Easy to use
- Procedure is basically same as that of on-site manual data collection. Registration of radiation worker is not requested.
- Send samples packed in UniPuck.
- Data collection and data process are conducted automatically.
  - Automatic data collection using ZOO system @ BL45XU / BL32XU (https://doi.org/10.1107/S2059798318017795)
  - Automatic data process using KAMO system (Your licensing for XDS is needed) (https://doi.org/10.1107/S2059798318004576)
- Data is sent back together with the sample.

High accuracy, Fast, Low cost
- Data collection is conducted by using brilliant microbeam, a fast sample changer and a pixel array detector.
- Typical data collection time is 4 – 7 minute / loop (Note that it depends on sample and measurement method).
- In the case of proprietary use, the cost per one sample is about 10,000 JPY. (The real cost is charged by time basis.)
Procedure for PX-BL automatic data collection

**General proposal without visitation**

### Procedure

**[Beamtime (BT) survey request]**
- We will perform the survey five times per year in principle (Operation period A: 2 times, B period 3 times)
- Minimum allocation unit for beamtime slot: BL45XU, BL32XU: 0.25 shift (2 hours)

**[Reply to the survey request]**
- Please estimate required beamtime shift by referring to the pages 7-8 in this document.
  - **Proprietary use**
    - Please send information about the selected beamline, the number of shifts, the preferred date and request of automatic data collection via e-mail to "pxbl@spring8.or.jp".
  - **Non-proprietary use**
    - Please upload "Crystal specification sheet" and "Beamtime survey sheet" (check automatic data collection) on the Web site [http://bioxtal.spring8.or.jp/survey/index2.html](http://bioxtal.spring8.or.jp/survey/index2.html).

**[Decision and announcement of your beamtime]**
- We will announce decision for your beamtime (number of shifts, beamline, and schedule). Data collection would be conducted considering the assigned BT. However, its date and time could be different from the assigned BT.

**[Procedure for use] 10 days before BT**
- Please submit "Application for SPring-8 facilities" and "List of Samples, Reagents, etc." from your "My Page" of SPring-8 UI Site ([http://user.spring8.or.jp/](http://user.spring8.or.jp/)). See page 6.
- Please contact us if your experiments contain genetic recombination experiment such as protein production by baculovirus.

**[Determination of measurement condition] 2 days before BT**
- Please fill and send the "Sample sheet for automatic data collection" at least two days before the beamtime. See page 5 to find its URL. This form will be frequently updated, then please use newest version of it by checking its URL.
- We will arrange the measurement condition based on your sample sheet and will send the final version of the sample sheet to you for confirmation.

**[Ship sample and agreement form] One day before BT**
- Please ship samples, the original copy of "SPring-8 PX-BL Automatic Data Collection Agreement form", and a HDD for data storage to us. The items should be delivered to SPring-8 by the day before BT. If arrival is delayed, we could not conduct experiment.
- The agreement form is only required in the first beamtime assignment of each proposal. See page 5 to find its URL.

**[Conduct automatic data collection]**

**[Send back sample and data]**
- Please send "Sample receipt" form by e-mail to mail-in@spring8.or.jp. See page 5 to find its URL.
Procedure for PX-BL automatic data collection
(Proprietary Time-Designated Proposals, no visit)

**Procedure**

[Consult a beamline staff]
- Coordinate with beamline staff (schedule and number of shift for automatic measurement)

[Submit proposal]
- Submit proposal from the web site of Users Office (https://user.spring8.or.jp/?lang=en)
- Please check the detailed information about Proprietary Time-Designated Proposals (http://www.spring8.or.jp/en/users/proposals/call_for/time_desig/)

[Consult about date, number of shifts (by e-mail)]
- Submit proposal on line

[Decision and announcement of your beamtime]
- We will announce decision for your beamtime (number of shifts, beamline, and schedule). Data collection would be conducted considering the assigned BT. However, its date and time could be different from the assigned BT.

[Application form for SPring-8 facilities (form 10), List of Samples, Reagents, etc. (form 9)]
- Please check the detailed information about Proprietary Time-Designated Proposals (http://www.spring8.or.jp/en/users/proposals/call_for/time_desig/)

[Decision and announcement of your beamtime]
- We will announce decision for your beamtime (number of shifts, beamline, and schedule). Data collection would be conducted considering the assigned BT. However, its date and time could be different from the assigned BT.

[Procedure for use] 10 days before BT
- Please submit “Application for SPring-8 facilities” and “List of Samples, Reagents, etc.” from your “My Page” of SPring-8 UI Site (http://user.spring8.or.jp/). See page 6.
- Please contact us if your experiments contain genetic recombination experiment such as protein production by baculovirus.

[Determination of measurement condition] 2 days before BT
- Please fill and send the “Sample sheet for automatic data collection” at least two days before the beamtime. See page 5 to find its URL. This form will be frequently updated, then please use newest version of it by checking its URL.
- We will arrange the measurement condition based on your sample sheet and will send the final version of the sample sheet to you for confirmation.

[Ship sample and agreement form] One day before BT
- Please ship samples, the original copy of “SPring-8 PX-BL Automatic Data Collection Agreement form”, and a HDD for data storage to us. The items should be delivered to SPring-8 by the day before BT. If arrival is delayed, we could not conduct experiment.
- The agreement form is only required in the first beamtime assignment of each proposal. See page 5 to find its URL.

[Conduct automatic data collection]
- Send “Sample receipt” form by e-mail to mail-in@spring8.or.jp. See page 5 to find its URL.

[Send back sample and data]
- Send back sample, data

**User**

- Consult about date, number of shifts (by e-mail)
- Submit proposal (on line)
- Application form for SPring-8 facilities (form 10), List of Samples, Reagents, etc. (form 9)
- Sample sheet (e-mail)
- Determination of measurement condition (e-mail)
- Agreement Form (original copy) Shipment of Sample, HDD
- Sample receipt (e-mail)

**SPring-8**

- Beamline staff
- Users Office
- Announcement of BT
- Users Office
- Beamline staff
- Sample sheet filled with the measurement condition (e-mail)
- Agreement Form (original copy) Shipment of Sample, HDD
- Send back sample, data
- Beamline staff
PX-BL automatic measurement operation rules

【Terms of use】
・You must agree to the agreement form.

【Radiation registration】
・It is not necessary if you can leave your samples to the staff. See page 6.
・If you cannot do so, radiation registration and its education are required.

【Estimation of measurement time】
・Refer to the attached table. See pages 7 and 8.

【Measurement schedule】
・Please fill in the experimental information on the automatic measurement sample sheet, and send it 2 days before the measurement. We will discuss the measurement conditions based on your request.
・The measurement schedule will be assigned based on the previous request. However, we will combine two or more measurement tasks from different proposals for efficiency. Please note that it is not possible to handle exact scheduling.
・There are restrictions in schedule for automatic data collection by “Additional recruitment beam time” and “Proprietary time-designated proposals”, so please contact us in advance.

【Sample sending】
・Please send by 17:00 the day before the measurement date.
・Please include a return invoice.
・If arrival is delayed, it will be treated as a cancellation.
Necessary document and destination for submission

【Beamtime survey】
<proprietary use>
·Send request via e-mail
<non-proprietary use>
·Crystal specification sheet
·BT survey sheet
·Web site for the upload:

E-mail address: pxbl@spring8.or.jp

http://bioxtal.spring8.or.jp/index_files/Crystal_Spec_Sheet.pdf
http://bioxtal.spring8.or.jp/index_files/Beamtime_Survey_Sheet_en.pdf
http://bioxtal.spring8.or.jp/survey/index2.html

【Before beamtime】
·Application form for SPring-8 facilities (form 10), List of Samples, Reagents, etc (form 9)

https://user.spring8.or.jp/?page_id=722#ch10

Procedure for radiation worker is requested, if you cannot include the anonymous beamline staff (ID: 0052000) in the Application Form.
·Registration of a radiation worker
·Radiation safety training (e-learning)

https://user.spring8.or.jp/?page_id=722#01
https://user.spring8.or.jp/?page_id=722#ch05_el

【Agreement form】
·Agreement Form for automatic data collection (form F01-PA)

https://user.spring8.or.jp/ui/wp-content/uploads/F01-PA_e.pdf
Refer to page 10 for the information on Agreement form.

【sample, Sample information】
·Send sample by using delivery service. The detailed information is described in page 11–13.

·Sample sheet for automatic data collection
·How to set up for Sample sheet

http://bioxtal.spring8.or.jp/en/users/Auto/sample_sheet_example.xlsx

【After data collection】
·Sample receipt

http://bioxtal.spring8.or.jp/index_files/sample_receipt_en.doc

【Inquiry about automatic measurement】
·Automated measurement personnel

E-mail address: mail-in@spring8.or.jp
Online Submission of Application Form for SPring-8 Facilities for PX-BL automatic data collection

1. From “Change Project Team Member”, please add Beamline Staff (ID:0052000).

2. From “Application Form for SPring-8 Facilities”, put checks the “Off the List” check boxes except Beamline Staff (ID:0052000).

3. Please enter your beamtime in the “Receive” and “Return” boxes, and put checks the “NO NEED FOR GUEST HOUSE RESERVATION” check box. Moreover, Please enter “No visit for automatic data collection” in the message column.
Calculation of measurement time

Total measurement time = Setup time + Measurement time per sample pin x Number of pins

- Please apply for beam time every 2 hours for BL45XU and BL32XU.
- Setup time: 15 minutes (Time required for beam adjustment and sample setup.)
- Measurement time per sample pin: Refer to the table below.

<table>
<thead>
<tr>
<th>Experimental schemes</th>
<th>Wedge size (/crystal)</th>
<th>Time for a loop</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Small wedge”</td>
<td>5-10 deg.</td>
<td>~ 10 min</td>
</tr>
<tr>
<td>10–300 crystals</td>
<td></td>
<td>(30 crystals, 500 x 500 um loop)</td>
</tr>
<tr>
<td>“Helical”</td>
<td>90-360 deg.</td>
<td>~ 7 min (helical)</td>
</tr>
<tr>
<td>single or a few crystals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Single”</td>
<td>90-360 deg.</td>
<td>~ 4 min (single)</td>
</tr>
<tr>
<td>single or a few crystals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Average time for automatic measurement at BL45XU**

**Measurement time per sample pin (min.)**

[Hor. scan length (μm) Vs. Beam size (μm)]

<table>
<thead>
<tr>
<th></th>
<th>Single mode</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Helical mode</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>1000</td>
<td></td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>50x50</td>
<td>2.7</td>
<td>3.4</td>
<td>4.1</td>
<td>6.4</td>
<td></td>
<td>4.4</td>
<td>4.8</td>
<td>5.5</td>
<td>no data</td>
<td></td>
</tr>
<tr>
<td>20x20</td>
<td>4.2</td>
<td>4.8</td>
<td>5.8</td>
<td>6.3</td>
<td></td>
<td>4.6</td>
<td>5.3</td>
<td>6.1</td>
<td>7.1</td>
<td></td>
</tr>
<tr>
<td>10x10</td>
<td>4.8</td>
<td>6.2</td>
<td>8.0</td>
<td>10.0</td>
<td></td>
<td>6.0</td>
<td>7.1</td>
<td>8.8</td>
<td>10.6</td>
<td></td>
</tr>
<tr>
<td>5x5</td>
<td>6.8</td>
<td>11.5</td>
<td>18.1</td>
<td>25.2</td>
<td></td>
<td>8.1</td>
<td>13.4</td>
<td>18.9</td>
<td>27.2</td>
<td></td>
</tr>
<tr>
<td>10x50</td>
<td>3.8</td>
<td>4.1</td>
<td>5.4</td>
<td>6.9</td>
<td></td>
<td>3.9</td>
<td>4.6</td>
<td>6.0</td>
<td>8.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Multi mode</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>50x50</td>
<td>5.9</td>
<td>6.5</td>
<td>7.1</td>
<td>7.4</td>
<td></td>
</tr>
<tr>
<td>20x20</td>
<td>6.1</td>
<td>6.5</td>
<td>7.6</td>
<td>7.9</td>
<td></td>
</tr>
<tr>
<td>10x10</td>
<td>6.7</td>
<td>7.9</td>
<td>10.2</td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td>5x5</td>
<td>11.1</td>
<td>14.5</td>
<td>19.4</td>
<td>24.7</td>
<td></td>
</tr>
<tr>
<td>10x50</td>
<td>6.2</td>
<td>7.0</td>
<td>8.4</td>
<td>9.6</td>
<td></td>
</tr>
</tbody>
</table>

**Exposure time** : 0.02 (sec.)  [0.1(sec.) for 50x50 only]

**Oscillation width** : 0.1 (deg.)

@Single, Helical

**Total Oscillation** : 180 (deg.)

**Max_hits** : 1 (point)

※Max_hits = Number of beam exposure point

@Small wedge (multi)

**Total Oscillation** : 10 (deg.)

**Max_hit** : 30 (points)
Agreement form for the automatic data collection

- Downloads the form from here. https://user.spring8.or.jp/ui/wp-content/uploads/F01-PA_e.pdf

- Send the form with a dry shipper at the first experiment for each proposal.

- Once the form is submitted, it is valid while the proposal is valid.

---

SPring-8 PX-BL Automatic Data Collection

1. Japan Synchrotron Radiation Research Institute (hereinafter referred to as “JASRI”) shall determine the shift allocation, beamtime allocation, and scheduled date of data collection upon receipt of request for the beamtime from the Project Leader appointed by the above organization (hereinafter referred to as the “Project Leader”).

2. The Project Leader shall submit the Application Form for SPring-8 Facilities and the information on the samples to JASRI at least 30 days before the scheduled date of data collection. Otherwise, the experiment mentioned above (automatic data collection) may not be conducted at the discretion of JASRI.

3. The Project Leader shall complete the form specified by JASRI (“Sample Sheet”) and submit it to JASRI at least two days before the scheduled date of data collection. Also, the Project Leader shall submit the samples and a hard disk for copying the data (hereinafter referred to as the “samples”) to JASRI by the means specified by JASRI at least a day before the scheduled date of data collection. Otherwise, the experiment mentioned above (automatic data collection) may not be conducted at the discretion of JASRI.

4. The experiment mentioned above (automatic data collection) shall be conducted to the extent described in the Sample Sheet submitted by the Project Leader and then issued to the Project Leader by JASRI upon confirmation of details.

5. The Project Leader shall agree to the following conditions regarding JASRI’s responsibility and indemnity:

   (1) The Automatic Data Collection shall be provided at the existing technical level obtained and accumulated through the conventional measurement at the beamlines operated by JASRI. JASRI shall not guarantee the automatic data collection beyond the level of the accuracy and validity of the obtained measurement results.

   (2) JASRI shall not be liable for any damages arising from the management, processing, measurement, and shipment of samples except in cases of willful misconduct.

   (3) JASRI shall not be liable for any damages caused to the samples as a result of reduced beamtime. JASRI will not compensate for reduced beamtime.

   (4) The number of valid samples shall be determined at the time of automatic data collection conducted by JASRI because JASRI cannot confirm the number of valid samples submitted by the Project Leader until the start of automatic data collection.

6. The Project Leader shall provide the information about the samples requested by JASRI.

7. The Project Leader shall take sufficient safety measures for the samples.

8. The Project Leader shall be responsible for both the cost of shipping the samples to JASRI and the cost of returning them from JASRI to the Project Leader.

Information provided in the solid-line boxes is excluded from the confidentiality requirement.
How to send sample to SPring-8 (1)

1. Address to send
   Recipient name: Yuki Nakamura, Phone: +81-791-58-0802 ext. 3362
   Address: SPring-8 Storage Ring Building room D21(between D2 and D3 doors)
     1-1-1 Kouto, Sayo-cho, Sayo-gun
   State/Province: Hyogo, Postal code: 679-5198, Country: JAPAN

2. Please ship the dry-shipper so that it arrives three days before the beamtime.
   It would take following days for delivery.
   Beijing, Shanghai: 4~7 days, USA: 4~5days, India: 8 (Based on our experience between Apr. and July, 2019)

3. Please send them to be delivered on weekday, because we cannot receive them on weekend.
   The date of Japanese national holidays are shown in pink in the beamtime table.
   (http://bioxtal.spring8.or.jp/ja/users/BL_Sch/2019B.pdf)

4. Let us know the tracking number, your beamtime and beamline by e-mail (mail-in@spring8.or.jp).

5. in Air Waybill, please check the “Bill duties and tax to: Sender”, otherwise they could be stopped at the customs for several days. (An example is shown in page 12)

6. In the commercial invoice, please write an explanation that your sample is not hazardous and research purpose only. (An example is shown in page 13)
   If you write just “sample”, there is a possibility that a delivery company call us to ask the detail of your sample. It could also delay the delivery.

7. Please prepare Air Waybill and invoice which is used for sending back your dry shipper. Write the name and address described in section 1 as a sender.

8. Please note on that we cannot take any responsibility for troubles or damages during delivery.
How to send sample to SPring-8 (2)

Check “Sender” in the payment section of Air Waybill

(Example in case of FedEx)

Check sender in both check box
### How to send sample to SPring-8 (3)

An example of commercial invoice in FedEx format

<table>
<thead>
<tr>
<th>COUNTRY OF ORIGIN</th>
<th>MARKS/NO'S</th>
<th>NO. OF PKGS</th>
<th>TYPE OF PACKAGIN</th>
<th>FULL DESCRIPTION OF GOODS</th>
<th>HS CODE</th>
<th>QTY.</th>
<th>UNIT OF MEASURE</th>
<th>WEIGHT</th>
<th>UNIT VALUE</th>
<th>TOTAL VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Frozen crystals of purified protein, nontoxic, apyrous, nonradioactive, noncorrosive, innocuous, nonexplosive, used only for scientific research.
  1. The samples are intended to lab testing only at SPring-8.
  2. The samples are laboratory samples, no commercial values.
  3. Manufacture is the shipper

- Hard disk unit for collection of measurement results

- Dry shipper
**Example of results using PX-BL automatic measurement (proprietary use)**

<table>
<thead>
<tr>
<th>Type</th>
<th>Compound screening</th>
<th>Crystal screening</th>
<th>Small wedge (multi mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experiment condition @ Spring-8 BL45XU</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Sample</td>
<td>78 pins (7 pucks)</td>
<td>128 pins (8 pucks)</td>
<td>73 pins (6 pucks)</td>
</tr>
<tr>
<td>Experimental time</td>
<td>6 hr 49 min</td>
<td>8 hr 13 min</td>
<td>11 hr 19 min</td>
</tr>
<tr>
<td>Average Experiment time par samples</td>
<td>5 min 15 sec</td>
<td>3 min 51 sec</td>
<td>8 min 23 sec</td>
</tr>
<tr>
<td>Beam size</td>
<td>20μm x 20μm</td>
<td>20μm x 20μm</td>
<td>10μm x 10μm</td>
</tr>
<tr>
<td>Flux</td>
<td>$1.73 \times 10^{13}$ photons/sec</td>
<td>$1.73 \times 10^{13}$ photons/sec</td>
<td>$9.75 \times 10^{12}$ photons/sec</td>
</tr>
<tr>
<td>Typical crystal size</td>
<td>200μm in length</td>
<td>50 - 150μm</td>
<td>5-20μm (Membrane protein-LCP)</td>
</tr>
</tbody>
</table>

**Automatic data collection by ZOO**

<table>
<thead>
<tr>
<th>Raster Scan</th>
<th>78 pins</th>
<th>Typical scan area : 250 x 200 or 400 x 300μm, Exposure = 0.02 sec / fr, 10% Flux</th>
<th>128 pins</th>
<th>Typical scan area : 250 x 200 or 300 x 250 or 550 x 450μm, Exposure = 0.02 sec / fr, 5% Flux</th>
<th>73 pins</th>
<th>Typical scan area : 600 x 550 or 800 x 700 or 1000 x 800 μm, Exposure = 0.02 sec / fr, 35% Flux</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Collect</td>
<td>77 pins</td>
<td>Mode = Helical, ΔΦ = 0.1deg / fr, TotalΦ = 360deg, Total dose = 10MGy, Exposure = 0.02 sec / fr, 100% Flux, Camera dist = 250mm</td>
<td>121 pins</td>
<td>Mode = Single (102pins) or Helical (9pins), ΔΦ = 0.2deg or 0.5deg / fr, TotalΦ = 360deg, Total dose = 10MGy, Exposure = 0.02 sec / fr, 1.2 or 2.9% Flux, Camera dist = 180 - 600mm</td>
<td>64 pins</td>
<td>Mode = Multi, ΔΦ = 0.1deg / fr, TotalΦ = 10deg, Total dose = 10MGy, Exposure = 0.02 sec / fr, 10.7 % Flux, Camera dist = 380mm</td>
</tr>
</tbody>
</table>

**Automatic data processing by KAMO (XDS)**

<table>
<thead>
<tr>
<th>Processed</th>
<th>Total : 77 sets</th>
<th>Indexing failed : 1set, Complete(comp. &gt; 90%) : 76 sets</th>
<th>Total : 121 sets</th>
<th>Indexing failed : 5set, Complete(comp. &gt; 94%) : 116 sets</th>
<th>Total : 940 sets</th>
<th>[outer shell] Resolution, Completeness, CC1/2, I / Sigma Sample A: 30, 287, $1.92 \text{Å}$, 99.6%, 57.2, 1.56 Sample B: 23, 446, $2.04 \text{Å}$, 99.8%, 83.2, 1.42 Sample C: 9, 190, 4.78 Å, 99.8%, 64.0, 1.94 Sample D: 2, 17, Processing was not possible due to a small number of data sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beyond 2.5 Å</td>
<td>36 datasets</td>
<td>Beyond 2.0 Å</td>
<td>33 datasets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.0 - 2.5 Å</td>
<td>35 datasets</td>
<td>3.0 - 2.0 Å</td>
<td>25 datasets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low resolution sets</td>
<td>5 datasets</td>
<td>Low resolution sets (12.4 - 3.8 Å)</td>
<td>58 datasets</td>
<td>Low resolution sets (9.17 - 3.03 Å)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Results of PX-BL automated measurement in 2019A/B (2019.4～2020.3)

<table>
<thead>
<tr>
<th>Proposal Type</th>
<th>Number of unique users (groups)</th>
<th>Total beam time (times)</th>
<th>Total beam time (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-proprietary</td>
<td>31</td>
<td>47</td>
<td>496</td>
</tr>
<tr>
<td>Proprietary</td>
<td>17</td>
<td>70</td>
<td>492</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>117</td>
<td>988</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proposal Type</th>
<th>Average time per beam time(hours)</th>
<th>Minimum time per beam time(hours)</th>
<th>Maximum time per beam time(hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-proprietary</td>
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Revision history
2019/9/11   Added information on how to write online application.
2019/9/12   Added page number
2019/9/18   Added “PX-BL automatic measurement operation rules” and “Calculation of measurement time” and “Automatic measurement time results at BL45XU”. Changed the sample destination.
2019/9/20   Add information on sample shipping and agreement form.
2020/2/19   Changed minimum beam time of BL32XU.
2020/5/28   Added contact information, examples of automatic measurement results.