Experiment of Noise Cancellation by RSPduo / SDRuno + Linrad (SDR Soft) Part 2 (Operation)

After completing the setting with Part 1 (Settings), we performed an experiment to actually cancel the noise. Since there was no suitable noise sample, we added virtual QRM (noise) to SG using a distance of 10 - 20 Hz from the beacon frequency (50 MHz band).
I'll explain it while watching the actual video screen. Please watch the video by clicking the link to Youtube below. https://youtu.be/o5-jLNAn-1s

time	Description
00 "-05"	Reception on the L channel (Ant 1). Since the phase of the R channel is shifted by 90 degrees, it is not received.
05 "-12"	Reception on R channel (Ant 2). Since the phase of the L channel is shifted by 90 degrees, it is not received.
12 "-19"	Turn on SG. Noise (QRM) can be confirmed in the SDRuno AUX SP window of Instances 1 and 2, respectively.
19 "-35"	Adaptation started, after stabilization, Adaptation finished. (Fixed-> Adapt-> Fixed)
35 "-38"	Reception at the phase where the noise becomes maximum. The beacon is masked and almost inaudible.
38 "-51"	Reception at the phase where the noise becomes minimum. Only the beacon can be heard. (Phase shifted by 90 degrees from the above.)
51 "-56"	Return to reception at the phase where the noise becomes maximum.
56 "-1 '06"	SG is turned off in the above state.

Explanation of Linrad 's Polarization Window

L at the start of each Linrad phase is 0 degree. In this state, only the L channel appears in the audio output. Next, when you click the "O" button, the phase of L is 90 degrees and the phase of R is 0 degree, and only the R channel is output as sound. "Adapt" In the condition that it returns to "Fixed" after automatic adjustment, the strongest signal in the filter band is output by the combination of L + R phases. From this state, clicking the "O" button changes the phase by 90 degrees, so the noise disappears and only the beacon signal is output. This is a simple experiment. As the API for RSPduo improves in the future, diversity reception such as noise cancellation will be possible with a simpler setup. Regarding the setting edition, please refer to the following. Experiment of Noise Cancellation by RSPduo / SDRuno + Linrad (SDR Soft) Part 1 (Setting) === End of Contents ===


L
0
Fixed
O-IT
[dB] -50.0
[deg] +0.0
[dB] -50.0
[deg] +0.0
[dB] +0.0 +0.0 +0.0
[deg] +0.0 +0.0 +0.0
M
M
M


L
90
Fixed
O-IT
[dB] +50.0
[deg] -180.0
[dB] -50.0
[deg] +0.0
[dB] +0.0 +0.0 +0.0
[deg] +0.0 +0.0 +0.0
M
M
M


R
80
Fixed


L
170
Fixed