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November 08, 2021, 03:43:14 pm



 This topic 

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Author

Topic: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ (Read)

volvo\_nut\_v70 and 0 Guests are viewing this topic.

**Gandalf\_Sr**  
Super Contributor



Posts: 1726  
Country:



**HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« on: November 21, 2015, 02:33:54 pm »

Just picked one up on eBay for a good price. It has following options:

- 100 Multicarrier, multichannel W-CDMA personality (for Option UND)
- IE5 High-stability timebase
- 200 Real-time 3GPP W-CDMA personality (for Option UN8)
- 201 Real-time cdma2000 personality for Option UN8
- UN8 Real-time I/Q baseband generator with 1M RAM
- UN9 Add 7M RAM to Option UN8
- UND Internal dual arbitrary waveform generator

I got it and it works, I dialled up 2 and 4 GHz at -10 dBm and saw those values on my N1996A.

it's a bit scuffed up and the display is dimmer than I'd like but perfectly readable. Have cleaned it up, taken out the ccfl backlight, and ordered a replacement ccfl bulb (3mm x 112mm) from cflwarehouse. I'll post some pictures later but any comments or advice would be welcome.

Report to moderator Logged

If at first you don't succeed, get a bigger hammer

**Gandalf\_Sr**  
Super Contributor



**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #1 on: November 26, 2015, 01:50:10 pm »

The first major improvement I've made is by replacing the backlight, thought others might like to see how much improvement can be had. The service manual for the E4433B shows how to get to the



Posts: 1726  
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backlight but says you must disconnect all the wires going to the front panel; I did it by only disconnecting the hard coax output connector and the 2 wire connector that feeds the backlight, you can then carefully lean the front panel unit forwards so it rests face down and then take off the aluminum back plate and get at the display.

My backlight looked weak and greenish and the system menus told me it had run for almost 60,000 hours. I took the backlight out and measured the size of the ccfl tube at 3 x 110 mm. There's a company called ccfl warehouse ([www.ccflwarehouse.com](http://www.ccflwarehouse.com)) that sell a 3 x 112 mm ccfl for \$10 plus another \$5 for shipping - the official part from Agilent costs \$260 - yes the new one is 2 mm longer but there's plenty of room so it fits. When the new ccfl arrived, I cut the wires off the old ccfl, cleaned up and tinned the wire ends, prepped the new ccfl by carefully bending the wires, cutting them back, and tinning them so they matched the old one. Then I soldered the wires to the new ccfl and put it back in the slot reusing the old insulating caps.

On power up, the new ccfl took about 30 seconds to reach full brightness and the difference was huge, after tweaking the contrast and brightness, my display looked almost like the glossy pictures for the ESG when it was new - see the pictures in the next post.



IMG\_2238.JPG (709.2 kB, 2389x1363 - viewed 743 times.)



IMG\_2226.JPG (717.39 kB, 2389x1869 - viewed 610 times.)

« Last Edit: November 26, 2015, 02:15:53 pm by Gandalf\_Sr »

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The following users thanked this post: Melt-O-Tronic

**Gandalf\_Sr**

Super Contributor



Posts: 1726  
Country:

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #2 on: November 26, 2015, 01:58:09 pm »

Here's a couple of pictures of the display after the backlight replacement. I showed one with the display inverted to make a fair comparison with the 'before' picture but the one I like is the first one which is also running at brightness 25 vs the original pre-ccfl change level which was 38.



IMG\_2244b.JPG (605.36 kB, 1945x1097 - viewed 634 times.)



IMG\_2240.JPG (669.41 kB, 1953x1215 - viewed 622 times.)

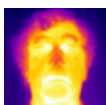
« Last Edit: November 26, 2015, 02:06:40 pm by Gandalf\_Sr »

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**PA0PBZ**

Super Contributor



Posts: 4623  
Country:

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #3 on: November 26, 2015, 02:02:13 pm »

That looks like a great improvement. Luckily mine still looks about as good as yours after the mod so I'm fine. Should check the run hours though...

Report to moderator

Keyboard error: Press F1 to continue.

**Gandalf\_Sr**

Super Contributor

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

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**nctnico**  
Super Contributor

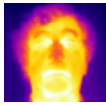
Posts: 21640  
Country:

**Gandalf\_Sr**  
Super Contributor



Posts: 1726  
Country:

**PA0PBZ**  
Super Contributor



Posts: 4623  
Country:

**nctnico**  
Super Contributor

Posts: 21640  
Country:

**Gandalf\_Sr**  
Super Contributor

« **Reply #4 on:** November 26, 2015, 03:07:07 pm »

Thanks, I'm VERY happy with the result.

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**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« **Reply #5 on:** November 26, 2015, 03:32:23 pm »

I got a bit creative with the display in my E4421B:

<https://www.eevblog.com/forum/repair/e4421b-restauration-project/msg575759/#msg575759>

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There are small lies, big lies and then there is what is on the screen of your oscilloscope.

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« **Reply #6 on:** November 26, 2015, 06:45:34 pm »

**Quote from: nctnico on November 26, 2015, 03:32:23 pm**

I got a bit creative with the display in my E4421B:

<https://www.eevblog.com/forum/repair/e4421b-restauration-project/msg575759/#msg575759>

Yes, I saw that. It looks great but it seemed like a lot of work to make a PCB+FPGA code to do the video conversion!

Report to moderator Logged

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**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

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« **Reply #7 on:** November 26, 2015, 07:28:01 pm »

**Quote from: PA0PBZ on November 26, 2015, 02:02:13 pm**

Should check the run hours though...

Just short of 20K, so one third of your unit.

Report to moderator Logged

Keyboard error: Press F1 to continue.

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« **Reply #8 on:** November 26, 2015, 08:18:13 pm »

**Quote from: Gandalf\_Sr on November 26, 2015, 06:45:34 pm**

**Quote from: nctnico on November 26, 2015, 03:32:23 pm**

I got a bit creative with the display in my E4421B:

<https://www.eevblog.com/forum/repair/e4421b-restauration-project/msg575759/#msg575759>

Yes, I saw that. It looks great but it seemed like a lot of work to make a PCB+FPGA code to do the video conversion!

Initially yes but I have done several similar conversions in several types of equipment. For me it's mostly an exercise to keep my VHDL skills sharp 😊

Report to moderator Logged

There are small lies, big lies and then there is what is on the screen of your oscilloscope.

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

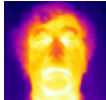
« **Reply #9 on:** November 26, 2015, 08:23:22 pm »



Posts: 1726  
Country:

**PAOPBZ**

Super Contributor



Posts: 4623  
Country:

 **Gandalf\_Sr**

Super Contributor



Posts: 1726  
Country:

 **GOHZU**

Super Contributor



Posts: 2629  
Country:

 **tv84**

Super Contributor

**Quote from: PAOPBZ on November 26, 2015, 07:28:01 pm**

Just short of 20K, so one third of your unit.

That's good Paul, I'm in awe of the quality of the Agilent stuff - mine's run for 6.8 years actual run time and, apart from a worn out ccf tube, it's still going strong. Because I had to register with the Keysight web site, they sent me an email that suggested I upgrade to the N5172B EXG X-Series RF Vector Signal Generator, 9 kHz to 6 GHz, seems like a very nice piece of kit but the price is "from US\$22,215" - gulp.

Report to moderator

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**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #10 on: November 26, 2015, 09:21:13 pm »

**Quote from: Gandalf\_Sr on November 26, 2015, 08:23:22 pm**

Because I had to register with the Keysight web site, they sent me an email that suggested I upgrade to the N5172B EXG X-Series RF Vector Signal Generator, 9 kHz to 6 GHz, seems like a very nice piece of kit but the price is "from US\$22,215" - gulp.

Yeah they do that, but not very aggressive - I can live with that.  
Would be nice to have, maybe in 20 years 😊

Report to moderator

Keyboard error: Press F1 to continue.

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #11 on: November 27, 2015, 12:44:07 pm »

Maybe in 20 years, I'll be able to buy one of these for \$1,500 on eBay..  
<http://www.ebay.com/itm/Keysight-Premium-Used-E8267D-PSG-vector-signal-generator-44-GHz-Agilent-E8267D-/181931348197?hash=item2a5bf410e5:g:7vcAAOSwFGNWRd1S>

Hey, but if I buy it NOW, I can 'save' almost \$90,000, it is Black Friday here after all.

Report to moderator

If at first you don't succeed, get a bigger hammer

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #12 on: November 27, 2015, 02:12:48 pm »

I've got a couple of the E4433 sig gens here. One is an A version and one is a B.

The A version is very similar to the B except that it isn't (wasn't) as well supported by Agilent so there are fewer design tools available for it and also it is lacking a few menus/features available on the B. Also, the firmware development for the A seemed to stop soon after the B version was released. So I would avoid the A versions (and choose a B instead) unless you find one at a price you can't refuse.

I do like using these generators, especially the E4433B if it has the Dual Arb option UND. This transforms it into a very versatile signal generator.

The most significant downside is the frequency plan the E443x uses to generate signals down at LF>>HF>VHF because it uses a basic BFO/downmixer from UHF. So the close in phase noise performance is extremely poor on the lower frequency ranges when compared to a few classic old school generators.

Report to moderator

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #13 on: September 19, 2020, 04:18:31 pm »

Sorry for digging this up...

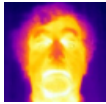
[Here.](#)



Posts: 2409  
Country:

**PA0PBZ**

Super Contributor



Posts: 4623  
Country:

**tv84**

Super Contributor



Posts: 2409  
Country:

**vtp**

Regular Contributor



Posts: 70

**Amywart**

Newbie

Posts: 1  
Country:

**Gandalf\_Sr**

Super Contributor



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**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

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« Reply #14 on: September 19, 2020, 06:58:24 pm »

Quote from: tv84 on September 19, 2020, 04:18:31 pm

Sorry for digging this up...

[Here.](#)

All I can see is a picture of a license generator... would be nice to have

Report to moderator Logged

Keyboard error: Press F1 to continue.

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

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« Reply #15 on: September 19, 2020, 08:27:37 pm »

Quote from: PA0PBZ on September 19, 2020, 06:58:24 pm

All I can see is a picture of a license generator... would be nice to have

You definitely are not doing the homework! Google the generator and use it as shown.

Hint: Search for "lmcryptgui.rar".

« Last Edit: September 19, 2020, 08:39:35 pm by tv84 »

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**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #16 on: September 20, 2020, 04:56:54 pm »

Quote from: tv84 on September 19, 2020, 04:18:31 pm

Sorry for digging this up...

[Here.](#)

Very nice. Definitely do not work for my E4406A, nor for E4445A with hostid and licence found in the net nor for my E4438C. Can't validate existing keys for any of those with given information. Process and tool usage is right as hostid and AYZ key given for the development target (in E4407B thread) produces ok result.

Perhaps the seeds are then applicaple only to E4000B-series. Awful lot of digging if seeds need to be dug up for each instrument or instrument series.

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**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #17 on: September 20, 2020, 05:00:10 pm »

Thanks for sharing

Report to moderator Logged

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #18 on: September 22, 2020, 12:55:24 am »

This is a good link for the options for the E4433B <https://literature.cdn.keysight.com/litweb/pdf/5965-4973E.pdf?id=1000031178:epsg:dow>



Posts: 1726  
Country:

I followed the links in the recent posts here but all I got to was a .png picture of some sort of license generator?

Report to moderator

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**colorado.rob**

Frequent Contributor



Posts: 305  
Country:

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #19 on: October 08, 2020, 02:25:59 am »

Need a bit of help using the E4433B. I am trying to use the LF Output to get baseband signals from the custom modulator.

I verified that the LF Output connector works by setting the LF Out Source to Function Generator and sending a simple sine wave out.

I then configured the LF Out Source to "Internal Modulation" and set up a custom modulator "Mode|Real Time I/Q BaseBand|Custom". I then set up a simple 4-FSK modulation with 4.8k SPS. I verified that this works as expected on the RF output. I also see the I/Q components of the custom modulator on the rear I/Q outputs.

However, with the custom modulator enabled and LF Out enabled, I do not see the baseband signal (I+Q) on the LF Output. Is this possible?

Report to moderator

**colorado.rob**

Frequent Contributor



Posts: 305  
Country:

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #20 on: December 01, 2020, 03:42:58 am »

If anyone needs to upload data to an ESG-D series VSA, I have posted code to do that here:

<https://gist.github.com/mobilinkd/fb2be508dd1dae7be887e60e8b37186>

This allows up one to upload a file to an ESG-D series vector signal generator connected via a ProLogix-compatible USB GPIB devices. (These can be found for about \$30 on AliExpress.)

Report to moderator

**syau**

Frequent Contributor



Posts: 293  
Country:

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #21 on: December 01, 2020, 05:22:52 am »

Wonder if anybody have the code so that I can adjust (correct) the output level at 3-4GHz. My unit tend to drop 2dbm at 4GHz when measure with a power meter.

Report to moderator

**Symeon**

Newbie

Posts: 1  
Country:

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #22 on: March 05, 2021, 03:32:26 pm »

Hello everybody,  
purchased an E4433BG unit,testing it the output frquency id pretty accurate butthe amplitude is problematic....for example,setting it to 0dBm/10 MHz it gives -0.12dBm upon switching on and after about half an hour of operation it goes down to -0.45 dBm it carries an electronic attenuator,any idea if this is an attenuator problem or one or more active stages are suffering / changing as the temperature increases during operation? the unit was thoroughly cleaned ,voltages checked on motherboard and are correct...any ideas? thank you. 🙄

Report to moderator

**roxbox**

Newbie

Posts: 4  
Country:

**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #23 on: May 13, 2021, 08:02:28 pm »

EPSSG software from HP <https://roxbox.net/EPSSG/>

the above includes links to the downloads and links to just the README files

FixFuzzy  
RemH98  
Bluetooth waveforms for ESG-D and -DP  
8648 Test Package  
ESG E44XXB Test package  
ESG AP/DP Test package  
ESG E4438C Test package

Does anyone have links to other old HP adjustment software?

« Last Edit: May 14, 2021, 11:49:22 am by roxbox »

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The following users thanked this post: syau

roxbox

Newbie

Posts: 4

Country:



**Re: HP AGILENT E4433B ESG-D SERIES SIGNAL GENERATOR 250KHZ-4.0GHZ**

Say Thanks Reply Quote

« Reply #24 on: May 14, 2021, 12:05:33 pm »

Quote from: tv84 on September 19, 2020, 08:27:37 pm

Quote from: PA0PBZ on September 19, 2020, 06:58:24 pm

All I can see is a picture of a license generator... would be nice to have

You definitely are not doing the homework! Google the generator and use it as shown.

Hint: Search for "lmcryptgui.rar".

Does anyone have a working link, every google link to lmcryptgui.rar seems to be a bust.

Got it, Thank You!

« Last Edit: May 21, 2021, 01:34:10 pm by roxbox »

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