**Area:** 8 PV Systems Including BOS Components, Solar resource assessment

**DEVELOPMENT OF A HYPERSPECTRAL DEVICE FOR SOLAR RESOURCE ASSESSMENT**

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The purpose of the present investigation is to validate a new radiation measurement concept to perform solar resource assessment. We are developing a new type of sensor that allows automated measurements of solar and atmospheric components, such as the broadband irradiance and several narrow wavelength bands, with high sampling frequency. Besides performing on-site solar resource assessment, the sensor is intended for operation within a network allowing cloud data storage, interconnectivity with other sensors in the network for self-calibration, solar forecasting and mapping. Extensive outdoor tests are currently in progress to validate the new sensor and to assess its measurement performance. In this paper, we will present data from recent tests underway at the outdoor test facilities at Radboud University in The Netherlands (shown in Figure 1). For the assessment, we use a comprehensive set of calibrated radiation measurement instruments: 1 MS-57 pyrheliometer, for the measurement of the direct solar irradiance; 3 MS-802 pyranometers to measure the diffuse, the global, and the tilted solar irradiance; 2 spectroradiometers (EKO Wiser system) for the measurement of the tilted component of the spectral solar irradiance between 350nm and 1700nm.

![Test facilities with hyperspectral and solar radiation sensors](image1.png)

![Hyperspectral sensor](image2.png)

Figure 1: (A) Test facilities with hyperspectral and solar radiation sensors; (B) Hyperspectral sensor