



Ultra Low Phase Noise USB Controlled RF Synthesizer 0.039-22GHz



Summary

RSYN01G20GA is a wide range tunable RF synthesizer. It uses advanced VCO and DDS based phase lock technology to provide T&M level of phase noise. The unit uses an internal temperature compensated crystal oscillator as the referenced signal to the PLL. The unit can also be locked to an external 10MHz reference source. The output power is calibrated and stabilized with good accuracy.

Typical Applications

- Wireless Infrastructure
- RF Microwave & VSAT
- Military & Aerospace
- Test and Measurement
- Fiber Optics

Electrical Specifications

Frequency	39MHz-22GHz	Output Power Typical	10dBm
Frequency stability	+/-0.5ppm	Output Power Tuning range	31.5dB with 0.5dB step
Frequency Aging	+/- 3ppm (10 years)	Output Power Linearity	+/- 0.5dB
Reference tuning range	+/-100ppm	Output Power Accuracy	+/- 1.5dB
Tuning Step	0.001Hz	SFDR 1MHz Tuning Step	65dBc
Phase Noise @ 10GHz Typical	-116dBc/Hz (@10KHz) -117dBc/Hz (@100KHz) -118dBc/Hz (@1MHz) -140dBc/Hz (@10MHz)	2 nd Harmonic	-30dBc
Power Supply Voltage	110 / 240V AC	3 rd Harmonic	-35dBc
USB	USB 2.0	EXT Reference Input Level	0dBm to 10dBm

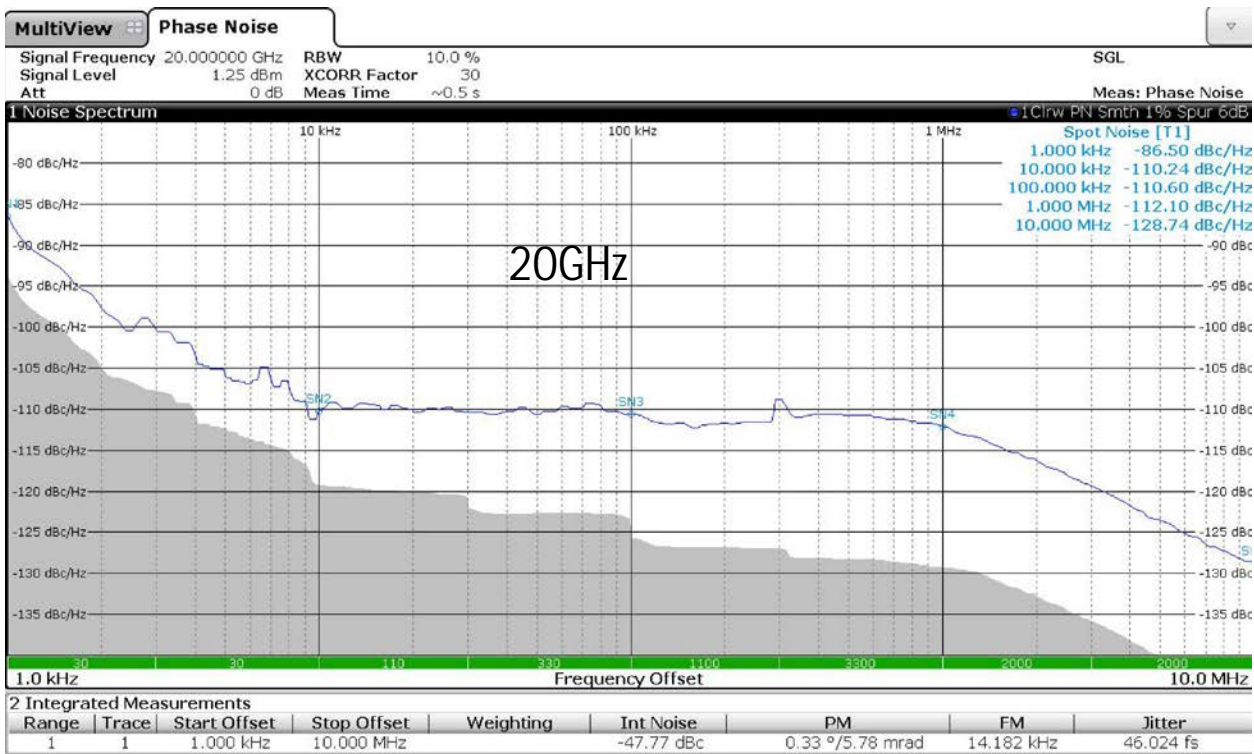
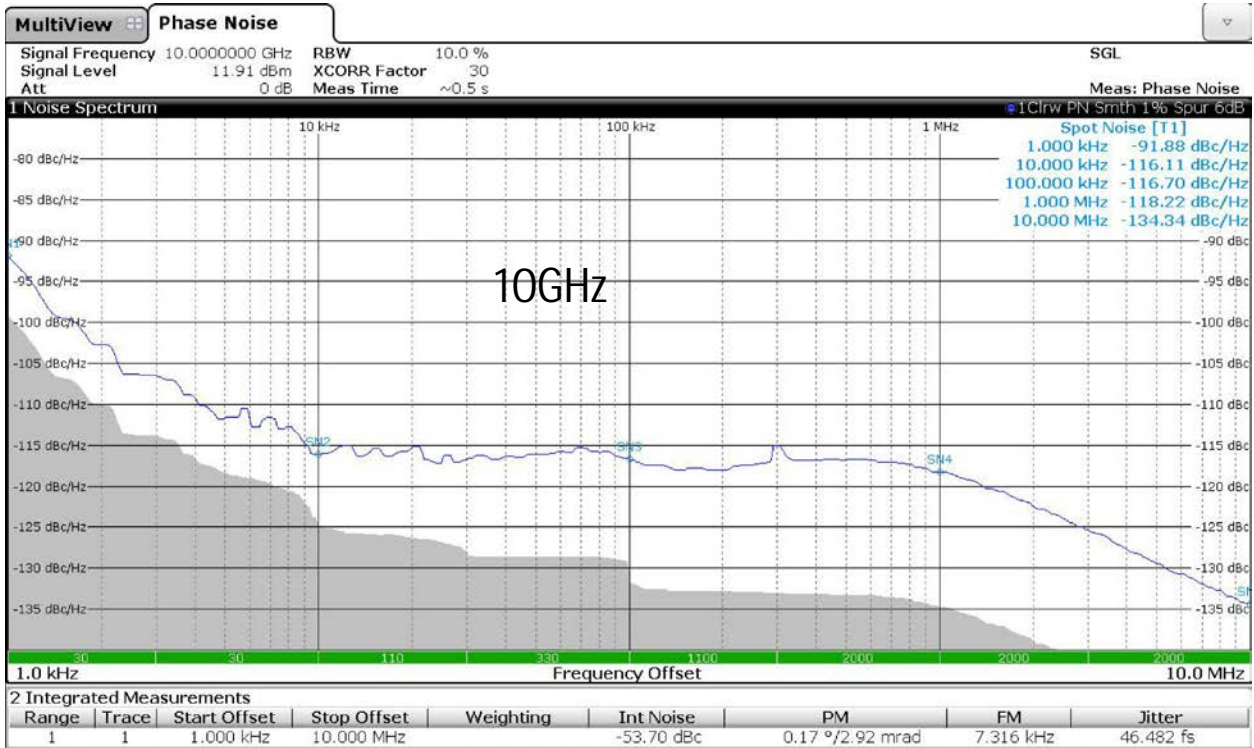
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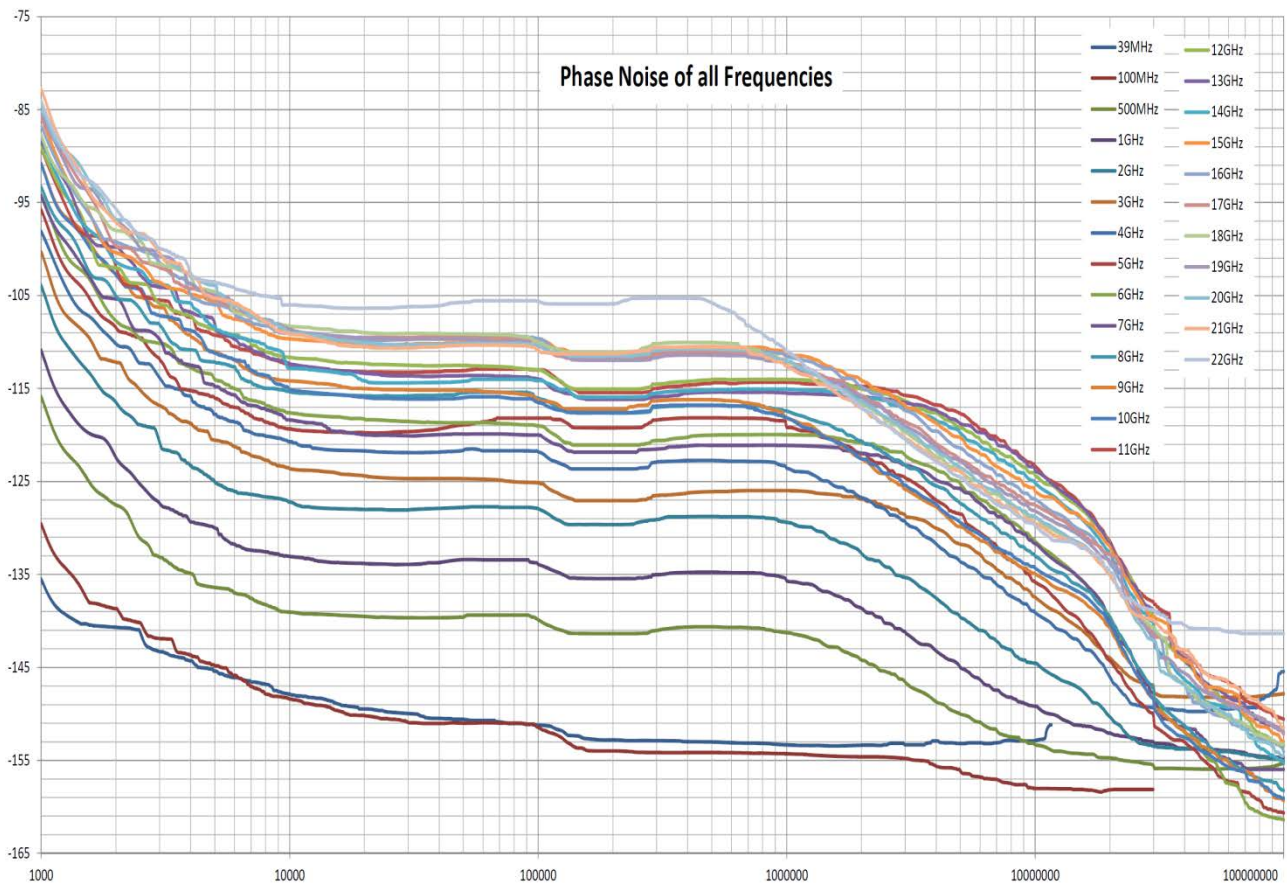
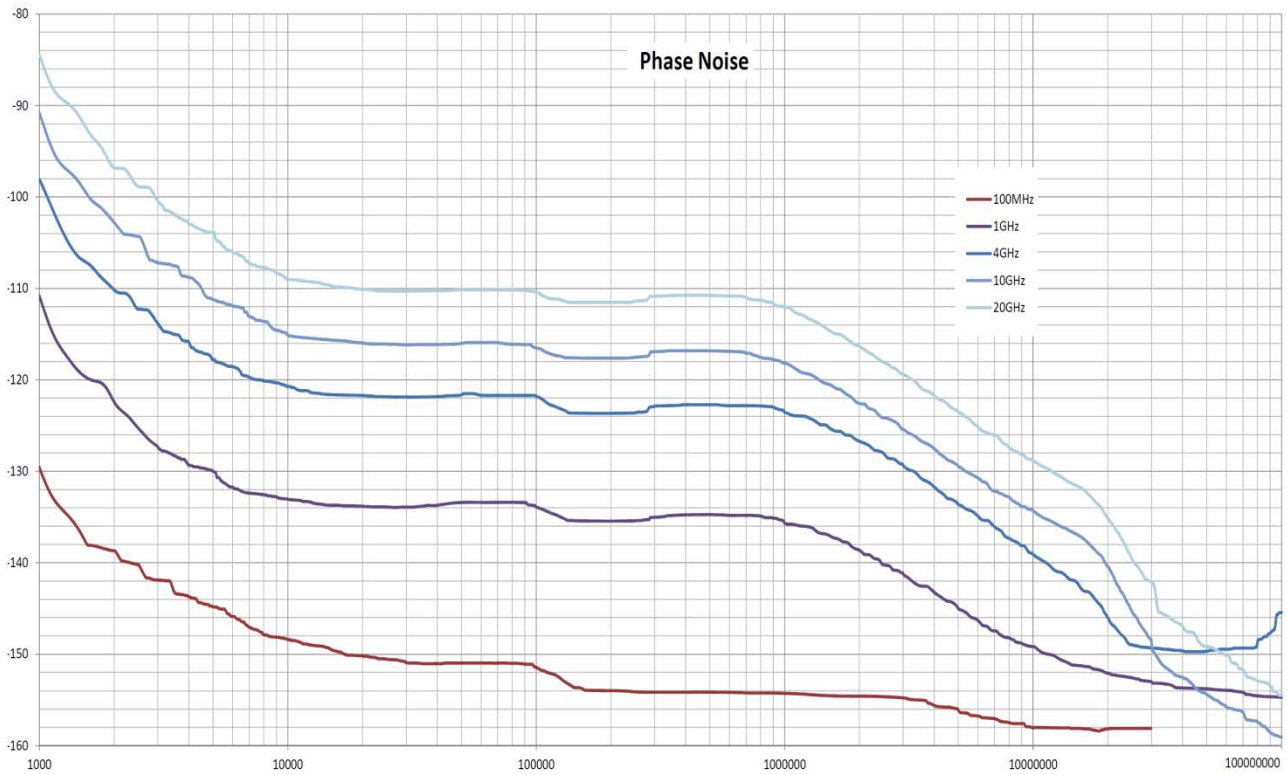
RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RSYN01G20GA



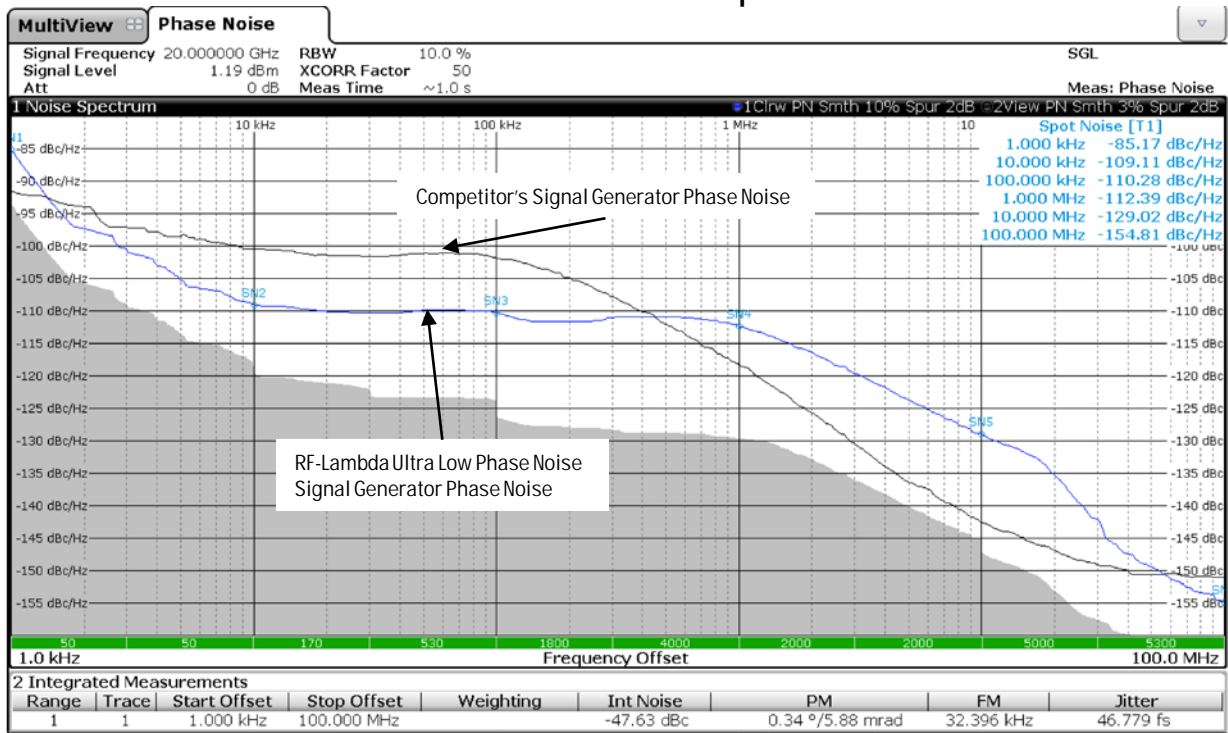
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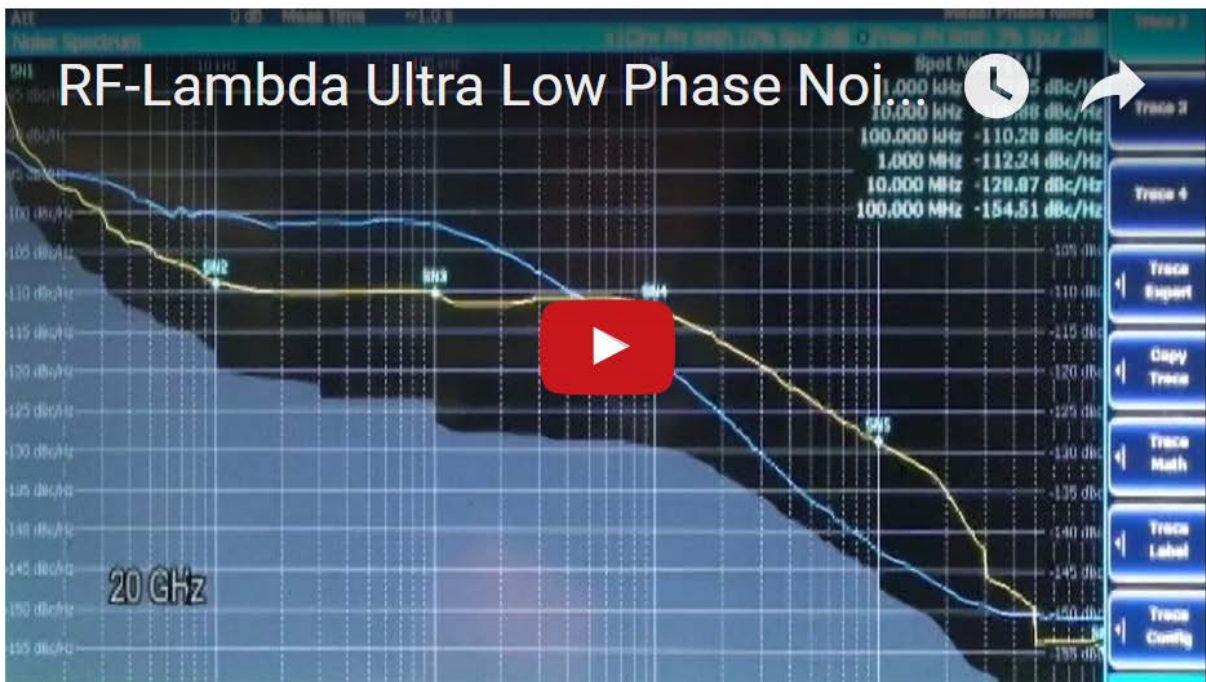


Phase Noise Comparison



Video Instruction Link:

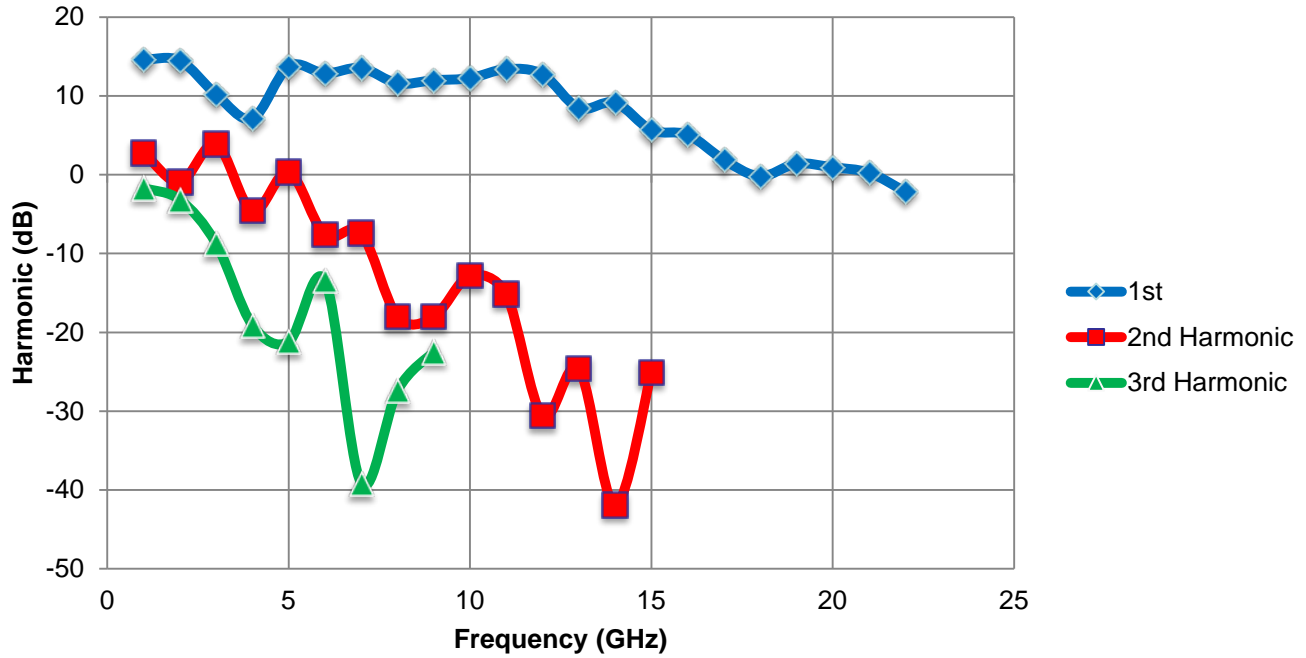
http://www.rflambda.com/product_signalgenerator.jsp



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Harmonics Chart



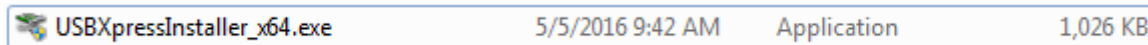
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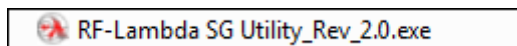
User Instructions:

1. Install the SW below on the control PC
 - a. Visual C++ Redistributable Packages for Visual Studio 2013
<https://www.microsoft.com/en-us/download/details.aspx?id=40784>
 - b. Visual Studio 2010 Tools for Office Runtime
<https://www.microsoft.com/en-us/download/details.aspx?id=48217>
 - c. Microsoft .NET Framework 4.6.2
<https://www.microsoft.com/en-us/download/details.aspx?id=53344>

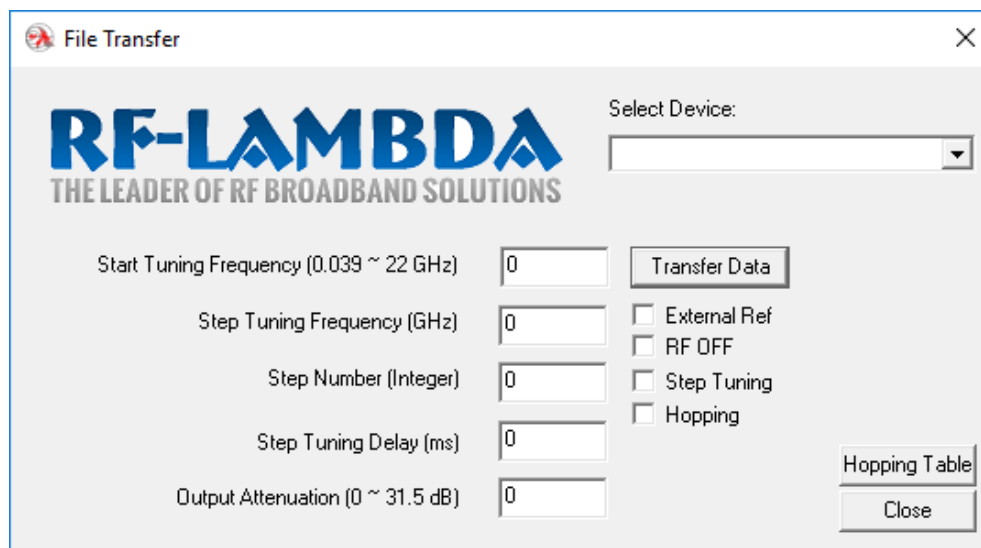
2. Install the USB Driver under this directory:
\\RF-Lambda SG Utility_Rev_2.0\Installation Software\USB Driver \
USBXpressInstaller_x64.exe



3. Open “RF-Lambda SG Utility_Rev_2.0.exe”
\\RF-Lambda SG Utility_Rev_2.0\RF-Lambda SG Utility_Rev_2.0\
RF-Lambda SG Utility_Rev_2.0.exe

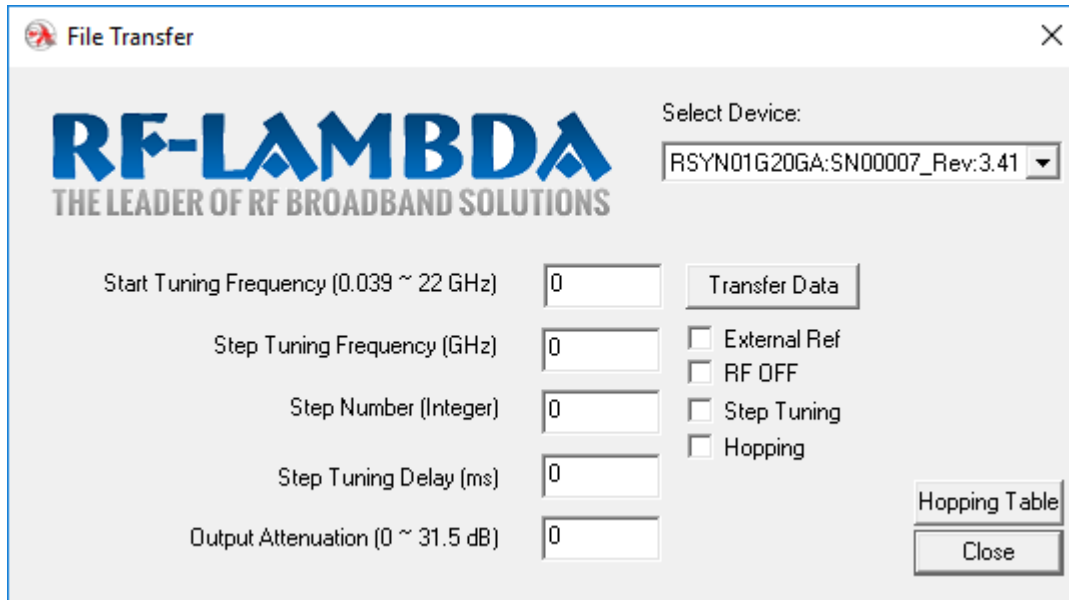


4. The program will look like this:

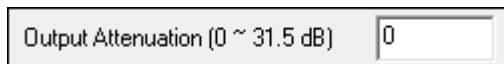




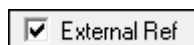
5. Turn on the +15V power supply. The part number, serial number, and revision number will show up in the top right corner.



6. You can reduce the output power by entering an attenuation: (0.5dB to 31.5dB, 0.5dB per step, ex: 0.5dB, 1.0dB, 1.5dB... etc)

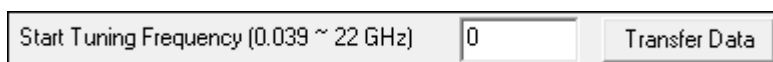


7. You can enable the external ref input by clicking here:



Single Frequency Mode

a. Change the frequency (0.039 ~ 22GHz) here and then click Transfer Data:





Step Tuning Mode

$Tuning\ Frequency = Start\ Tuning\ Frequency + Step\ Tuning\ Frequency * Step\ Number\ (Integer)$

Example:

If you want 1,3,5,7,9 GHz frequency changing every 5000ms.

Start Tuning Frequency (0.039 ~ 22 GHz)	<input type="text" value="1"/>	<input type="button" value="Transfer Data"/>
Step Tuning Frequency (GHz)	<input type="text" value="2"/>	<input type="checkbox"/> External Ref
Step Number (Integer)	<input type="text" value="4"/>	<input type="checkbox"/> RF OFF
Step Tuning Delay (ms)	<input type="text" value="1500"/>	<input checked="" type="checkbox"/> Step Tuning
Output Attenuation (0 ~ 31.5 dB)	<input type="text" value="0"/>	<input type="checkbox"/> Hopping

a. Check Step Tuning check box.

 Step Tuning

b. Put the start frequency in this box (0.039 ~ 22GHz).

c. Put the frequency step in this box (GHz)

d. Put Step Number (Integer).

e. Put the delay time between each frequency (ms)

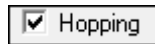
f. Click Transfer data.



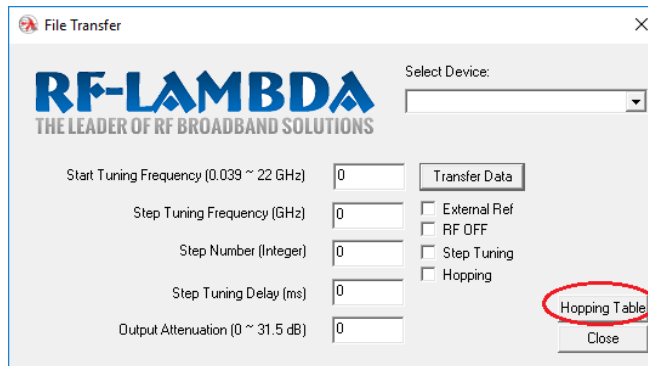
Frequency Hopping Mode

The tuning frequency can follow the tuning table.

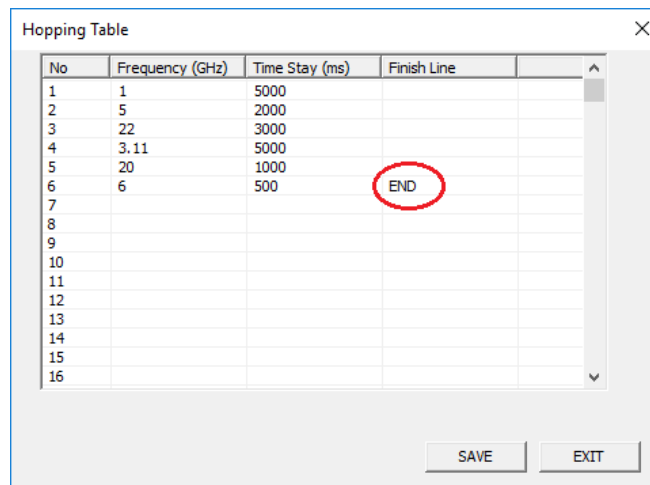
- a. Select hopping check box.



- b. Click hopping table button on the bottom right corner.

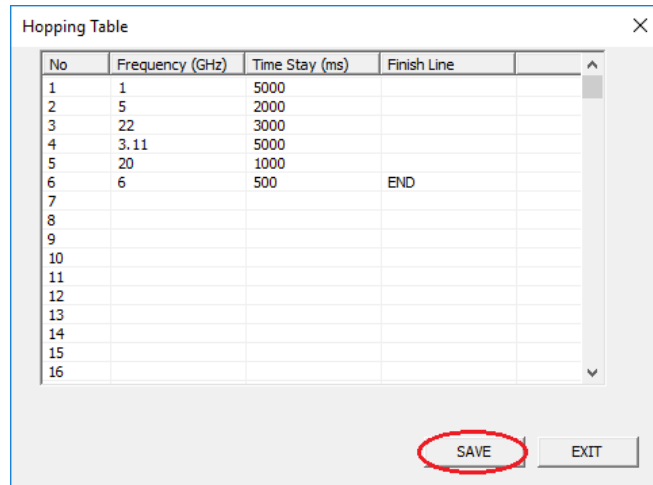


- c. Change the variables in the pop out window, make sure to hit “Enter” ever time after change the values, and input “END” in the finish line after the last hopping frequency.

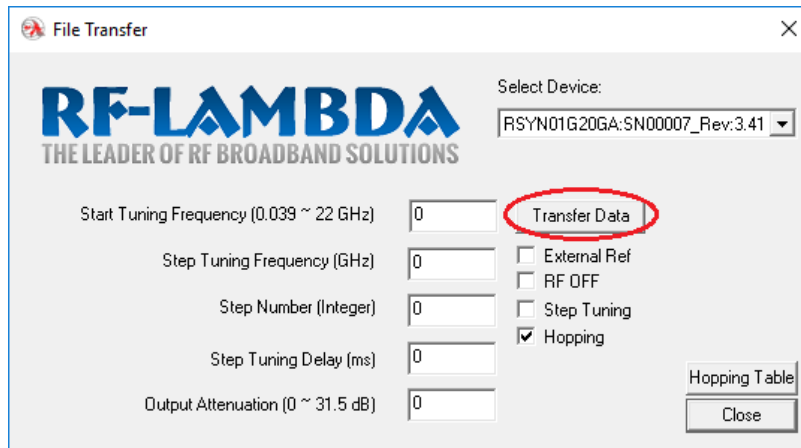




- d. Click the “SAVE” button after finished inputting the data, and then click “EXIT”.



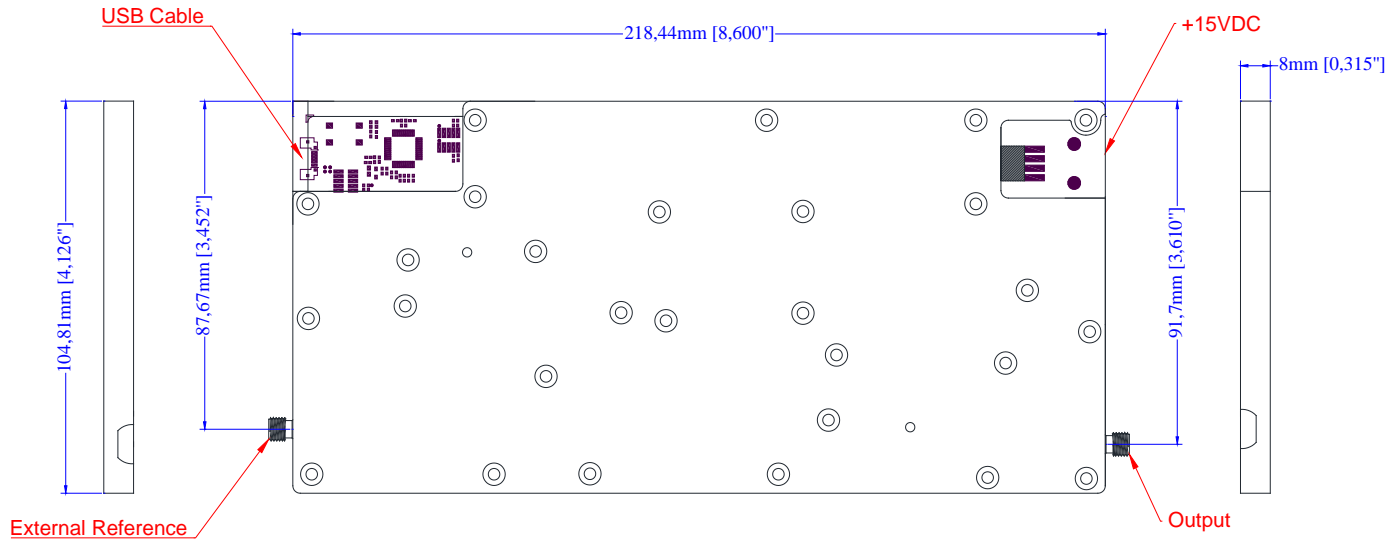
- e. Click “Transfer Data” button start frequency hopping.





Outline Drawing:

All Dimensions in mm [inches]



*****Heat Sink and cooling fan required during operation*****



Important Notice

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