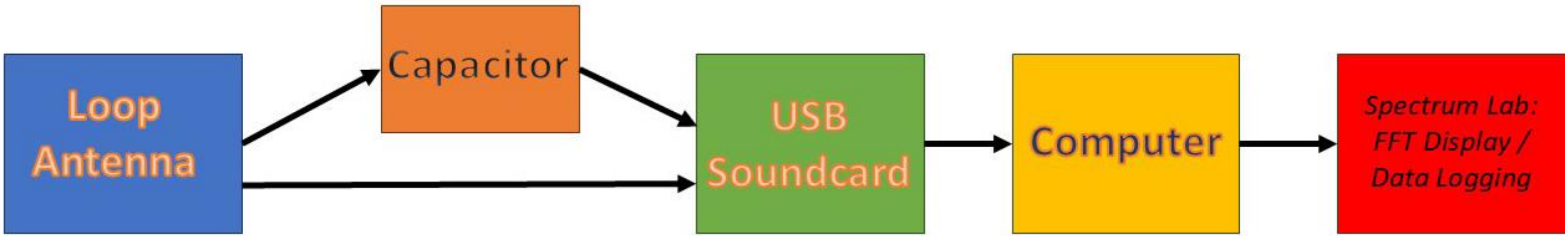
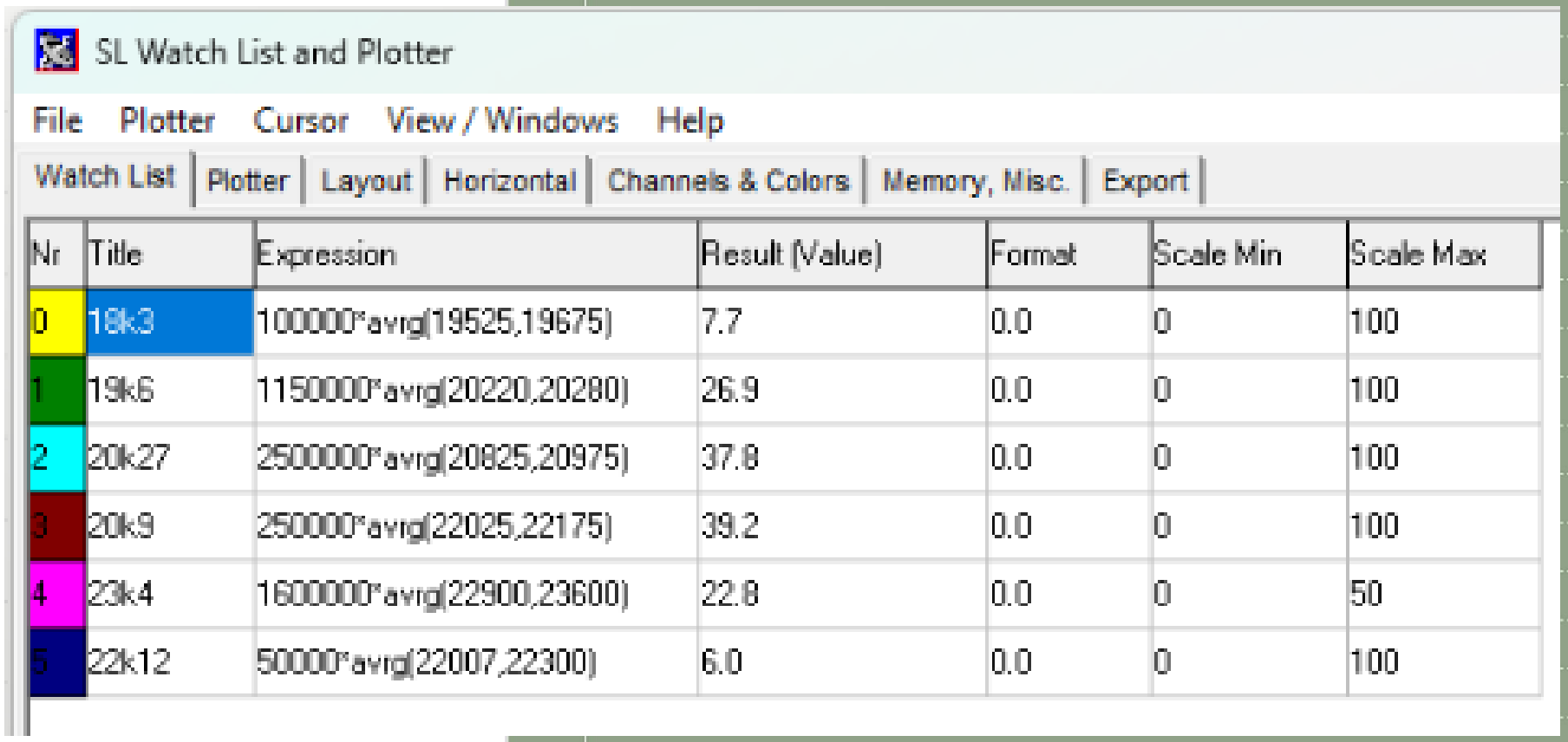
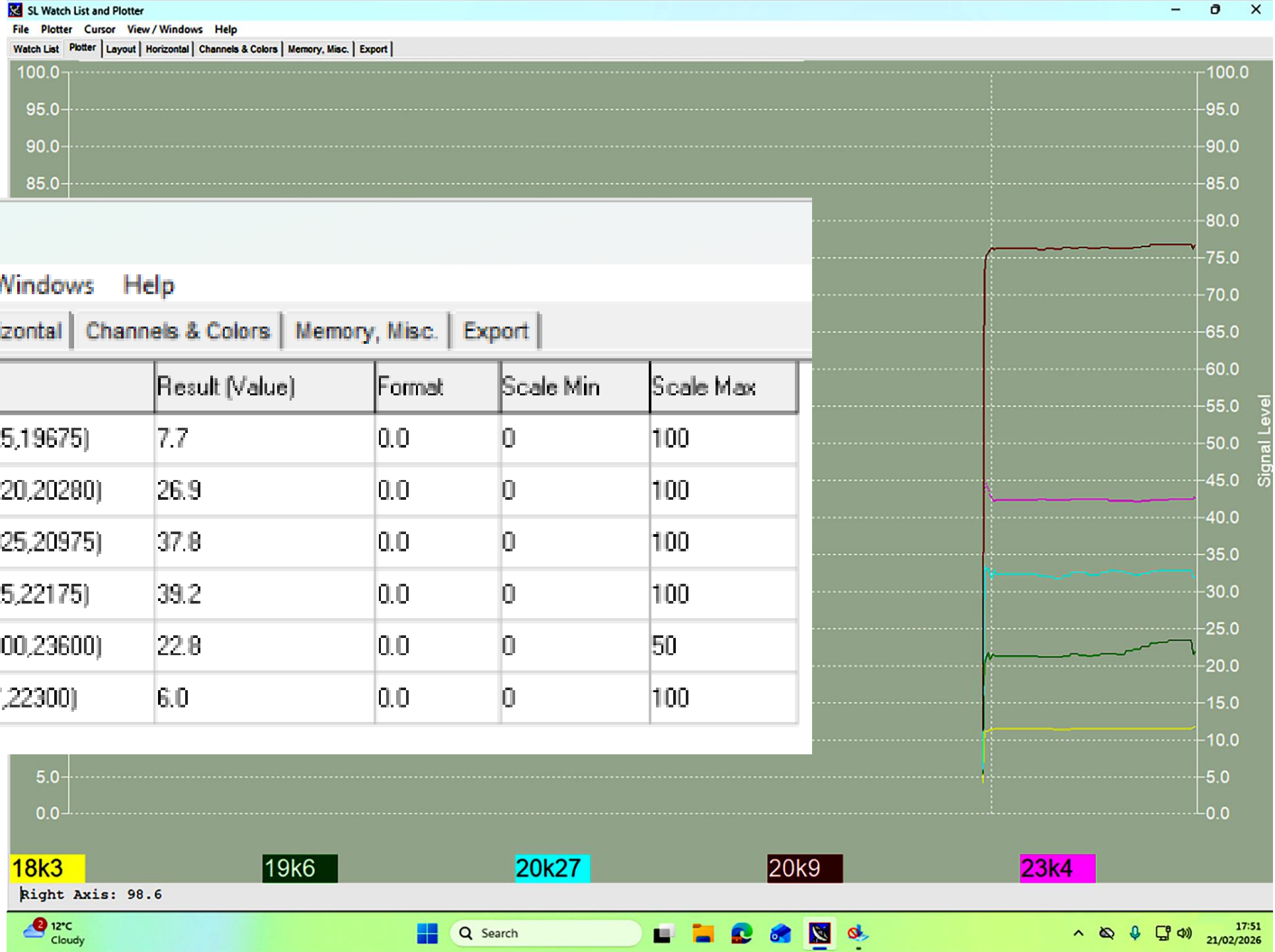
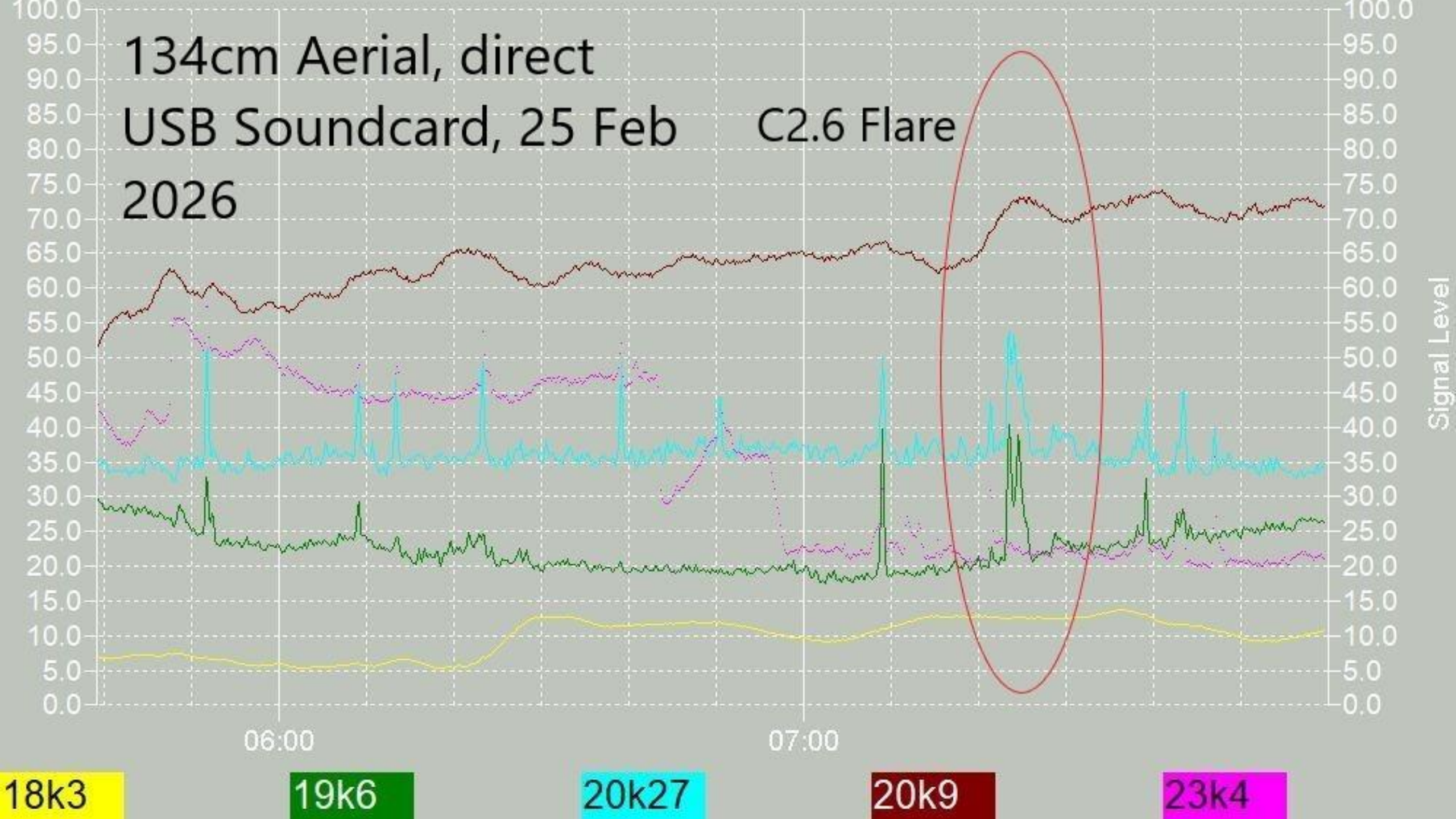
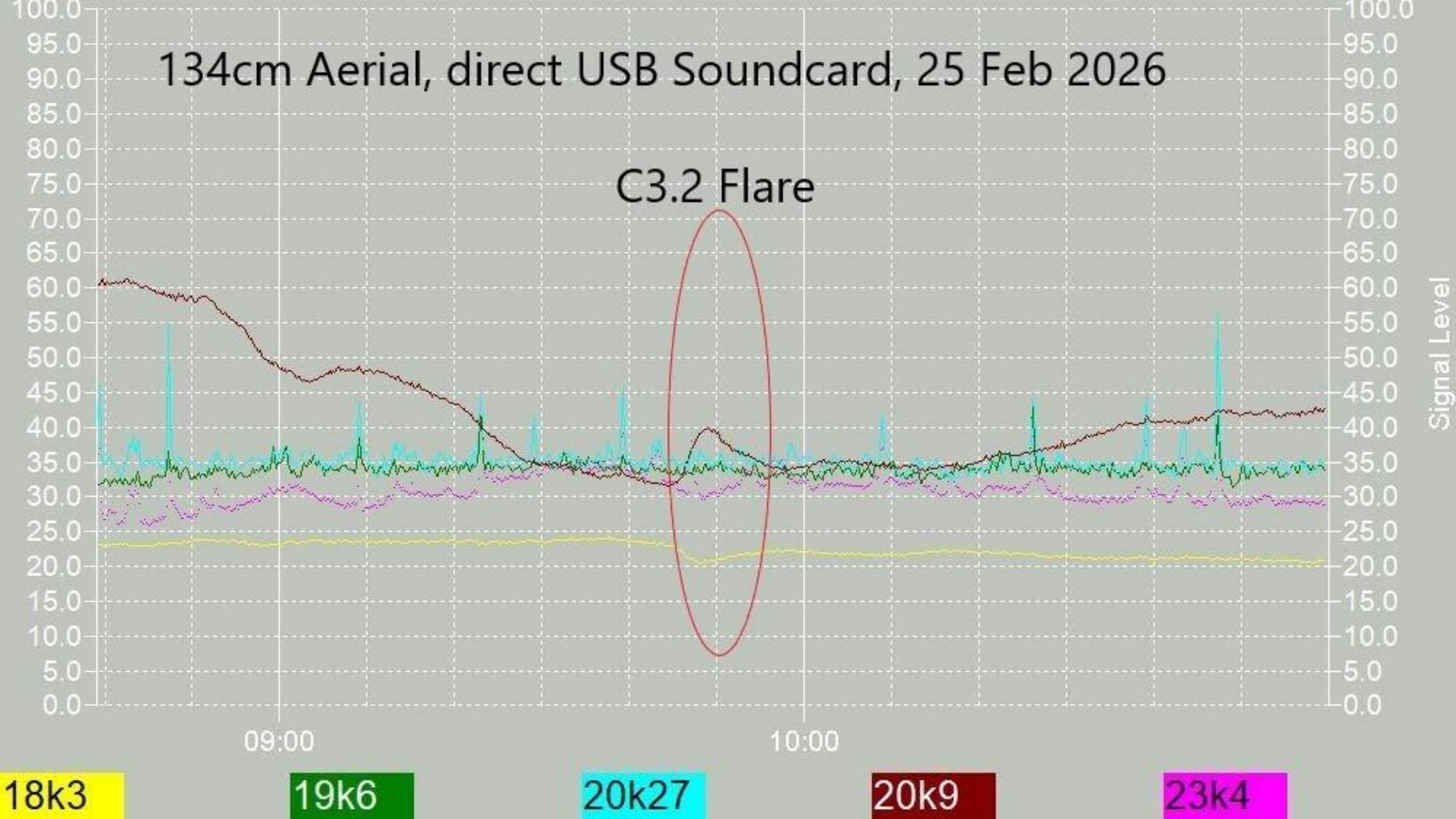
Building Large VLF Antenna feeding directly into Soundcard without amplifier or filtering

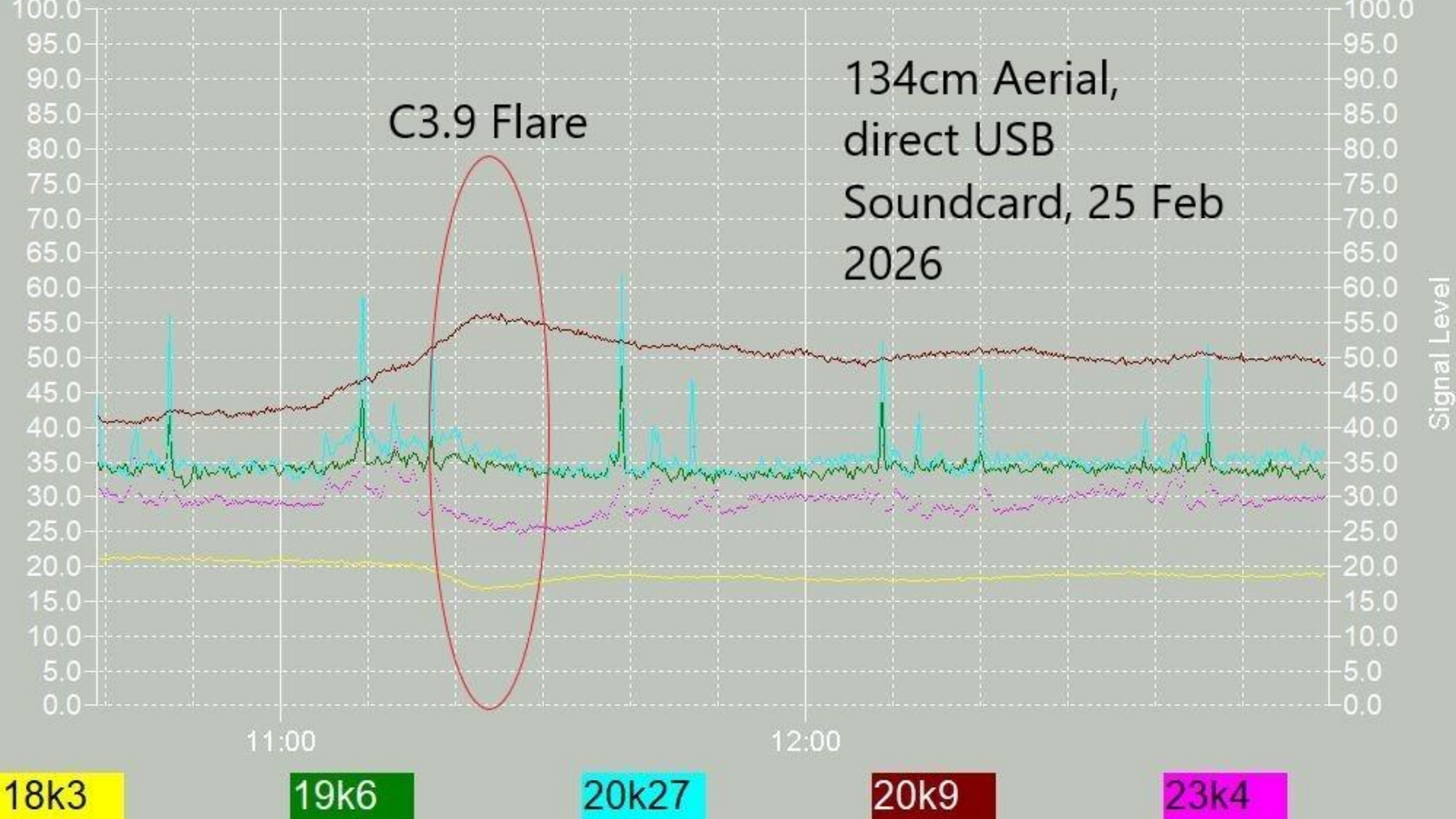

Loop Antenna
Capacitor
USB Soundcard
Computer
Spectrum Lab: FFT Display / Data Logging

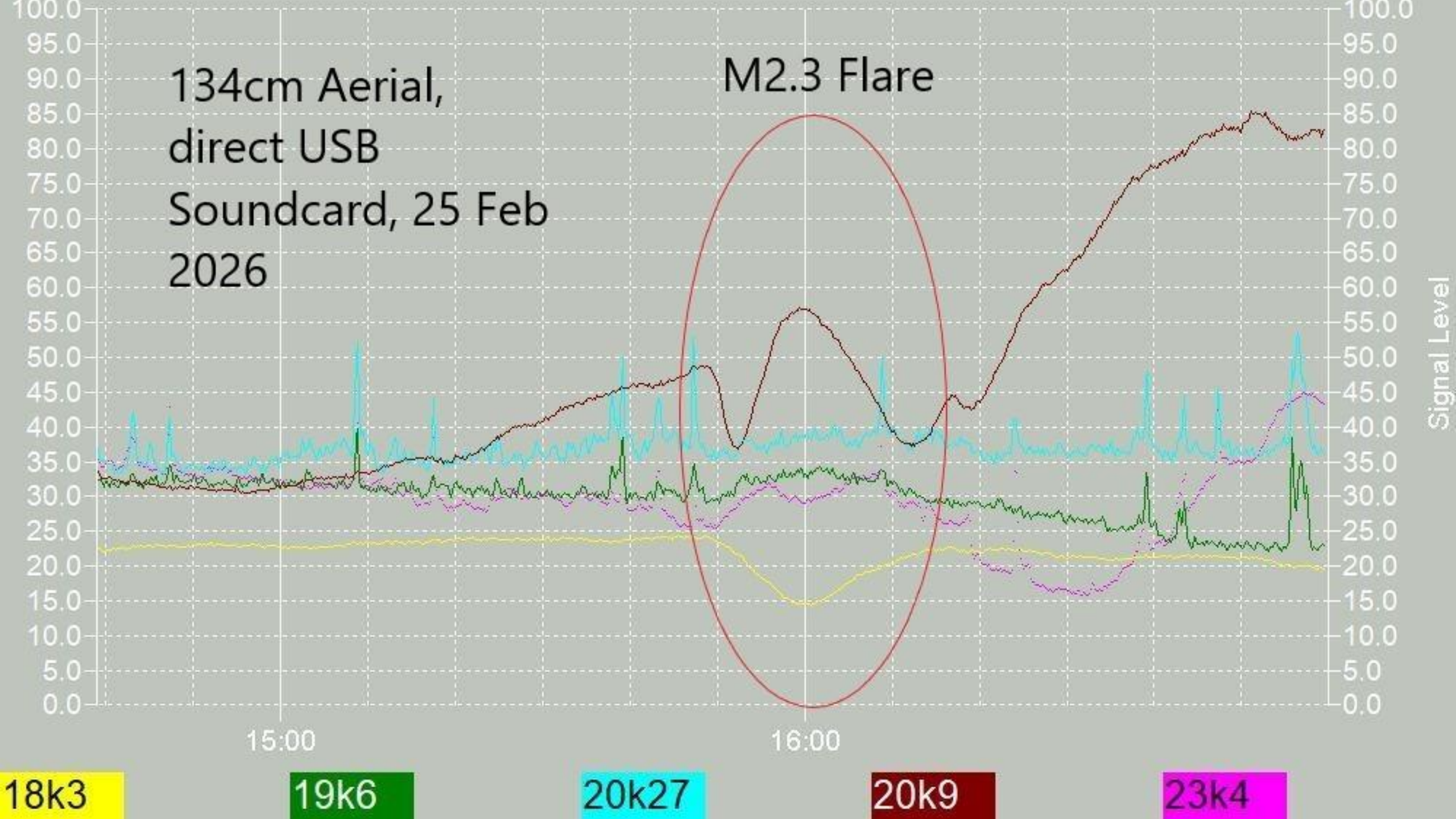

SL Watch List and Plotter
File Plotter Cursor View / Windows Help
Watch List Plotter Layout Horizontal Channels & Colors Memory, Misc. Export
Nr Title Expression Result (Value) Format Scale Min Scale Max
0 18k3 100000*avrg(19525,19675) 7.7 0.0 0 100
1 19k6 1150000*avrg(20220,20280) 26.9 0.0 0 100
2 20k27 2500000*avrg(20825,20975) 37.8 0.0 0 100
3 20k9 250000*avrg(22025,22175) 39.2 0.0 0 100
4 23k4 1600000*avrg(22900,23600) 22.8 0.0 0 50
5 22k12 50000*avrg(22007,22300) 6.0 0.0 0 100

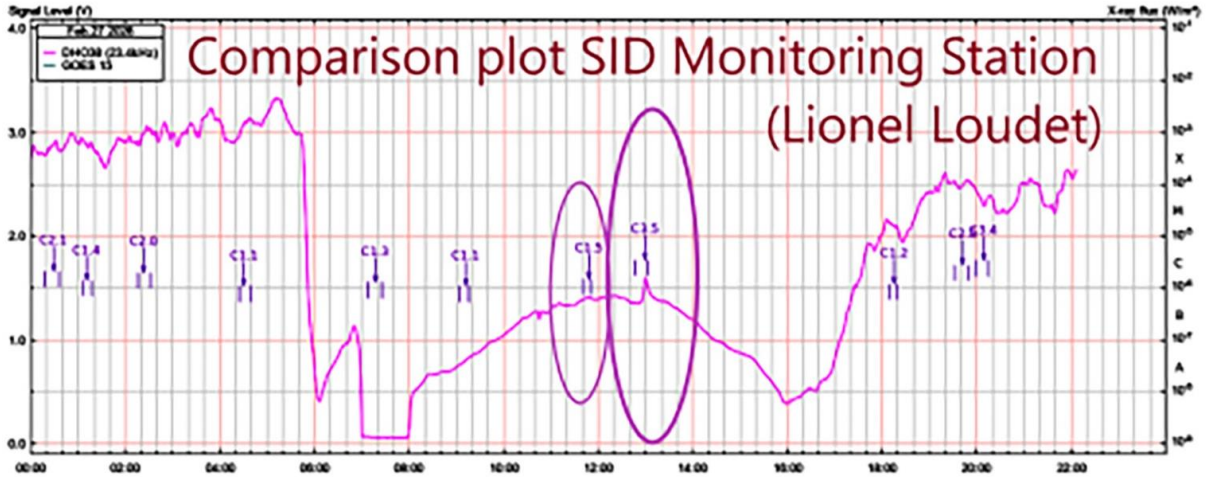

SL Watch List and Plotter
File Plotter Cursor View / Windows Help
Watch List Plotter Layout Horizontal Channels & Colors Memory, Misc. Export
100.0
95.0
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Signal Level
18k3
19k6
20k27
20k9
23k4
Right Axis: 98.6
12°C Cloudy
Search
17:51
21/02/2026

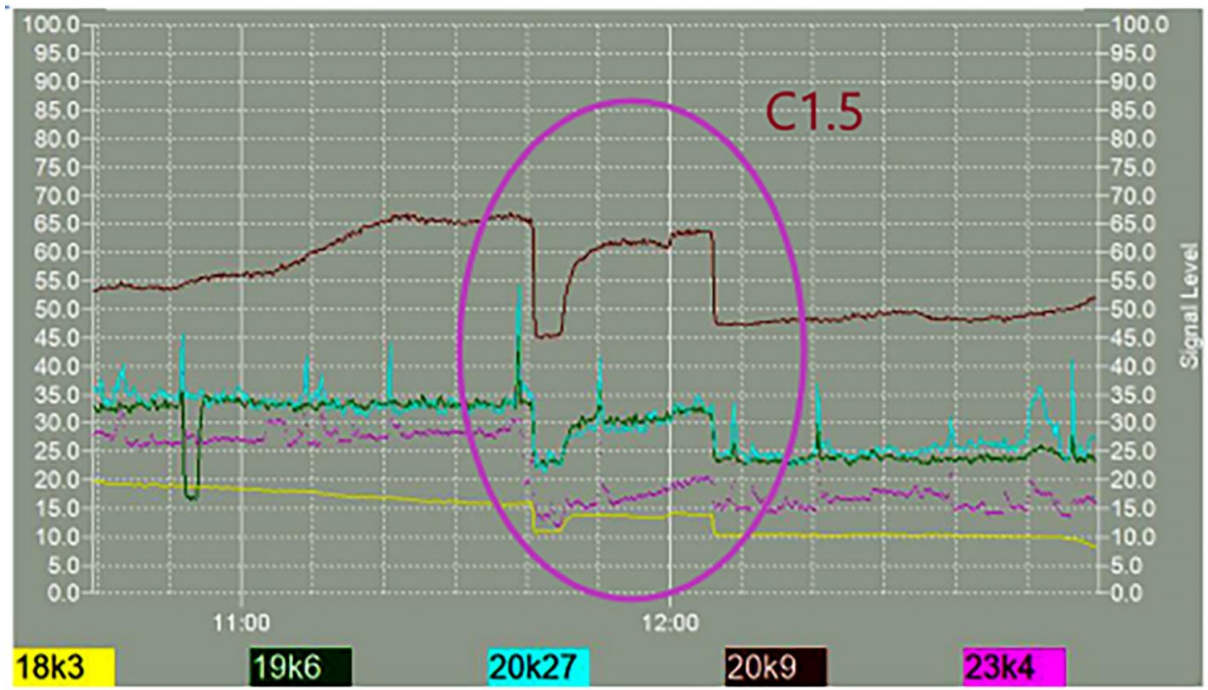

134cm Aerial, direct
USB Soundcard, 25 Feb
2026
C2.6 Flare
Signal Level
06:00
07:00
18k3
19k6
20k27
20k9
23k4

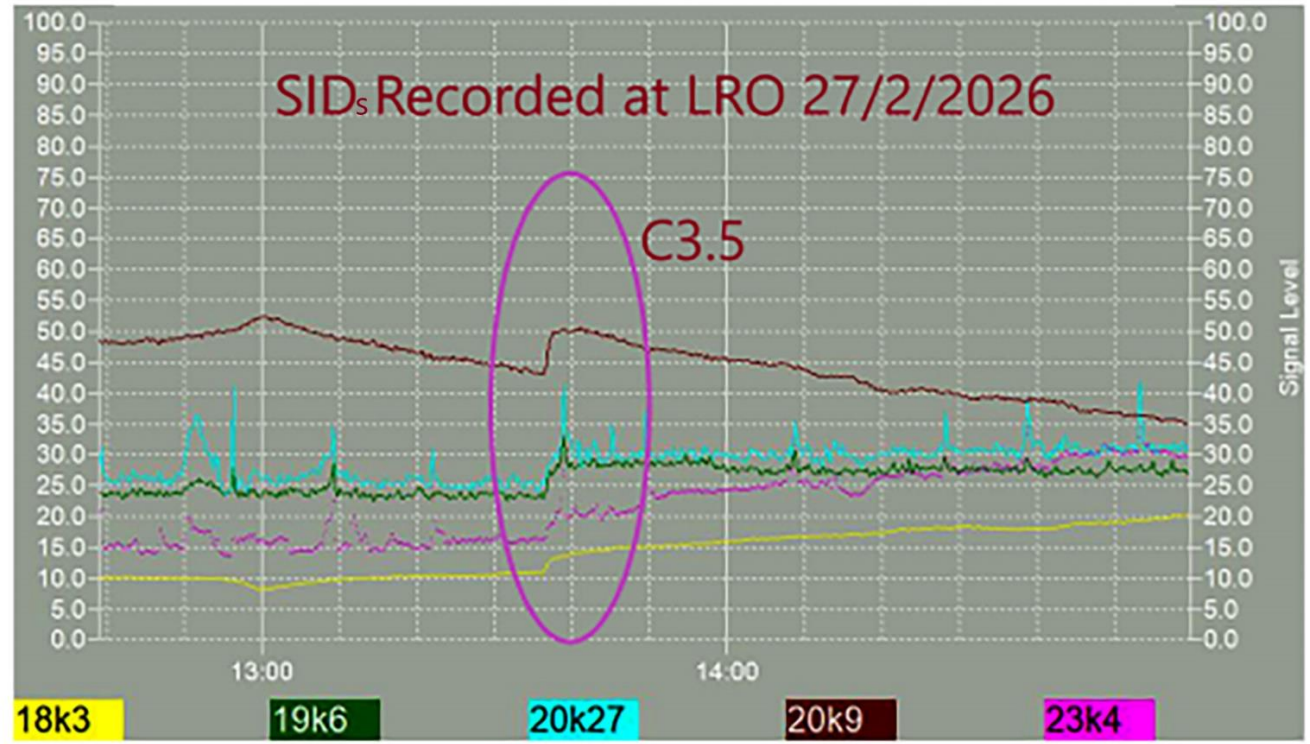

134cm Aerial, direct USB Soundcard, 25 Feb 2026
C3.2 Flare
100.0
95.0
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Signal Level
09:00
10:00
18k3
19k6
20k27
20k9
23k4

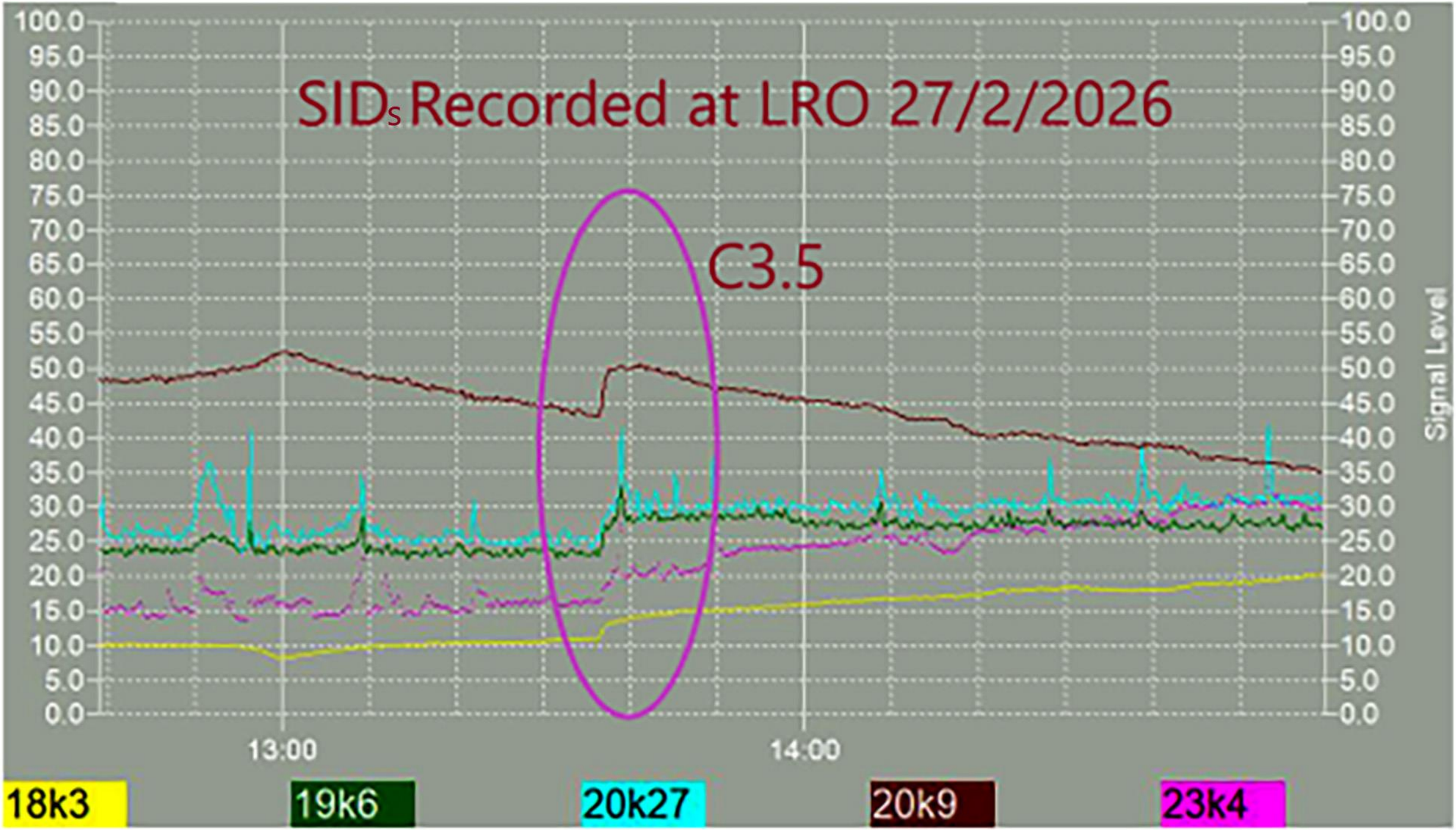

C3.9 Flare
134cm Aerial, direct USB Soundcard, 25 Feb 2026
Signal Level
100.0
95.0
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
11:00
12:00
18k3
19k6
20k27
20k9
23k4

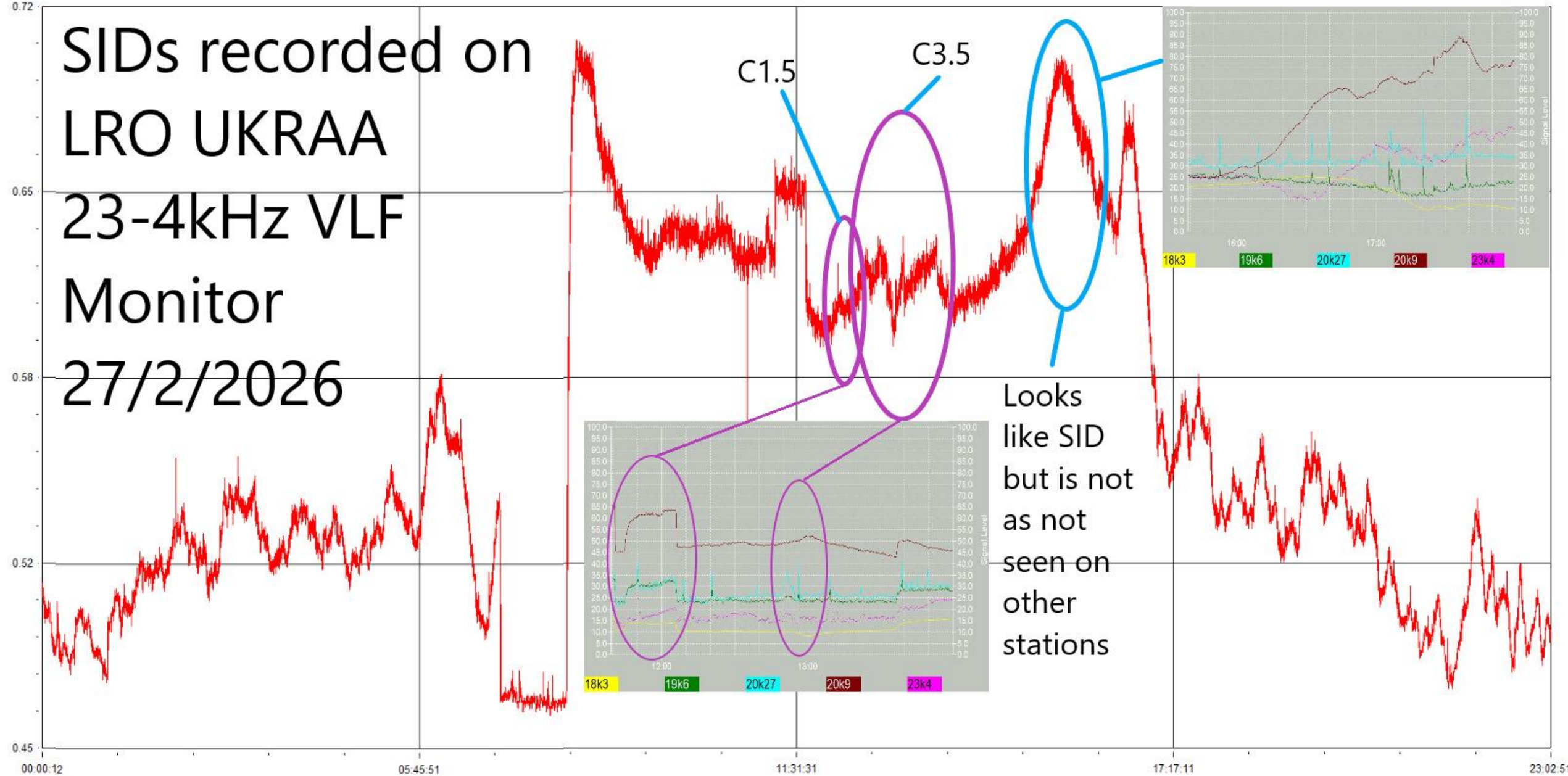

134cm Aerial,
direct USB
Soundcard, 25 Feb
2026
M2.3 Flare
Signal Level
15:00
16:00
18k3
19k6
20k27
20k9
23k4


Comparison plot SID Monitoring Station
(Lionel Loudet)


C1.5
Signal Level
11:00
12:00
18k3
19k6
20k27
20k9
23k4


SIDs Recorded at LRO 27/2/2026
C3.5
Signal Level
13:00
14:00
18k3
19k6
20k27
20k9
23k4


SIDs Recorded at LRO 27/2/2026
C3.5
100.0
95.0
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Signal Level
13:00
14:00
18k3
19k6
20k27
20k9
23k4


SIDs recorded on LRO UKRAA 23-4kHz VLF Monitor 27/2/2026
C1.5
C3.5
Looks like SID but is not as not seen on other stations
18k3
19k6
20k27
20k9
23k4
0.72
0.65
0.58
0.52
0.45
00:00:12
05:45:51
11:31:31
17:17:11
23:02:51

Calculating dimensions of single-cavity Cavity RF Filter for 1420 MHz

$$\lambda = \frac{c}{f} \approx \frac{3\times10^8}{1.420\times10^9} \approx 0.211\ \mathrm{m}$$

$$\lambda/4 \approx 52.8\ \mathrm{mm}$$

1420 MHz QUARTER-WAVE CAVITY FILTER