NMIJ/AIST activity on digitized metrology

It enables

"personalized", "wearable", "continuous"

measurement,

if it could be "traceable" and "connected".

R&D of Radiation Dosimeter for Residents in Fukushima

- Demand for “personalize” evaluation of dosimetry
- Validated, traceable measurement
- Small, lightweight, data-logging type personal dosimeter has been developed（Fig.1）.
- Validation test was performed by collaborating with Tsukuba City. The dosimeter was distributed to volunteers and city officials of 230 people in 2012 (Fig.2）.

Fig.1 Developed dosimeter and PC screen.

Fig.2 Validation test in Tsukuba city.

D-shuttle dosimeter (Chiyoda Technol)

- Continuous operation for more than 1 year without battery exchange.
- Users can self-check the radiation dose anytime.
- The first system which can report detailed dose data in daily life.
- After 1 year usage, the company carries out battery exchange, re-calibration, and submitting a measurement report.
- Wireless data accumulation, wireless calibration

Wireless dosimeter calibration system

Specification

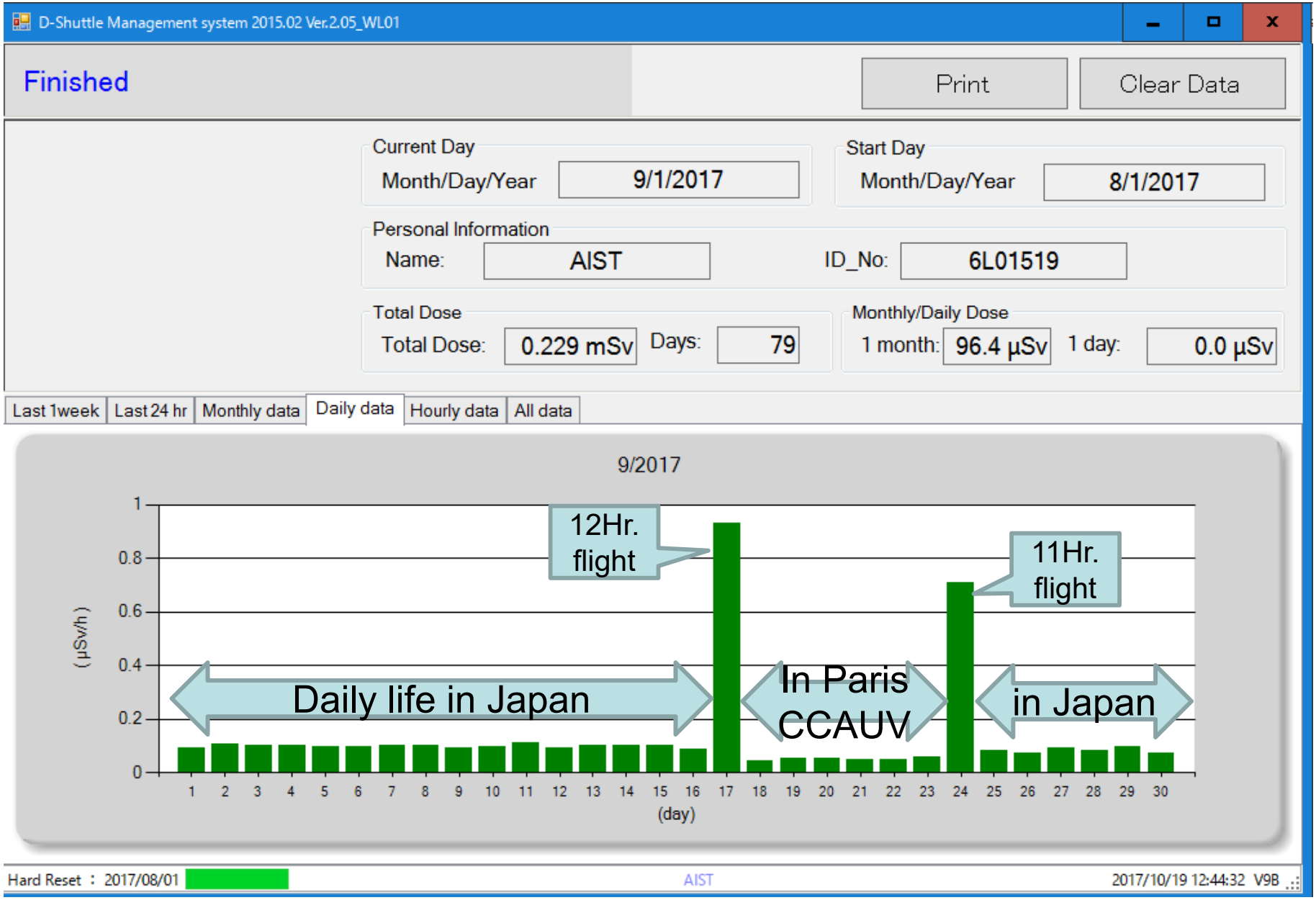
- Scope of Radiation: Gamma ray
- Detector: Semiconductor PIN Diode
- Minimum detection dose: 0.1 μSv
- Alarm: Blinking LED at high dose rate.

Features of 'D-shuttle' Dosimeter

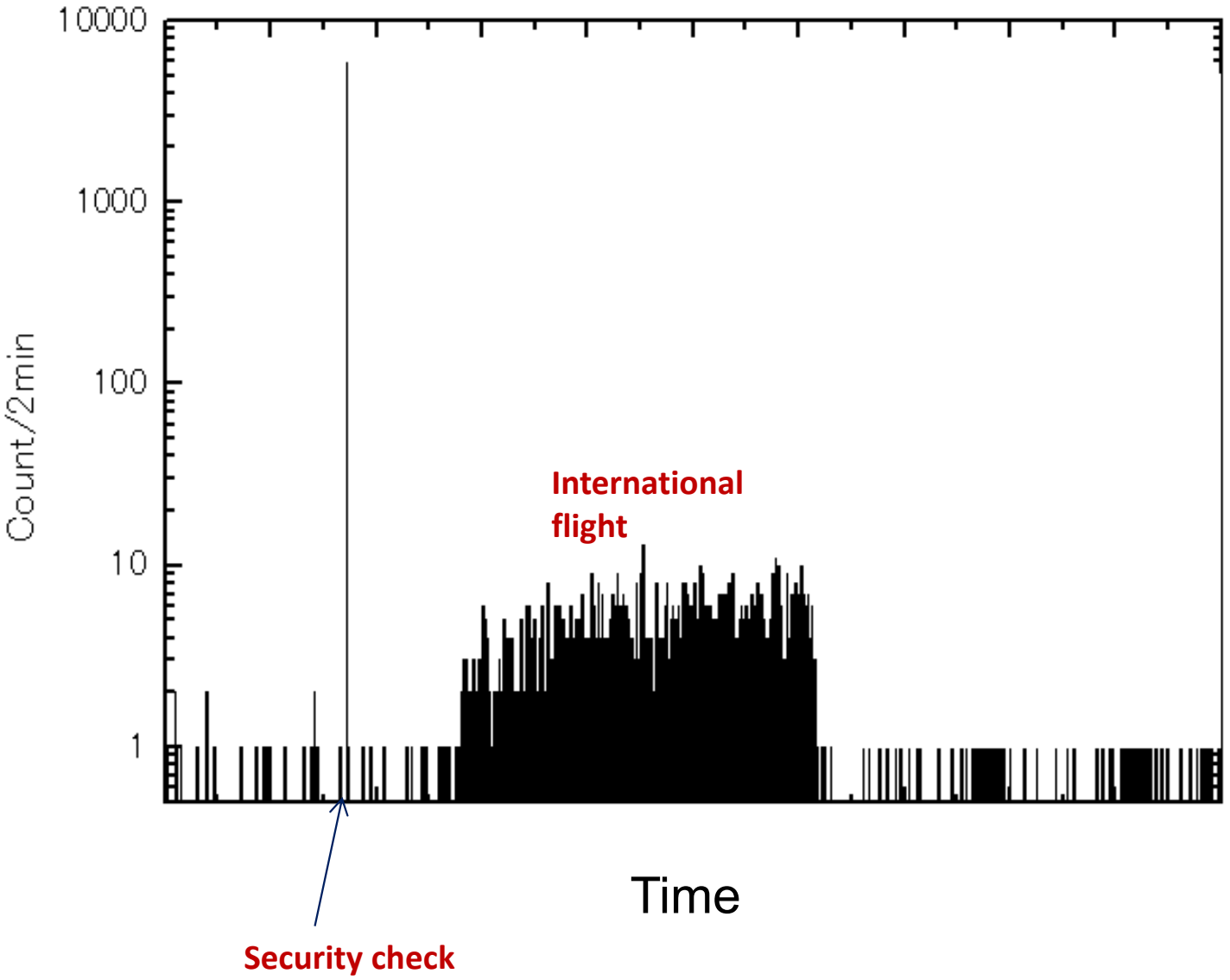
Dosimeter	Repeat usage	Battery (Battery life)	Minimum measurement dose	Self check of dose data	Portability	Data logging
Film Badge	☹	None	100 μSv	☹	☺	☹
Glass Badge	☺	None	100 μSv	☹	☺	☹
Electronic Dosimeter (Hitachi PDM)	☺	3V CR2450 (1 month)	1 μSv	☺	+/-	☹
D-Shuttle (Chiyoda)	☺	3V CR2450 (1 year)	0.1 μSv	☺	☺	☺ (*)

(*) D-shuttle has wireless and optical communication interfaces.

My personal dose history in September



Personal dose during the flight



(Like or not) we are already connected.

But are they (data) really traceable?

Traceable to where?

To NMI!