



Date:08.17.2012

*Solution:* The Rigol DSA-1000 and 800 Series of spectrum analyzers have a very nice Pass/Fail mask feature that can be implemented from the front panel or remotely.

We have put together a small application using an Excel 2010 Macro that eases the process of building and saving masks to the DSA.

Requirements:

- PC running Windows and Microsoft Excel version 2010 or later
- National Instruments VISA Runtime Engine (<u>www.ni.com</u> Search VISA Runtime and pick the appropriate runtime engine for your Operating System)
- A copy of the file 'PFMaskBUilder\_DSA.xlsm' which can be downloaded from the software tab here:

http://www.rigolna.com/products/spectrum-analyzers/dsa800/dsa815-tg/

7401 First Place, Ste. N Oakwood Village, OH 44146 USA

- A Rigol DSA1000, 1000A, or 800 series spectrum analyzer
- A USB cable to connect the PC with the DSA



Toll Free: 877-4-RIGOL-1



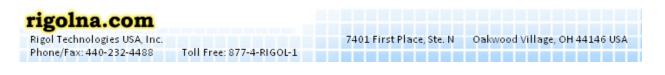
- 1. Connect DSA to power line
- 2. Connect DSA to controlling PC using USB
- 3. Run the program "PFMaskBuilder\_DSA.XLSM"
- 4. If you are connected via USB, press the Find Instruments button and select the correct instrument address from the drop down, as shown below:

960::DSA8A141200071	::INSTF
Add Limit Line	Reset PF Line
	CISPR22A
	File Name

NOTE: A Rigol DSA connected over USB will have an address like below:

"USB0::0x0400::0x09C4::DSA1A124400151::INSTR"

- 5. Select the Pass/Fail line number. 2 is the Upper Limit and the most commonly used.
- 6. Select a start frequency. This will be the lowest frequency displayed on the DSA





- 7. Selet the stop frequency. This will set the highest frequency displayed on the DSA
- 8. Enter the frequency (MHz) and the Amplitude (dBm) for each point in the limit line profile.
  - **NOTE:** You will need to place a small frequency offset for each continuing point. For example, if you want a line to go from 30 MHz to 300MHz at -10dbm, then from 300MHz to 1GHz at -20dBm, the sheet would look like the following:

Frequency (Mhz)	Amplitude (dBm)
30	-10
300	-10
300.000001	-20
1000	-20

9. Press Add Limit Line button to send the new limit to the instrument

GOL nd Measure		R	≀igol	DSA Pass/	Fail Mask	Builder
Find Instrument	s	USB0::0x1AB1::0x0	0960:	DSA8A1412000	071::INSTF 🔻	
Select Pass Fail Line Start frequency (MHz) Stop Frequency (MHz)	2 30 1000					
Frequency (Mhz) 30		Amplitude (dBm) -66.99	ĺ	Add Limit L	ine	Reset PF Line
230 230.000001		-66.99 -59.99	F	ile Name	CISPR22A	
1000		-59.99		Store Fil	e	



Toll Free: 877-4-RIGOL-1



## 10. Press Reset PF Line button to reset limit line to 0dBm

GOL Measure			Rigol [	DSA Pass/	Fail Mask	Builder
Find Instrument	s	USB0::0x1AB1::0x	x0960::D	SA8A1412000	071::INSTF▼	
Select Pass Fail Line Start frequency (MHz)	2 30	•				
Stop Frequency (MHz) Frequency (Mhz)	1000	Amplitude (dBm)				
30		-66.99		Add Limit Line		Reset PF Line
230		-66.99 -59.99	File	e Name	CISPR22A	
1000		-59.99				
				Store Fil	e	

## 11. Enter File Name and Store File Button to save the limit line to the internal storage of the instrument

Find Instruments USB0::0x1AB1::0x0960::DSA8A141200071::INSTF   Select Pass Fail Line 2 •   Start frequency (MHz) 30 -<	GOL Id Measure			Rigol D	)SA Pass/F	ail Mask	Builder
Sterect Pass Fair Line 30   Start frequency (MHz) 30   Stop Frequency (MHz) 1000   Frequency (Mhz) Amplitude (dBm)   30 -66.99   230 -66.99   230.000001 -59.99   File Name CISPR22A	Find Instrument	s	USB0::0x1AB1::0	x0960::D	SA8A1412000	71::INSTF	
Stop Frequency (MHz)   1000   Amplitude (dBm)   Add Limit Line   Reset PF L     30   -66.99<			•				
30   -66.99   Add Linit Line   Reset PL     230   -66.99   File Name   CISPR22A     1000   -59.99   File Name   CISPR22A							
230   -66.99     230.000001   -59.99     1000   -59.99					Add Limit Li	ne	Reset PF Line
230.000001   -59.99   File Name   CISPR22A     1000   -59.99							
1000 -59.99				File	Name	CISPR22A	
	1000		55.55		Store File		



Phone/Fax: 440-232-4488

Toll Free: 877-4-RIGOL-1