X-ray Imaging and Spectroscopy Mission (XRISM) will be launched in Japanese fiscal year 2021. XRISM has two mission instruments; one is "Resolve", a soft X-ray CCD camera with a wide field of view of 38° x 38°. Xtend CCDs are designed almost the same as those of Hitomi (ASTRO-H/SXI), whereas some improvements have applied. In 2019, we have performed screenings to choose four flight-model (FM) CCD chips for Xtend from twelve FM candidates provided by Hamamatsu Photonics K. K. After that, we performed on-ground calibration for the selected FM CCDs to construct CALDB. In this presentation, we report procedures for screening/calibration and results of them.

**ICCD chips for XRISM/Xtend**

- Xtend is a combination of X-ray Mirror Assembly (XMA) and Soft X-ray Imager (SXI; X-ray CCDs). Xtend has a band pass of 0.4–13 keV with 38° x 38° field of view.
- CCD chips are basically designed as those of Hitomi/SXI. However, three improvements prompted by SXI's on-orbit performance are applied:
  1. A notch implant in charge transfer path to reduce increment of Charge Transfer Efficiency (CTI) by radiation damage;
  2. enlargement of an Al-coated area at the outer boundary of the wiring area to reduce a light leakage from the CCD edge;
  3. double layer coating of aluminium on the Optical Blocking Layer (OBL) to reduce pinholes on it.
- Hamamatsu Photonics K. K. (HPK) have fabricated the Flight-Model (FM) candidates CCDs, from which we select 4 FM CCDs (“screening”) and perform on-ground calibration for them in Osaka University (OU).

**Strategy for the screening & on-ground calibration**

- HPK produces many chips
- The best 12 chips evaluated with 5.9 keV X-ray (55Fe) are delivered to OU.
- In the screening, multi-color X-rays are illuminated to evaluate the performance in the wide energy band.
- The best 4 in the 12 CCDs are selected as FM by screening. After that, we perform on-ground calibration for the FM CCDs.

**Screening/Calibration system**

- Can measure 2 CCDs at the same time.
- Mainly using EM electronics of Hitomi/SXI.
- CCDs are operated in -110 deg C to be illuminated multi-color X-ray (55Fe, 241Am, SiO2, LiF, and Al) and optical/IR LEDs.
- to measure the performances, "CTI", "Energy Resolution", "Soft-X-ray efficiency", and "Optical/IR light leakage".

**Screening/calibration history**

<table>
<thead>
<tr>
<th>Year</th>
<th>Experiments</th>
<th>CCD ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>1st FM screening</td>
<td>Hitomi FM candidates</td>
</tr>
<tr>
<td>2019</td>
<td>2nd FM screening</td>
<td>Hitomi FM candidates</td>
</tr>
<tr>
<td>2019</td>
<td>3rd FM screening</td>
<td>Hitomi FM candidates</td>
</tr>
<tr>
<td>2019</td>
<td>4th FM screening</td>
<td>Hitomi FM candidates</td>
</tr>
<tr>
<td>2019</td>
<td>5th FM screening</td>
<td>Hitomi FM candidates</td>
</tr>
</tbody>
</table>

**Examples** (55Fe, grade 0 only, no correction, 2 hours)

- Spectra:
  - FM02-10 Seg.AB
  - FM02-10 Seg.CD

- Stacking plot (V-CTI):
  - FM02-10 Seg.AB
  - FM02-10 Seg.CD

**Summary**

- The best 4 CCD chips was selected for Xtend FM CCDs from 13 candidates.
- On-ground calibration was performed for the 4 FM chips.
- Analysis to construct CALDB is now on-going.
- Many grad. school students work hard!