

2. avgust 2022 01:58

## Re: RE: Sangean ATS909X2 problems



From: M [REDACTED]  
To: M [REDACTED]@sangean.eu>

Hello there, the radio has arrived on 26.07.2022 at my doorstep in Slovenia (funny thing is the guys at DPD although they did tell me when it will come (which at 10AM in the morning people are not usually home) once it came, they just left it there all alone, no signature nothing, so it could very well be stolen, but at 4PM a relative picked it up

Pictures in the attachment

As sadly I was not home, I had to ask my relative (which fortunately was) to get it and drive it 400km to Croatia to me where I was, fortunately he was coming my way anyway so it wasn't a problem

So then at Saturday 30.07.2022 I was finally able to play around with it

I really like the flask and the T-shirt, didn't know Sangean makes T-shirts, always thought that Sangean makes radios

So then I made a video, here it is:

<https://youtu.be/spbNdBQ0Dqg>

I hope you could watch it (it's pretty long, there are pointers in the description to what is what), I really tried to test every possible problem, I knew my previous sample had

But as you can see from the video, noise is still there, if you watch at 10:39 you can see I almost thought it's gone, until I remembered that the alternator wheel (RF gain is not at maximum), then I sadly found out that noise is still there

It seems it's the strongest at 4.335Mhz (not sure if this is some kind of CPU clock or i2c clock or something) and then you can still hear it as you tune up to about 15Mhz, then it's gone

If the gain is  $\leq 6$  the noise on SW is gone, but with it also the station of interest is

You can see this test here: <https://youtu.be/V6kFbP-i6r4>

Also it's interesting if you connect the charger, the noise seems to go away: <https://youtu.be/ckQzFqXGV8M>

As for SSB being more quiet than AM, you can see this at 24:22 (first video), not sure why that is, also never knew why does ATS909X2 allow multiple filters on FM, AM but only one at SSB

Not sure if you know but there exist a SSB patch: [https://www.dropbox.com/sh/xzofrl8rfaaqh59/AAA5au2\\_CVdi50NBtt0livyla?dl=0](https://www.dropbox.com/sh/xzofrl8rfaaqh59/AAA5au2_CVdi50NBtt0livyla?dl=0)

Which allows Si4735-D60 (DSP chip that both ATS909X/X2 are using as radio if I read service manual correctly :) to demodulate SSB with multiple filters even if not officially supported (I mean the patch was written by Silicon Labs but I guess it was meant as an add-on and they never mentioned it in the official manual)

There is a PoC Arduino sketch:

[https://github.com/pu2clr/SI4735/blob/master/examples/SI47XX\\_01\\_SERIAL\\_MONITOR/SI4735\\_03\\_POC\\_SSB/SI4735\\_03\\_POC\\_SSB.ino](https://github.com/pu2clr/SI4735/blob/master/examples/SI47XX_01_SERIAL_MONITOR/SI4735_03_POC_SSB/SI4735_03_POC_SSB.ino)

That loads patch into DSP chip RAM and allows you to test SSB on it

I didn't try this patch as I would have to build radio around DSP chip and I am really bad with soldering :)

I know I have Sangean (which does have this chip), but it's not really programmer friendly :) (have to open it up to load custom software on it but as I don't have source code for fw 073, I would need to write everything from scratch)

Not sure how do guys at Sangean test radio firmware when developing it, do they have some kind of emulator or breadboard contraption, or do they just have opened ATS909X2 and upload built to it while testing

Ok, I got off track a bit :)

At 36:47 on this video: <https://youtu.be/spbNdBQ0Dqg>

I also tested if noise on MW is gone, but sadly it's still there...

Here is a night example: <https://youtu.be/HdoUDwf1SJE>

As you can see noise on 567kHz and 864kHz is still present and instead of listening to BNR horizon on 567kHz, there is some noise along side it

Also tried to reduce RF gain but on MW it does not help, you only reduce your wanted signal, but the noise still stays...

I also brought the radio to a transmitter to test that strong FM stations do overload SW and Airband: <https://youtu.be/FHzaJdwZWFg>

TLRD: it seems the problems that I had on my previous unit are still there

Now I only have one sample of March batch to test (serial number: dK220325892)

So not sure if all the radios made on 03 2022 are flawed, but when I asked around it seems that it is the case since a DXer in Romania got one with serial number: dK220326149

Which seems it's from the same batch and he also had problems

I hope this email and my tests makes sense but I really tried to test everything I remembered my previous sample had problems with

BTW: FM is great as always, check it out:

<https://youtu.be/2oovMsl1ypA>

It's only on MW/LW/SW that some noises are present

I know that its very hard to fix this since everything produces noises nowadays, and this radio has plenty of uC inside that can generate noise (DSP chip, CPU, charging chip, i2c has a clock as well, etc), but if you managed to create a quiet swichmode power supply (yes swichmode psu that comes with this radio is the quietest swichmode psu I have, I just wish you would offer it in some other voltages (12V, 24V) to power some other devices with it (like router, led strips, christmas lights, etc) you can also fix this noise

This is my email, I know its long but I hope you manage to read it and understand it

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Sent from myMail for Android

petek, 22 julij 2022, 09:26AM +02:00 from [redacted]@sangean.eu:

Hello,

The track and trace can be found here: <https://tracking.postnl.nl/track-and-> [redacted]

I've added a small gift to the package. It's quite extraordinary that people are as patience as you, we appreciate that.

Met vriendelijke groet, Kind regards, Mit freundlichen Grüßen,

[redacted]  
After Sales & Product  
Manager

**SANGEAN**

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**Sangean Europe**

[redacted]@sangean.eu

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**Van:** Mitje [redacted]  
**Verzonden:** donderdag 21 jul 2022 10:24  
**Aan:** Maurice Wijnands <[redacted]@sangean.eu>  
**Onderwerp:** Re: RE: RE: Re[2]: RE: Re[2]: FW: RE: Sangean ATS909X2 problems

Wohoo thats wonderfull

M,

I will also test it myself and make another video of it (just like before), and will send you a link to it so you can check

I am really exited

Thanks for all your help and I hope I wasnt a burdem

BTW: would be allright if I ask you a question from time to time (sometimes a question or 2 pops in my mind just like previous email about a radio serial number and you are the only one that I can ask them : )

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Sent from myMail for Android

četrtak, 21 julij 2022, 09:01AM +02:00 from [redacted]@sangean.eu:

Hello,

Yes, I have checked a brand new ATS-909X2 Graphite.

It does not show the noises shown in your videos.

The radio will be shipped to you today. I will send you the track and trace details later today.

I also included your rechargeable batteries.