

Purpose and Goal

- (1) Purpose : Study the feasibility of radiation resistant TV camera system required for alternative method.
- (2) Target : Cumulative dose of 2MGy and dose rate of 10kGy/h for radiation resistant.
As for camera head dimension /weight, set $\Phi 100\text{mm} \times 600\text{mm} / 4\text{kg}$ as a target specifications and study the feasibility of down sizing.

Overview and Feature

- Project overview
Study the feasibility of function/performance required for TV camera system as follows. (Refer to Fig. 1)
 - TV camera radiation resistant
 - Radiation resistant lens
 - Lighting function and radiation resistant
 - Pan/tilt function and radiation resistant
 - Build the radiation resistant camera system based on the items above.
- We have various kinds of technologies and experiences related to the radiation resistant TV camera.
- Study feasibility for whole system based on those above.
- Study the feasibility of small radiation resistant zoom lens aiming at the down sizing of the camera head part.

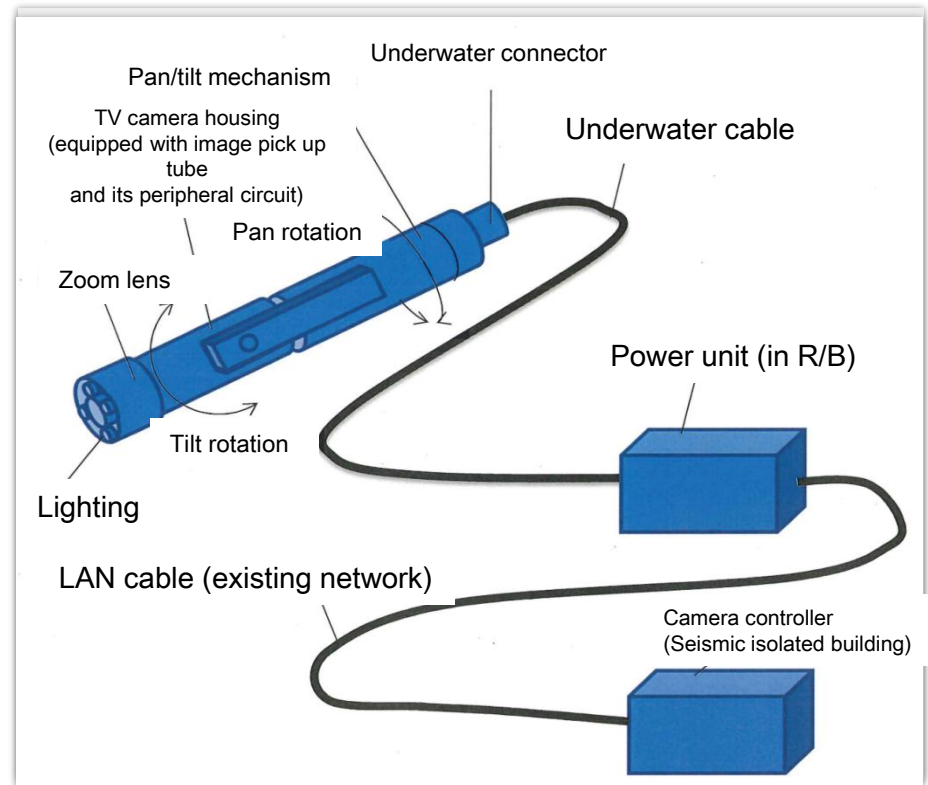


Fig.1. Assumed radiation resistant TV camera system drawing
(At the time of the completion of R&D)

Output so far/Output expected

	(1) Output so far	(2) Output expected
Camera head	<ul style="list-style-type: none"> Selected image pick-up tube, deflection yoke Started TV camera circuit detail design 	<ul style="list-style-type: none"> Function/performance evaluation results after the trial production and target dose irradiation.
Lens	<ul style="list-style-type: none"> Specifications on single focus lens for the trial production is being studied. 	<ul style="list-style-type: none"> Trial production for radiation resistant single focus lens. Optical Results of performance evaluation after the target dose irradiation.
Cable	<ul style="list-style-type: none"> Complete the selection of sheath materials Designing combined cable for evaluation 	<ul style="list-style-type: none"> Results of performance evaluation after the trial production and target dose irradiation.
Lighting	<ul style="list-style-type: none"> Complete the selection of LED Designing LED lighting for evaluation 	<ul style="list-style-type: none"> Results of performance evaluation after the trial production and target dose irradiation
Pan tilt mechanism	<ul style="list-style-type: none"> Selected motors Designing pan tilt mechanism structure for evaluation 	<ul style="list-style-type: none"> Results of performance evaluation after the trial production and target dose irradiation.
Overall system	<ul style="list-style-type: none"> Designing integrated camera system for evaluation 	<ul style="list-style-type: none"> Overall function of TV camera system for evaluation and results of performance evaluation Results of study on the down sizing/weight saving, and mountability to the transfer equipment.

Overall Schedule

Milestone1 : Irradiation test (First)

Purpose : Components and material radiation resistant evaluation

Date : End of Jan. 2015 (Plan)

Milestone2 : Irradiation test (Second)

Purpose : Radiation resistant evaluation for prototype TV camera system for evaluation .

Date : Mid-Mar, 2015 (Plan)

➤ Irradiation conditions (plan) are as follows :

Dose rate : 10kGy/h

Cumulative dose : 2MGy

Current progress status : For the irradiation test to be conducted as milestones 1 and 2, we are selecting the components and materials, evaluating and designing the each element.
(For detail, please refer the previous page.)