

# RFEF antennas and RF spectrometer

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## 1. Purpose / Application

To measure the oscillating electric field in the radiofrequency wave range (several 10 MHz – 3 GHz )

## 2. Name of analysis (Kaiseki) data / module of MyView2

rf10-O\_tw, rf10-O\_fftinfo, rf10-O\_psd (in preparation)

rf9.5L-O\_tw, rf9.5-L\_fftinfo, rf9.5-L\_psd (in preparation)

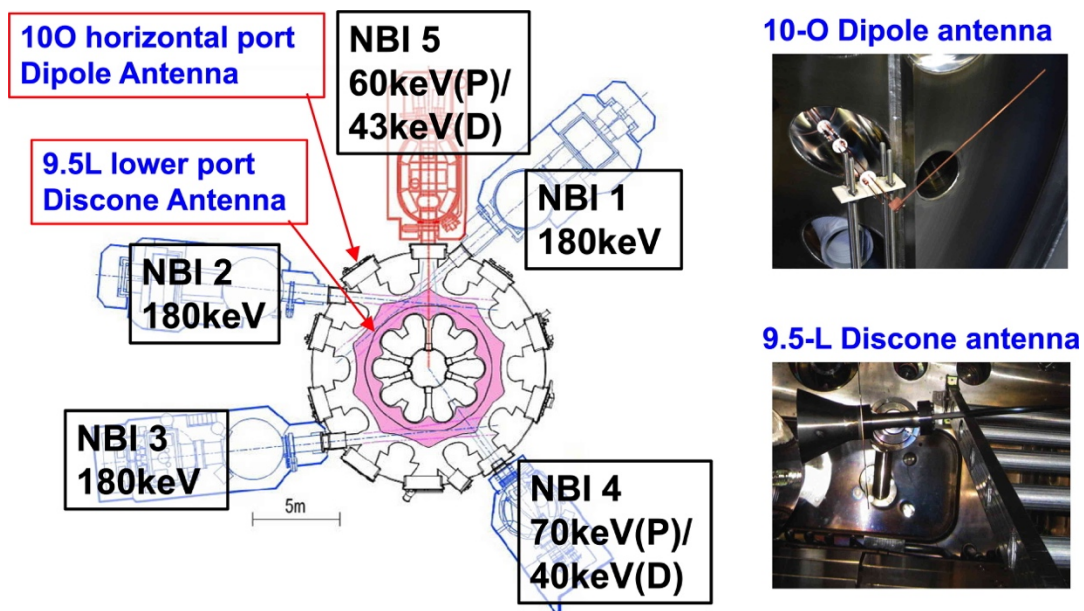
rf10-O\_hf\_tw, rf10-O\_hf\_fftinfo, rf10-O\_hf\_psd (in preparation)

rf9.5L-O\_hf\_tw, rf9.5-L\_hf\_fftinfo, rf9.5-L\_hf\_psd (in preparation)

RF\_Spec\_broad

RF\_Spec\_low

## 3. General Description (Port, field line, time resolution, spatial resolution, number of channels, etc.)



*Figure 1 Location of the RFEF antennas*

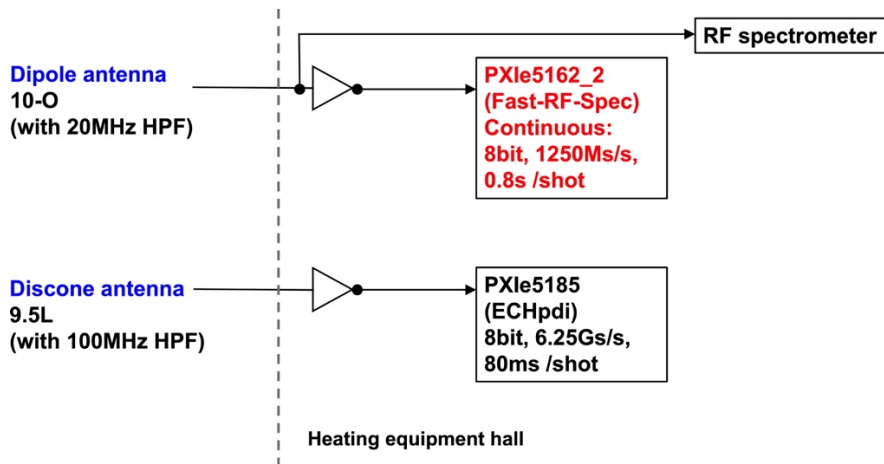


Figure 2 Fast data acquisition system 19<sup>th</sup>- 22<sup>nd</sup> cycle

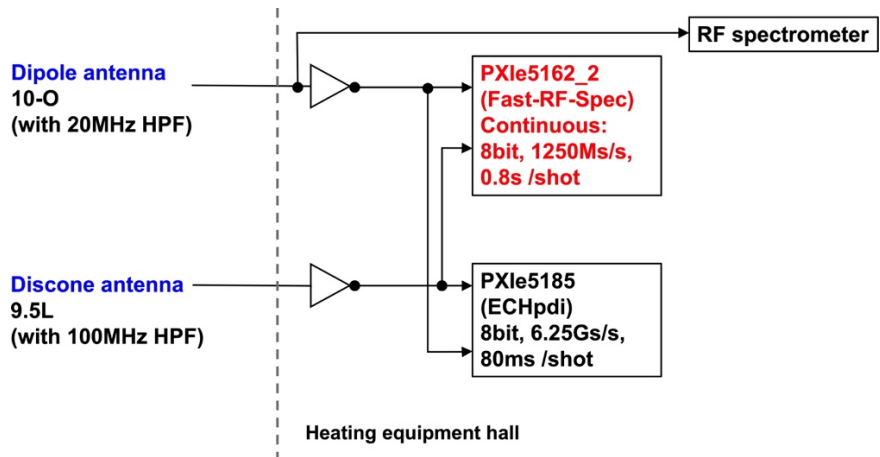


Figure 3 Fast data acquisition system 23<sup>rd</sup> cycle

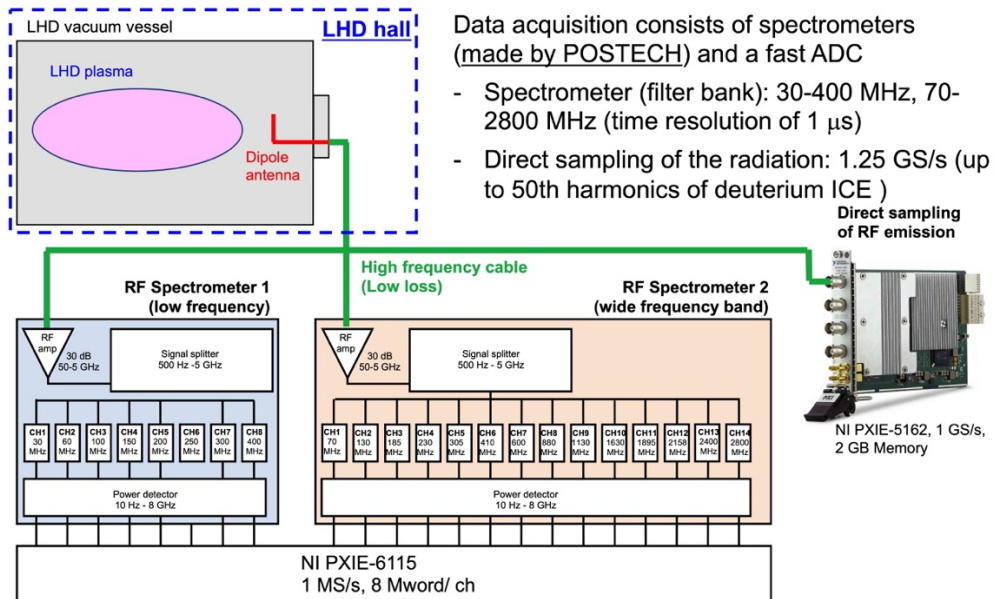


Figure 4 Data acquisition of the RF spectrometer

#### **4. Requirement in use**

RF\_Spec\_broad, RF\_Spec\_low : Anytime

Rf\_10-O\_\*, and rf\_9.5-L\_\* : Anytime except for the case of the gyrotron frequency measurement

#### **5. Description of analysis (Kaiseki) data / module of MyView2**

Data acquired by PXIe5162

rf9.5-L\_tw, rf10-O\_tw : Time window of data acquisition

rf9.5-L\_ffinfo, rf10-O\_ffinfo : Parameters to obtain the time evolution of the power spectrum density by FFT analysis( time window within the acquired time of the ADC, time step, frequency resolution, minimum frequency, and maximum frequency)

rf9.5-L\_psd, rf10-O\_psd : Time evolution of the power spectrum density

Data acquired by PXIe5185

rf9.5-L\_hf\_tw, rf10-O\_hf\_tw : Time window of data acquisition

rf9.5-L\_hf\_ffinfo, rf10-O\_hf\_ffinfo : Parameters to obtain the time evolution of the power spectrum density by FFT analysis( time window within the acquired time of the ADC, time step, frequency resolution, minimum frequency, and maximum frequency)

rf9.5-L\_psd, rf10-O\_psd : Time evolution of the power spectrum density

#### **6. Others**

The data width and start timing are changed according to the needs

#### **References**

[1] B. C G Reman, R O Dendy, T Akiyama, S C Chapman, J W S Cool, H Igami, S Inagaki, K Saito & G S Yun, Nucl. Fusion 59 (2019) 096013.

[2] B. C G Reman, R O Dendy, T Akiyama, S C Chapman, J W S Cool, H Igami, S Inagaki, K Saito R Seki et al., Nucl. Fusion 61 (2021) 066023.