

Attachment E-- Average Time of Occupancy Test Data

Temperature:		25℃		Relative Humidity:		55%
Test Voltage:		DC 3.8V				
Test Mode:		Hopping Mode (GFSK)				
Test Mode	Channel (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
1DH1	2441	0.378	120.96	31.60	400	PASS
1DH3	2441	1.634	261.44	31.60	400	PASS
1DH5	2441	2.882	307.41	31.60	400	PASS
1DH1 Total of Dwell= Pulse Time*(1600/2)*31.6/79						
1DH3 Total of Dwell= Pulse Time*(1600/4)*31.6/79						
1DH5 Total of Dwell= Pulse Time*(1600/6)*31.6/79						
GFSK Hopping Mode 1DH1						
2441 MHz						

Keysight Spectrum Analyzer - Swept SA

RL

RF

75 Ω

AC

CORREC

SENSE:INT

ALIGN AUTO

06:30:25 PM Jan 03, 2020

Center Freq 2.441000000 GHz

PNO: Fast

IFGain:Low

Trig Delay:1.000 ms

Trig: Video

Avg Type: Log-Pwr

ATTEN: 30 dB

TRACE 1 2 3 4 5 6

TYPE VAWWWWW

DET P NNNNN

10 dB/div

Log

Ref Offset 3.94 dB

Ref 23.94 dBm

ΔMkr1 378.0 μs

1.88 dB

1Δ2

X2

TIME LIVE

Center 2.441000000 GHz

Res BW 1.0 MHz

#VBW 3.0 MHz

Span 0 Hz

Sweep 5.000 ms (10001 pts)

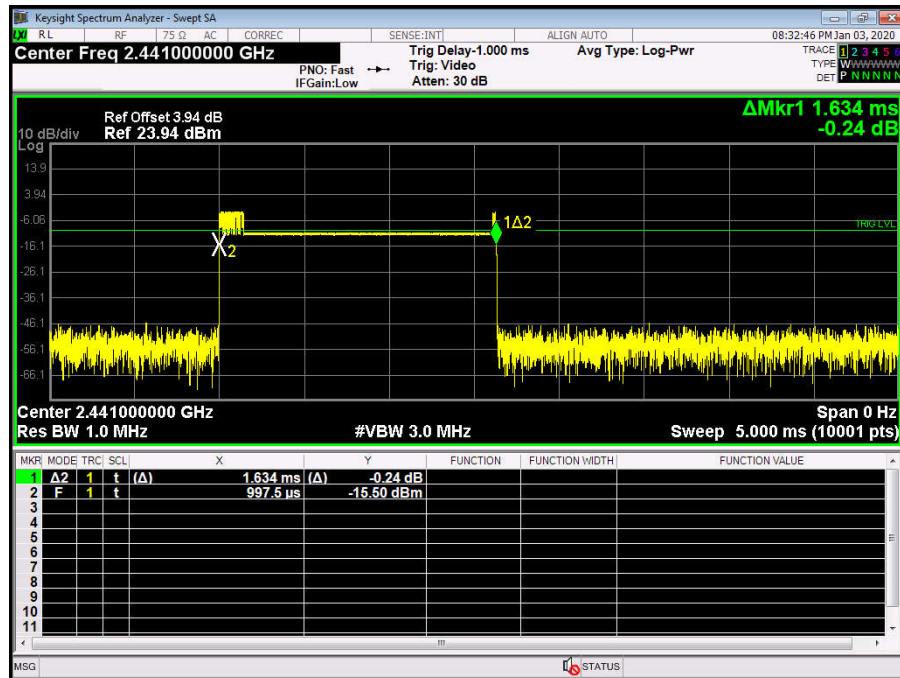
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	A2	1	t	(Δ)	378.0 μs	(Δ)	1.88 dB	
2	F	1	t	(Δ)	999.5 μs	-3.65 dBm		
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG

STATUS

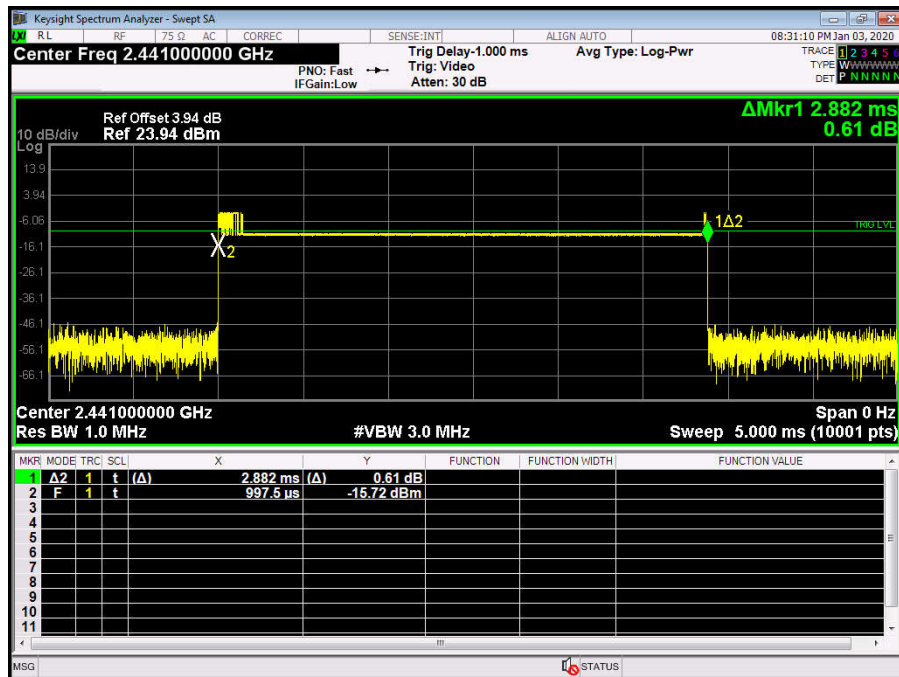
GFSK Hopping Mode 1DH3

2441 MHz

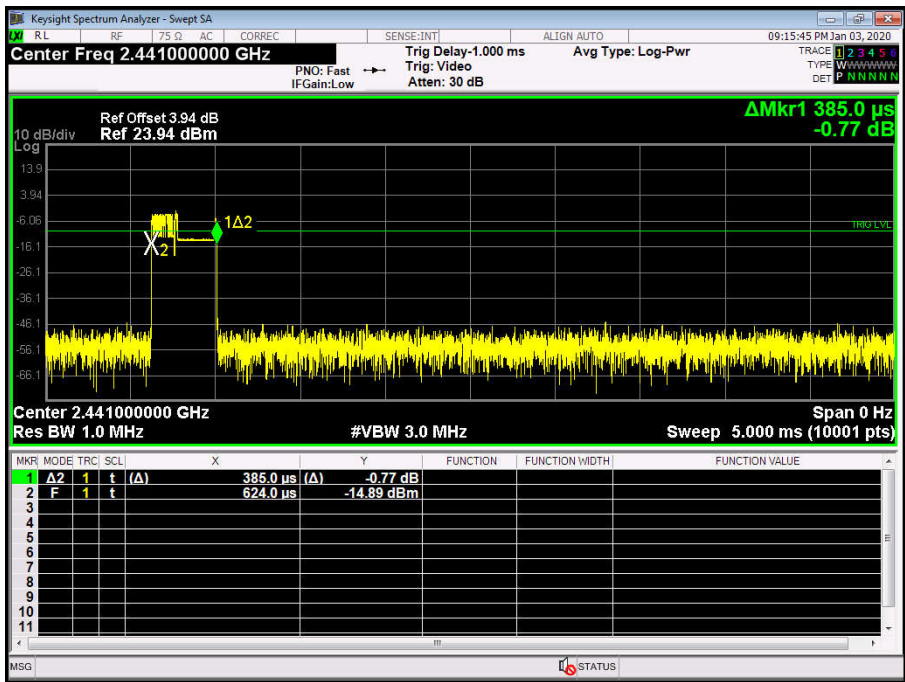


GFSK Hopping Mode 1DH5

2441 MHz



Temperature:		25℃		Relative Humidity:		55%	
Test Voltage:		DC 3.8V					
Test Mode:		Hopping Mode (π /4-DQPSK)					
Test Mode	Channel (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result	
2DH1	2441	0.385	123.20	31.60	400	PASS	
2DH3	2441	1.143	182.88	31.60	400	PASS	
2DH5	2441	2.886	307.84	31.60	400	PASS	
2DH1 Total of Dwell= Pulse Time*(1600/2)*31.6/79							
2DH3 Total of Dwell= Pulse Time*(1600/4)*31.6/79							
2DH5 Total of Dwell= Pulse Time*(1600/6)*31.6/79							
π /4-DQPSK Hopping Mode 2DH1							
2441 MHz							



Keysight Spectrum Analyzer - Swept SA

Center Freq 2.441000000 GHz

Ref Offset 3.94 dB

Ref 23.94 dBm

Δ Mkr1 385.0 μ s

-0.77 dB

Center 2.441000000 GHz

Res BW 1.0 MHz

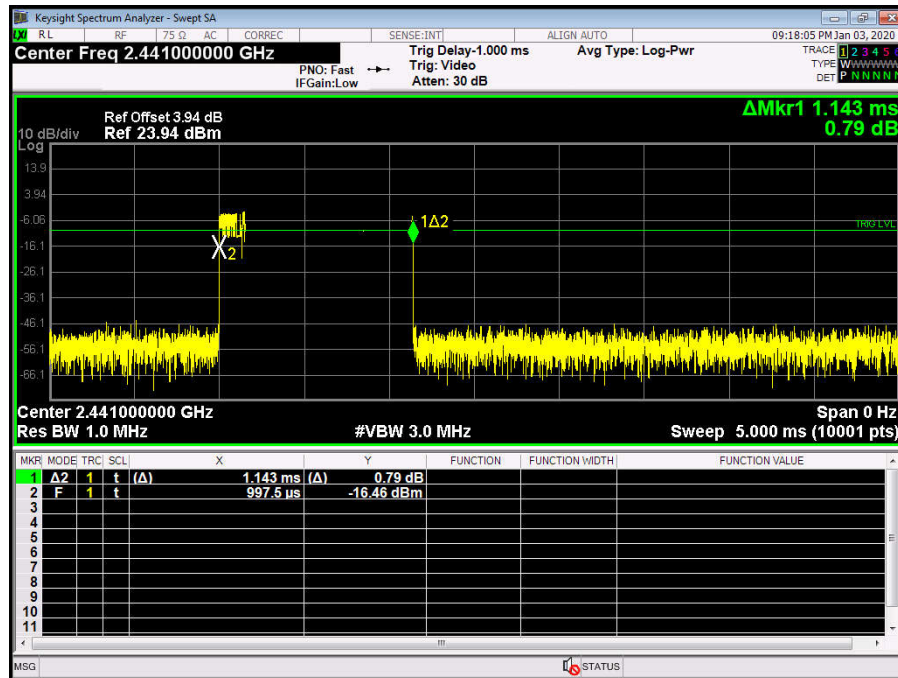
#VBW 3.0 MHz

Sweep 5.000 ms (10001 pts)

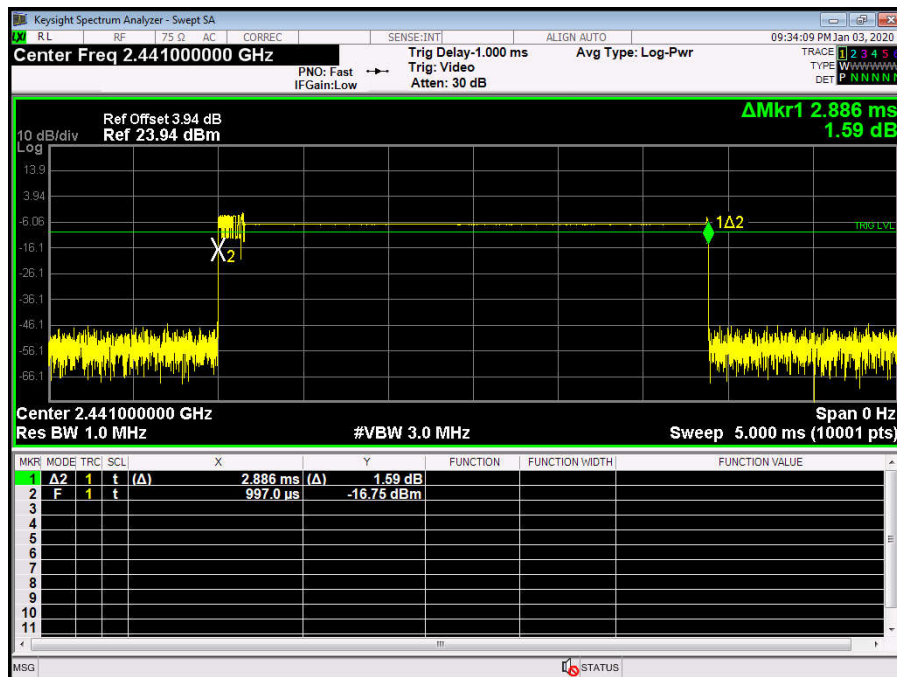
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	A2	1	t	(Δ)	385.0 μ s	(Δ)		-0.77 dB
2	F	1	t		624.0 μ s			-14.89 dBm

$\pi/4$ -DQPSK Hopping Mode 2DH3

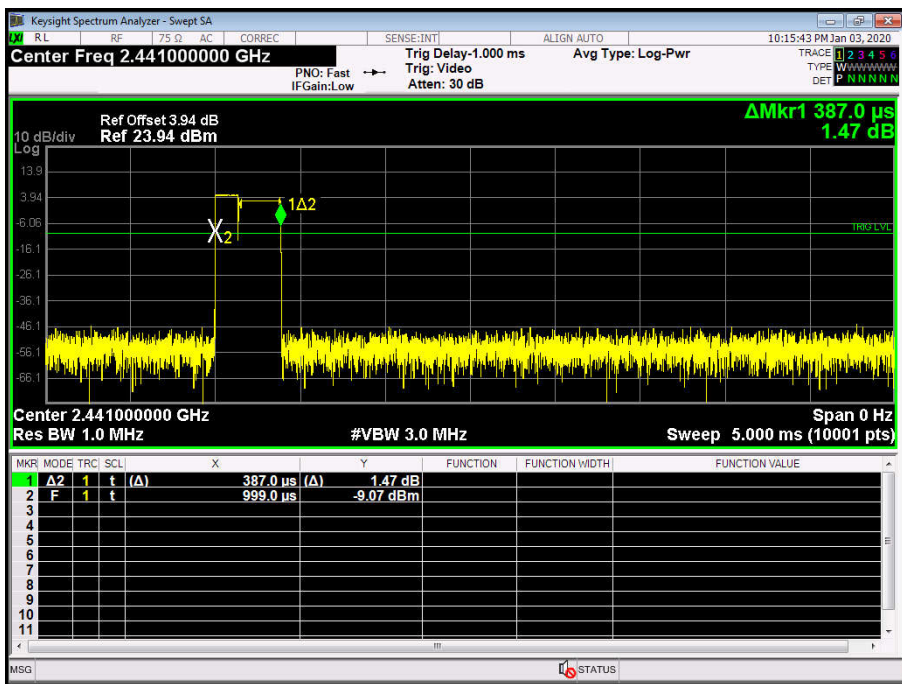
2441 MHz

 $\pi/4$ -DQPSK Hopping Mode 2DH5

2441 MHz

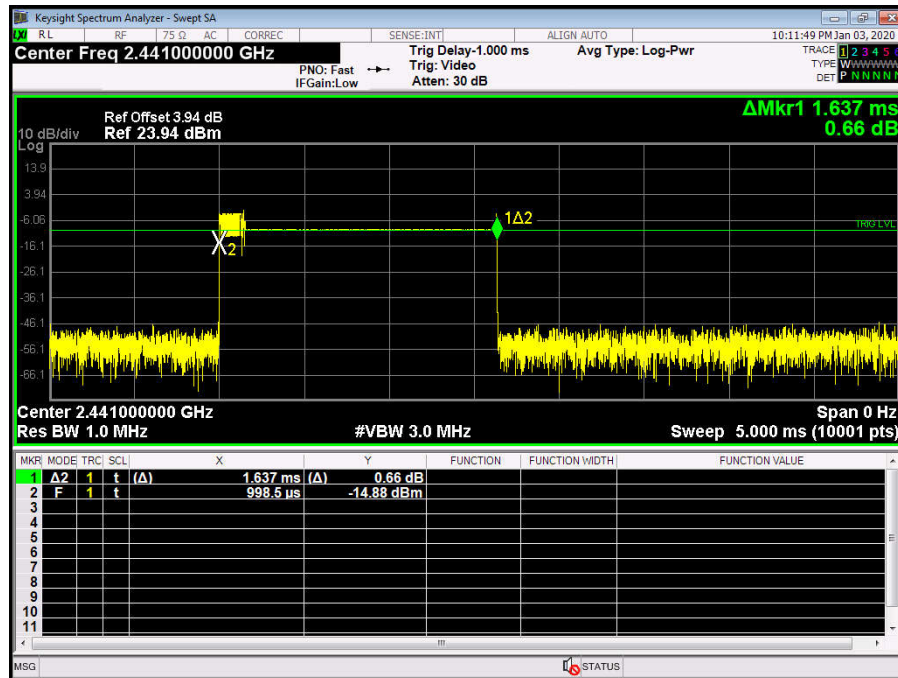


Temperature:		25℃		Relative Humidity:		55%
Test Voltage:		DC 3.8V				
Test Mode:		Hopping Mode (8-DPSK)				
Test Mode	Channel (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
3DH1	2441	0.387	123.84	31.60	400	PASS
3DH3	2441	1.637	261.92	31.60	400	PASS
3DH5	2441	2.888	308.05	31.60	400	PASS
1DH1 Total of Dwell= Pulse Time*(1600/2)*31.6/79						
1DH3 Total of Dwell= Pulse Time*(1600/4)*31.6/79						
1DH5 Total of Dwell= Pulse Time*(1600/6)*31.6/79						
8-DPSK Hopping Mode 3DH1						
2441 MHz						



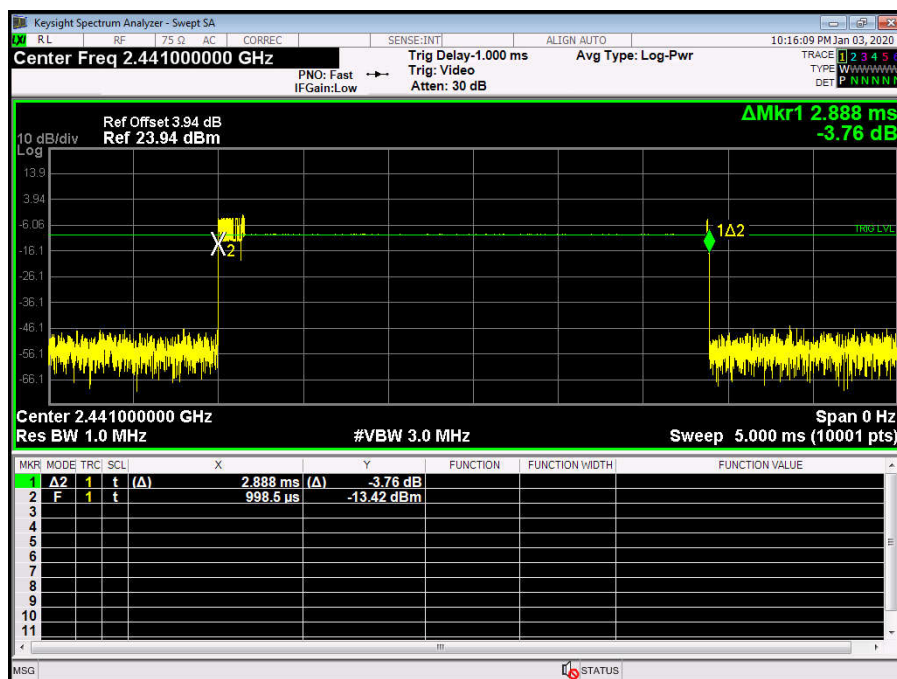
8-DPSK Hopping Mode 3DH3

2441 MHz



8-DPSK Hopping Mode 3DH5

2441 MHz



Attachment F-- Channel Separation and Bandwidth Test Data

Temperature:	25°C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX Mode (GFSK)		
Channel frequency (MHz)	99% OBW (kHz)	20dB Bandwidth (kHz)	20dB Bandwidth *2/3 (kHz)
2402	844.59	812.0	
2441	849.94	820.4	
2480	852.96	818.3	

GFSK TX Mode			
2402 MHz			

Keysight Spectrum Analyzer - Occupied BW

Center Freq: 2.40200000 GHz
 Trig: Free Run
 #Atten: 30 dB
 Avg/Hold: >10/10
 Radio Std: None
 Radio Device: BTS

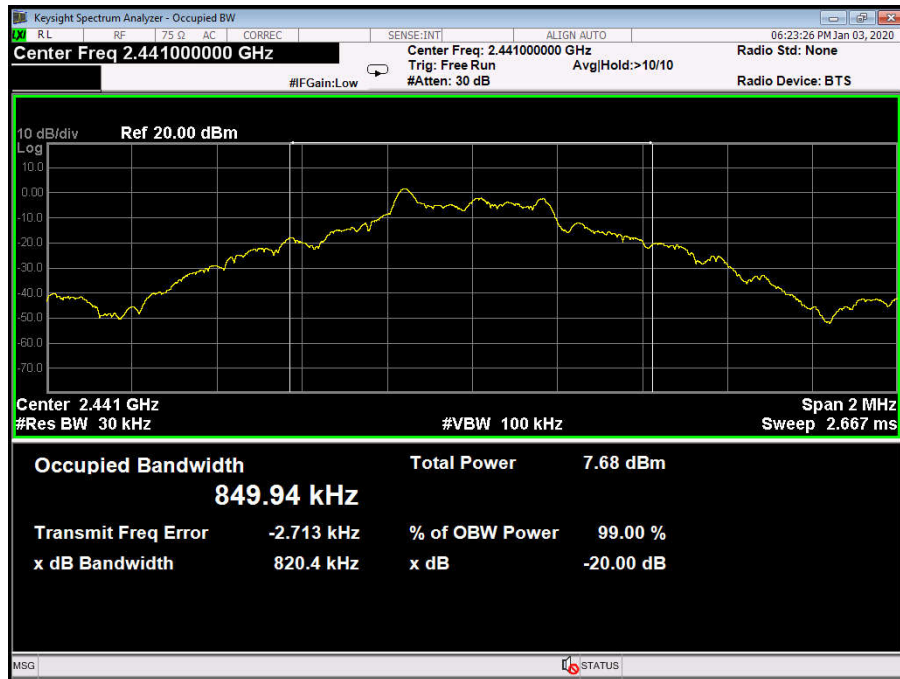
10 dB/div Ref 20.00 dBm

Center 2.402 GHz
 #Res BW 30 kHz
 #VBW 100 kHz
 Span 2 MHz
 Sweep 2.667 ms

Occupied Bandwidth	Total Power	8.33 dBm
844.59 kHz		
Transmit Freq Error	% of OBW Power	99.00 %
-3.104 kHz	x dB	-20.00 dB
x dB Bandwidth		
812.0 kHz		

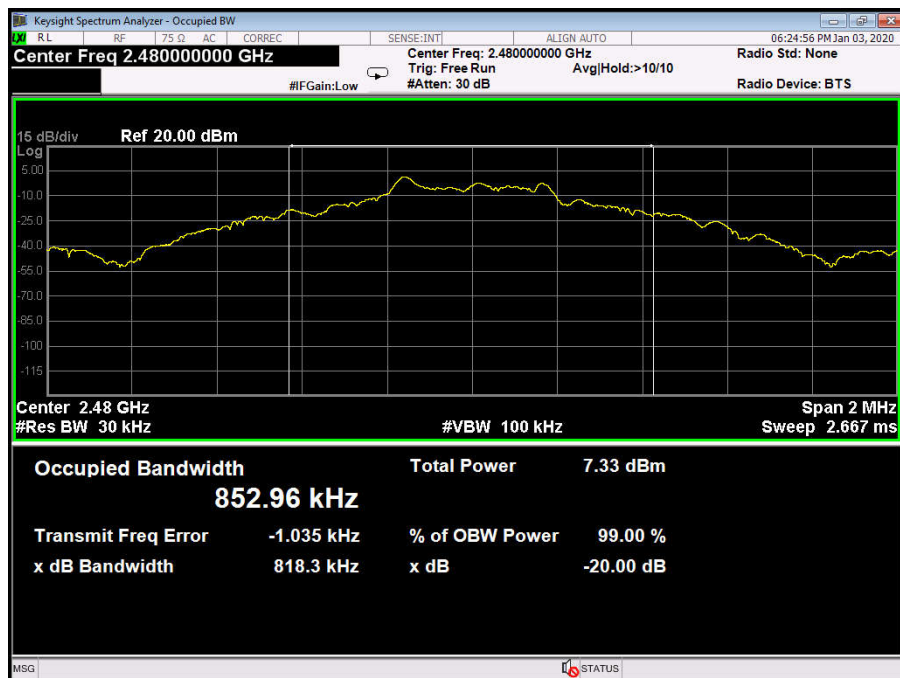
GFSK TX Mode

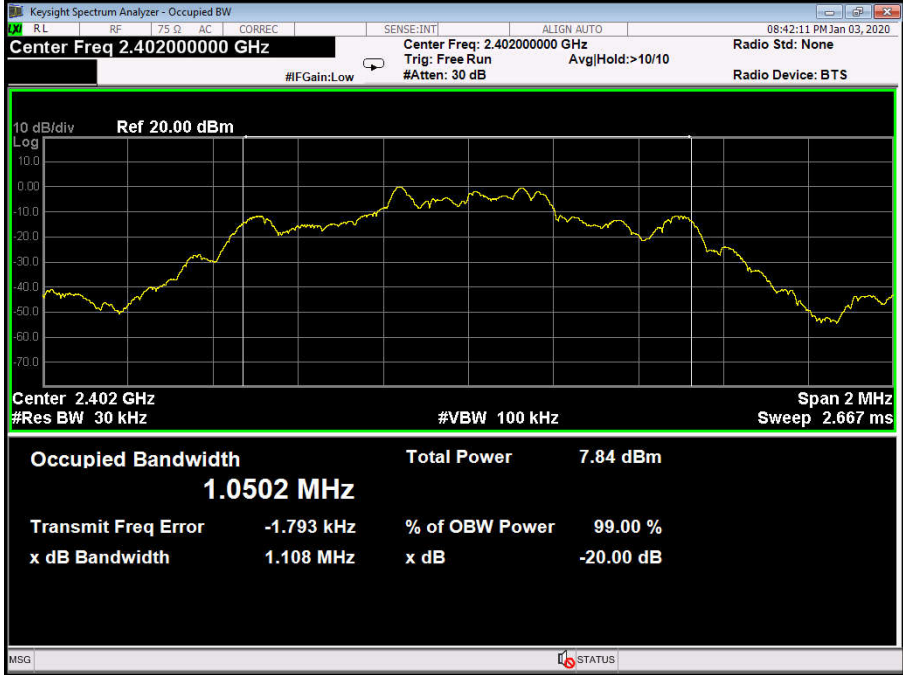
2441 MHz



GFSK TX Mode

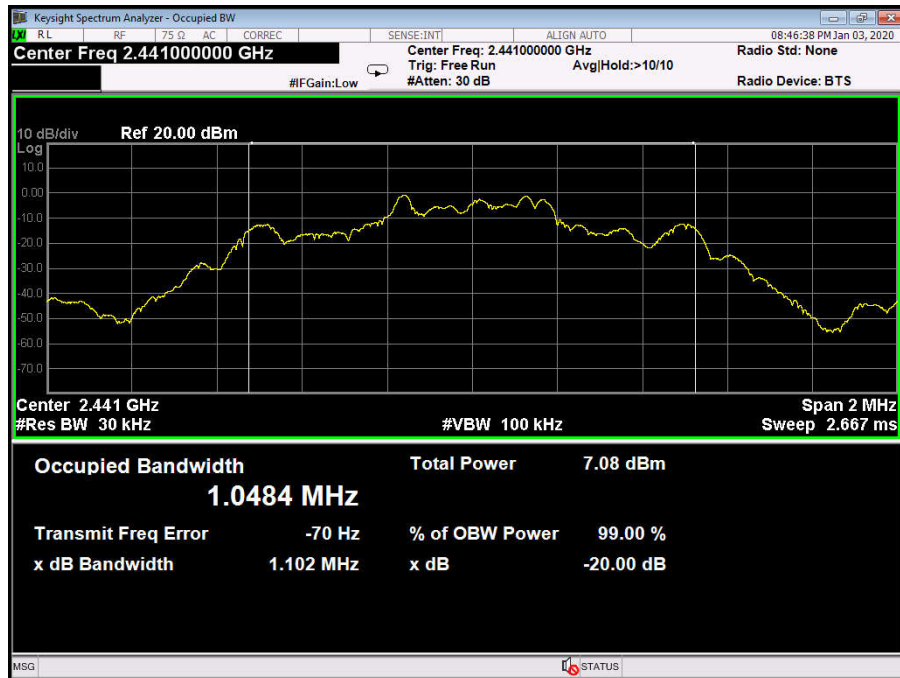
2480 MHz



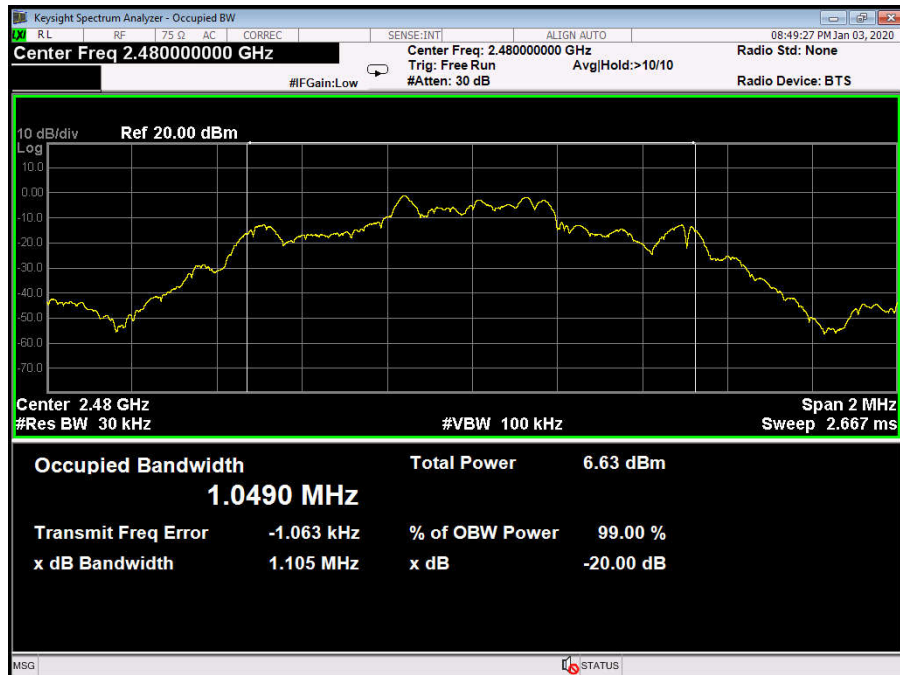
Temperature:	25°C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX Mode (π /4-DQPSK)		
Channel frequency (MHz)	99% OBW (kHz)	20dB Bandwidth (kHz)	20dB Bandwidth *2/3 (kHz)
2402	1050.2	1108	738.6
2441	1048.4	1102	734.6
2480	1049.0	1105	736.6
π /4-DQPSK TX Mode			
2402 MHz			
			

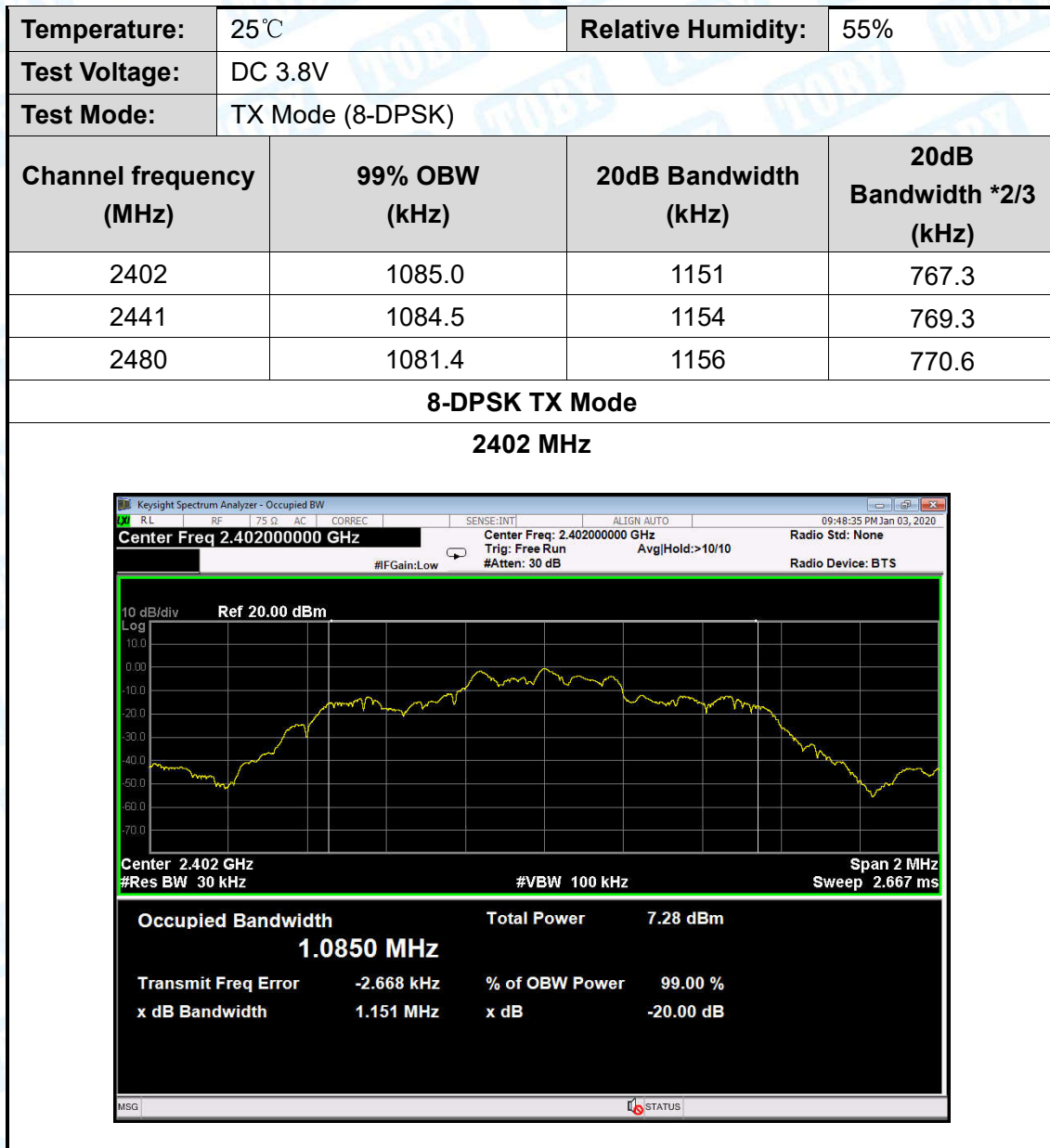
π /4-DQPSK TX Mode

2441 MHz

 π /4-DQPSK TX Mode

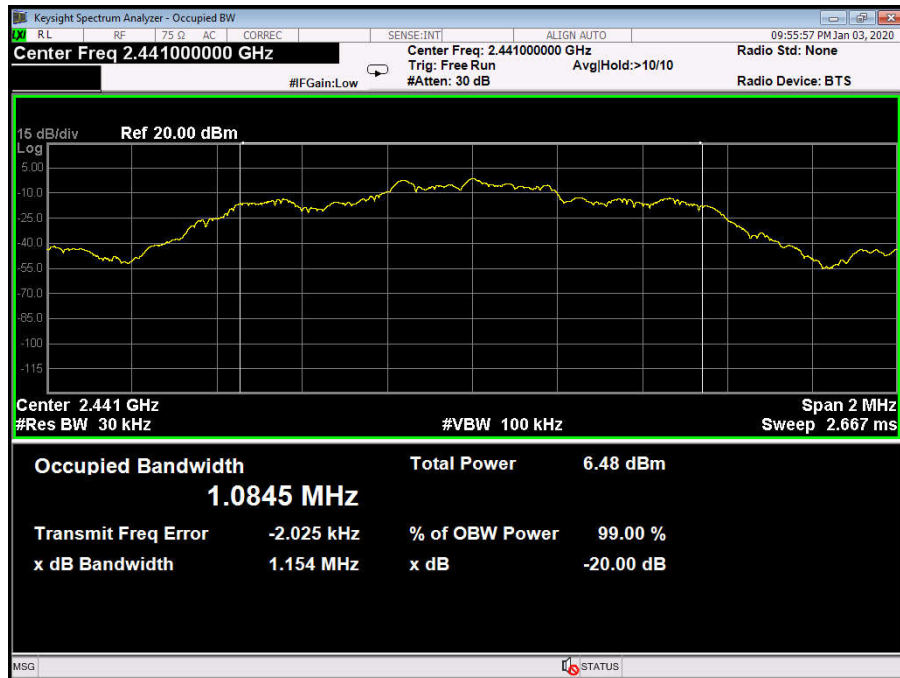
2480 MHz





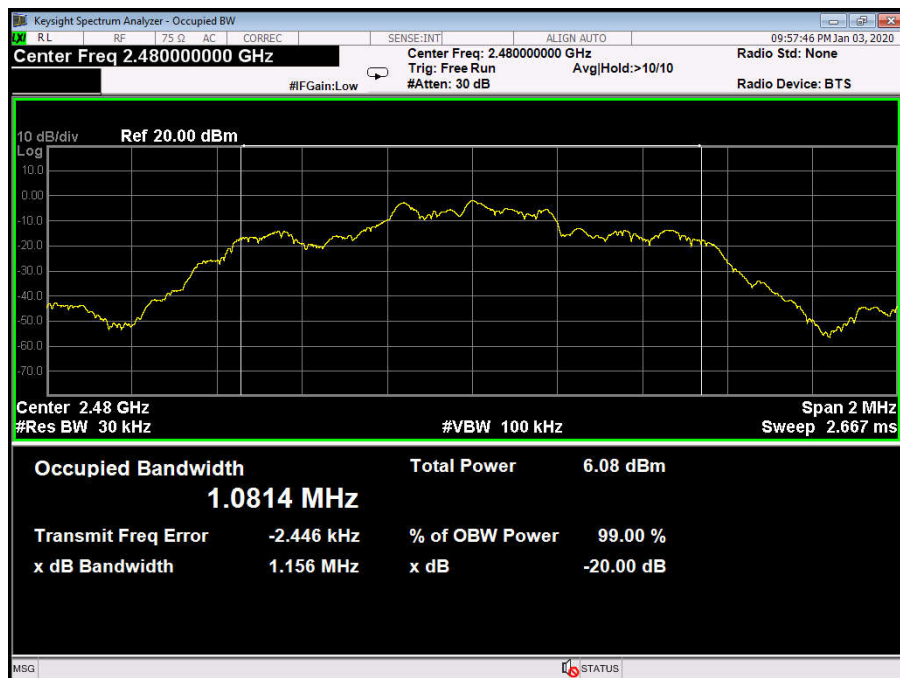
8-DPSK TX Mode

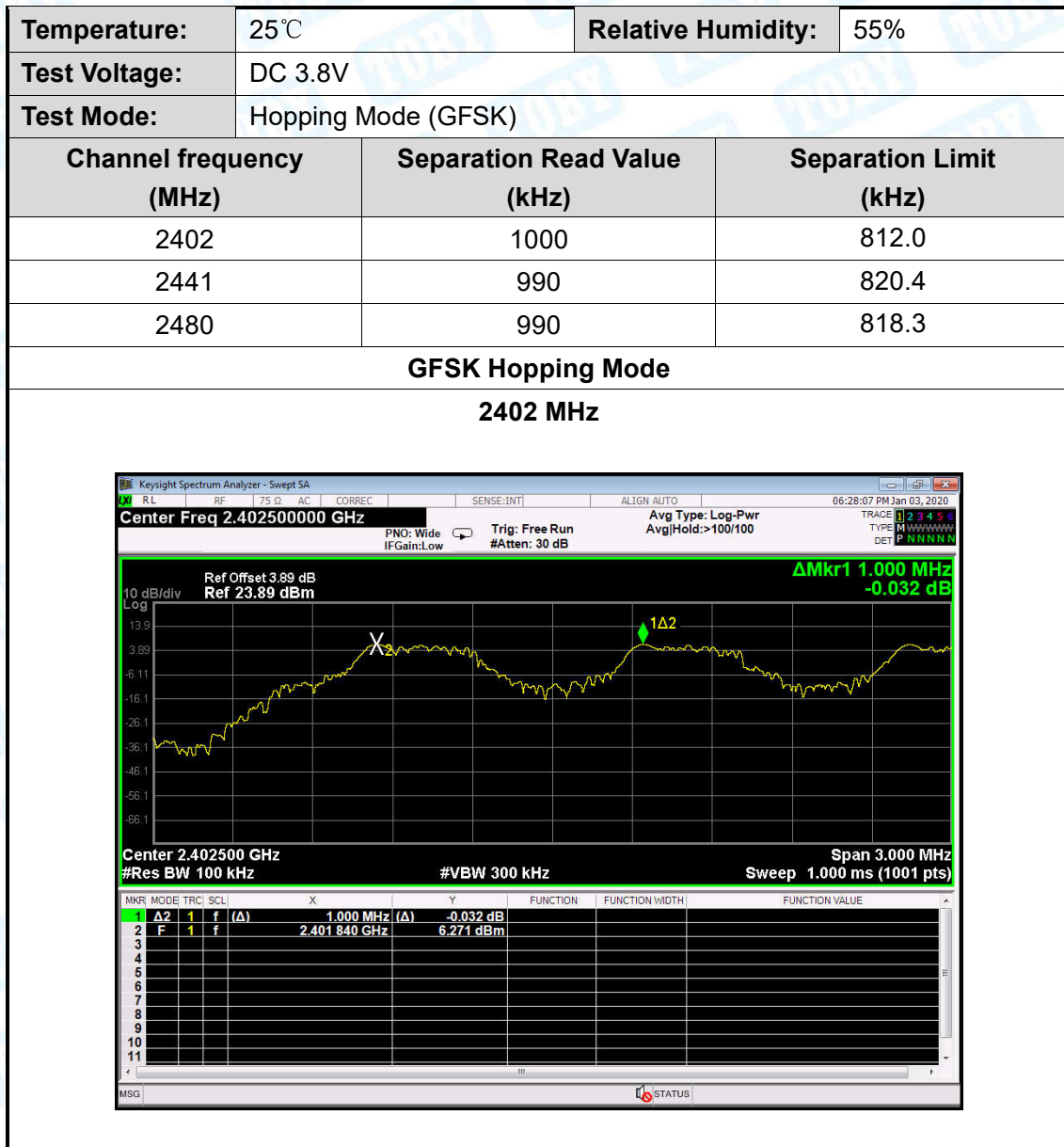
2441 MHz



8-DPSK TX Mode

2480 MHz





GFSK Hopping Mode

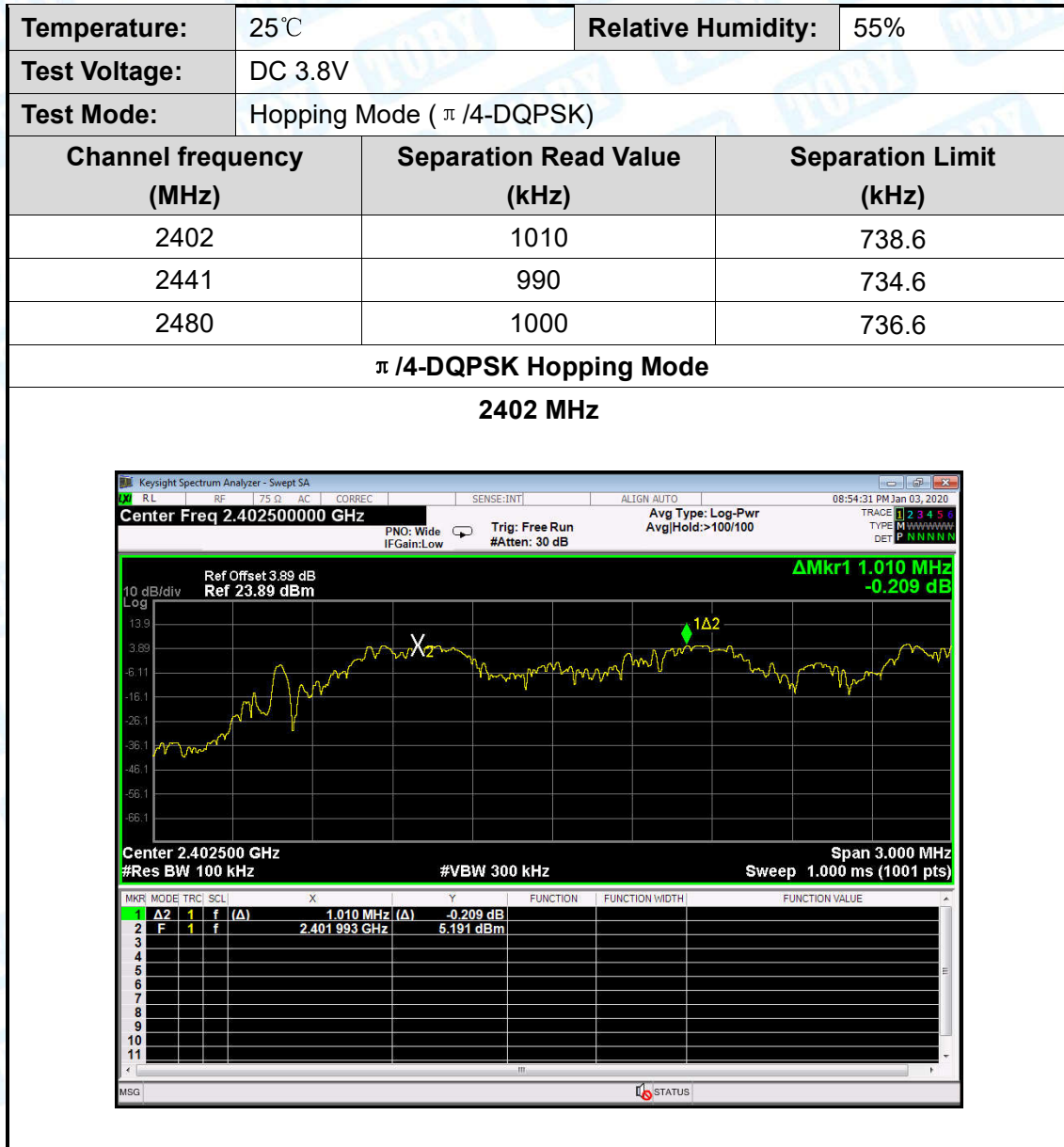
2441 MHz



GFSK Hopping Mode

2480 MHz





$\pi/4$ -DQPSK Hopping Mode

2441 MHz



$\pi/4$ -DQPSK Hopping Mode

2480 MHz



TB-RF-074-1.0

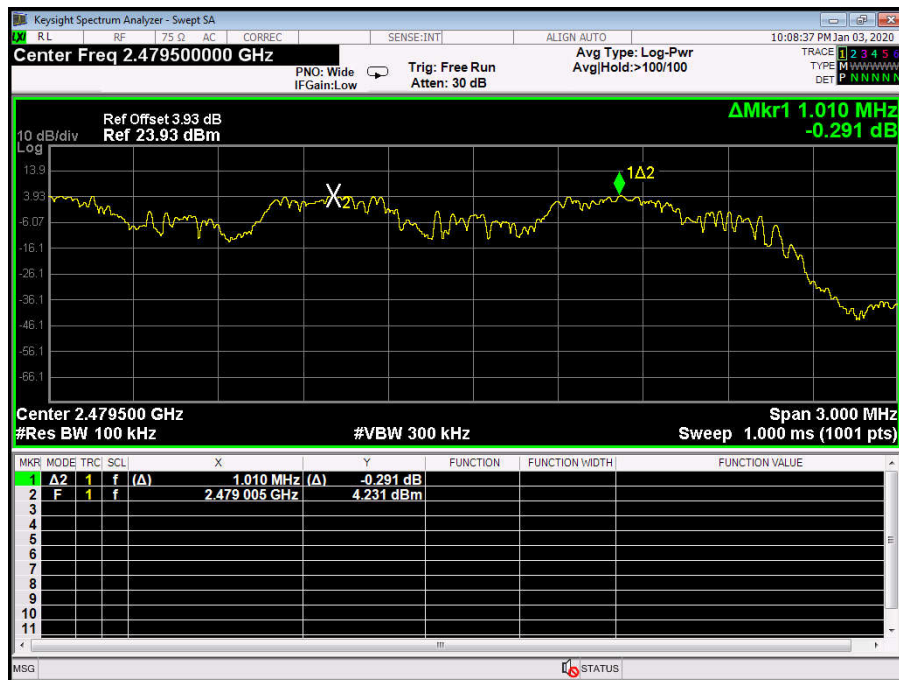
8-DPSK Hopping Mode

2441 MHz



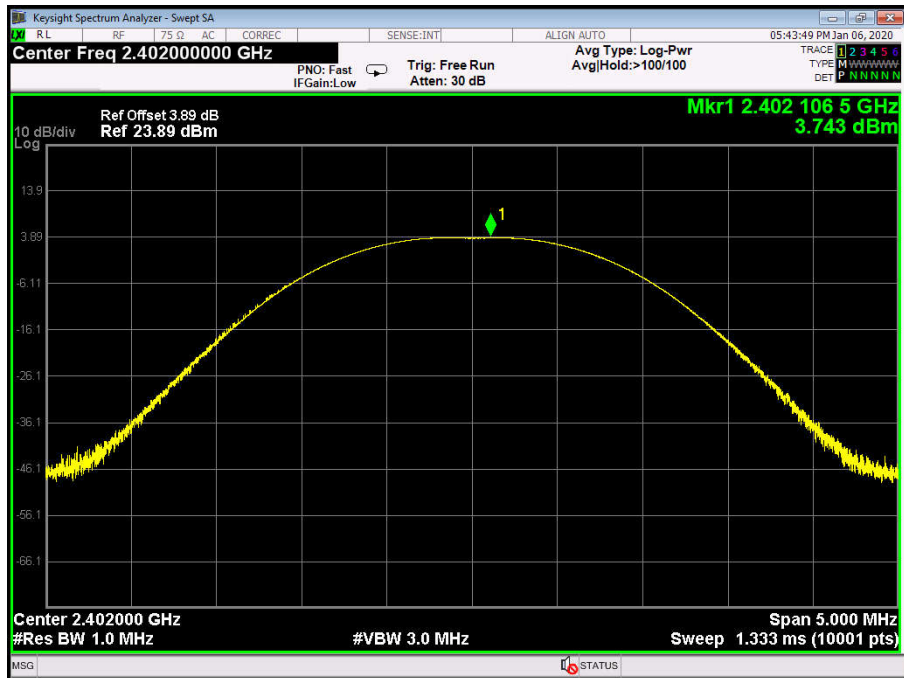
8-DPSK Hopping Mode

2480 MHz



Attachment G-- Peak Output Power Test Data

Temperature:	25°C	Relative Humidity:	55%
Test Voltage:	DC 3.8V		
Test Mode:	TX Mode (GFSK)		
Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)	
2402	3.743	30	
2441	3.589		
2480	3.575		
GFSK TX Mode			
2402 MHz			



Keysight Spectrum Analyzer - Swept SA

Center Freq 2.40200000 GHz

Ref Offset 3.89 dB

Ref 23.89 dBm

Mkr1 2.402 106.5 GHz

3.743 dBm

Center 2.402000 GHz

#Res BW 1.0 MHz

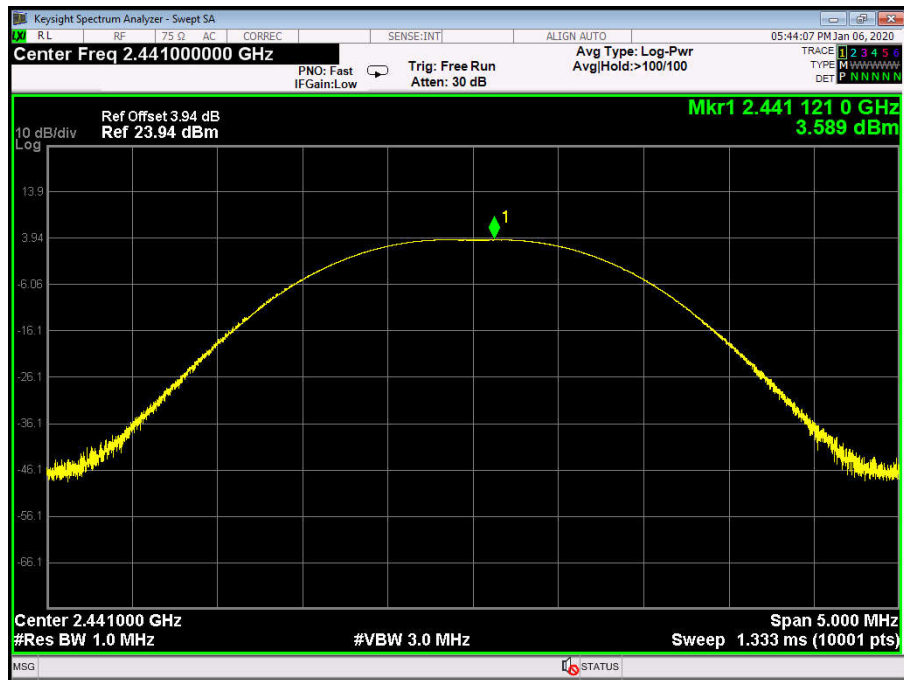
#VBW 3.0 MHz

Span 5.000 MHz

Sweep 1.333 ms (10001 pts)

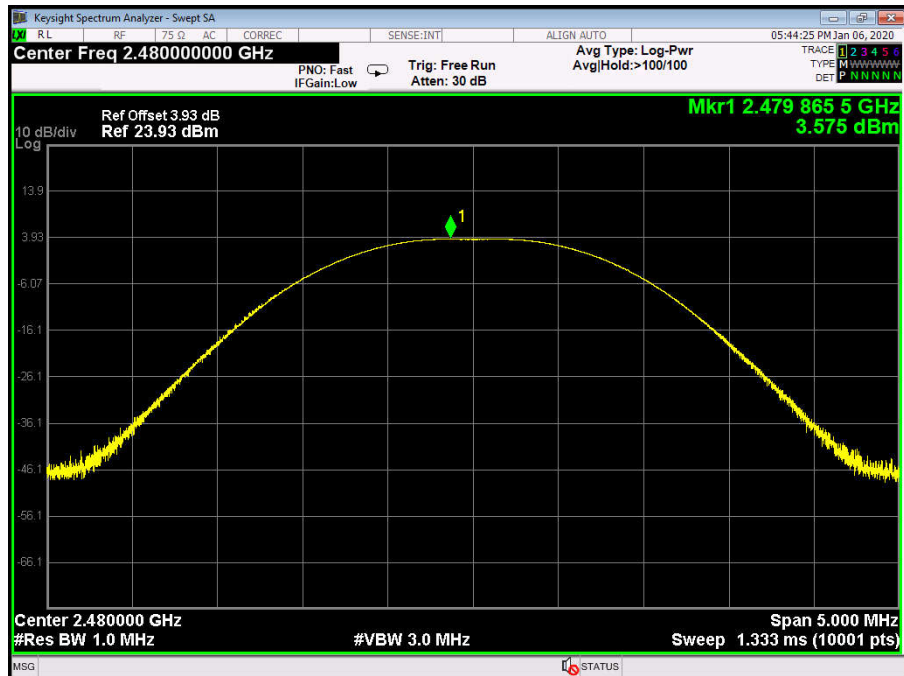
GFSK TX Mode

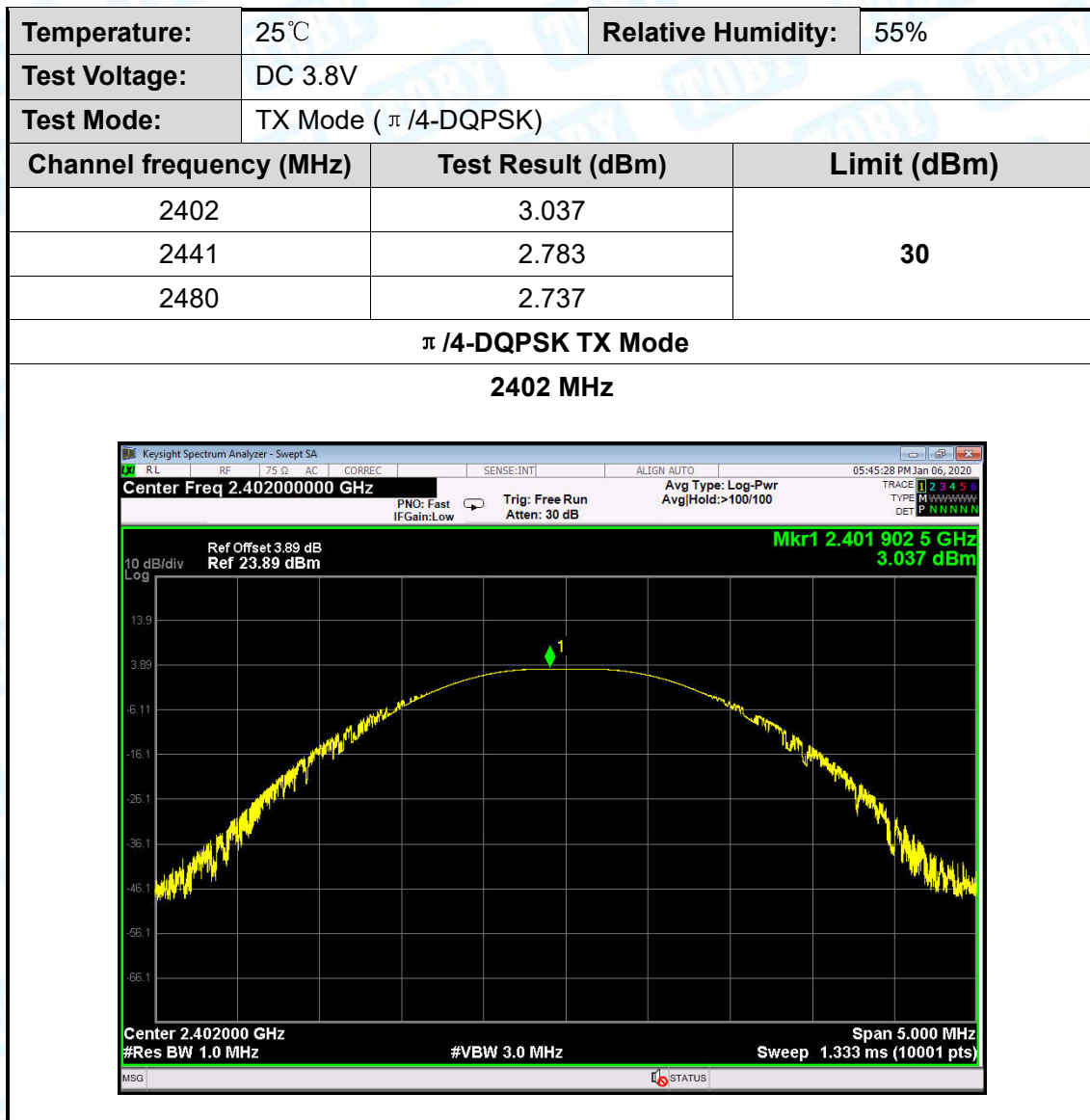
2441 MHz



GFSK TX Mode

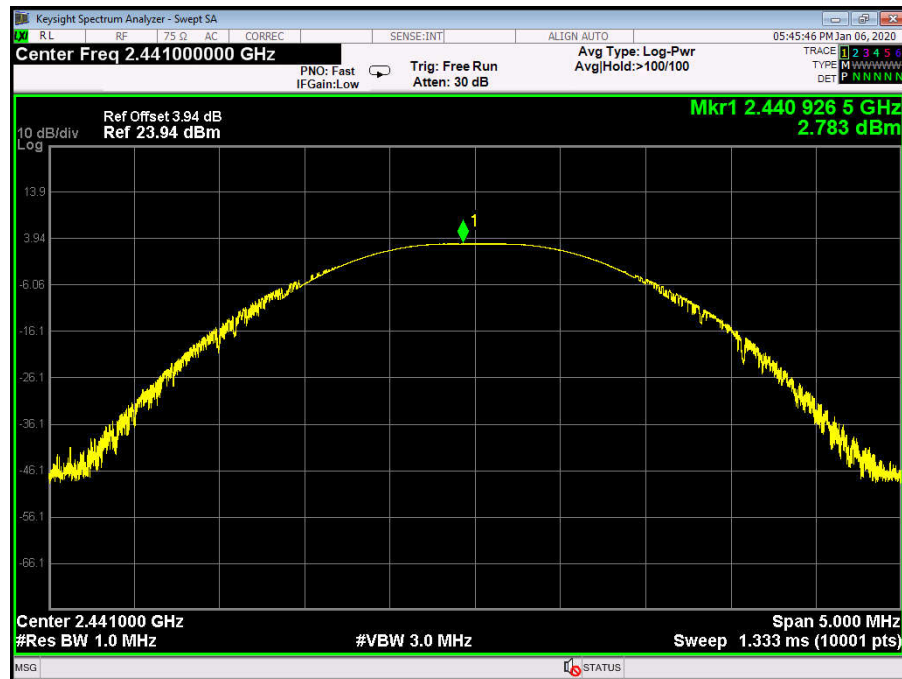
2480 MHz





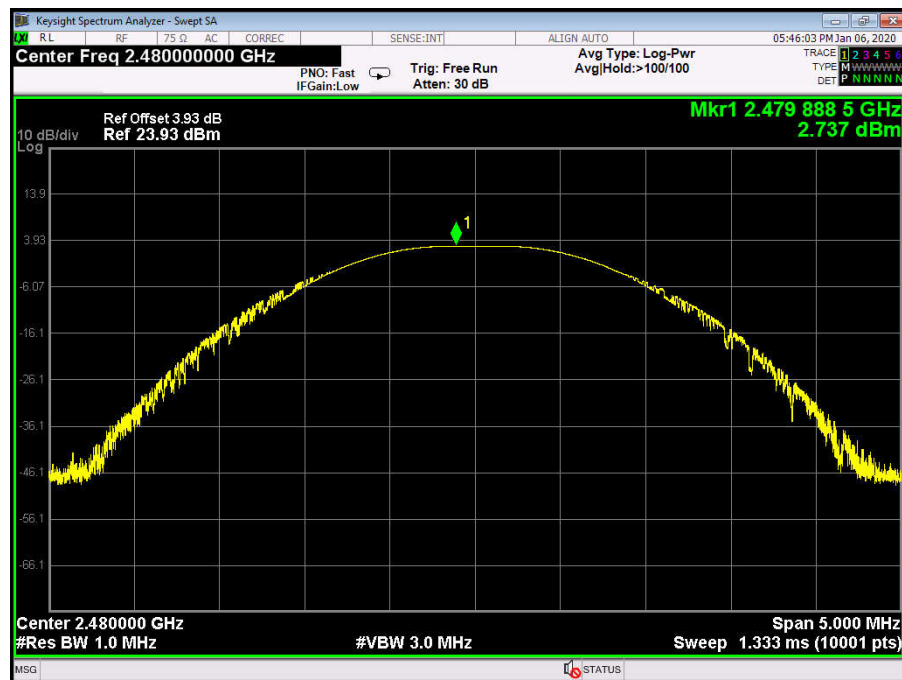
$\pi/4$ -DQPSK TX Mode

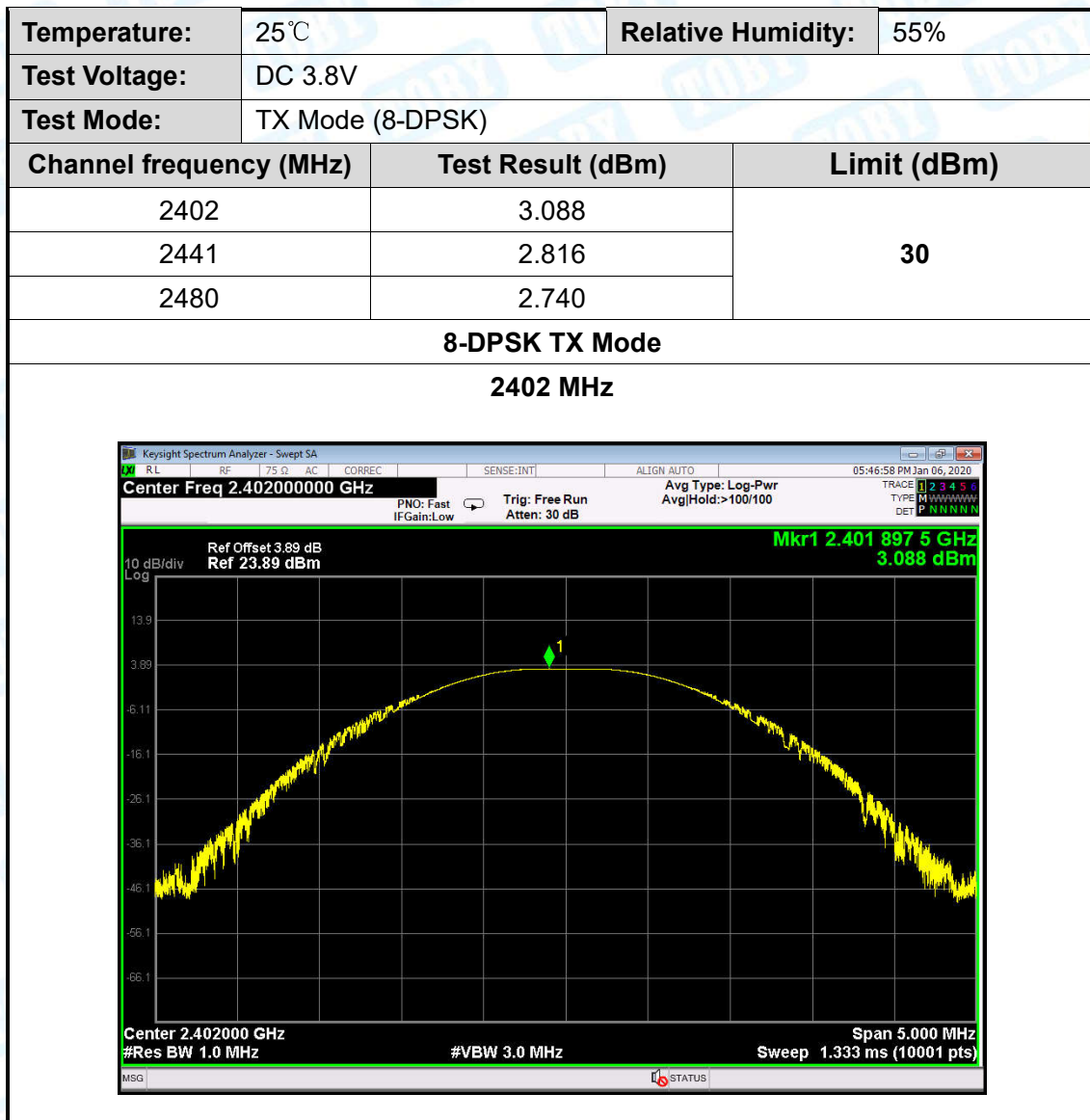
2441 MHz



$\pi/4$ -DQPSK TX Mode

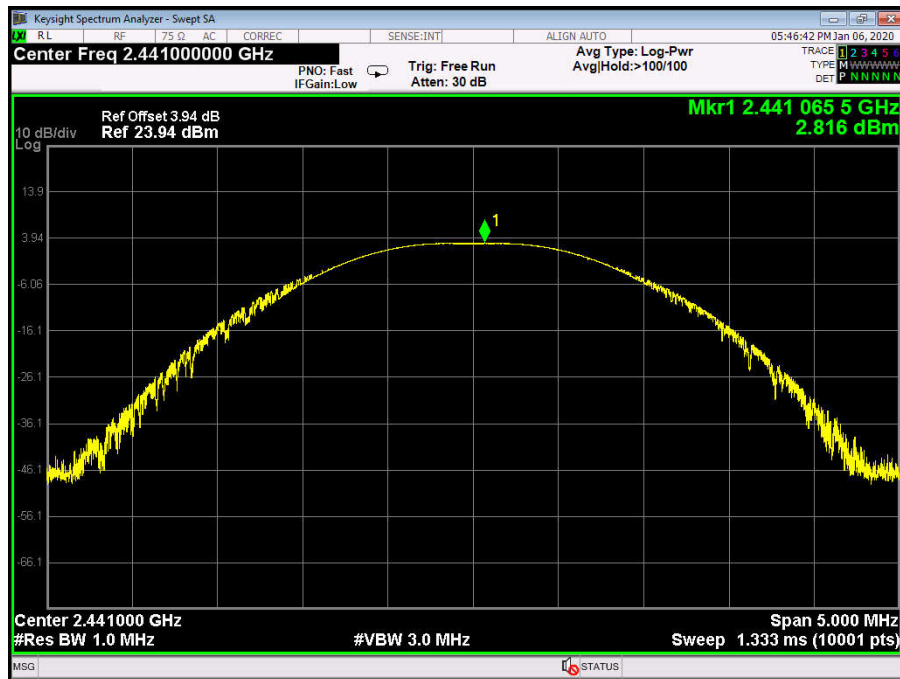
2480 MHz





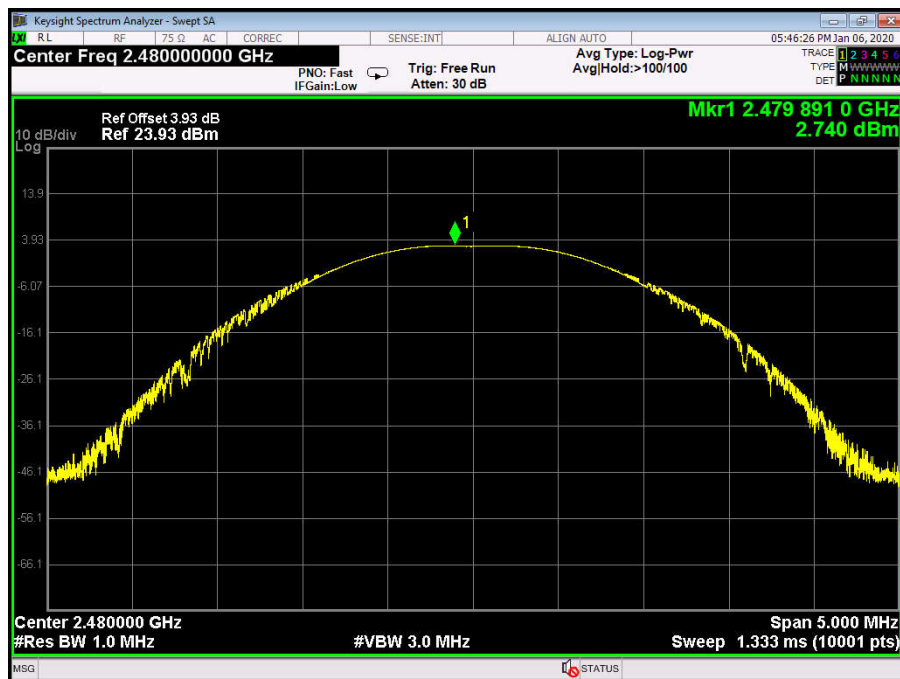
8-DPSK TX Mode

2441 MHz



8-DPSK TX Mode

2480 MHz



-----END OF REPORT-----