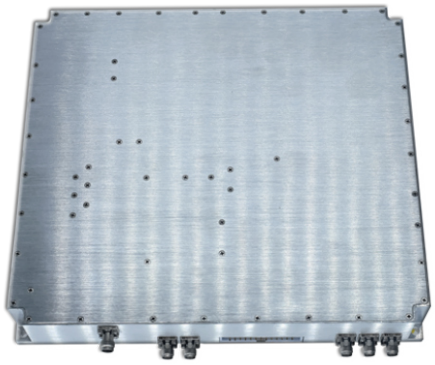
Ultra Wideband Signal Source Module



Description:

Corech Microwave's Ultra-Wideband Signal Source Module operates from 9kHz to 20GHz/ 40GHz, featured with ultra wideband, CW/Pulse mode, ultra low noise of -105dBc/Hz@10kHz , low spurious and low consumption. They are very rugged and stable to be integrated in various systems.

PN:

PN	Description	Option
MSG9K40G		

Key Specifications:

- Frequency Range: 9kHz to 40GHz
- Frequency Steps: 0.001Hz
- Output Power: 0dBm ~ +15dBm
- Setting Time: 300us
- Spurious: 60dBc
- Phase Noise: -105dBc/Hz@10kHz at 20GHz
- External Reference:10MHz
- Internal Reference: 100MHz
- RF Ouput Waveform: Sine wave / pulse modulation
- External Pulse Input: LVTTL

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• Electrical Specifications

External Reference (50Ω)

Parameter	Min.	Typ.	Max.	Note
Input Frequency		10MHz		
Input Power	0dBm		+5dBm	
Phase Noise			-150dBc/Hz@1kHz	

Internal Reference (50Ω)

Parameter	Min.	Typ.	Max.	Note
Frequency		100MHz		
Frequency stability		0.1ppm		
Temperature stability		0.1ppm		
Phase Noise			-155dBc/Hz@1kHz	

Reference Output

Parameter	Min.	Typ.	Max.	Note
Output Frequency	10MHz, 100MHz			
Output Power	0dBm			10MHz
	0dBm			100MHz
Phase Noise			-140dBc/Hz@1kHz	10MHz
			-145dBc/Hz@1kHz	100MHz

• Electrical Specifications

Parameter	Min.	Typ.	Max.	Note
Frequency Range	9kHz		40GHz	
Frequency Steps		0.001Hz		
Output Power	0dBm		+15dBm	25℃
Power Steps			0.5dB	
Output Power Resolution			±2dB	
Setting Time		300us	500us	#1
Harmonics				
1GHz		-47dBc	-40dBc	
10GHz		-53dBc	-40dBc	
20GHz		-50dBc	-40dBc	
1/2 Harmonics				
1GHz		-85dBc	-80dBc	
10GHz		-88dBc	-80dBc	
20GHz		-82dBc	-75dBc	
35GHz		-84dBc	-75dBc	
40GHz		-84dBc	-75dBc	
Spurious (Frequency Offser ≥5kHz)				
1GHz	-85dBc	-80dBc	-60dBc	
10GHz	-80dBc	-75dBc	-60dBc	
20GHz	-74dBc	-70dBc	-60dBc	
30GHz	-74dBc	-65dBc	-60dBc	
40GHz	-68dBc	-63dBc	-60dBc	

#1, Setting Time：500ns (Excluding communication time)

• Electrical Specifications

SSB Phase Noise (Type)

Parameters	100Hz	1kHz	10kHz	100kHz	1MHz
dBc/Hz@1GHz	-104	-126	-130	-130	-130
dBc/Hz@10GHz	-85	-106	-110	-110	-111
dBc/Hz@20GHz	-79	-100	-104	-104	-105
dBc/Hz@30GHz	-75	-96	-100	-100	-101
dBc/Hz@40GHz	-73	-94	-98	-98	-99

• Option 1 （Pulse Generator and Modulation)

Pulse Modulation

Parameters	Min.	Typ.	Max.
On/ Off Ratio		-65dBc	
Min. Pulse Width		100ns	
Min. Period		110ns	
External Pulse Input			
LVTTL		+3.3V	
Internal Pulse Generator			
Square Wave Speed Rate	0.1Hz		10MHz
Period	110ns		100s
Pulse Width	100ns		99.999999s
Rise Time / Fall Time		25ns / 25ns	＞100MHz
		150ns / 150ns	≤100MHz
Resolution		100ns	
Delay	20ns		100s

- **Option 2 （Sweep)**

Sweep

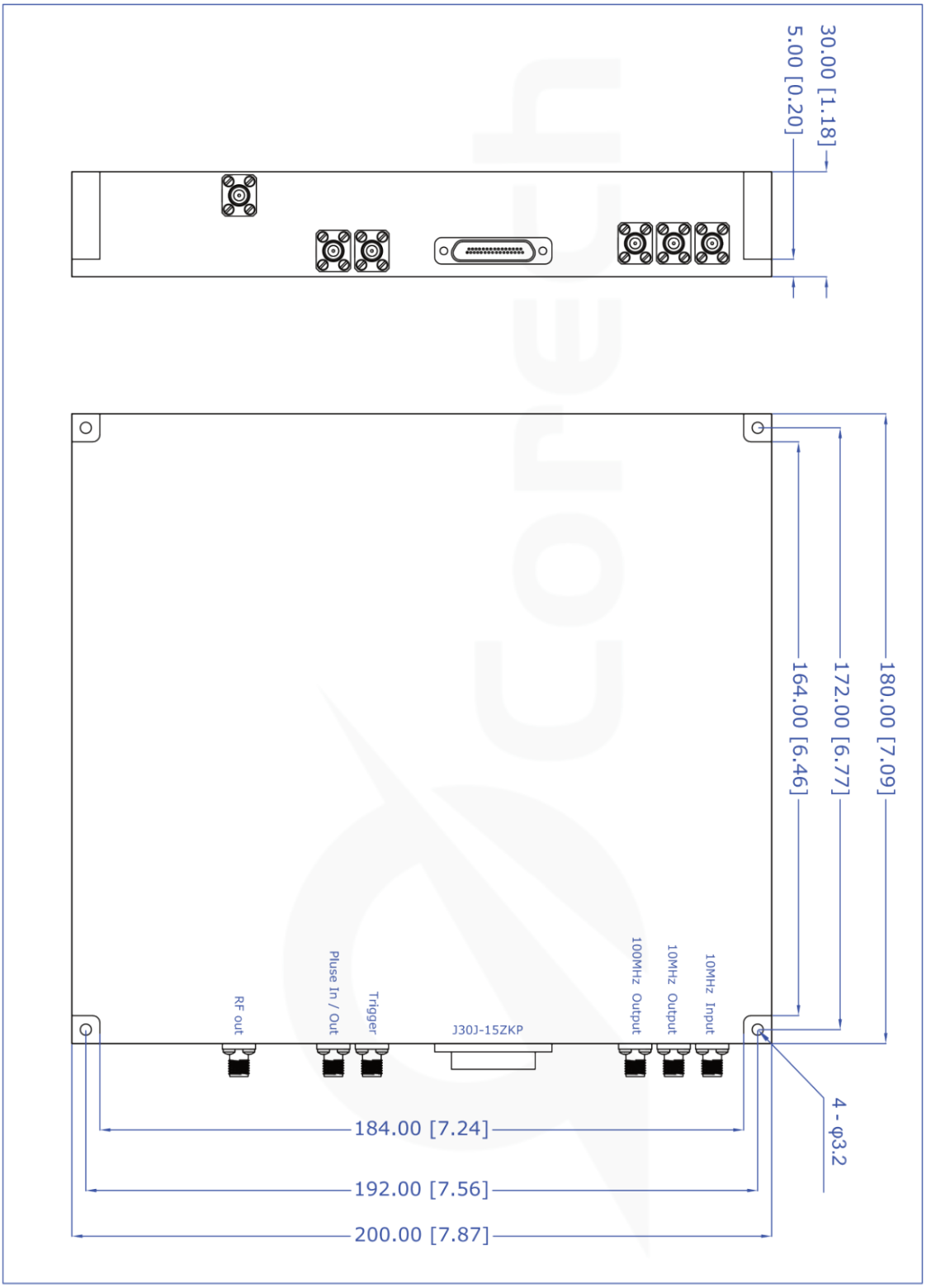
Parameters	Min.	Typ.	Max.
Operating Mode	Step Sweep		
Sweep Range	9kHz		40GHz
Dwell Tine	10ms		10s
Time Resolution		1us	
Switching Speed	300us typ. @ Internal Source		

- **Generel Specifications**

Parameters	Min.	Typ.	Max.
Supply Current (Vcc=+24V)			2A
Communication	RS422, Baud Rate: 1Mbps *		
RF Out Connector	2.92mm-Female		
Reference Input/Output	SMA-Female		
Synchronization Signal	SMA-Female		
Power and Control Interface	J30J-15ZP		
Operating Temperature	-20 ~ +40 ℃		
Storage Temperature	-40 ~ +70 ℃		

* Communication protocol will be discussed and agreed upon subsequently

- **Dimensions:**

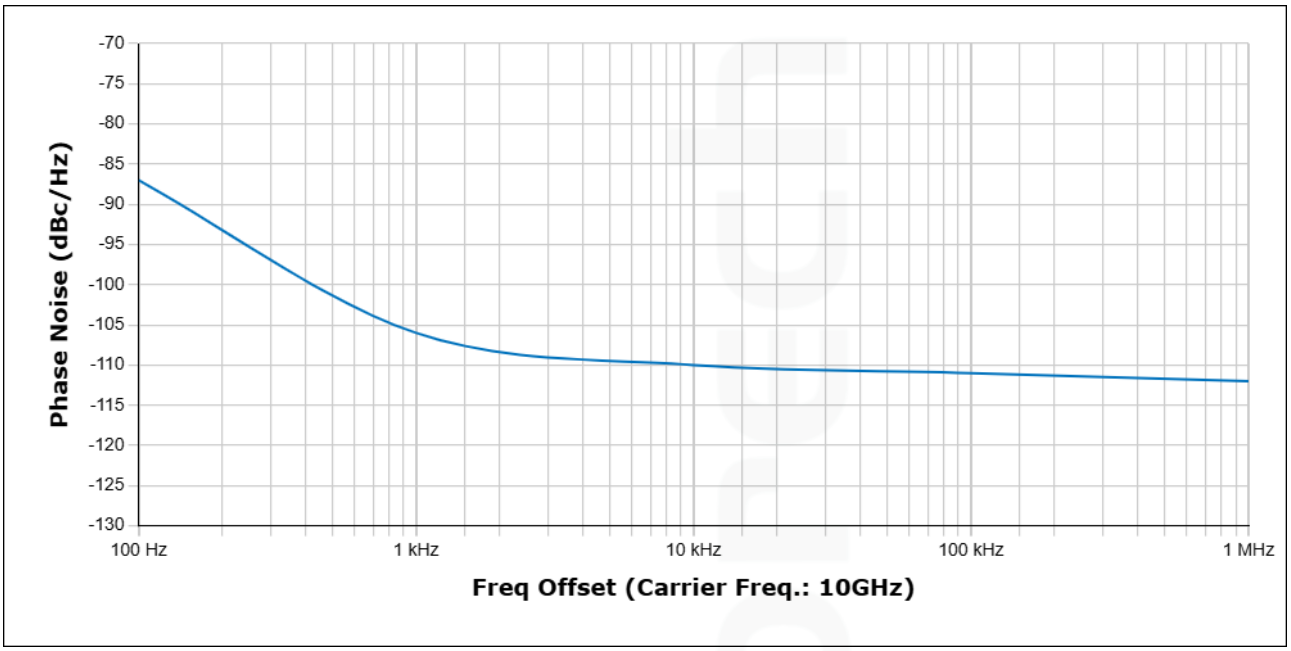

30.00 [1.18]
5.00 [0.20]
164.00 [6.46]
172.00 [6.77]
180.00 [7.09]
RF out
Pluse In / Out
Trigger
J30J-15ZKP
100MHz Output
10MHz Output
10MHz Input
4 - φ3.2
184.00 [7.24]
192.00 [7.56]
200.00 [7.87]

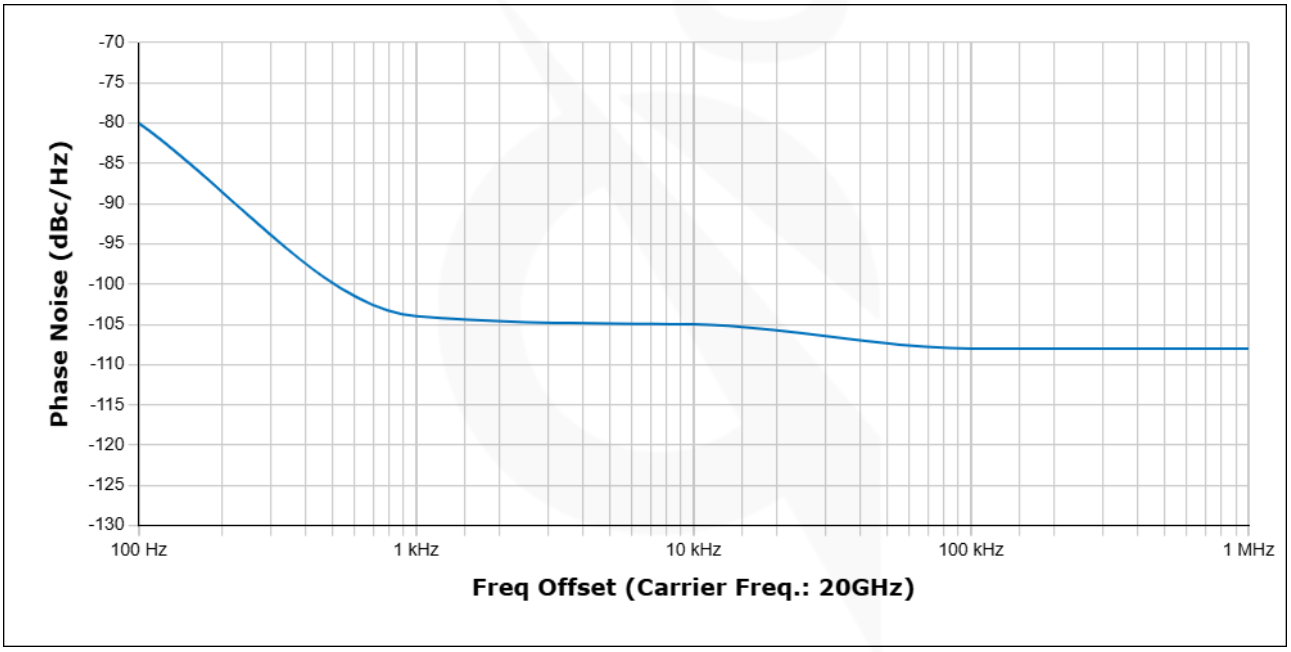
Dimensions:

Table 1: J30J-15ZKP Interface Definition

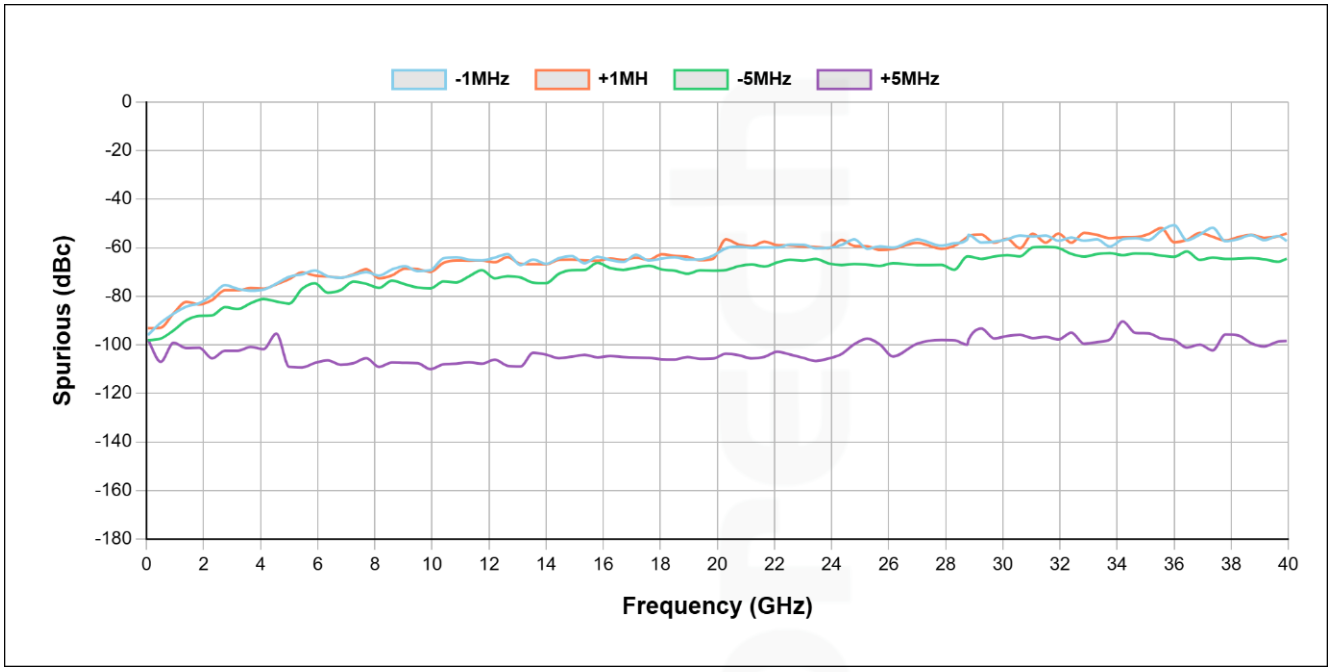
J30J Pin	Definition	J30J Pin	Definition
1	+24V	9	T+
2	+24V	10	T-
3	+24V	11	R+
4	+24V	12	R-
5	GND	13	NC
6	GND	14	NC
7	GND	15	NC
8	GND		

SSB Phase Noise (Typ.)

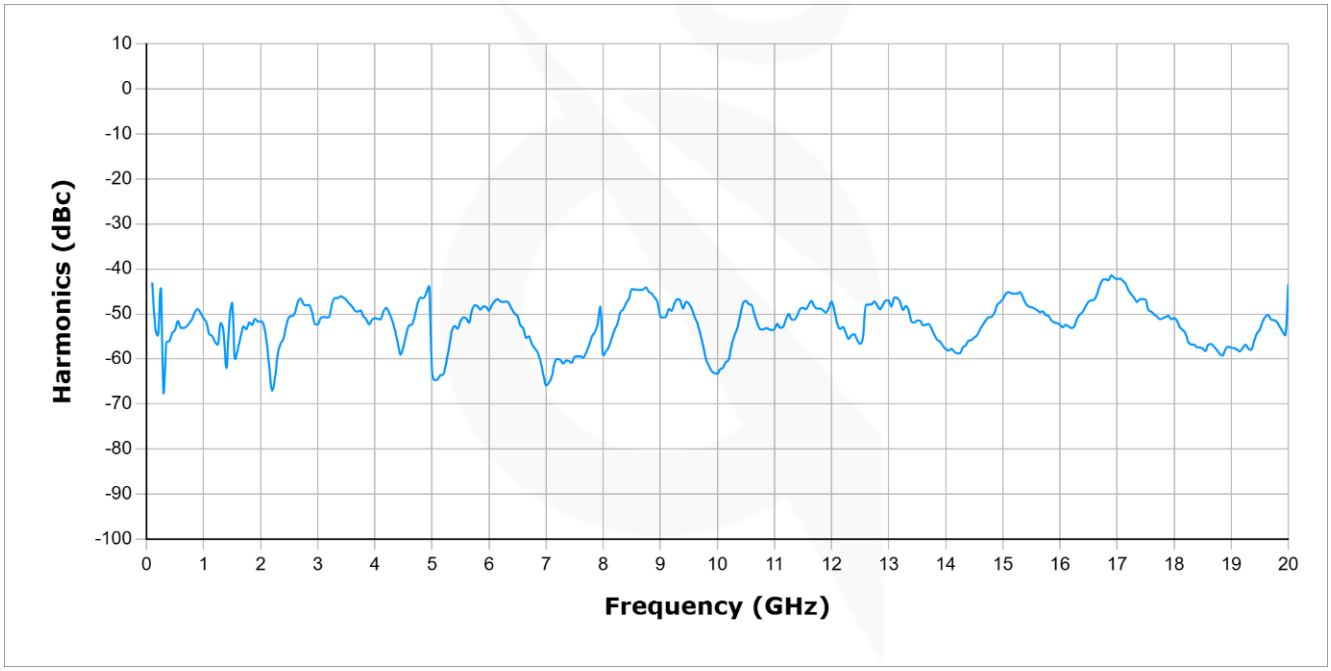
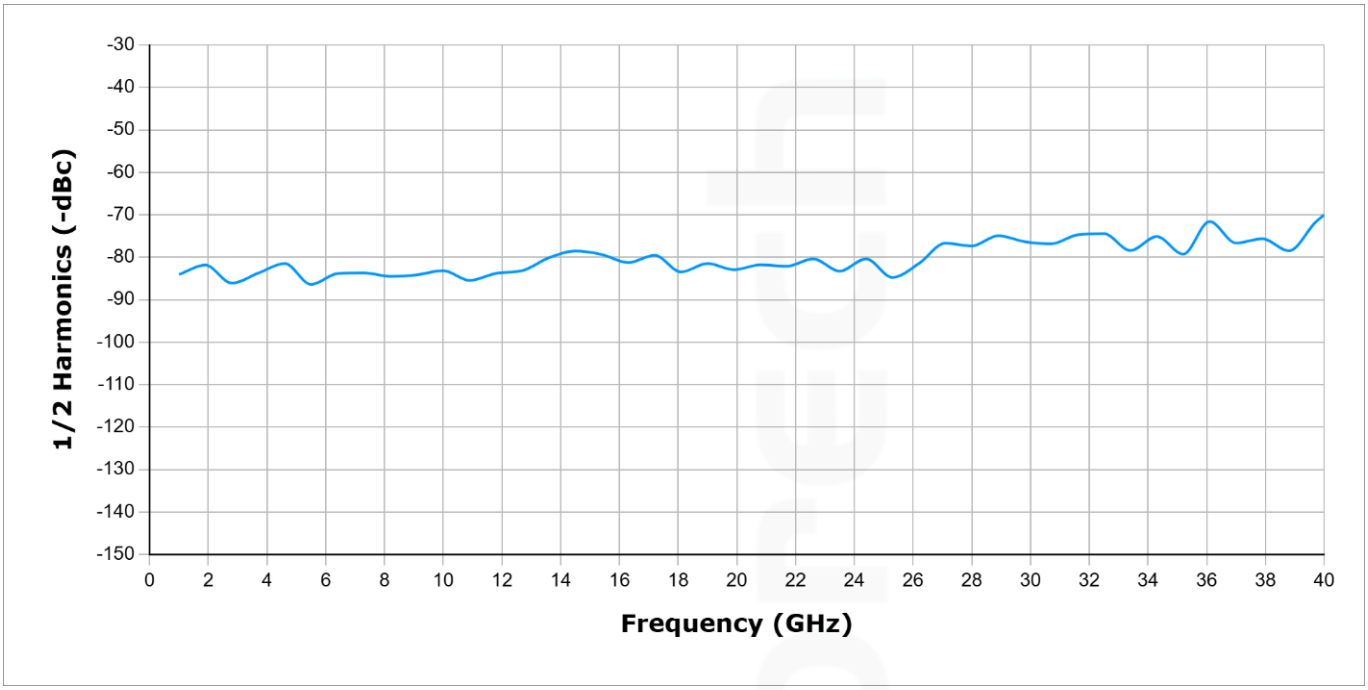




Spurious (Typ.)



Harmonics (Typ.)



1/2 Harmonics (Typ.)