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6.3 Multipoint vertical-Thomson scattering diagnostic on HL-2A tokamak

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Some progress has been made to develop multipoint Thomson scattering diagnostic on HL-2A tokamak. Hardware of Si-APD detector electronics is improved, which provides two output signal channels. In one channel, only the rapid TS signal is output after deducting the influence of background slow-varying plasma light. In the other, both the rapid TS signal and the plasma background signal are output. In last HL-2A experiment campaign, the newly developed electronics are tested and TS signals can be obtained from each of the two channels, where the signal is digitized by 12-bit transient recorder sampled at 1GS/s. Laser beam alignment is fulfilled by using motorized stages to control the laser beam pass through ˜10 mm-wide narrow throats of the lower and upper closed divertors with small movements, then strayed laser light is reduced. New modules of fast digtizers with more than 100 channels are installed and will be used to record TS pulse signals. On the basis of these achivements, about 20-point measurements of plasma Te and ne by Thomson scattering diagnostic will come into operation in this HL-2A experiment campaign.

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