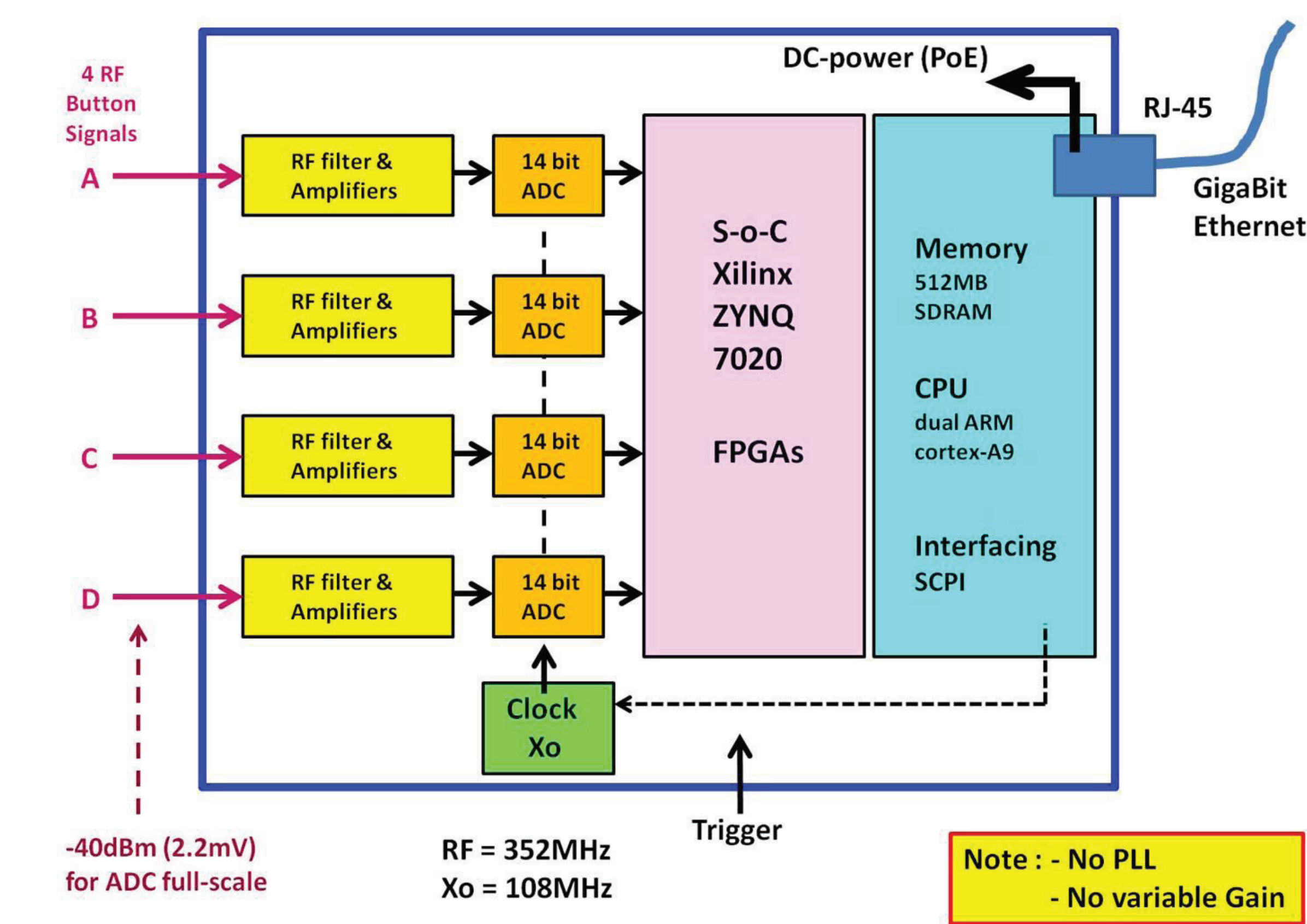


Results with Prototypes of new BPM Electronics for the Booster of the ESRF

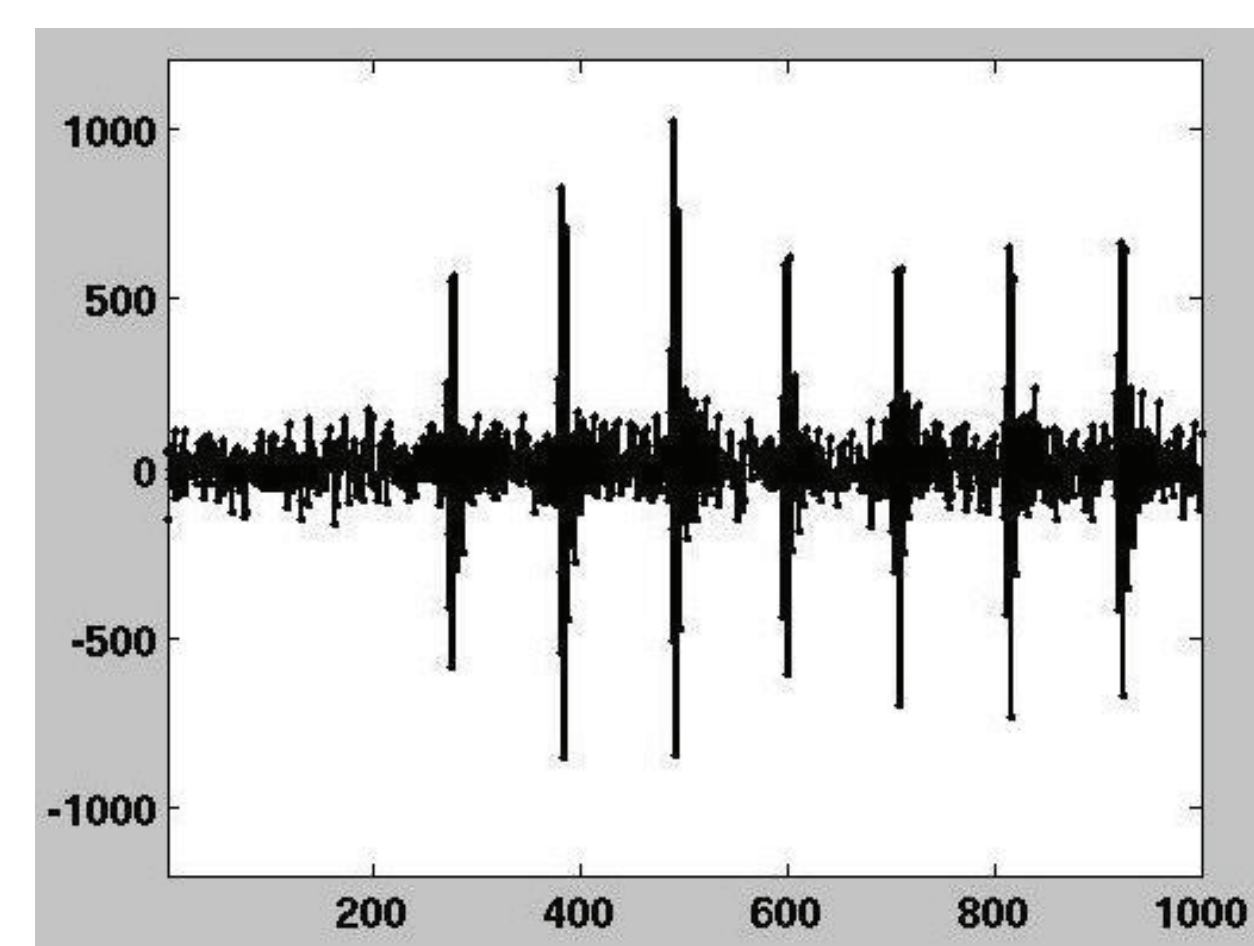
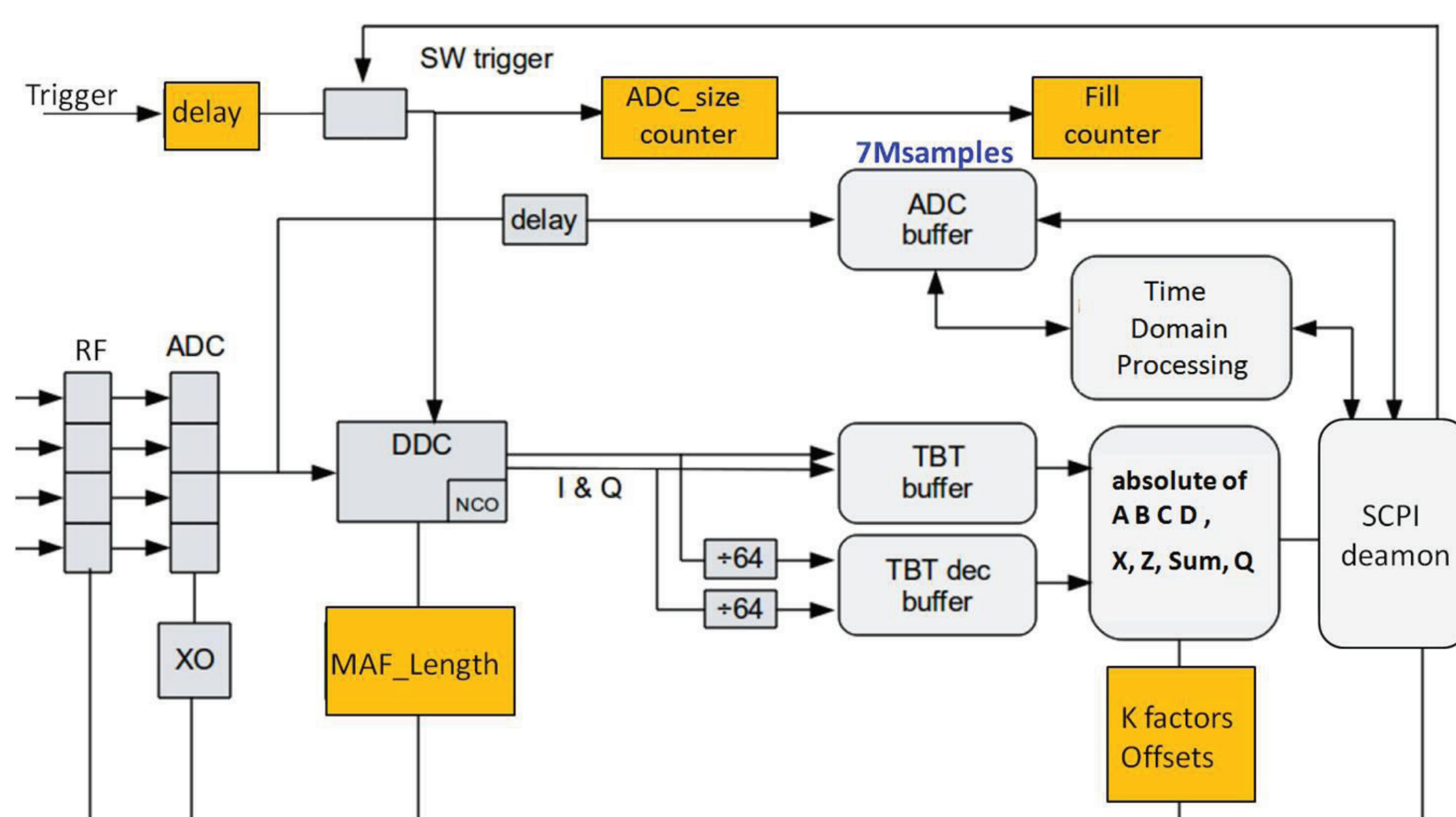
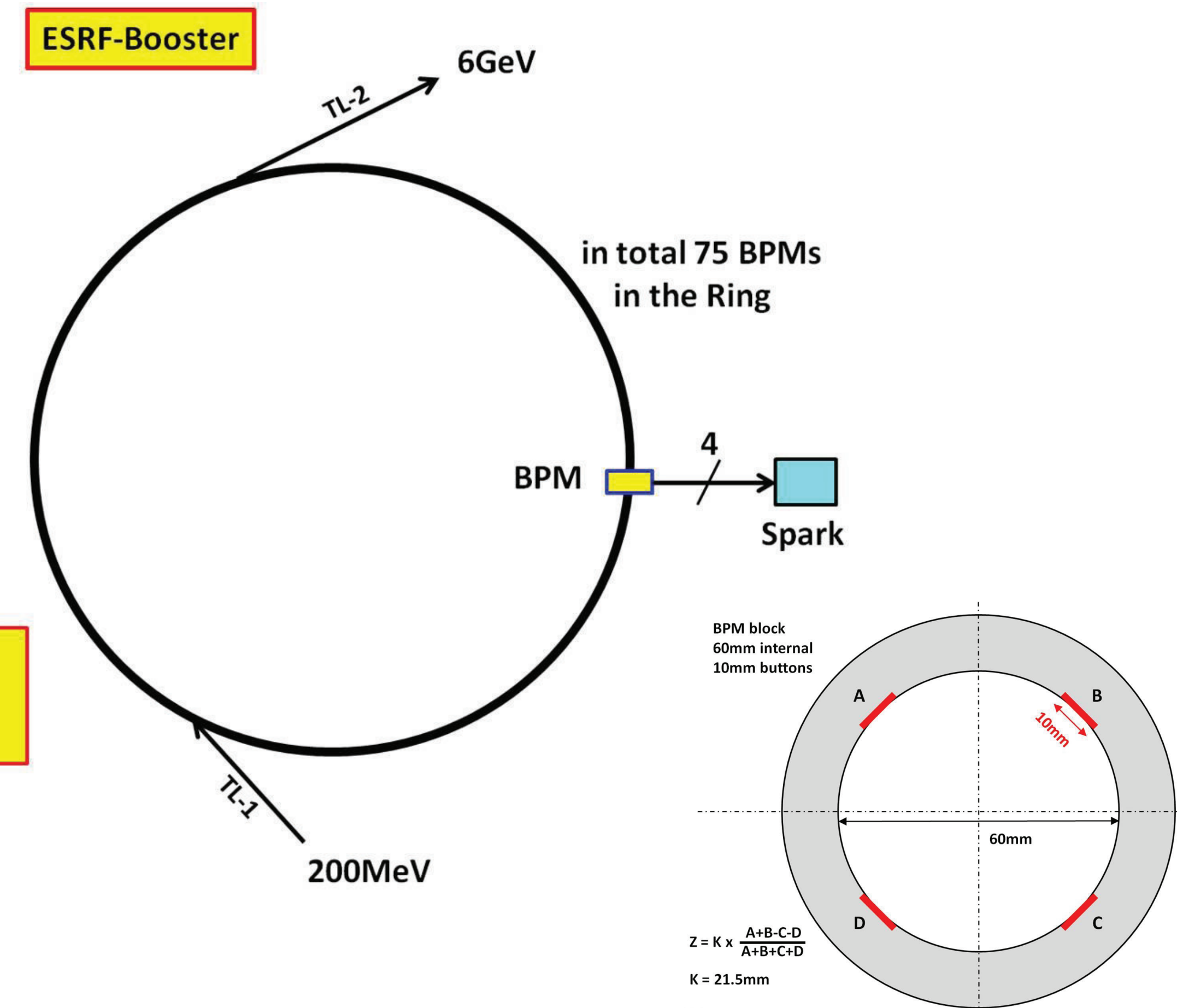
Kees Scheidt, Diagnostics Group, ASD, ESRF, Grenoble, France



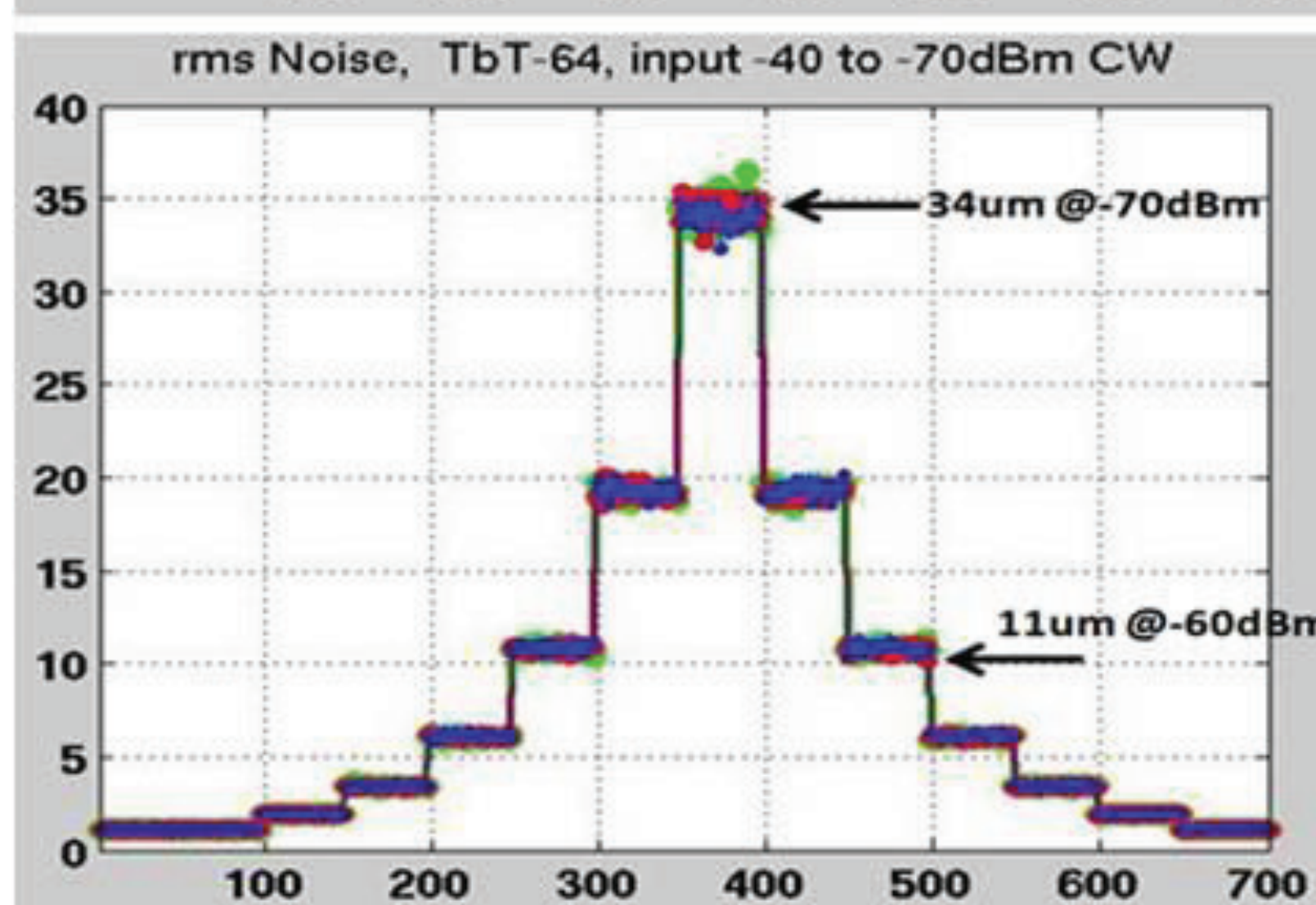
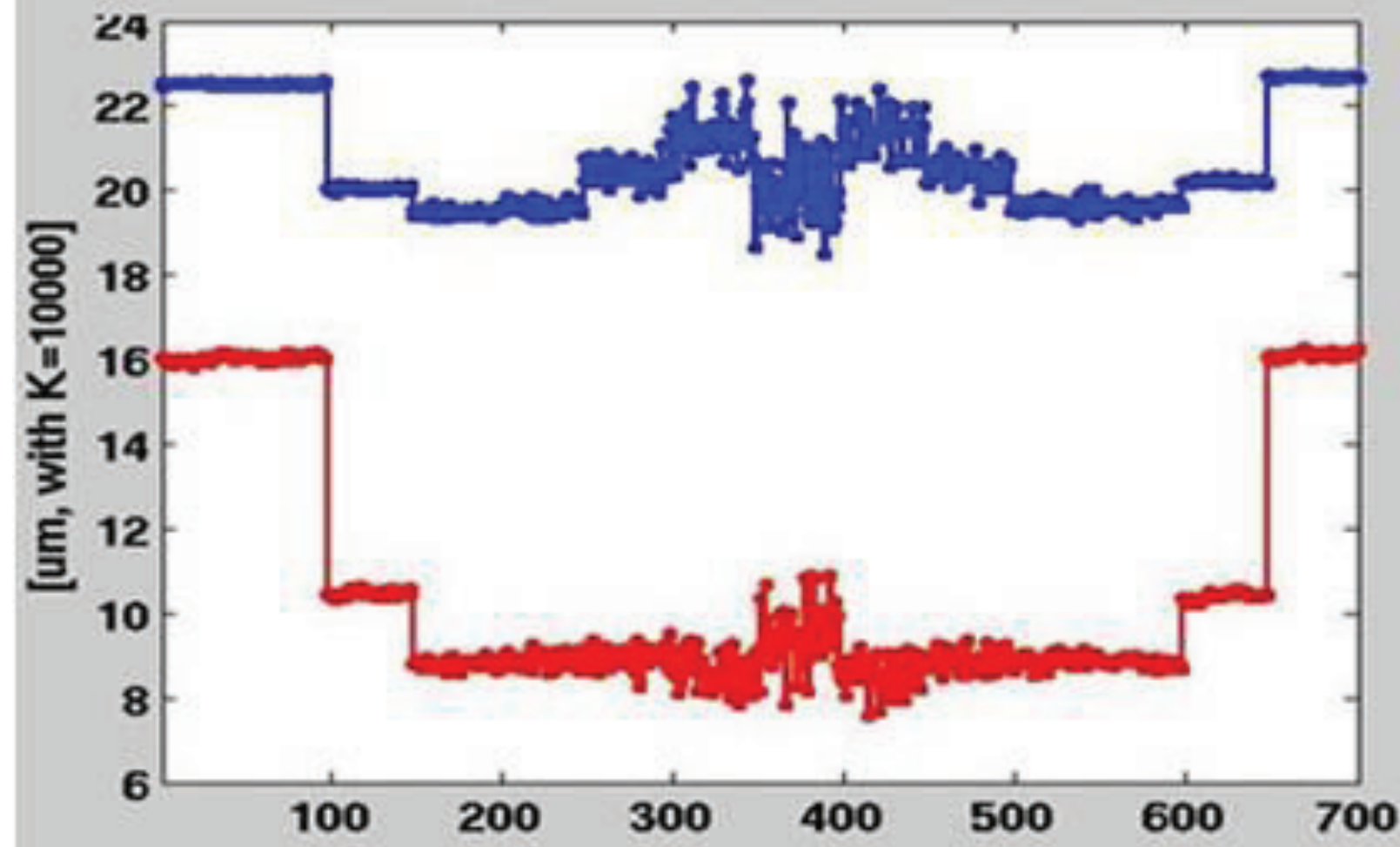
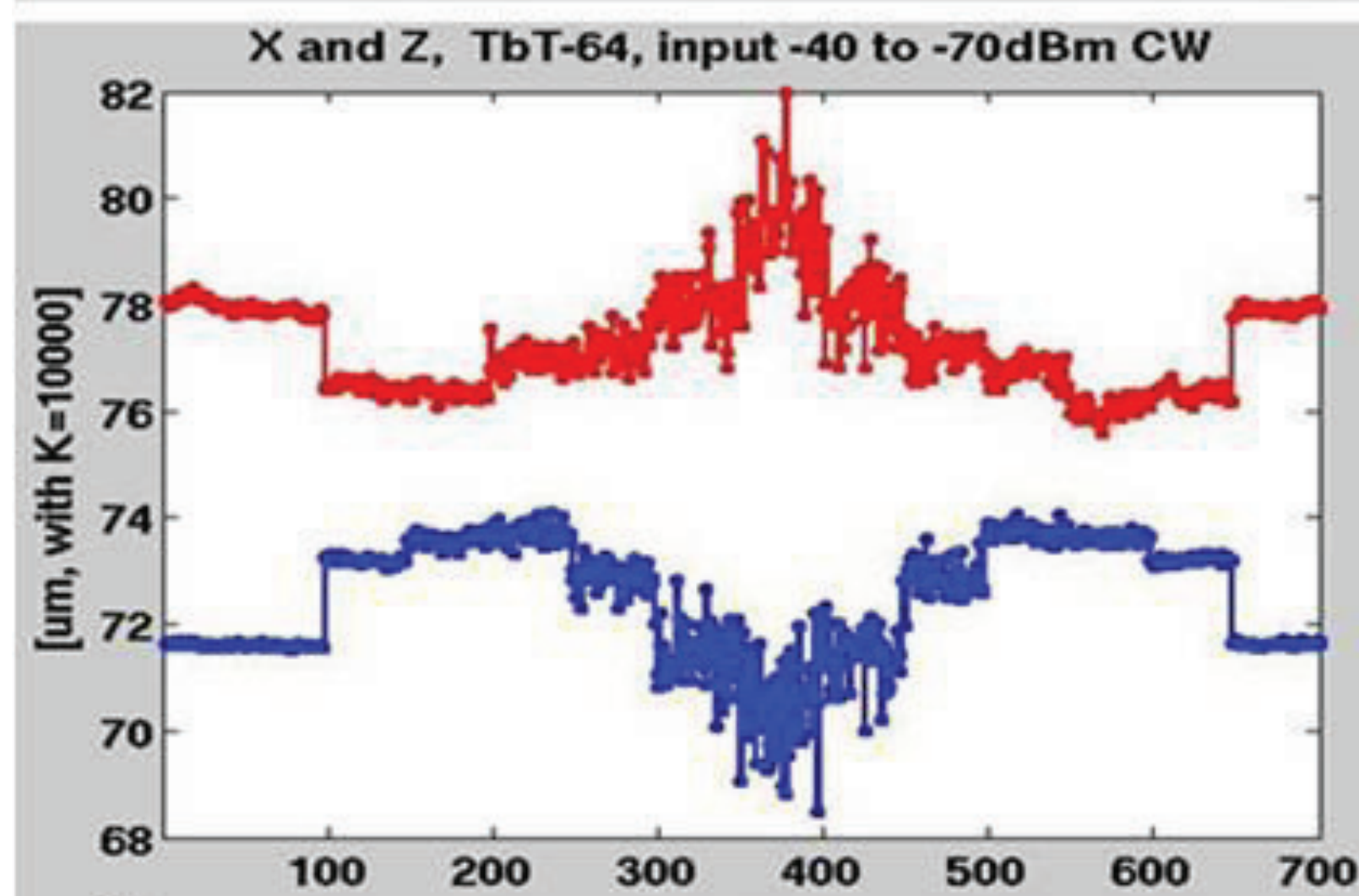
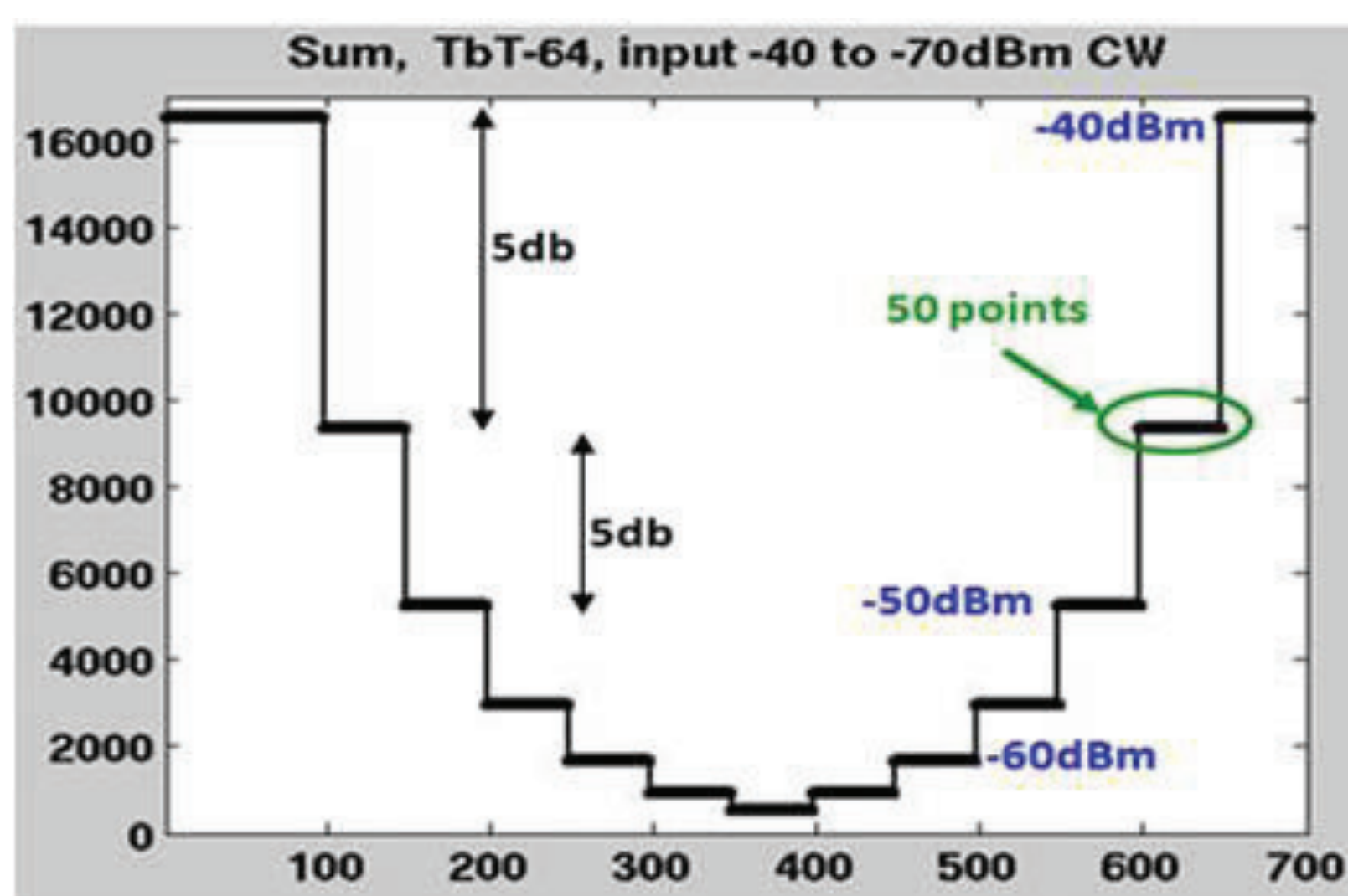
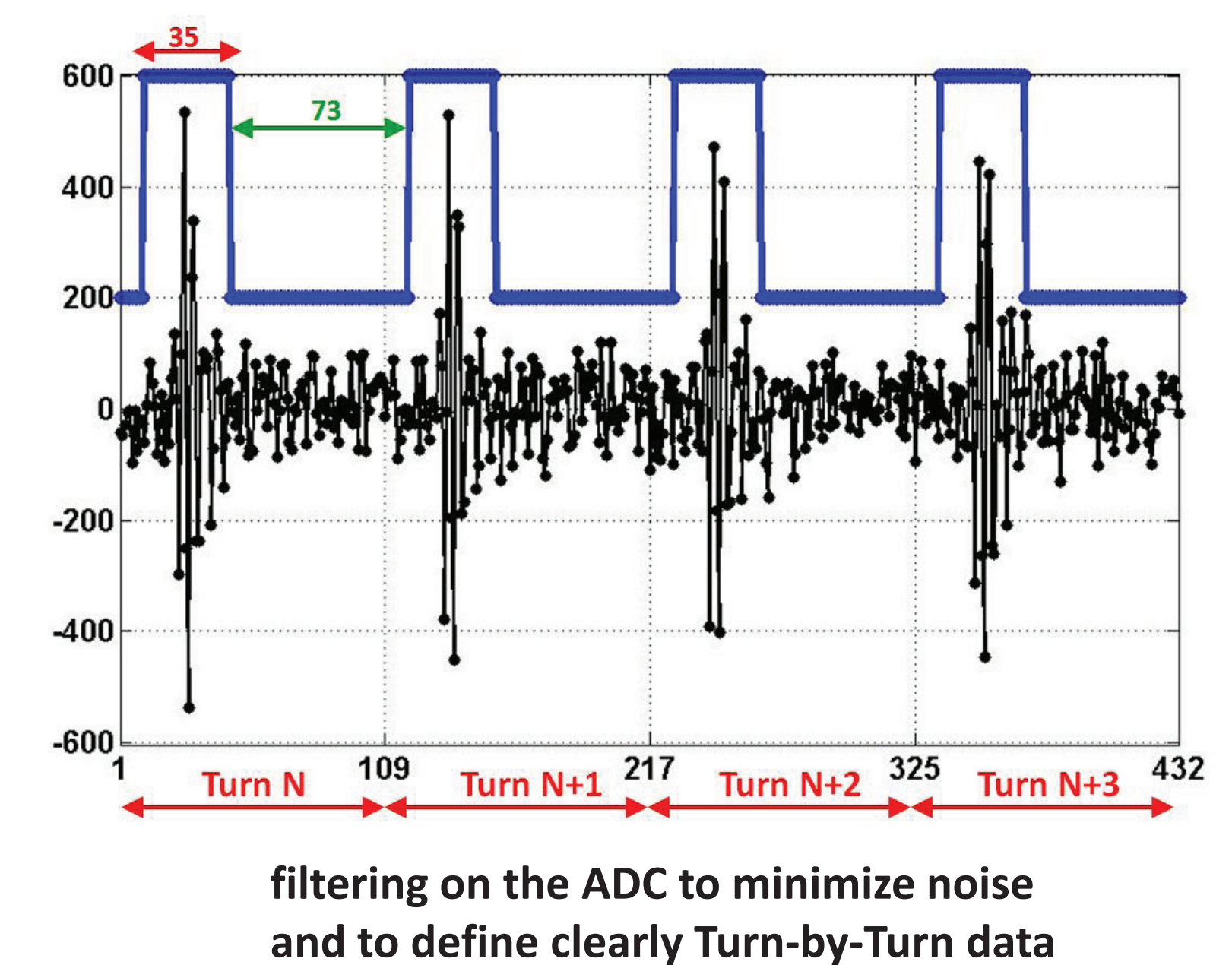
Circumference=300m
Orbit time = 1us
Harmonic No. 352
RF-freq. =352.202 MHz
acceleration cycle = 50ms
after Injection, the beam makes about 50 000 Turns

BPM requirement : measure at Turn-by-Turn rate

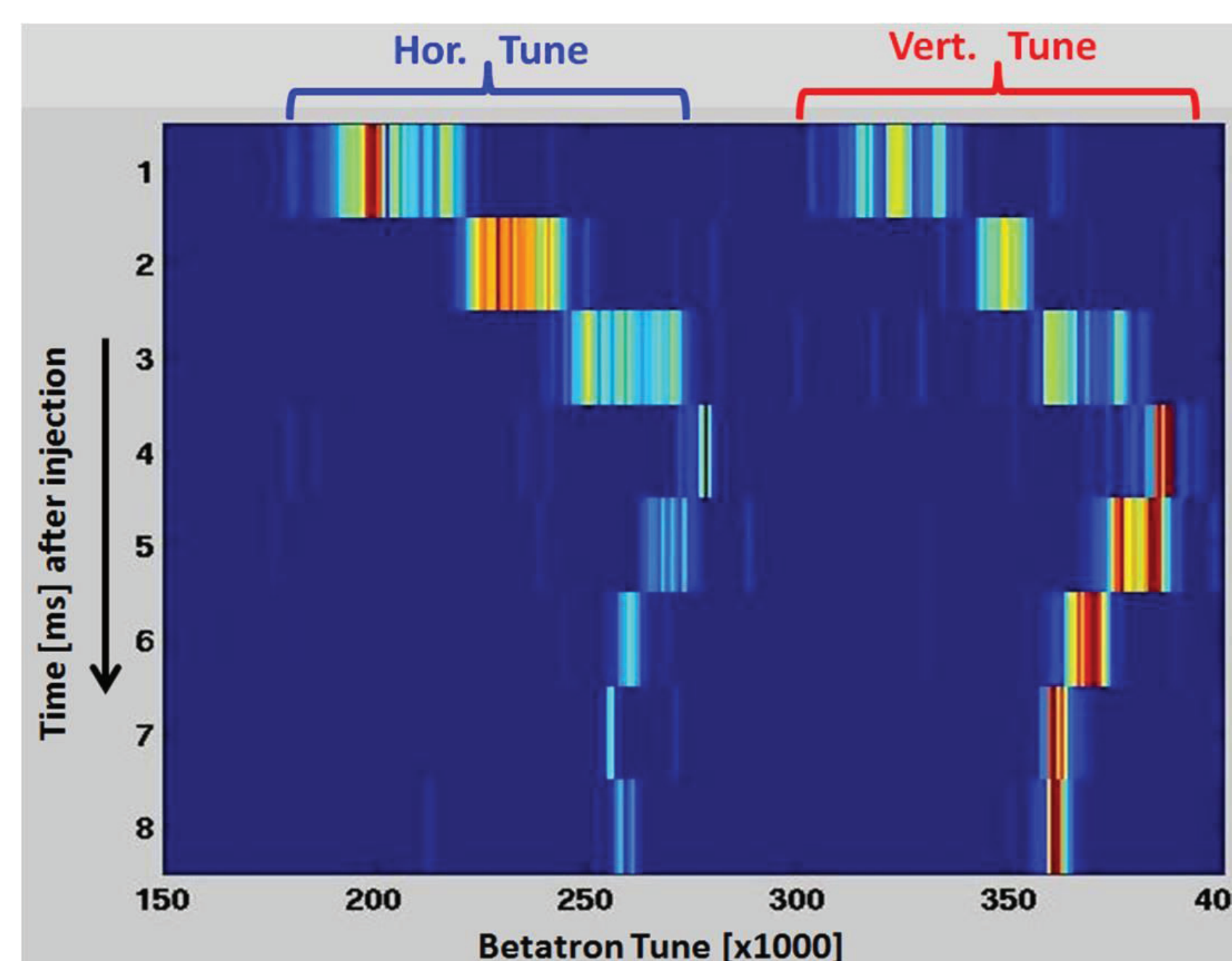
the Spark takes 108 samples/Turn i.e. 108MHz



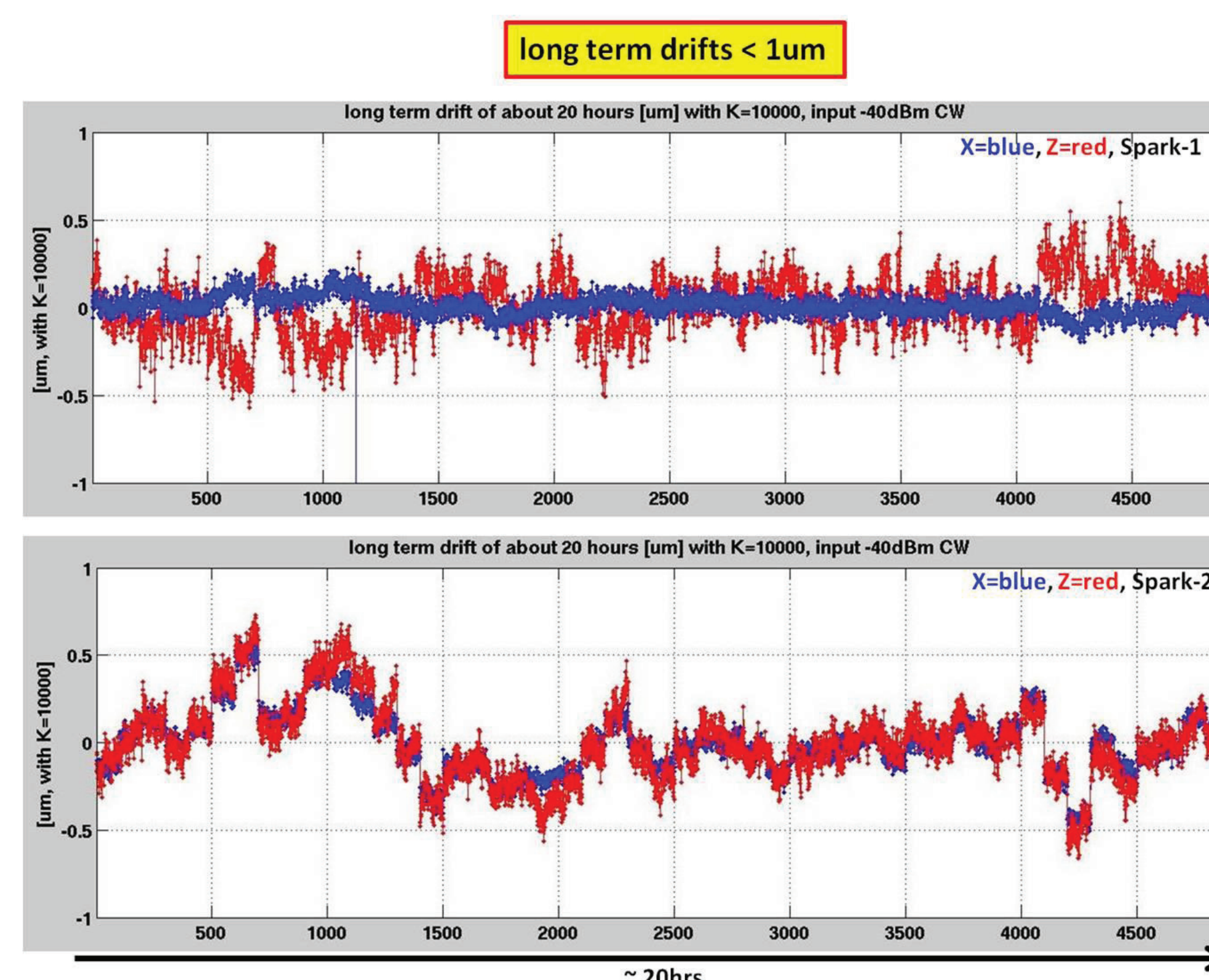
Raw ADC signals with only a single bunch (0.1mA) in the Ring



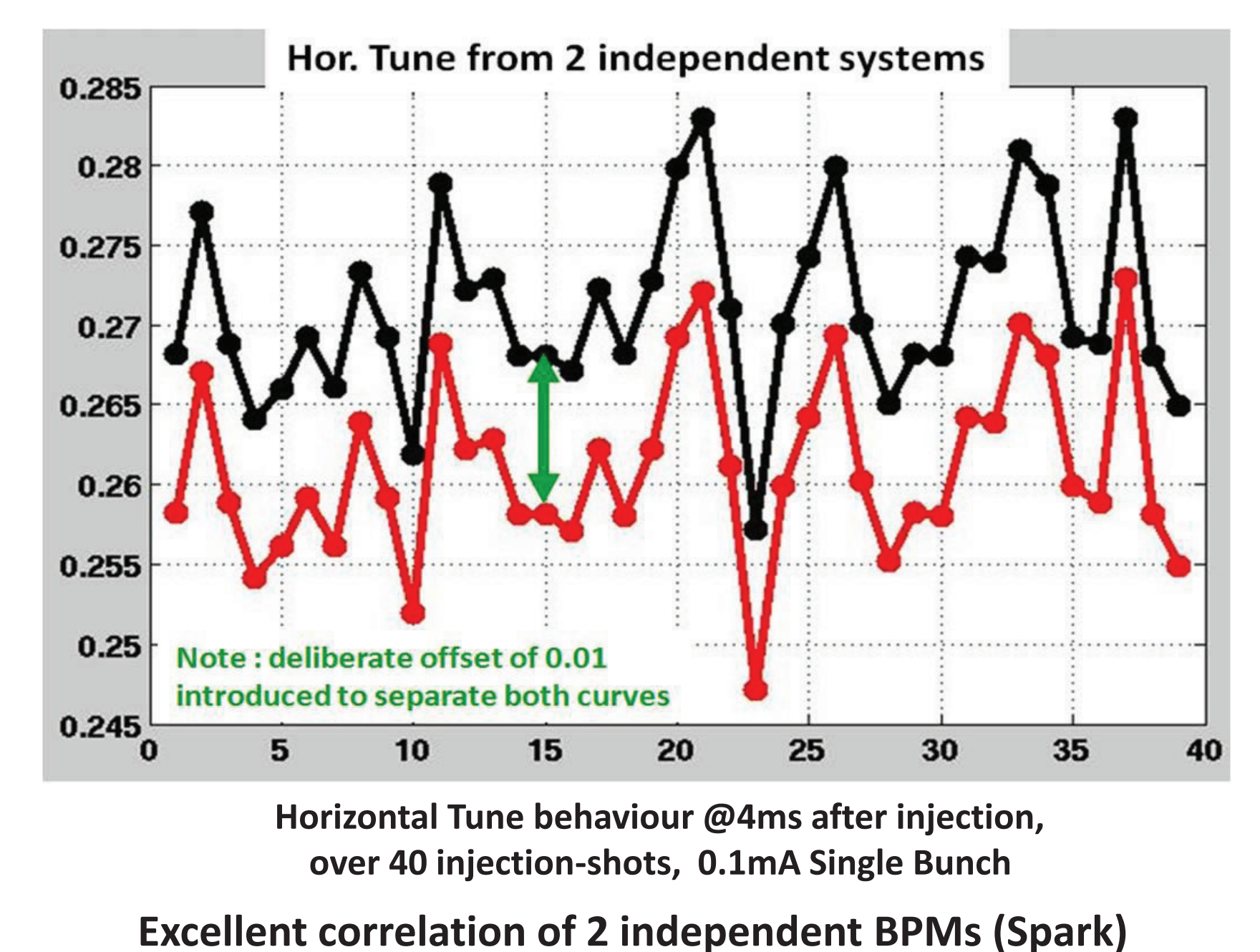
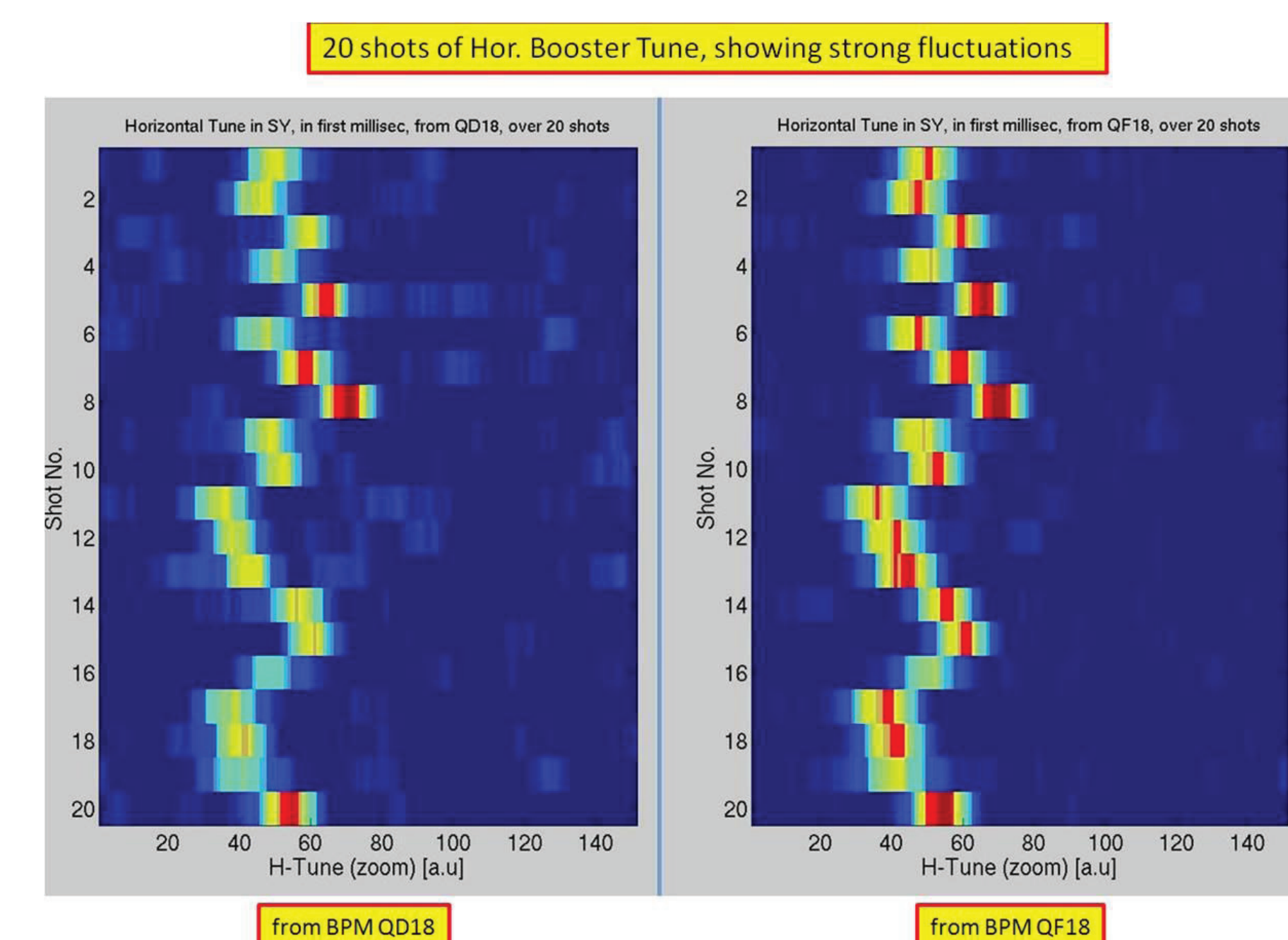
Recordings over 23min showing from top to bottom values of : Sum (i.e. Signal Level), X (blue) and Z (red) of both units, and rms noise.
Data taken from the 16KHz rate buffers, CW RF power at inputs, K-factor at 10mm.



Tune behaviour in the first 8ms after injection, measured with 0.1mA Single Bunch



Libera-Spark



Horizontal Tune behaviour @4ms after injection, over 40 injection-shots, 0.1mA Single Bunch
Excellent correlation of 2 independent BPMs (Spark)



Libera-Spark