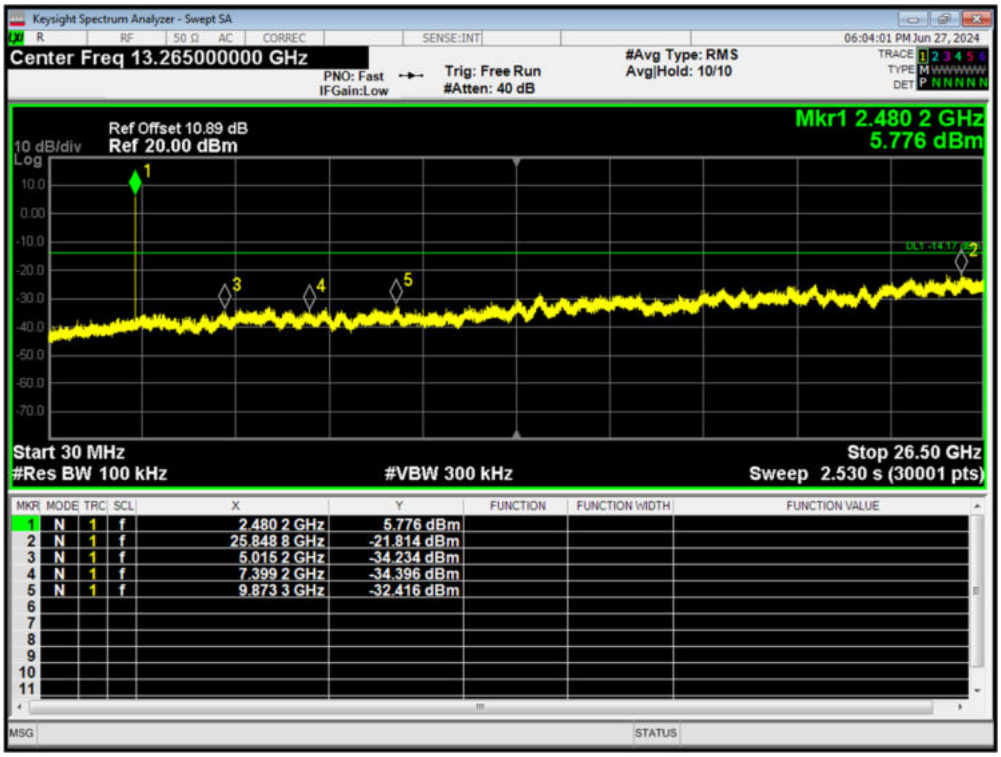
Tx. Spurious 1-DH5 2441MHz Emission



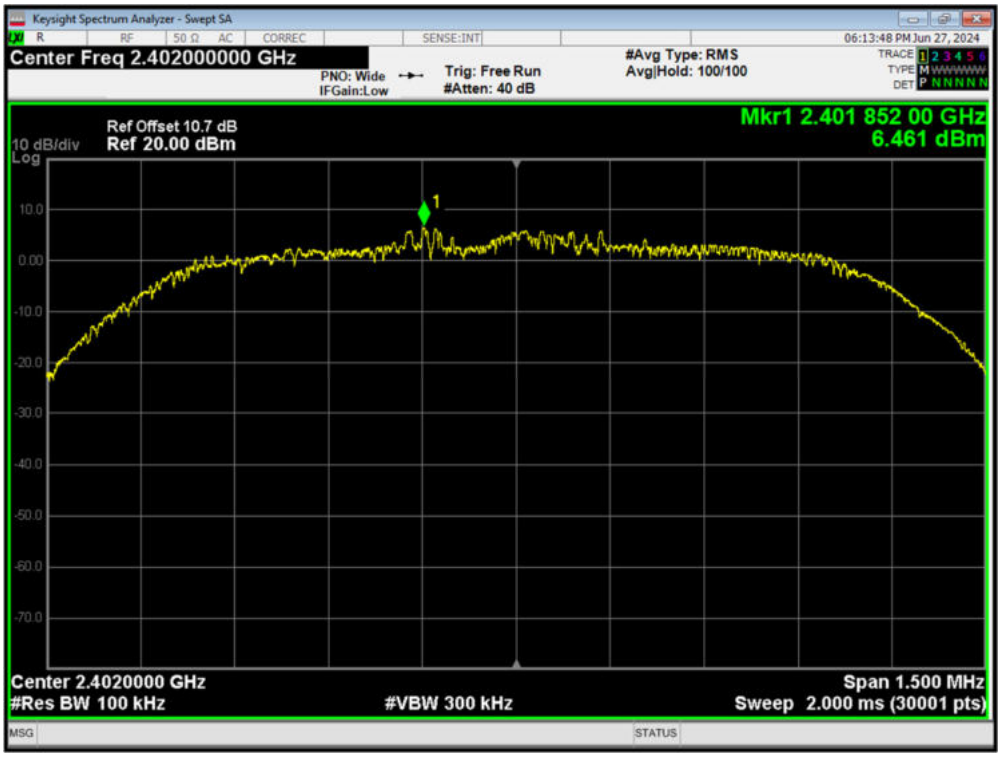
Tx. Spurious 1-DH5 2480MHz Ref



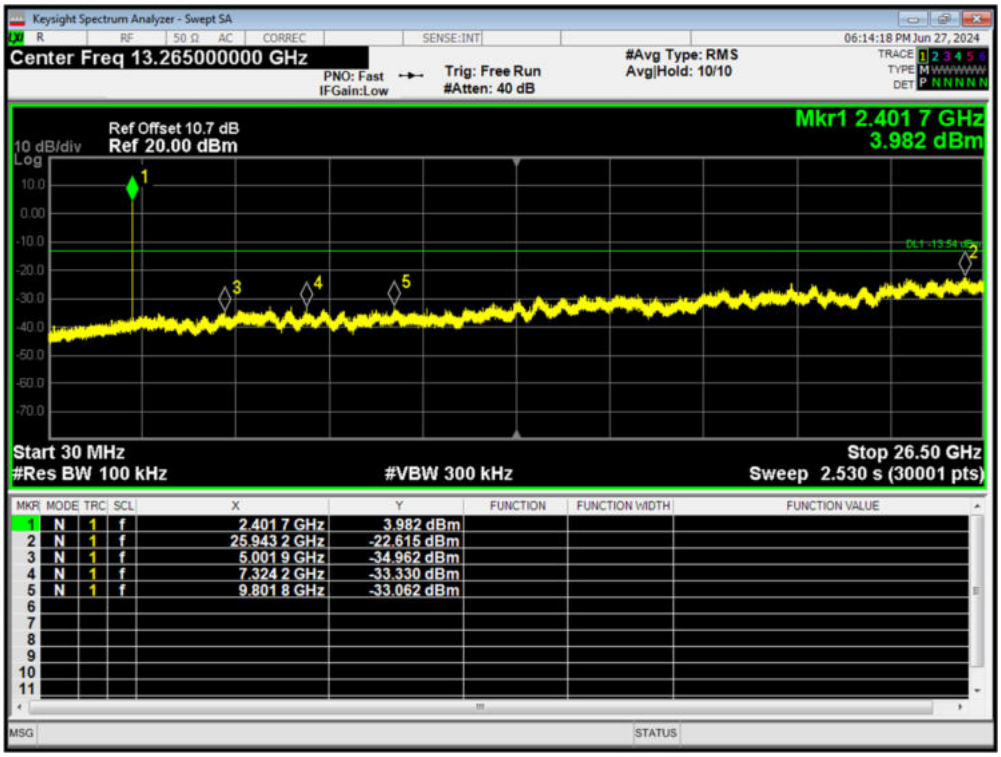
Tx. Spurious 1-DH5 2480MHz Emission



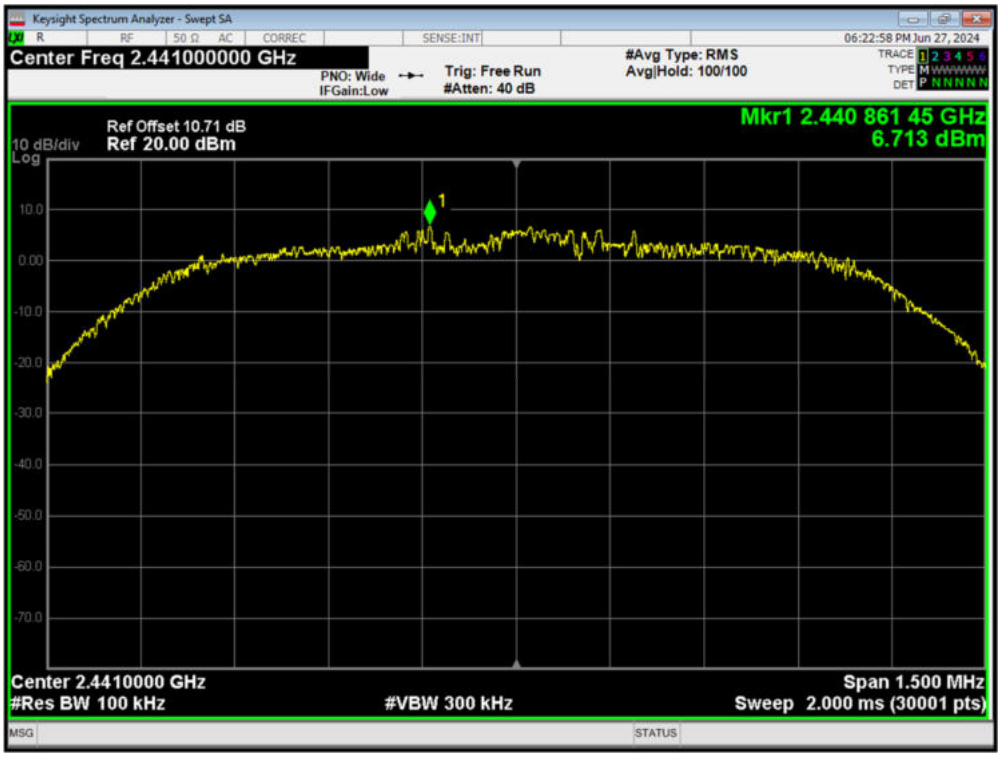
Tx. Spurious 2-DH5 2402MHz Ref



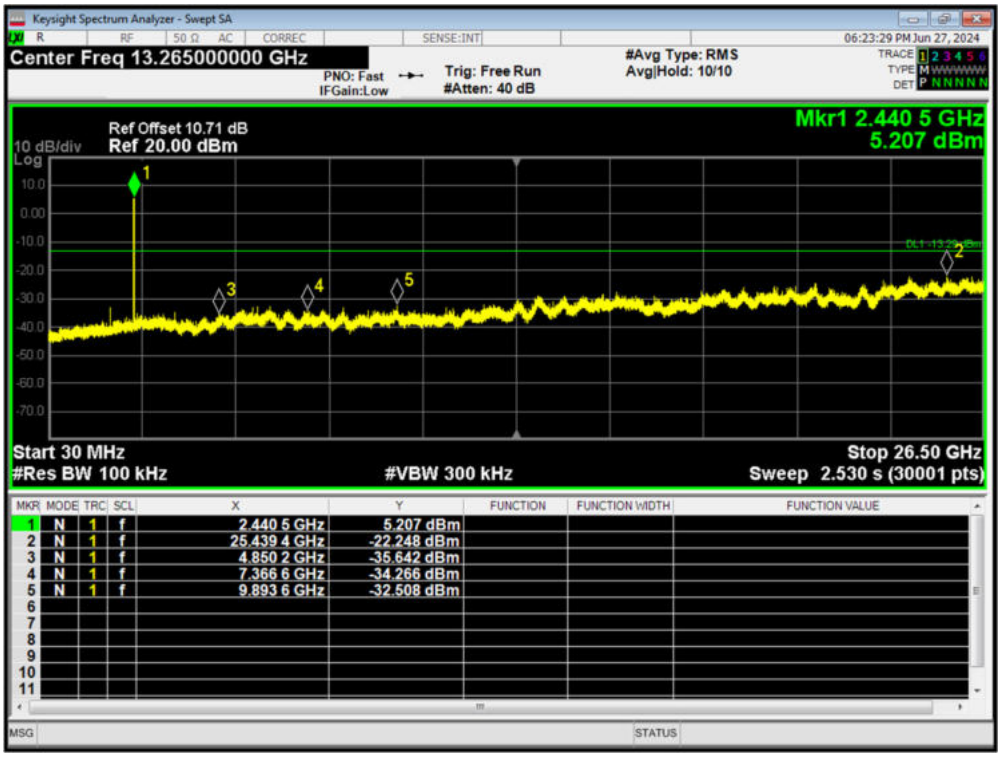
Tx. Spurious 2-DH5 2402MHz Emission



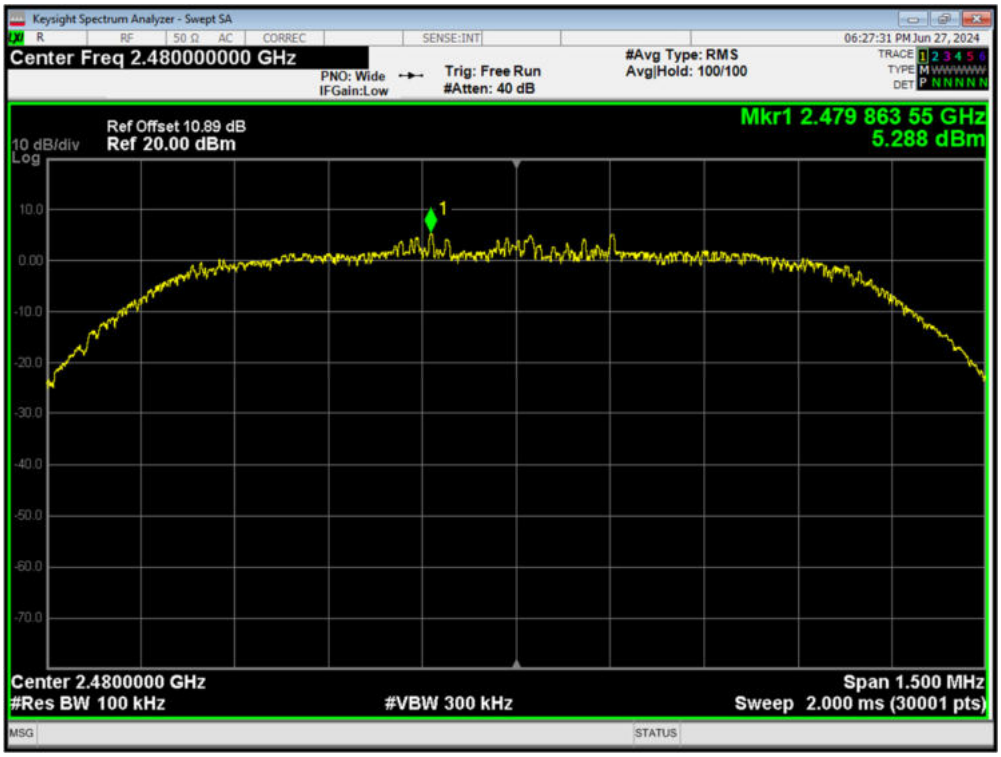
Tx. Spurious 2-DH5 2441MHz Ref



Tx. Spurious 2-DH5 2441MHz Emission



Tx. Spurious 2-DH5 2480MHz Ref



Tx. Spurious 2-DH5 2480MHz Emission