

Test Data

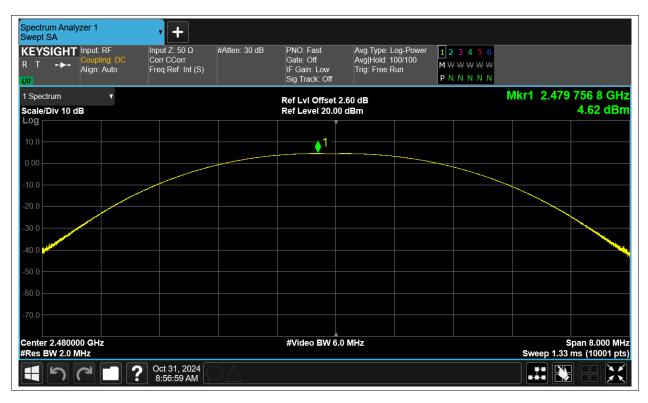
Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE	2402	Ant1	4.248	30	Pass
NVNT	BLE	2442	Ant1	5.296	30	Pass
NVNT	BLE	2480	Ant1	4.625	30	Pass



			Test Gra	phs				
		Power	NVNT BLE	2402MHz Ant	t1			
Spectrum Analyzer 1 Swept SA	• +							
R T Input: RF Coupling: DC Align: Auto	Input Ζ: 50 Ω # Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	Avg Type: Lo Avg Hold: 10 Trig: Free Ri	00/100 M ₩	3 4 5 6 ₩₩₩₩₩ N N N N		
1 Spectrum v			Ref Lvl Offset				Mkr1 2.402	
Scale/Div 10 dB Log			Ref Level 20.0	0 dBm				4.25 dBm
10.0				1				
0.00								
-10.0								
-20.0								
-30.0								
-40.0								
-50.0								
-70.0								
Center 2.402000 GHz #Res BW 2.0 MHz			#Video BW 6	.0 MHz				pan 8.000 MHz ms (10001 pts)
- n C - 1	Oct 31, 2024 8:50:21 AM							
		Power	NVNT BLE 2	2442MHz Ant	t1			
Spectrum Analyzer 1 Swept SA	• +							
Swept SA KEYSIGHT Input: RF Coupling: DC		#Atten: 30 dB	PNO: Fast Gate: Off	Avg Type: Lo Avg Hold: 10		3 4 5 6		
Swept SA	Input Z: 50 Ω #	#Atten: 30 dB		Avg Type: Lo Avg Hold: 10 Trig: Free Ri	00/100 M ₩	3456 ₩₩₩₩₩ NNNN		
Swept SA KEYSIGHT Input: RF R T I Spectrum Scale/Div 10 dB	Input Z: 50 Ω # Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low	Avg Hold: 10 Trig: Free Ri 2.58 dB	00/100 M ₩	₩₩₩₩ N N N N	Mkr1 2.441	720 0 GHz 5.30 dBm
Swept SA KEYSIGHT Input: RF R T + Coupling: DC Align: Auto 1 Spectrum •	Input Z: 50 Ω # Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	Avg Hold: 10 Trig: Free Ri 2.58 dB	00/100 M ₩	₩₩₩₩ N N N N	Mkr1 2.441	
Swept SA KEYSIGHT R T I Spectrum Scale/Div 10 dB	Input Z: 50 Ω # Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	Avg Hold: 10 Trig: Free Ri 2.58 dB	00/100 M ₩	₩₩₩₩ N N N N	Mkr1 2.441	
Swept SA KEYSIGHT Input: RF R T Align: Auto Scale/Div 10 dB Log 10.0	Input Z: 50 Ω # Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	Avg Hold: 10 Trig: Free Ri 2.58 dB	00/100 M ₩	₩₩₩₩ N N N N	Mkr1 2.441	
Sivept SA KEYSIGHT Input: RF R T I Spectrum Scale/Div 10 dB Log 1.0 0.00 Coupling: DC Align: Auto Coupling: Auto Coupling: DC Align: Auto Coupling: DC Coupling: DC Align: Auto Coupling: DC Coupling: DC	Input Z: 50 Ω # Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	Avg Hold: 10 Trig: Free Ri 2.58 dB	00/100 M ₩	₩₩₩₩ N N N N	Mkr1 2.441	
Swept SA KEYSIGHT Input: RF R T Align: Auto I Spectrum Scale/Div 10 dB Log 10.0 .00 .00 .00 .00 .00 .00 .00 .00 .0	Input Z: 50 Ω # Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	Avg Hold: 10 Trig: Free Ri 2.58 dB	00/100 M ₩	₩₩₩₩ N N N N	Mkr1 2.441	
Swept SA KEYSIGHT Input: RF R T → Align: Auto I Spectrum ▼ Scale/Div 10 dB 0.00 0.00 0.00 10.0 0.00 0.00 0.00 0.00 20.0 0.00 0.00 0.00 0.00 0.00	Input Z: 50 Ω # Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	Avg Hold: 10 Trig: Free Ri 2.58 dB	00/100 M ₩	₩₩₩₩ N N N N	Mkr1 2.441	
Sivept SA KEYSIGHT Input: RF R T Scale/Div 10 dB Log 10.0 -20.0 -30.0	Input Z: 50 Ω # Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	Avg Hold: 10 Trig: Free Ri 2.58 dB	00/100 M ₩	₩₩₩₩ N N N N	Mkr1 2.441	
Swept SA KEYSIGHT Input: RF R T → Align: Auto I Spectrum ▼ Scale/Div 10 dB 0 0 10.0 0 0 -10.0 0 0 0 -30.0 0 0 0 0 -30.0 0 0 0 0 0 -60.0 0	Input Z: 50 Ω # Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	Avg Hold: 10 Trig: Free Ri 2.58 dB	00/100 M ₩	₩₩₩₩ N N N N	Mkr1 2.441	
Sivept SA KEYSIGHT Input: RF R T → Coupling: DC Align: Auto I Spectrum ▼ Scale/Div 10 dB ■ ■ I Operation ■ I Operation ■ ■ Scale/Div 10 dB ■ ■ ■ I 0 ■ ■ ■ 10.0 ■ ■ ■ ■ -20.0 ■ ■ ■ ■ -20.0 ■ ■ ■ ■ -20.0 ■ ■ ■ ■ -20.0 ■ ■ ■ ■ -20.0 ■ ■ ■ ■ -20.0 ■ ■ ■ ■ -20.0 ■ ■ ■ ■ -20.0 ■ ■ ■ ■ -20.0 ■ ■ ■ ■ -20.0 ■	Input Z: 50 Ω # Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	Avg Hold: 10 Trig: Free Ri 2.58 dB	00/100 M ₩	₩₩₩₩ N N N N	Mkr1 2.441	
Swept SA KEYSIGHT Input: RF R T	Input Z: 50 Ω # Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	Avg Hold: 10 Trig: Free Ri 2.58 dB 0 dBm	00/100 M ₩	₩₩₩₩ N N N N		5.30 dBm
Swept SA KEYSIGHT Input: RF R T → Align: Auto I Spectrum ▼ Scale/Div 10 dB ■ Log □ □ □ □ 10.0 □ □ □ □ □ -10.0 □	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Level 20.0	Avg Hold: 10 Trig: Free Ri 2.58 dB 0 dBm	00/100 M ₩	₩₩₩₩ N N N N		5.30 dBm







-6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	limit	Verdic
NVNT	BLE	2402	Ant1	0.678	0.5	Pass
NVNT	BLE	2442	Ant1	0.678	0.5	Pass
NVNT	BLE	2480	Ant1	0.677	0.5	Pass







Spectrum Analy Occupied BW		• +					
KEYSIGHT R T ↔→→	Input: RF Coupling: DC Align: Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.48000000 GHz Avg Hold: 1000/1000 Radio Std: None		
1 Graph	v			Ref LvI Offset 2.	60 dB	Mkr3 2.48033	
Scale/Div 10.0	dB			Ref Value 22.60			-2.07 dBm
Log 12.6 2.60			2	1	3		
-7.40							
-27.4							
-47.4 -57.4 -67.4							
Center 2.48000	0 GHz			#Video BW 300.0)0 kHz		Span 2 MHz
#Res BW 100.0						Sweep 1.33 n	ns (10001 pts)
2 Metrics							
	Occupied B	andwidth 1.0454 MHz			Total Power	40.0 dDm	
			0 705 111			10.9 dBm	
	Transmit Fr x dB Bandw		-3.765 kHz 676.7 kHz		% of OBW Power x dB	99.00 % -6.00 dB	
		Oct 31, 2024 8:57:28 AM					



Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE	2402	Ant1	1.038
NVNT	BLE	2442	Ant1	1.038
NVNT	BLE	2480	Ant1	1.037











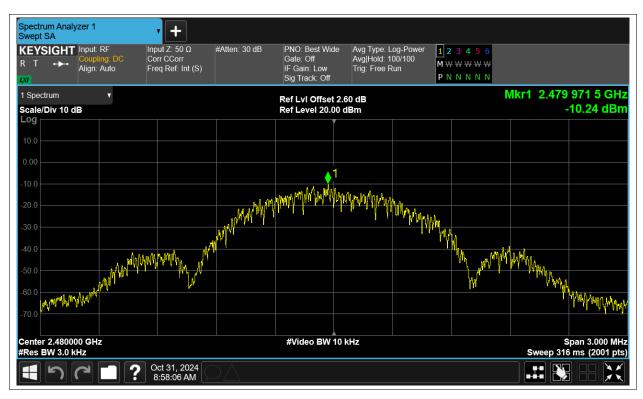
Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	BLE	2402	Ant1	-10.46	8	Pass
NVNT	BLE	2442	Ant1	-9.556	8	Pass
NVNT	BLE	2480	Ant1	-10.236	8	Pass











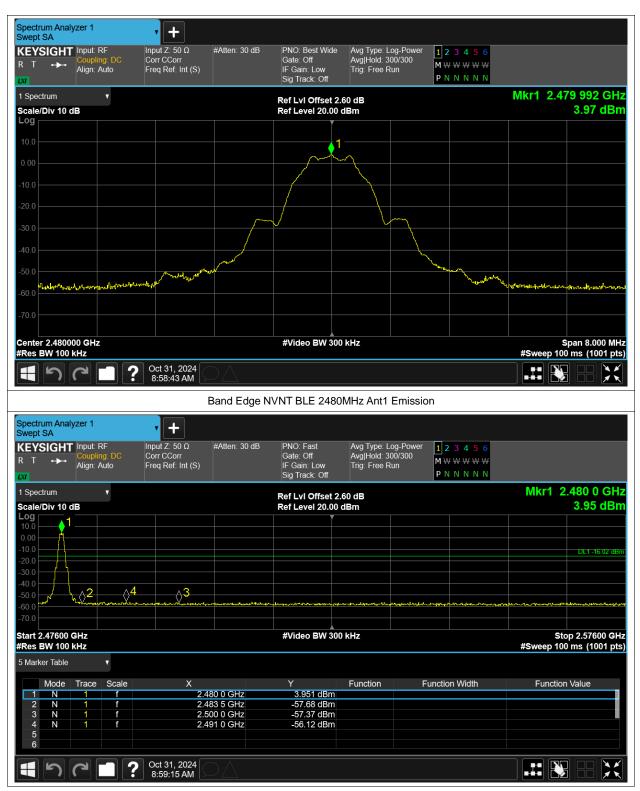
Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE	2402	Ant1	-60.63	-20	Pass
NVNT	BLE	2480	Ant1	-60.1	-20	Pass



		Test Graphs		
	Band Ec	lge NVNT BLE 2402MHz An	t1 Ref	
Spectrum Analyzer 1 Swept SA	• +			
KEYSIGHT Input: RF	Input Z: 50 Ω #Atten: 30 dB			
R T ↔ Coupling: DC Align: Auto	Corr CCorr Freq Ref: Int (S)	Gate: Off Avg Hold: 30 IF Gain: Low Trig: Free R Sig Track: Off		
1 Spectrum		Ref LvI Offset 2.56 dB		Mkr1 2.401 992 GHz
Scale/Div 10 dB Log		Ref Level 20.00 dBm		3.66 dBm
10.0				
0.00				
-10.0				
-20.0	ſ		\sim	
-30.0				
-40.0			han a second sec	
-50.0	all of the application of the second se		and a second and a	hand porter to be a farmer and
-60.0				a and has madely a sheet of the contract of the
-70.0				
Center 2.402000 GHz		#Video BW 300 kHz		Span 8.000 MHz
	Oct 31, 2024			#Sweep 50.0 ms (1001 pts)
	8:53:07 AM			
	Devid Educ			
	Band Edge	NVNT BLE 2402MHz Ant1	Emission	
Spectrum Analyzer 1 Swept SA	Band Edge	NVNT BLE 2402MHz Ant1	Emission	
Swept SA KEYSIGHT Input: RF Counting: DC	φ Input Z: 50 Ω #Atten: 30 dB	PNO: Fast Avg Type: Lu	og-Power 123456	
Swept SA KEYSIGHT R T Align: Auto	• +	PNO: Fast Avg Type: Li Gate: Off Avg Hold: 3(IF Gain: Low Trig: Free R	00-Power 00/300	
Swept SA KEYSIGHT Input: RF Coupling: DC	Input Z: 50 Ω #Atten: 30 dB Corr CCorr	9 PNO: Fast Avg Type: L Gate: Off Avg Hold: 30 IF Gain: Low Trig: Free R Sig Track: Off	bg-Power 123456 00/300 MWW/WW/	Mkr1 2.402 0 GHz
Swept SA KEYSIGHT Input: RF R T Coupling: DC Align: Auto 1 Spectrum Scale/Div 10 dB	Input Z: 50 Ω #Atten: 30 dB Corr CCorr	PNO: Fast Avg Type: Li Gate: Off Avg Hold: 3(IF Gain: Low Trig: Free R	00-Power 00/300	Mkr1 2.402 0 GHz 3.63 dBm
Swept SA KEYSIGHT R T ↔ Coupling: DC Align: Auto I Spectrum Scale/Div 10 dB Log 10.0	Input Z: 50 Ω #Atten: 30 dB Corr CCorr	PNO: Fast Avg Type: Lr Gate: Off Avg]Hold: 3(IF Gain: Low Trig: Free R Sig Track: Off Ref LvI Offset 2.56 dB	00-Power 00/300	
Swept SA KEYSIGHT Input: RF R T T I Spectrum Scale/Div 10 dB Log 10.0 10.0 0.00	Input Z: 50 Ω #Atten: 30 dB Corr CCorr	PNO: Fast Avg Type: Lr Gate: Off Avg]Hold: 3(IF Gain: Low Trig: Free R Sig Track: Off Ref LvI Offset 2.56 dB	00-Power 00/300	
Swept SA KEYSIGHT Input: RF R T → 1 Spectrum ▼ Scale/Div 10 dB ■ Log ■ ■ 10.0 ■ ■ 20.0 ■ ■	Input Z: 50 Ω #Atten: 30 dB Corr CCorr	PNO: Fast Avg Type: Lr Gate: Off Avg]Hold: 3(IF Gain: Low Trig: Free R Sig Track: Off Ref LvI Offset 2.56 dB	00-Power 00/300	3.63 dBm ∳1
Swept SA KEYSIGHT Input: RF R T T I Spectrum V Scale/Div 10 dB Input: RF Log Input: RF 10.0 Input: RF 20.0 Input: RF	Input Z: 50 Ω #Atten: 30 dB Corr CCorr	PNO: Fast Avg Type: Lr Gate: Off Avg]Hold: 3(IF Gain: Low Trig: Free R Sig Track: Off Ref LvI Offset 2.56 dB	Dg-Power 1 2 3 4 5 6 M W W W W P N N N N N	3.63 dBm
Swept SA KEYSIGHT Input: RF R T → Coupling: DC Align: Auto Align: Auto Scale/Div 10 dB Log 10.0 - - 10.0 - - - -20.0 - - - -30.0 - - - -60.0 - - -	Input Z: 50 Ω #Atten: 30 dB Corr CCorr	PNO: Fast Avg Type: Lr Gate: Off Avg]Hold: 3(IF Gain: Low Trig: Free R Sig Track: Off Ref LvI Offset 2.56 dB	00-Power 00/300	3.63 dBm
Swept SA KEYSIGHT Input: RF R T → Goupling: DC Align: Auto I Spectrum ▼ Scale/Div 10 dB ■ Log 10.0 ■ ■ 10.0 ■ ■ ■ 20.0 ■ ■ ■ -10.0 ■ ■ ■ -20.0 ■ ■ ■ -30.0 ■ ■ ■ -70.0 ■ ■ ■ Start 2.30600 GHz ■ ■ ■	Input Z: 50 Ω #Atten: 30 dB Corr CCorr	PNO: Fast Avg Type: Lr Gate: Off Avg]Hold: 3(IF Gain: Low Trig: Free R Sig Track: Off Ref LvI Offset 2.56 dB	Dg-Power 1 2 3 4 5 6 M W W W W P N N N N N	3.63 dBm
Swept SA KEYSIGHT Input: RF R T → 1 Spectrum ▼ Scale/Div 10 dB ■ 10.0 ■ 0.00 ■ 10.0 ■ 20.0 ■ -10.0 ■ -20.0 ■ -30.0 ■ -70.0 ■ Start 2.30600 GHz #Res BW 100 kHz	Input Z: 50 Ω #Atten: 30 dB Corr CCorr	PNO: Fast Avg Type: Li Gate: Off Avg Hold: 3 IF Gain: Low Trig: Free R Sig Track: Off Avg Hold: 3 Ref LvI Offset 2.56 dB Ref Level 20.00 dBm	Dg-Power 1 2 3 4 5 6 M W W W W P N N N N N	3.63 dBm
Swept SA KEYSIGHT Input: RF R T T Scale/Div 10 dB Coupling: DC Log Imput: RF 0.00 Imput: RF Scale/Div 10 dB Imput: RF Coupling: DC Imput: RF Scale/Div 10 dB Imput: RF Coupling: DC Imput: RF Scale/Div 10 dB Imput: RF Coupling: DC Imput: RF Scale/Div 10 dB Imput: RF Coupling: DC Imput: RF Scale/Div 10 dB Imput: RF Start 2.30600 GHz #Res BW 100 kHz 5 Marker Table M	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) #Atten: 30 dB	PNO: Fast Avg Type: Lo Gate: Off Avg Hold: 3 IF Gain: Low Trig: Free R Sig Track: Off Ref Level 20.00 dBm	Dg-Power 1 2 3 4 5 6 M W W W W P N N N N N A A A A A A A A A A A A A	3.63 dBm
Swept SA KEYSIGHT Input: RF R T → Goupling: DC Align: Auto I Spectrum ▼ Scale/Div 10 dB ■ Log ■ ■ 10.0 ■ ■ 20.0 ■ ■ 30.0 ■ ■ 40.0 ■ ■ 50.0 ■ ■ 40.0 ■ ■ 50.0 ■ ■ Start 2.30600 GHz # Frace W 100 kHz 5 Marker Table ▼ Mode Trace Scale 1 1 f	A Atten: 30 dB Corr CCorr Freq Ref. Int (S)	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 2.56 dB Ref Level 20.00 dBm #Video BW 300 kHz Y Function 3.631 dBm	Dg-Power 1 2 3 4 5 6 M W W W W P N N N N N	3.63 dBm
Swept SA KEYSIGHT Input: RF R T T I Spectrum Coupling: DC Scale/Div 10 dB O Log I 100 I 20.0 I 30.0 I 40.0 I Start 2.30600 GHz Res BW 100 kHz 5 Marker Table I Mode Trace Scale 1 1 1 2 1 1 1	X 2.402 0 GHz 2.390 0 GHz	PNO: Fast Gate: Off Avg1ybe: Ld Avg1ybe: L	Dg-Power 1 2 3 4 5 6 M W W W W P N N N N N A A A A A A A A A A A A A	3.63 dBm
Swept SA KEYSIGHT Input: RF R T → Gouping: DC Align: Auto I Spectrum v Scale/Div 10 dB Log 10.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 30.0 40.0 50.0 50.0 70.0 5 6 70.0	X 2.402 0 GHz 2.400 0 GHz	PNO: Fast Gate: Off Avg]Hold: 3 IF Gain: Low Sig Track: Off Ref LvI Offset 2.56 dB Ref Level 20.00 dBm #Video BW 300 kHz Y Function 3.631 dBm -52.51 dBm	Dg-Power 1 2 3 4 5 6 M W W W W P N N N N N A A A A A A A A A A A A A	3.63 dBm
Swept SA KEYSIGHT Input: RF R T T I Spectrum V Scale/Div 10 dB O Log I I 1.00 I I Scale/Div 10 dB I I 20.0 I I I 30.0 I I I Start 2.30600 GHz Frace Scale I I I I Mode Trace Scale I I I I I I I I I I I I I I I I I I I I <thi< th=""> I I I I I I I I I I I I I I I I I I I I <thi< th=""> I</thi<></thi<>	X 2.402 0 GHz 2.374 5 GHz 2.374 5 GHz	PNO: Fast Gate: Off Avg1ybe: Ld Avg1ybe: L	Dg-Power 1 2 3 4 5 6 M W W W W P N N N N N A A A A A A A A A A A A A	3.63 dBm
Swept SA KEYSIGHT Input: RF R T → Gouping: DC Align: Auto I Spectrum v Scale/Div 10 dB Log 10.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 30.0 40.0 50.0 50.0 70.0 5 6 70.0	X 2.402 0 GHz 2.374 5 GHz 2.374 5 GHz	PNO: Fast Gate: Off Avg1ybe: Ld Avg1ybe: L	Dg-Power 1 2 3 4 5 6 M W W W W P N N N N N A A A A A A A A A A A A A	3.63 dBm







Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE	2402	Ant1	-54.66	-20	Pass
NVNT	BLE	2442	Ant1	-55.63	-20	Pass
NVNT	BLE	2480	Ant1	-53.54	-20	Pass



		Test Gr	aphs		
	Tx	. Spurious NVNT BL	E 2402MHz Ant	1 Ref	
Spectrum Analyzer 1 Swept SA	•				
KEYSIGHT Input: RF R T ↔ Coupling: DC Align: Auto	Input Ζ: 50 Ω #Atte Corr CCorr Freq Ref: Int (S)	en: 30 dB PNO: Best W Gate: Off IF Gain: Low Sig Track: Of	Avg Hold: 300/3 Trig: Free Run	300 M 10/ 10/ 10/ 10/	
1 Spectrum V		Ref LvI Offse			Mkr1 2.401 995 5 GHz
Scale/Div 10 dB Log		Ref Level 20			3.69 dBm
10.0			Ĭ,		
			1		
0.00				- have	~~~
-10.0					
-20.0					
-30.0					
-40.0					
-50.0					
-60.0					
-70.0					
-10.0					
Center 2.4020000 GHz #Res BW 100 kHz		#Video BW	300 kHz		Span 1.500 MHz Sweep 1.00 ms (1001 pts
1 5677	Oct 31, 2024	\wedge			
	8:52:13 AM				
	Tx. S	purious NVNT BLE 2	402MHz Ant1 E	mission	
Spectrum Analyzer 1 Swept SA	• +				
KEYSIGHT Input: RF	Input Z: 50 Ω #Atte Corr CCorr	en: 30 dB PNO: Fast Gate: Off	Avg Type: Log- Avg Hold: 10/10		
R T +>+ Align: Auto	Freq Ref: Int (S)	IF Gain: Low Sig Track: Of	Trig: Free Run	• M₩₩₩₩₩ ₽ N N N N N	
1 Spectrum 🔹		Ref Lvi Offse			Mkr1 2.402 GHz
Scale/Div 10 dB Log		Ref Level 20			3.19 dBm
-10.0					DL1 -16.31 dBm
-20.0					
-40.0	2 $\sqrt{3}$	<mark>4</mark>			
-50.0 -60.0 -60.0	2 3	men was his a man man and	non annote the second and a second	And have a second and the	and a second and the second and a second and the se
-70.0					
Start 30 MHz #Res BW 100 kHz		#Video BW	300 kHz		Stop 25.00 GHz Sweep ~2.49 s (1001 pts
5 Marker Table 🔹 🔻					
Mode Trace Scale	Х	Y	Function	Function Width	Function Value
1 N 1 f 2 N 1 f	2.402 4.724	GHz -54.80 dB	m		
3 N 1 f	7.221				
4 N 1 f	9.743				
4 N 1 f 5 N 1 f 6	9.743 24.625				
5 N 1 f	24.625				
5 N 1 f	24.625 Oct 31, 2024 8:52:41 AM		in	4 D-6	







