

One of the great advantages of an SDR is that it allows an entire band to be quickly scanned visually, so you never have to miss a signal. But we're always hungry for more so how about keeping an eye on other bands as well? The RSP / SDRuno combination allows you to do this as long as the bands of interest fall with the maximum sampled bandwidth of the RSP, i.e. 10MHz.

| SETT.    | RDSW EXW            | SDRuno R | CONTROL        | [    | RSYN1     | MCTR    | TCTR      | 3-88                 | - X      |
|----------|---------------------|----------|----------------|------|-----------|---------|-----------|----------------------|----------|
| DEEM 50u | STEP: -72.0 dBm RMS |          |                |      | .1.1.1    | 11      | 0 +40 +60 |                      |          |
| MODE     | AM SAM              | FM CW    | DSB            | LSB  | USB       | DIGITAL | •         | Bands                | MHz      |
| VFO -    | QM FMM              | ODE CW C | р FI<br>К 1800 | 2200 | NB<br>NBW | NOTCH   | 2200      | 8<br>630             | 9<br>160 |
| VFO B    | B > A WFM           | SWFM ZAF | 2800           | 3000 | NBN       | NCH2    | 4         | <mark>5</mark><br>60 | 6<br>40  |
| QMS      | QMR                 | CWA      | FC             | NR   | NBOFF     | NCH3    | -         | -                    |          |
| MUTE     | -84 d               | IB       |                | AGC  |           | NCH4    | 30        | 20                   | 17       |
| SQLC     |                     |          |                |      | FAST      | NCHL    | 0         | Clear                | Entor    |
| VOLUME   |                     |          |                | MED  | SLOW      |         | 15        | Clear                | Enter    |

1. The quick and easy way - switch back and forth using the "Band" buttons:

- Let's you examine bands over the entire 1kHz to 2GHz coverage range of the RSP, however...
- Not a true simultaneous view
- If set up as panadapter you may not want to have your rig switching back and forth, but you can use the RSYN1 button to temporarily disable syncing the RSP and the rig
- 2. A better way. Use multiple VRX, one for each band of interest.
  - True simultaneous view
  - Dedicate one VRX to control your rig, use additional VRX(s) to monitor other bands
  - Easily switch rig control from one VRX to another, when you want to work another band

(Note: The features and operation described here are using SDRuno v1.22, specific details may well change – for the better – in future revisions!)



|   | SETT. PWR & SNR TO CSV   | SDRuno HAIN SP   | 0-00 = ×  |
|---|--|--|---|
| OPT REC PANEL Final SR: 9000000   | -30<br>-35 dam   |  | 10000   |
| 0 SP1 SP2 RX GR: 47d8   | -40<br>-45 5 1 2 3 4 5 6 7 8 9 +10 +20 +30 +40 +50 +60   |  | 1254000   |
| 1 SP1 SP2 RX ADD VRX  | -50<br>-53 -62,0 dBm   |  | LO: 10.100000   |
| DEL VEX   | -60  |  |   |
|   | -70 SNRI 9.5 d8  |  |   |
| HW/FH DAB Refuction PLAYI   | -85  |  |   |
| Sdri 0% MEN PAN   | -9   |  |   |
| 3/19/2018 10:06:31 AM 2VRX  | -100   |  |   |
|   | -110   | Span 562.5 KHz FFT 3   | 32768 Pts RBW 274.66 Hz Marks 2 KH  |
| SETT. ROSW DXW SDRUNO RX CONTROL RSYN1 MCTR TCTR  | 6880 6900 6920 6940 6960 6980 7000 7020 7040 7060 7080 7100  | 7120 7140 7160 7180 7200 7220 7240 7260 7280 7300 7320 7   | 340 7360 7380 7400 7420   |
|   |  |  |   |
| NCOE AM SAM FM CW DSB LSB USB DISTTAL   |  |  |   |
| VFO - QM PH HODE CW OP PILTER NB NOTCH 2200 600 160   |  |  |   |
| VF0 8 8 > A WFM SWFM ZAP 2800 3000 NBN NCH2   |  |  |   |
| QHS QHR CWARC NR NBOFF NCH3   |  |  |   |
| MUTT -52 dB AGC NOHE 20 27  |  |  |   |
| SQLC OFF FAST NORL  |  |  |   |
|   |  |  |   |
| SETT. ROSW FOW SDRUDO BX CONTROL RSYN1 MCTR TCTR  | 5P WF 59+WF COH60  | C 200H > WO < RBW >  |   |
|   | SETT. PWR & SNR TO CSV   | SDRuno Main SP   | 0-0 i = ×   |
|   |  |  |   |
|   | -60 d8m  |  | 111255000   |
|   | -60 dBm<br>-65 1 2 3 4 5 5 7 5 5 430 430 480 450 460   |  | 14255.000   |
| 500 Hr 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  | -65<br>-65<br>-70<br>-70<br>-70<br>-71<br>-70<br>-70<br>-70<br>-70<br>-70<br>-70<br>-70<br>-70<br>-70<br>-70   |  | 14255000  |
|   | 40 dana<br>70 ti 1 2 4 5 5 7 1 5 1 5 1 5 1 5 1 5 1 5 1 5 10 10 10 10 10 10 10 10 10 10 10 10 10  |  | 14255000<br>Lo: 10.100000   |
|   | 40 data<br>10 data<br>10 data data data data data data data dat  |  | 14255000<br>Lo: 10.100000   |
|   | 40 Are<br>7.0 b 1 2 3 4 5 1 7 1 6 1 9 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00   |  | 14255.000<br>Lo: 10.100000  |
|   | 40 data<br>40 data<br>50  |  | 14255.000<br>Lo: 10.1000000   |
| Image: Normal State   | 40 Ani<br>70 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   |  | 14255.000<br>Lo: 10.100000  |
|   | 42 and 13   | Spin 363 104 177 2   | 14255.000<br>LO: 10.700.000   |
| Image:        | 40 <b>An</b><br>70 <b>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</b>  | 50-14146 14469 14180 14220 14240 144000 14400 14400 14400 144000 14400 14400 14400 14400 14400 14400 1 | 142255.0000<br>L0: 10.1000000<br>200 Po MW 2746 Hz Mada 2 00<br>24500 34300 34400 24420 34  |
|   | 44   | 20' 14140' 14140' 14180' 14200' 1422' 1510' 1420' 140' 140' 140' 140' 140' 140' 140' 14  | 14255.000<br>L0: 10.100000<br>10:00.000 10:00 10:00<br>10:00 10:00 10:00 10:00  |
| Image:        | 40 mm<br>50   | 54+ 562 001 177 3<br>20 10100 10100 10200 1020 1020 1020 102   | 14255000<br>L0: 10.100000<br>200 No 100 2546 Hz Mach 2 50<br>200 No 100 2546 Hz Mach 2 10   |
|   | 43 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4   | Bywn 9623 004 577 29<br>20 14140 14148 14180 14220 14240 14240 14240 14240 14240   | 14255000<br>LC: 10.100000<br>10.00 IN: 00.00 IN: 00.00<br>10.00 IN: 00 IN: 00 IN: 00<br>10.00 IN: 00 IN: 00<br>10.00 IN: 00 IN: 00<br>10.00 IN: 00<br>1 |
| Implicit Implicit Implicit   Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implici  | 49 mm<br>1940  | Span 56.3 Doc 777 25<br>20 3 4 4 4 7 3 4 3 4 5 1 1 2 2 2 3 4 2 4 7 5 2 5 1 2 2 1 2 2 1 2 2 2 1 2 2 2 1 2 2 2 1 2   | 14255000<br>LC: 10.100000<br>PNR No. NOV. 2440 PNR Nov. 2440<br>14400 PNR Nov. 2440 PNR Nov. 2440   |
| Implication Implication   Implication <td>49 <b>A</b><br/>79 <b>4 1 1 1 1 1 1 1 1 1 1</b></td> <td>50 1110 1468 1180 1000 1022 1140 1020 1200 1200 1000 100</td> <td>14255000<br/>L0: 10.100000<br/>200 Pro Marri 20.65 de Marris 2.00<br/>24560 1.100 2.110 2.110 2.110</td>   | 49 <b>A</b><br>79 <b>4 1 1 1 1 1 1 1 1 1 1</b>   | 50 1110 1468 1180 1000 1022 1140 1020 1200 1200 1000 100   | 14255000<br>L0: 10.100000<br>200 Pro Marri 20.65 de Marris 2.00<br>24560 1.100 2.110 2.110 2.110  |
|   | 44<br>55<br>56<br>57<br>57<br>58<br>58<br>59<br>59<br>59<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50   | 544 363 300 17 3<br>20 1140 1626 1638 1630 1622 1636 1636 1636 1636 1636 1636  | 14255.000<br>L0: 10.100.000<br>200 PD: KRW 274.65 // KRW 2 00<br>1.1000 // KRW 2 100 // KRW 2 00  |
| Image: International and the second secon | 49 <b>A</b><br>79 <b>1</b><br>79 <b>1</b><br>70 <b>1</b> | 50- 1410 1400 1400 1400 1422 1420 1420 1420  | 14255000<br>L0: 10.100000<br>200 20 200 20 20 20 20 20 20 20 20 20 20   |
|   | 44<br>54<br>55<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56<br>56   | 50° 14340° 14380° 14300° 14220° 14230° 14230° 14230° 14300°° 14300°°° 14300°°° 14300°°° 14300°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°  | 14255.000<br>LO: 10.100000<br>206 Rd: Ken 274.66 kg: Naca 2 00<br>14350' 14300' 14400' 14420' 144   |
| Implicit Implicit Implicit   Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit Implicit Implicit Implicit Implicit   Implicit Implicit Implicit   | 44 m<br>57 m<br>58 m<br>59 m<br>50 m   | 5per 96.3 00 / 177 3<br>20 1040 1440 1430 1030 1030 1022 1040 1030 1030 1030 1030  | 14255000<br>LC: 10.100000<br>100 to 100 244 in 1664 244<br>1466 1469 1469 1443 24   |
|   |  | Sgen 362.3 00. 177 2<br>20 14449 14469 1498 14998 14929 14949 14949 14949 14959 14969 14959  | 14255.000<br>L0: 10.100.000<br>1455 3455 1450 2455 14   |

- **3.** Setting it up (some maths required!)
  - Bands to be monitored must fall with the sampled "chunk" of spectrum from the RSP (10MHz max, less if your PC cannot support it)
  - Example Monitoring the 40m and 20m bands 40m: 7.0 – 7.3MHz 20m: 14.0 – 14.3Mhz
  - So we need to sample the spectrum from 7.0 14.3 MHz = 7.3MHz
  - Therefore we need to use a Sample Rate >7.3MHz, i.e. 8MHz
  - Our LO must be set (and locked) to midway through the range, say ~10.5MHz
  - Our sampled range is now 10.5 +/-4MHz = 6.5 14.5MHz
  - Let's see this in practice...





Open SDRuno. Click on the workspace name in the SDRuno Main window and select an unused Workspace. This will give you a blank screen with only the SDRuno Main window open.



Click on "Add VRX" to create a second VRX. Click on the red box next to the new VRX to enable it:

For each VRX click on "RX" and "SP1" to give us a control panel and a spectrum window for each. Arrange the windows as you like, then press "CTRL-W" to save this arrangement to whichever workspace location you prefer. Right click on the Workspace name and give it a name you will recognize later, e.g. "2 VRX test":

| SELLA MA SDRuno MA  | Default Workroace                   |  |  |   |
|---|-------------------------------------|--|--|---|
| OPT REC PANEL   | 2VRX                                | SETT. PWR & SNR TO CSV   | SDAuno MAIN SP   | 1-11 = ×  |
| 0 \$91 \$92 RX  | Test                                | -50 dbm  |  | LOGODOO   |
| 1 591 592 BX  | Workspace 3                         | -60 5 1 2 3 4 5 5 7 8 9 +10 +20 +30 +40 +50 +50  |  | 10000000  |
|   | Workspace 4                         | -65<br>-70 - 104.6 dBm   |  | LO: 10600000  |
| SR (HHL) D  | Workspace 5                         | -75  |  |   |
| HW/FH DA  | Workspace 6                         | -43  |  |   |
| Sdn 8   | Workspace /                         | -95  |  |   |
| 3/21/2018 5:44:04 PM  | Workspace 8                         | -100   |  |   |
|   | Hotopace?                           | -110   |  | pan addo king ini asag ing kaw tolatas ng Mang So kin   |
| SETT. ROSW DOW SDRuno I   | AX CONTROL BYNE HETR TETR           | 6500 7000 7500 8000 8500 9000  | 9500 10000 10500 11000 11500 12000 1250  | 0 13000 13900 14000 14500 1900  |
| DECHARM STOP: 105   |                                     |  |  |   |
| 10.0  |                                     |  |  |   |
| HODE AM NAM PM C  |                                     |  |  |   |
| WOA AND NH HIN C  | NPK 1890 2200 NOW NCH1 2200 630 160 |  |  |   |
| VFO B D > A WEN SWEN 2  | AP 2100 3003 NEN NCH2 50 60 40      |  |  |   |
| QMS QMR CW  |                                     |  |  |   |
| -52 48  | AGC NUMA 30 20 17                   |  |  |   |
| VOLUME  | MED SLOW 15 Clear Enter             | CO WE SOUND COMPO  | Z 2004 X 199 Z 1994 X  |   |
|   |                                     |  |  |   |
|   |                                     |  |  |   |
| SETT. KDSW EXW SDAuno   | RX CONTROL EXVIS METRI TETR         | SETT. PWR & SNR TO CSV   | SDAuno Main sp   | <u>4-51 = ×</u>   |
| DEEMPH STEP.  |                                     | strt. PWR & SNR TO CSV   | SDAuno Main sp   |   |
| DEEMPH SOO HA   |                                     | Sett     PWR & SMR TO CSV       -65<br>dBm   | SDRuno Halli SP  | 10.600.000  |
| ANTE KONW EXW SOAUNO  |                                     | ern PW & SAR TO CSV<br>-50 dbm<br>-75 dbm<br>-75 b i ž ž i č i 7 i š +10 +20 +20 i 48 +50 ≠00<br>-05 - 104.6 dBm   | SDPAino HAIN SP  |   |
| NETT:     TODW     TOW     SORTING       DEEMIPHI     STEP.     1     0.5       SOR III.     I     0.5     0.5       HODE     AM     SAM     FM     CO       VFO-QM     FM MODE     CM     VO     A       VFO-QM     FM MODE     CM     CM  |                                     | Sett     JWA & Sike To CoV       -65 dbm   | SOAuno Mars er   |   |
| NUMBER     NUMBER<   |                                     | 567. Port & Sak To CV<br>-0 den<br>-75 \$ 1 \$ 3 \$ 4 \$ 7 \$ \$ 100 \$20 \$20 \$20 \$20 \$20 \$20 \$20 \$20 \$20 \$   | SOfamo Kasiso  | 1 0.500.000<br>LC: 10500000   |
| NOCE AN SAN PN COLUMN   |                                     | 107. 709. 6 48.10 C 2.<br>10 48.<br>10 50 50 50 50 50 50 50 50 50 50 50 50 50  |  | 10600000<br>Lo: 10500000  |
| NUTL:     DESW     Dow     Solution       0000 MM     200 ML     0     0       NODE     MM     500 ML     0     0       VID:     MM     MM NODE     0     0       VID:     MM     MM NODE     0     0     0       VID:     M     NOME     MM NODE     0 <t< td=""><td></td><td>rm Det 1 2 4 1 CV<br/>- 26 46<br/>- 70<br/>- 70<br/>- 9<br/>- 1 2 4 5 4 7 8 1 - 46 40 40<br/>- 1046 dim<br/>- 9<br/>- 9<br/>- 9<br/>- 9<br/>- 9<br/>- 9<br/>- 9<br/>- 9</td><td></td><td>10500000<br/>L0 1050000</td></t<>   |                                     | rm Det 1 2 4 1 CV<br>- 26 46<br>- 70<br>- 70<br>- 9<br>- 1 2 4 5 4 7 8 1 - 46 40 40<br>- 1046 dim<br>- 9<br>- 9<br>- 9<br>- 9<br>- 9<br>- 9<br>- 9<br>- 9  |  | 10500000<br>L0 1050000  |
| NTC     Desk     Tox     SOAlmoo       SIANH     STAF     STAF     STAF       NOBE     AM     STAF     STAF       VHO     AM     STAF     STAF       VHO     AM     STAF     STAF       VHO     STA     STAF     STAF       STAF     -43.65     STAF     STAF   |                                     | mm D ma 1 34 10 CV<br>3 0 me<br>0 7 7<br>3 0 me<br>1 1 1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   |  | 10500 L ×<br>10500000<br>LC 10500000  |
| NET     Dates     Tow     Software       SERVIN     STAR     <   |                                     | and     Desit     1 is if  |  |   |
| NTC     New     DATE       000000     30000     00000     00000       00000     0000     0000     0000     0000       NO     0000     0000     0000     0000     0000       NO     0000  |                                     | mm     Deal & Ball 10 CV       25 deal     30 deal       27 deal     30 deal       28 deal     30 deal       29 deal     30 deal       20 deal     40 deal       20 deal | Solution with an   |   |
| ATT BARN TW SALAND<br>CHANNE THE AN AN AN AN AN<br>HOLE AN AN AN AN AN<br>THE AN AN AN AN AN<br>THE AN AN AN AN AN<br>THE AN AN AN AN AN<br>AN AN AN AN AN<br>AN AN AN AN AN<br>AN AN AN AN AN AN AN<br>AN AN AN AN AN AN AN<br>AN AN AN AN AN AN AN AN AN AN AN<br>AN AN AN AN AN AN AN AN AN AN AN<br>AN AN AN<br>AN AN A |                                     | mm     Desit Like 10 (20)       78     1       79     1       70     1       70     1       70     1       70     1       70     1       70     1 <td>Solation was an<br/></td> <td></td>  | Solation was an<br>  |   |
|   |                                     | mm     Deal & Ball To CX       -3     Deal       <   | Solution with an<br>solution with an and solution solutita solutita solutita solutita  | 1050 - X<br>10500000<br>LC 10500000   |
|   |                                     | mm     Desit Like No COV   | Solation was an<br>  | 1000 L ×<br>10500000<br>LC 10500000<br>1000 1000 1000 1000  |
|   |                                     | mm     Deal & Ball To CX       3     Bea       3<  | Solution with an   | 0000 - X<br>10500000<br>LC 10500000<br>9 1000 10 17 10 10 10 10 10 10 10 10                             |
|   |                                     | mm     Desit Like No COV   | Solation was an<br>  | 0 CEU - X<br>1 OSO COCO<br>LC: 10500000<br>1 0500 100 100 100 100 100<br>1000 100 100 100 100           |
|   |                                     | mm     Deal & Bal To CV       3     Bea  | Solution with an analysis of the solution of t   | 0 000 - X<br>1 0500000<br>LC 10500000<br>0 1050 07100 % 90 000 100 040 055<br>0 1050 1000 1000 1000 100 |
|   |                                     | mm     Desit Like No (20)  | Solation was an<br>providence of the solation of | 1000 L ×<br>10500000<br>LC 10500000<br>1000 1000 1000 100   |
|   |                                     | Price     Desite     Sector       30     Bea     1   | EQUITOR 1000 1000 1000 1000 1000 1000 1000 10  | 1050 - ×<br>10500000<br>LC 10500000<br>10500000 100 100 100 100   |
|   |                                     | The Late 10 CV   |  | 1000 - ×<br>10500000<br>LC 10500000<br>1000 2000 1000 1000 1000   |

Note: you may also open up other windows to suit, e.g. SP2, EXW or Memory panel. For this example we are only using the bare minimum to avoid clutter!



In the Main window set the Sample Rate (8Mhz):



In one of the VRX enter the LO frequency, click on the frequency display to zero it and then type in "10.5m" <enter>. The Main SP window will now show both the Tuned frequency and the LO as 10.5MHz:



Click on Play in the Main window and observe the spectrum:





Observe that while the portion of the spectrum covering 40m is quite flat, there is a quite sharp rolloff above 14MHz in the 20m band! We could increase the LO frequency to help the 20m band, but we will find that we end up with some rolloff at the bottom of the 40m band. The solution in this case is to increase the SR to 9MHz and then we can see we get a flat response for both the 20m and 40m bands:





Here you will see that the SR has been increased to 9MHz, and the LO frequency changed to 10.6MHz, resulting in a flat spectrum for both the 20m and 40m bands. Feel free to adjust these parameters to suit whichever bands you are interested in.

Now we can go ahead and lock the LO frequency using the "LO LOCK" button in the Main window.

Then, go to SP1 and click on a frequency near the middle of the 40m band. Use the Zoom arrows to zoom in on the spectrum, at this sample rate the maximum zoom will give you 562.5kHz spectrum width. As you zoom in the tuned frequency will return to the center of the display, but if you lose it, just click on the VFO button at the bottom of the window to center it.

Once you have zoomed in all the way, you can drag the frequency axis left and right to center the 40m band in the display:



Now go to the SP1 window for the second VRX and repeat the procedure, but this time click in the middle of the 20m band.

As you zoom in on the spectrum in the lower window you may notice the frequency scale in the upper window has changed to follow suit, don't worry just click on the VFO button at the bottom of the top window to restore the correct frequency display:



| <u> </u>   |   |  |                                       |
|--|---|--|---------------------------------------|
| BATE     DE SOMAND     Mails       OPF     BECANAL     Final 58: 100000       OPF     BECANAL     Final 58: 100000 | PHTR & SHR TO COV       -33       -35       -35       -35       -35       -35       -35       -35       -35       -35       -35       -35       -35       -35       -35       -35       -35       -35       -35       -35       -36       -37   | SDRano waxee   | 1236.500                              |
|  | - 25 - 78.9 dem<br>- 25 - 278.9 dem<br>- 25 - 278.9 dem<br>- 26 - 278.9 dem<br>- 28 - 28 - 28 - 28 - 28 - 28 - 28 - 28  | woodere with serve shares the second man   |                                       |
| 3/21/2018 6:21:54 PH Test2   |   | Span 552.5 KHz F   | FT 32768 Pts RBW 274.66 Hz Marks 5 KH |
|  |   | 700 759 760 770  |                                       |
|  |   |  |                                       |
|  | SETT. PWR & SNR TO CSV  | SDRuno hain sp   | 1-0: - ×                              |
|  | Bytel Assa 10 COV       -0     -1  |  | 14074500<br>Lo: 10500000              |
|  |   | No and the second secon | 050 = 1×<br>14074500<br>Lo: 10500000  |
|  | Bartis     Bartis     Bartis     Bartis   |  |                                       |
|  | BYE:     BYE: <td< th=""><th></th><th></th></td<> |  |                                       |

#### 4. Three bands?

You may be wondering if you can also monitor 30m, which after all is also within our selected chunk of spectrum (10.6 +/-4.5MHz). The answer is yes you can!

Things can get a bit crowded monitor space wise, but if you have a multi-monitor set up you can go to town with all sorts of windows open. Here's an example showing 3 bands:

|  | <b>1</b>  | SETT. PWR & SNR TO CSV   | SDRuno MAIN SP   | 0-00 = ×   |         |
|--|---|--|--|--|---------|
|  | Re SELE MA SDRuno MAIN  | -30 d8m<br>-40 5 1 2 3 4 5 6 7 5 9 +10 +20 +30 +40 +50 +60   |  | 0000000  |         |
|  | OPT REC PANES Final SR: 9000000   | -50<br>-60<br>-20 -74.7 dBm  |  | LO: 10500000   |         |
|  | 0 591 592 8X GR: 53d8   |  | manded the providence of the second | and a marine and a second and the second sec |         |
|  | 2 591 592 BX DELVEX   | -100   |  | Span 562.5 KHz FFT 32768 Pts R8W 274.66 Hz Marks 5 KH  |         |
|  | SR (HHR) DEC 10 LOCK  | 6900 6950 7000 7   | 7100 7150 7200 7250  |  |         |
|  | HW/PM DAB Reduction STOP  |  |  |  |         |
|  | 50 3/21/2018 7:09:15 PM Test2   |  |  |  |         |
|  | SETT. RESW EXW SDRUTO RECONTROL RESTNE HETE TETE  |  |  |  |         |
|  |   | SP WE SPAWS COMING   | C ZOOM > WHO C KEW >   |  |         |
|  | HOOE AH SAM PH CW DIS USS DISTA   | SETT. PWR & SNR TO CSV   | SDRuno MAIN SP   | 1-0 - ×  |         |
|  | VFO - QM FM MODE CW OP FILTER NB NOTCH 2000 600 160   | -70  |  | 14216500   |         |
|  | VPO B     B > A     WFM     ZAP     2810     3000     MBN     NCH2     E00      | -80<br>-90 -108.0 dBm  |  | LO: 10500000   |         |
|  | MUTE -52 48 AGC NCHA 20 20 37   | -100<br>-1494, SNR: -14.7 do mary May Mary al way and a way  | when many many many and the proper some  | amound when he as secure   |         |
|  | VOLUME MED SLOW 13 Clear Enter  | -120<br>13950 14050 14050  | 14100 14150 14250 1  | Span 362.5 KHz FFT 32768 Pts RBW 274.66 Hz Marks 5 KH<br>4300 14350 14400 1445   |         |
|  | STT. ROSW EXW SDRuno EX CONTROL BEYNS WORE TOTE   |  |  |  |         |
|  | DECEMENT STOP. 14216.500  |  |  |  |         |
|  |   |  |  |  |         |
|  | VIO 4 A > 0 NHM CHIMI 2000 2200 NMM NOTH 2200 600 160   | SP WE SPACE COMBO  |  |  |         |
|  | VID II     X X< | STT. PWR & SNR TO CSV  | SDRuno HAIN SP   |  |         |
|  | NUTE -45.48 ACC NCH4 30 20 17<br>SQLC OPP FAST NCHL   | - 10 dBm   |  | 1000000  |         |
|  | VOLUME MED SLOW 15 Clear Enter  | -20<br>-40<br>-50<br>-50   |  |  |         |
|  | SET. ROSW EXW SDRUNG EX CONTROL RSYNE HETE TER  | -50 -52.1 dBm<br>-00   |  | LO: 10600000   |         |
|  |   | -110 SNR: 23.9 48 Action of the second strategy and the  |  | Span 562.5 KHz FFT 32768 Pts R8W 274.66 Hz Marks 5 KH  |         |
|  | HODE AM SAM PH CW DSB LSB USB DEETAL BANKS MHZ  | 9050 99900 9950 10000<br>Control of Control of | 0 10050 10100 10150 10200  | 10250 10300 10350 104  |         |
|  | VEO A A > 8 NHM MINI COURT 6000 BEDD NEW NCHI 2200 600 160  |  |  |  |         |
|  | QHS QHR CRAFC IR NBOFF ICHS 60 40   |  |  |  | L       |
| Walke 100 100 100 100 100 100 100 100 100 10 | HUTE -64 dB AGC NCHA 30 20 17<br>SQLC OFF FAST NCHL 0   |  |  |  | . 7 .5  |
|  | VOLUME SLOW   | SP WE SPANE COMEO  | < 200M > VHO < RBW >   |  | 1       |
|  | # 🗇 🤤 📙 🗼 🖦   |  |  | ポート (1) (1)  | 7:09 PM |



#### 5. Panadapters

If you have a panadapter setup via OmniRig you can choose which VRX controls the rig by clicking on the RSYN1 button at the top of the RX Control window:

In a typical scenario you would use one VRX to work a particular band with your rig, muting the audio from SDRuno and listening to received audio through the rig. Meanwhile you can monitor another band in SDRuno using the second VRX. If you see anything of interest you can unmute that VRX and listen, if it's a signal of interest you can then click on the corresponding RSYN1 button to sync your rig to that frequency:



Note: this technique can only work if the RSP has a broad range RF signal to sample, either from a shared antenna or RX out from the rig. If your panadapter is configured to use IF out from the rig then the spectrum the RSP can sample and display is limited by the IF bandwidth of your rig.



#### 6. Review

- Do not use the band buttons!
  - They select specific SR and DEC values to frame one particular band, we want to cover more than one band.
- We need to lock the LO between bands and select a SR which covers all the bands of interest
- First set up SDRuno for 2 VRX
- When SDRuno is first started the tuned frequency and the LO are the same so...
  - We can type in our desired LO (10.5MHz) in one of the VRX windows
  - Click on "LO lock" to lock the LO frequency
- Click on "Play"
- Now *click* on a frequency near the center of the band of interest in the first VRX 7.15MHz
- In the second VRX *click* on a frequency near the center of the second band of interest 14.15Mhz
- Visit SP1 for each band and use the zoom buttons to match the displayed frequency range with the width of the band of interest
- Use the RSYN1 button in the VRX window to select which band will be sync'd with your rig
  - Switch the rig back and forth between the bands when you see something of interest
- You will probably want to mute the VRX which is tracking your rig (to prevent echoes), and turn up the level on the other band(s) to have a listen to what's going on.
- In this example our sampled spectrum also includes the 30m band so you could also set up a third VRX and monitor that as well!

### 7. Video

There is a video illustrating the concepts outlined in the application note on our YouTube channel:

https://youtu.be/ckbOdDjHfbg

For more information about SDRplay, the RSP family of receivers, other application notes, and further technical information please visit our website at <u>www.sdrplay.com</u>



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