



MIDDLE EAST TECHNICAL UNIVERSITY

Research and Application Center for Space and Accelerator Technologies

Üniversiteler Mah. Dumlupınar Blv. No:1, ODTÜ Araştırma Parkı 2. Kat 06800 Çankaya Ankara/TÜRKİYE

Phone: +90 312 210 83 83 e-mail: ivmer@metu.edu.tr web: https://ivmer.metu.edu.tr/

TEST/SERVICE REQUEST FORM

DELIVERY INFO							
	Mail	By Hand	Cargo	Comment (If you would like your shipments sent to a different address, please specify.)			
Final Report / Qualification Certificate/ Invoice	☐	☐	☐				
SAMPLE/DEVICE INFORMATION							
No	Material / Electronic Component Name	Definitions and Explanations					
		Name and Chemical Composition of the Material to be Irradiated	Radiation Flux	Measures to be taken	Irradiation Time	Potential Dose Amount in Irradiated Areas (Simulation)	Size / Mass
1							
2							
METHOD INFORMATION (Please fill in the information according to the sequence number specified in the "Material / Electronic Component Information" section)							
No	Material/Electronic Component Name	Number of Samples	Method Description	Planned Delivery Date	Requested Completion Date		
1							
2							
OTHER INFORMATION (Please fill in the explanations according to the sequence number indicated in the "Method Information" section)							
No	Explanations					Previous ODTU-IVME-R Certificate/Report No. (If any)	
1							
2							
RADIATION TEST INFORMATION (Please add any test requests not listed)							
Test Name	Material/Electronic Component to be Tested	Method	Procedure	Profile / Category	Duration		

NOTLAR	
1-	The material/electronic component must be described as requested in the Results Report or Certificate.
2-	In the Description and Explanations section, the dimensional and mass characteristics of the material/electronic component, its identifying code number, batch/serial number, manufacturer, brand, model, and especially the material content information must be provided. If possible, references should be made in this section, and documents containing this information, such as material content, drawings, specifications, etc., should be attached to the application form so that the secondary radiation dose effect can be examined.
3-	Unless there is a specific request from the customer regarding the service, the analysis/test will be performed according to the ECSS 25100 standard, and the conformity assessment of the results will be left to the customer.
4-	If a conformity assessment is requested for the service, the assessment criteria must be submitted to METU IVMER before the offer is accepted.
5-	In order to determine the feasibility, pricing, and execution of the radiation test, the test service must be provided in the application form or its annexes, and METU IVMER must make a plan based on this information.
6-	ODTU IVMER is not responsible for performing functional control tests on the tested Material/Electronic Component Device.
7-	The requested method should be explained in the "Other Information" section. (If possible, the relevant national/international standard number should be specified).
8-	This form is for application purposes only. Provision of the requested service is possible only upon acceptance of the application by ODTU IVMER. After your application is evaluated by ODTU IVMER, a price quote will be sent to you via email.

FILLED BY METU IVMER			
Doc. Reg. Number		Experiment Start – End Date	
Application Date		Experiment Fee	
Experiment Approval		Name, Surname and Signature	



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MIDDLE EAST TECHNICAL UNIVERSITY

THE RESEARCH AND APPLICATION CENTER FOR SPACE AND ACCELERATOR TECHNOLOGIES (IVMER)

DEFOCUSING BEAM LINE (DBL)

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GENERAL INFORMATION

METU-DBL, with the support of the Presidency of Strategy and Budget, started its construction in 2015 within the scope of the İMECE Satellite Infrastructure Development Project carried out by the Presidency of Defense Industry, with knowledge transfer from the European Nuclear Research Center (CERN), and was accepted by the Presidency of Defense Industry in 2019. Since 2020, it has been serving to carry out Space Radiation Tests in accordance with the ESCC-25100 standards published by the European Space Agency.



Tests conducted under the ESA ESCC-25100 standard are performed with beam parameters having the characteristics given in the table below.

Kinetic Energy	15 – 30 MeV
Radiation Area	15,40 cm x 21,55 cm
Flux	$10^5^* - 10^8$ p/cm ² /s
Flux Homogeneity	±%10

* Performing the test with a low flux is subject to an additional fee.

TEST REQUEST AND PRE-TEST PROCESS

To request testing services at METU-DBL, the request form must be downloaded from <https://ivmer.metu.edu.tr/formlar> at least one month before the test date and sent to METU IVMER at accumulator@metu.edu.tr. After the request form is submitted and approved, the following steps will be followed:

- Radiation dose calculation based on orbit and mission duration (if requested and for an additional fee) (within two weeks of request approval)

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- Facility visit and infrastructure check (the week following request approval)
- Sharing information about the material to be tested for radioactivation calculation (the week following request approval)
- Test technical evaluation meeting (the second week following request approval)
- Preliminary setup and functionality testing at the applicant's facilities (the third week following request approval)
- Setup and functionality testing at METU-DBL (the day before the test in the worst-case scenario, preferably two days before)

If the test needs to be canceled for any reason, this must be reported in writing to ODTÜ İVMER at least 48 hours before the test date. For notifications made after this time, the test fee will be billed in full.

The following services are offered free of charge on the ODTÜ-SDH infrastructure:

- Isolated or non-isolated network infrastructure between the irradiation room and the control room.
- Switching on/off via relay for power supplies that are not remotely controlled.

The services offered for a fee on the ODTÜ-SDH infrastructure are shown in the table below.

Device/Service	Fee (EUR)
Irradiation (Hourly)	1000
Dose measurement with Alenin Dosimeter	40
Oscilloscope (Teledyn Lecroy) (Hourly)	90
Oscilloscop (Keysight EXR25A) (Hourly)	180
Power Supply (Keysight E3631A) (Hourly)	40
Power Supply (TDK Lambda GEN50-200) (Hourly)	90
DAQ (Keysight 34970A) (Hourly)	90
Network Analyzer (Keysight M9375A) (Hourly)	180
Leaded Box (Daily)	40
Radioactive waste disposal (for each waste)	180

Additionally, the following services are offered for a fee:

- Material holder manufacturing,
- Use of refrigerated vacuum boxes (up to -103 torr pressure),
- Cooling water supply (up to 10kW).

TESTING AND POST-TEST PROCESS

On the day of the test, all checks must be completed before the test time. Therefore, it is necessary to be present at the facility at least three times the duration of the functionality test. The test is performed at the scheduled time after the functionality tests are completed. If a non-conformity is found during the functionality test performed on the day of irradiation, ODTÜ İVMER cannot be held responsible for the inability to perform the test. In this case, the costs of the test and the products produced as a result of the work will still be invoiced.

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After the completion of the test, when the radiation dose rate in the Irradiation Chamber allows entry, ODTÜ IVMER personnel measure the radiation dose rate of the tested material. If the radiation dose rate of the tested material is within the levels permitted by the Radiation Safety Regulation, the tested material and other test equipment may be disassembled and transported by the requesting party. If not, depending on the radiation dose rate, ODTÜ IVMER personnel may decide to move the tested material to a cooling cabinet or leave it on the test table. The tested material can only be delivered when the radiation dose rate falls below the level permitted for transport by the Radiation Safety Regulation. Delivery can be made in person or via cash-on-delivery courier.

A report on the test parameters will be sent electronically to the applicant by METU IVMER in the week following the test. If a printed copy of the report is desired, it can be prepared in print and delivered in person or via cash-on-delivery courier for a fee.

Notes:

- 1- Fees for academic studies may differ from the advertised fees. This matter should be discussed with the METU IVMER management.
- 2- To access the test facility, the full name and Turkish National Identity Number (TCK number) of everyone participating in the test must be submitted to METU IVMER personnel at least 48 hours before the test. Otherwise, METU IVMER cannot be held responsible for any access problems that may arise.
- 3- Before the test, the METU IVMER Radiation Protection Officer will provide training on "Radiation and Radiation Protection" to the personnel participating in the test, and an exam will be administered at the end of the training. Those who fail the exam will not be able to access the test facility.
- 4- To ensure compliance with general occupational safety rules and radiation protection rules, personnel participating in the test must comply with the guidance and warnings of METU IVMER personnel.

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