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 November 09, 2021, 04:24:17 pm

 This topic 

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Author

Topic: **Teardown, Repair & Upgrade of an Agilent E4405B 13.5GHz ESA-E Spectrum**

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**Hugoneus**  
 Frequent Contributor



Posts: 898  
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**Teardown, Repair & Upgrade of an Agilent E4405B 13.5GHz ESA-E Spectrum Analyzer**

« on: September 18, 2017, 01:42:11 pm »

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You can watch the video here: [39 Minutes]  
[youtu.be/3R0txBEIvJQ](https://youtu.be/3R0txBEIvJQ)

More videos at The Signal Path:  
<http://www.TheSignalPath.com>

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Shahriar Shahramian  
[www.TheSignalPath.com](http://www.TheSignalPath.com)  
[www.Patreon.com/TheSignalPath](https://www.Patreon.com/TheSignalPath)

The following users thanked this post: veedub565, 2N3055, bjcuizon, CNe7532294

**HighVoltage**  
 Super Contributor



Posts: 4739  
 Country:

**Re: Teardown, Repair & Upgrade of an Agilent E4405B 13.5GHz ESA-E Spectrum Analyzer**

« Reply #1 on: September 18, 2017, 06:41:03 pm »

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Another nice repair video from you, thank you.  
 Thank you for teaching us!

I am not sure if I like your modification to LEDs for the LCD light or may be it is just the camera that does not show it correctly.  
 It just does not look evenly bright.

A few back light repairs I did, had better results, when I stayed with replacement tubes instead of LEDs

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There are 3 kinds of people in this world, those who can count and those who can not.

### Hugoneus

Frequent Contributor



Posts: 898

Country: 



### **Re: Teardown, Repair & Upgrade of an Agilent E4405B 13.5GHz ESA-E Spectrum Analyzer**

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« Reply #2 on: September 20, 2017, 01:18:24 pm »

**Quote from: HighVoltage on September 18, 2017, 06:41:03 pm**

Another nice repair video from you, thank you.  
Thank you for teaching us!

I am not sure if I like your modification to LEDs for the LCD light or may be it is just the camera that does not show it correctly.  
It just does not look evenly bright.

A few back light repairs I did, had better results, when I stayed with replacement tubes instead of LEDs

It is actually pretty bright in person. The camera was on auto gain and it was hard to tell the result from that.

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Shahriar Shahramian  
[www.TheSignalPath.com](http://www.TheSignalPath.com)  
[www.Patreon.com/TheSignalPath](http://www.Patreon.com/TheSignalPath)

### bjcuizon

Frequent Contributor



Posts: 284

Country: 

RF and Analog Electronics  
Enthusiast



### **Re: Teardown, Repair & Upgrade of an Agilent E4405B 13.5GHz ESA-E Spectrum Analyzer**

Say Thanks

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« Reply #3 on: September 20, 2017, 05:56:48 pm »

Thanks for another great video Shahriar, I enjoyed it all throughout. 😊  
What video no. is the repair for the other model? I cant seem to find it.

EDIT: Doohh, I already found it. Thanks.

« Last Edit: September 20, 2017, 06:09:09 pm by bjcuizon »

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Don't mess with an Electronics Engineer, it Megahertz!

### suj

Regular Contributor



Posts: 85

Country: 



### **Re: Teardown, Repair & Upgrade of an Agilent E4405B 13.5GHz ESA-E Spectrum Analyzer**

Say Thanks

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« Reply #4 on: December 22, 2018, 12:32:22 am »

Thank you Shahriar 🙌😊. I was looking for a spectrum analyzer that supports harmonic mixers. I found E4407B with AYZ option that someone wanted to sell with the "LO unlock" error. Three hours with youtube 📺👉 and your two episodes about ESA-E and I was sure I could do it. I have other spectrum analyzers, 85024A probe, generators, VNA etc but I have not bought broken measuring equipment before.

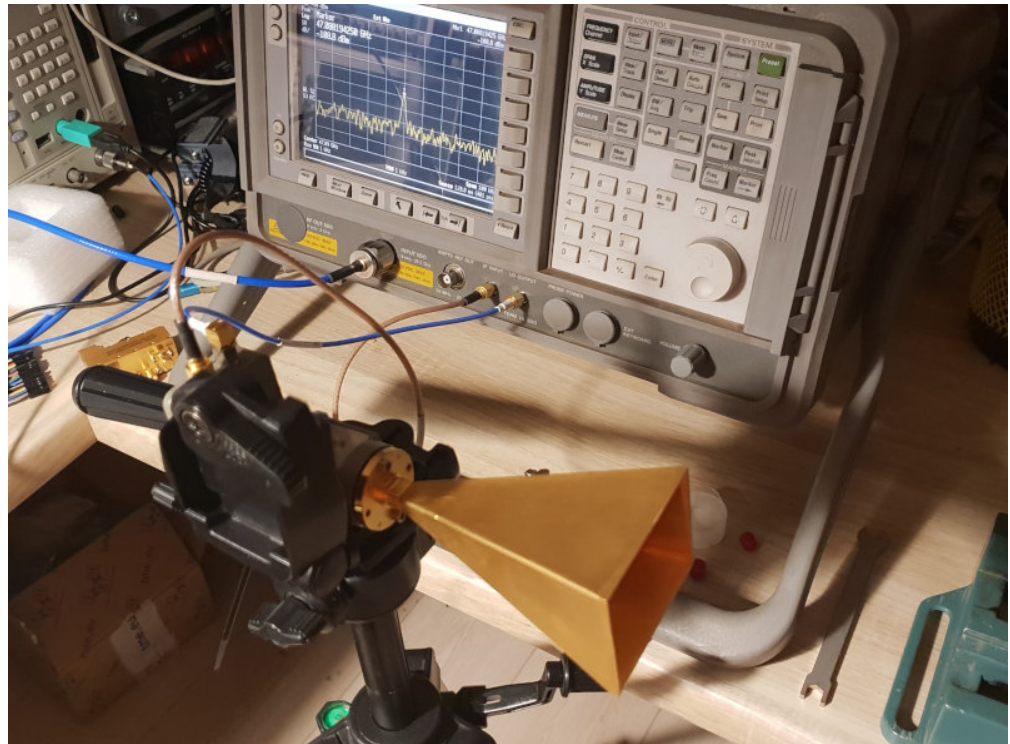
The same day when I ordered this E4407B, I also ordered CLIP manual for ESA-E and HMMC-3124/1GC1-4207 :4 frequency divider (I found in China).

The first came E4407B. In my case, the divider lost its signal if the LO frequency was greater than 6 GHz. I also had to replace the M4T28B Timekeeper battery and the volume knob were missing. I found the battery and the gray knob locally. Today a parcel with a divider chip arrived. A large hot air blower was needed because the hot air from my soldering station could not warm up enough. The effect is easy to predict. The next ESA-E had :4 damaged divider and has been repaired (+1 for statistics). My new chip is not signed with the Agilent name (probably Avago production) and I hope it will live a little.

Shahriar, you are the man! 🙌🙌🙌🙌



hot\_air.jpg (97.46 kB, 480x853 - viewed 210 times.)



E4407B.jpg (122.44 kB, 800x592 - viewed 227 times.)

« Last Edit: December 22, 2018, 12:39:25 am by suj »

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**analogRF**  
 Frequent Contributor  
  
 Posts: 812  
 Country:

**Re: Teardown, Repair & Upgrade of an Agilent E4405B 13.5GHz ESA-E Spectrum Analyzer**

Say Thanks Reply Quote

« Reply #5 on: October 21, 2019, 01:08:14 pm »

Hi

I was wondering if anyone hacked these ESA spectrum analyzers to enable options?

some options like 1DR and 1DS (or even 1D5 for S/N > 4421) can be enabled by license key only

<https://www.keysight.com/main/editorial.jsp?cc=US&lc=eng&ckey=277453&nid=-11143.0.00&id=277453>

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