



**Commission for the Protection
From Ionising and Non-Ionising Radiation**

F22, Mosta Technopark,
Triq Valletta,
Mosta
Email: info.rpc@gov.mt
Website: rpc.gov.mt
Tel: 27998676

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**Annual report of the Commission for the
Protection from Ionising and Non-Ionising Radiation for 2022**

Pursuant to Article 11(6) of the Nuclear Safety and Radiation Protection Act, Cap 585 the Commission for the Protection from Ionising and Non-ionising Radiation is presenting this report for the attention of the Minister.

This is the fifth report produced by the Commission and covers the period from 1st January 2022 to 31st December 2022.

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1. Executive Summary

2022 was the fourth full year of operation of the Commission for the Protection from Ionising and Non-Ionising Radiation (the Commission). On the 14th of April 2022, the Commission moved from the ministerial portfolio of the Ministry for Tourism and Consumer Protection to that of the Ministry for Inclusion, Voluntary Organisations and Consumer Rights.

The Commission's Mission and Vision Statements:

Mission Statement	To allow and regulate the beneficial and justified uses of ionising and non-ionising radiation for the well-being of the population and the environment.
Vision Statement	A culture that allows for the beneficial uses of radiation, safely.

The lifting of COVID precautions along with the employment of staff for the Commission allowed for the Commission to increase its activities in 2022. The Commission fully established itself in its premises within the Mosta Technopark.

The Commission has worked endlessly to ensure that Malta fulfils its European and International regulatory obligations. During this year, the Commission addressed the issues raised by the European Commission (EC) in relation to the transposition of the Basic Safety Standards Directive. With respect to the EURATOM Nuclear Safeguards and the Nuclear Safety and Radioactive Waste Management directives, all necessary reports were sent to the EC and the International Atomic Energy Agency (IAEA) as appropriate.

As part of our obligations under the EU, the Commission hosted an International Atomic Energy Agency (IAEA) international peer review mission on the management of radioactive waste.

The Commission participated in a number of national technical cooperation projects which were co-funded by the IAEA and regional technical cooperation projects, solely funded by the IAEA. These projects enhanced Malta's regulatory structures through provision of a substantial amount of equipment and provision of technical advice and training.

The Commission continued to pursue its effort to ensure optimisation of the radiation exposure to individuals by developing policies within the medical field and beyond. During this reporting period, the Commission issued guidance on diagnostic reference levels for medical imaging purposes and clarified the criteria for approval of Radiation Protection Experts.

The Commission is also committed to the education and training on topics related to radiation protection legislation and its Secretariat was involved in several training events.

Despite the challenges posed by insufficient staffing of the Secretariat, the Commission endeavoured to fulfil its legal obligations emanating from the Act. The Commission continues to recognise that the Secretariat has insufficient human resources to comply with its legal obligations under the Act and to rectify this, the Commission did all in its powers to increase the staffing of the Secretariat. Of concern is the fact that the Commission has not started regulatory activities in relation to non-ionising radiation. The Commission remains committed to see through all its obligations to the best of its capabilities.

2. Conduct of the Affairs of the Commission

2.1. The Structure and functioning of the Commission

The Commission consists of a chairperson, deputy chairperson, nine independent expert members and a Secretariat to perform its executive functions, as outlined in Figure 1.

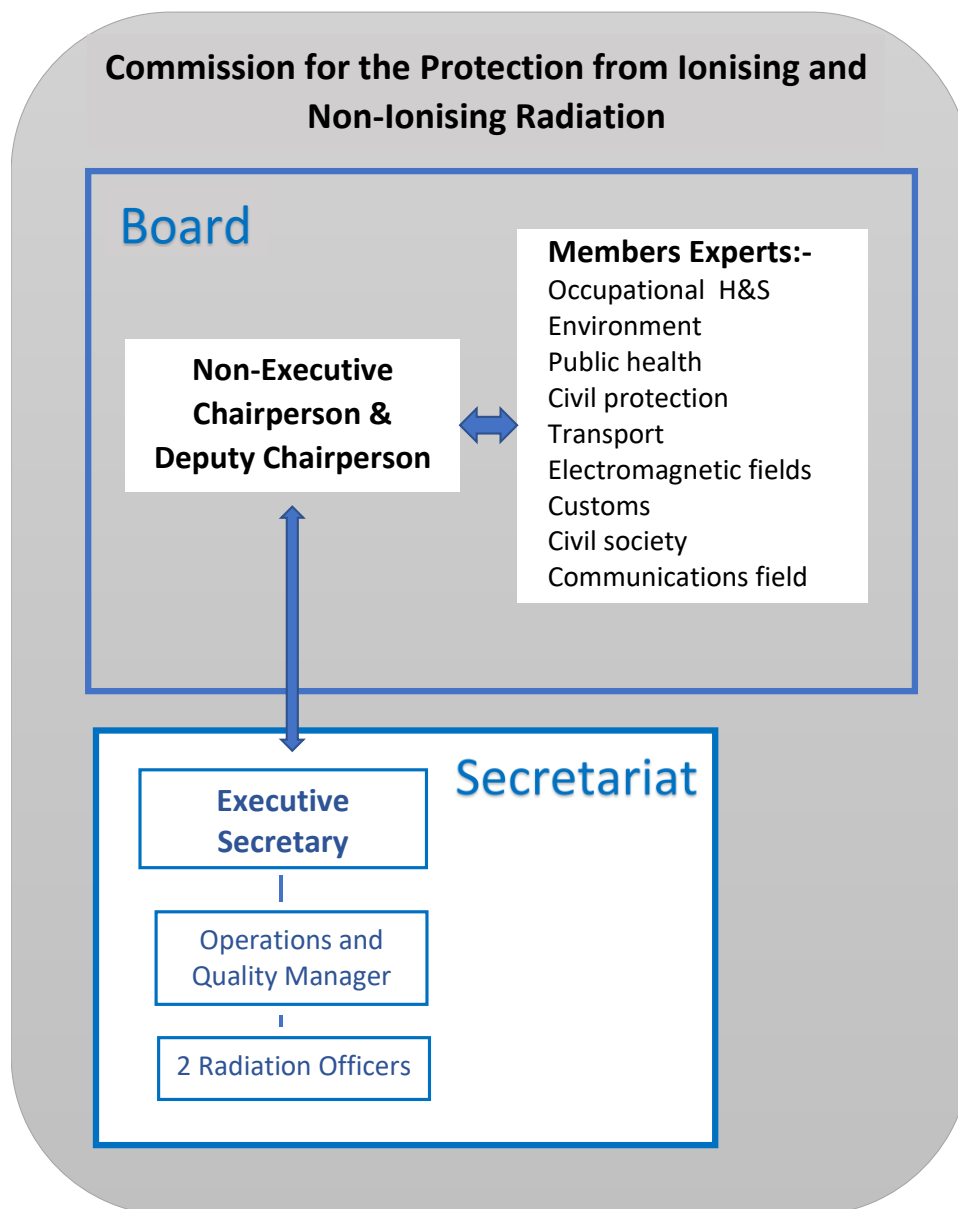


Figure 1 Structure of the Commission in 2022.

During 2022 the Commission held ten meetings, the first four meetings of the year were held online due to the COVID-19 restrictions, following that the Commission reverting to in person meetings. Four different sub-groups were established within the Commission. Each sub-group included expert members from the Commission and invited experts. The choice of experts depends mostly on the policies addressed within the sub-group and these sub-groups

met as often as required, together with members of the Secretariat, to draft policies addressing obligations, policies and documentation on:

- **Legislative reform:**

Discussed the need to make legal amendments to enhance the legal personality and responsibility of the Commission. The work of this group led to the publication of SL 585.04 (<https://legislation.mt/eli/sl/585.4/eng>)

- **Radon assessment**

This group works on developing the Maltese actions with regard to the protection from radon through the development of the Maltese Radon Action Plan and performed a new survey on radon (see section 12 of this report).

- **Approval criteria for Medical Physics Experts and Radiation Protection Experts**

This group developed the Commission's approval criteria for Medical Physics Experts and Radiation Protection Experts (<https://rpc.gov.mt/wp-content/uploads/2022/11/DOC-54-MPE-Criteria.pdf> , <https://rpc.gov.mt/wp-content/uploads/2023/02/RPE-Approval-Criteria-22-July-2022.pdf>)

- **Education and training**

This group is working on developing training requirements for persons working with ionising radiation.

2.2. The Secretariat

The staff compliment of the Secretariat by the end of the year was composed of four persons. Two senior Occupational Health and Safety Authority employees were deployed to the Commission in February 2022, to the grades of Principal for Radiation Protection and Manager. The Principal for Radiation Protection was appointed by the Minister as the Executive Secretary whilst the Manager fulfils the role of Operations and Quality Manager. The Commission also has two Radiation Officers, one of whom was employed in March 2022.

2.3. Commission Premises

During 2022 the Commission was operating from its premises at the Mosta Technopark. The premises includes office, training areas, and a laboratory for the analysis of environmental samples.

2.4. Website

The Commission website went on-line for the first time in 2022 (<https://rpc.gov.mt/>)

2.5. Commission Budget

The Commission's budget for 2022 remained at the same amount as 2021, namely: €320,000.

Part XV of the Cap 585 does not apply as the Ministry is responsible for managing the Commission's budget.

3. Inventory of users of radiation in Malta

In 2022, the number of employers (undertakings) that notified the Commission about uses of ionising radiation was 227, as shown in the table below.

	Number of sites
Radiotherapy	1
Nuclear Medicine	3
X-ray diagnostic	24
Dental	125
Veterinary	29
Industrial NDT	6
Industrial other quality control	21
Security Screening	7
Central storage facility	1
Suppliers	8
Total	227

4. Legislative Reform

The Basic Safety Standards for Ionising radiation Regulations (SL585.01) were amended via legal notice (LN 139/2022) in May 2022 to be in line to the requirements of the EU and satisfy some of the issues raised in the infringement procedure infringement 2021/2097.

5. Guidance documentation

5.1. Diagnostic Reference Levels

In January 2022 the Commission published guidance following consultations with stakeholders on the use of diagnostic reference levels (DRL) for medical exposures. DRLs are levels used in medical imaging to indicate whether, in routine conditions, the dose to the patient or the activity of radiopharmaceuticals administered in a specified radiological procedure is unusually high or unusually low for that procedure. The establishment and periodic review of DRLs is an essential component of this optimisation process. The analysis of DRL values over time can be useful in identifying dose trends which in turn can be used in the process of optimisation. The Commission would like to thank Mater Dei Hospital for their invaluable input provided for developing this document.

5.2. Controlled and Supervised Areas

To help in the protection of workers and other persons, the Commission issued guidance on the requirements for controlled and supervised areas in May 2022. Undertakings are required to set up either controlled or supervised areas in which they perform activities with ionising

radiation (<https://rpc.gov.mt/wp-content/uploads/2022/11/DOC-56-Control-and-Super-Guide.pdf>).

5.3. Radiation Protection Experts

To clarify the approval criteria for Radiation Protection Experts the criteria document was amended, and it was re-issued in July 2022.

6. European Commission Regulatory issues

6.1. Transposition of EU Basic Safety Standards Directive

The European Commission issued a letter of formal notice (infringement 2021/2097) in July 2021 with regard to the Maltese transposition of the Basic Standards Directive. The Commission replied to all issues raised by the European Commission. The Basic Safety Standards for Ionising Radiation Regulations (SL585.01) were amended via legal notice (LN 139/2022) in May 2022. The European Commission closed its proceedings in September 2022.

6.2. Transmission of Environmental monitoring results to the EU

The Commission collates environmental monitoring results which are then reported to the European Commission.

These results are derived from the sampling of air particulates, seawater and soil by the Environmental and Resources Authority (ERA), and the drinking water, milk and food by the Environmental Health within the Department for Health Regulation (EHD), following a National Environmental Monitoring Plan. These results are transmitted on an annual basis to the European Union Joint Research Centre's Radioactivity Monitoring Database.

ERA's gamma dose monitoring stations have their data transmitted directly to the EU and are included in the European dose rate map <https://remap.jrc.ec.europa.eu/Simple.aspx>

6.3. Reporting under EURATOM Nuclear Safeguards

The Secretariat sent all the necessary reports on the nuclear material accountancy to the European Commission as required under the trilateral EU/IAEA nuclear safeguards agreements.

7. International obligations

7.1. Joint Convention on Radioactive Waste Management - 7th Review cycle

Malta as a contracting party to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, is required to attend review meetings and report on Malta's compliance with the obligations set out in the Convention.

During the review meeting held at the IAEA headquarters in Vienna held in June 2022 the Executive Secretary presented the Maltese report and replied to the questions posed by other contracting parties to the Convention.

7.2. Convention of Nuclear Safety. Report - 8th and 9th Review cycle

Malta is a contracting party to the Convention on Nuclear Safety and thus is required to attend review meetings and report on Malta's compliance with the obligations set out in the Convention.

The Maltese report was prepared and submitted to the IAEA in 2022 ahead of the review meeting that will be held in March 2023.

7.3. Incident and Trafficking Database

The Commission receives and distributes reports from the IAEA's Incident and Trafficking Database (ITDB) to the relevant Maltese stakeholders. This database is the IAEA's information system on incidents of illicit trafficking and other unauthorized activities and events involving nuclear and other radioactive material outside of regulatory control. In 2022, a total of 147 notifications were received.

8. Regulatory Inspections

During 2022 the Secretariat performed 100 inspections of undertakings that use ionising radiation.

9. Recognition of experts

As required by the regulations, in 2022, the Commission recognised 6 Radiation Protection Experts and 11 Medical Physics Experts.

10. International peer review of radioactive waste management

Malta hosted a six-day Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation (ARTEMIS) mission in October 2022.

The review team noted *"...the remarkable work done by the Maltese authorities in ensuring safety of waste in Malta given the human resources available. The review team considered that Malta is managing radioactive waste and Disused Sealed Radioactive Sources in a safe and responsible manner. The review team identified recommendations and suggestions to maintain and further improve the safe management of radioactive waste and Disused Sealed Radioactive Sources in Malta"*

11. Radioanalysis Laboratory

Significant progress was made in 2022 in setting up a laboratory to detect radioactivity in food and environmental samples. The Commission gave priority to setting up an emergency testing facility, in case a nuclear or radiological emergency occurs, anywhere in the world which would be of concern to Malta. This became even more important with the current conflict in Europe and thus the associated higher chances of a radiological accident. Significant effort was devoted to have this equipment operational. A summary of the equipment and testing capabilities is outlined below.

11.1. Key equipment in the laboratory:

- A Canberra high purity germanium gamma spectrometer system, shown in Figure 2, was installed at the end of October 2022. This equipment worth €88,000 was supplied through an IAEA regional project (RER7014)
- An unutilised PerkinElmer Tri-Carb liquid scintillation counter manufactured in 2004 was relocated and recommissioned in August 2022.

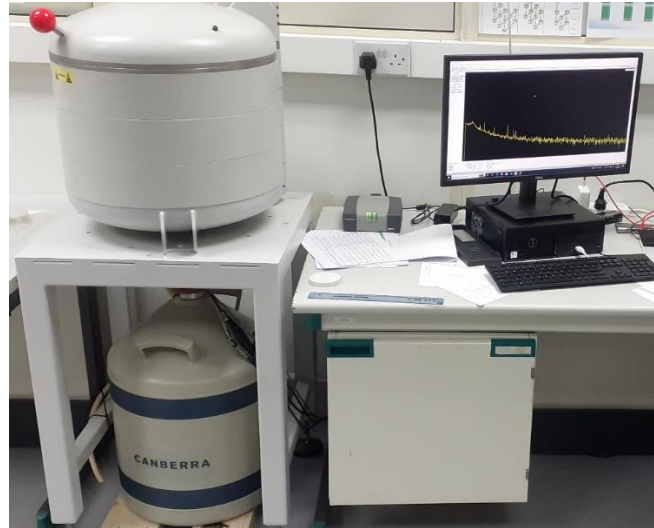


Figure 2 Canberra high purity germanium gamma spectrometer

Gamma analysis

The gamma spectrometer system was installed, and it is used for the analysis of air-borne particulate matter that have been captured on high-volume airfilters. A typical result is presented in Figure 3, illustrating the background measurements along with the high-volume air filter.

Sample Gamma Spectra of high volume air filter and background

(Highlighting some of the photo peaks)

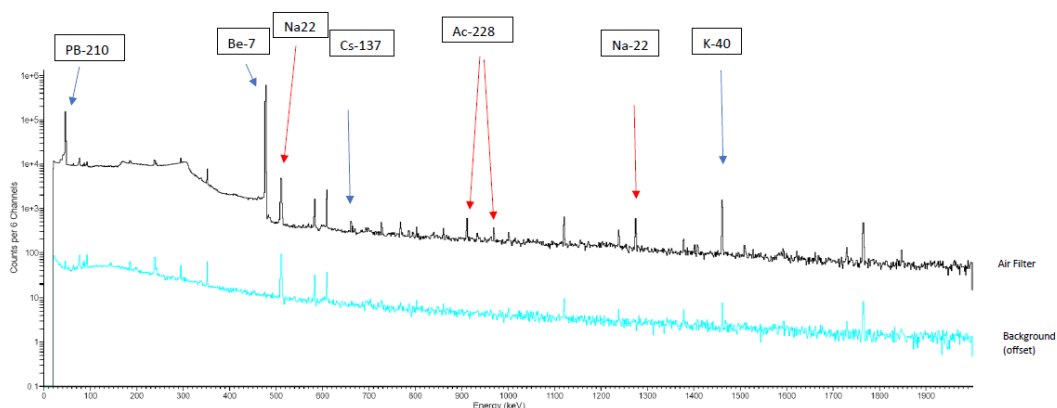


Figure 3 Sample Gamma Spectra of high-volume air filter with background.

11.2. Beta Analysis

Performance testing of the liquid scintillation counter started towards the end of 2022. This will help in the monitoring of radioactivity in seawater and other liquid materials.

12. Radon

In line with the Radon Action Plan, which the Commission developed in line with Regulation 127 of SL 585.01, a survey of the radon levels in subterranean work areas was performed. The results had a range of 59 to 220 Bqm⁻³ and all results were below the reference level of 300Bqm⁻³.

Figure 4 Examples of the subterranean work areas.



13. Non-ionising Radiation

The Commission was unable to effectively start any work on the regulation of non-ionising radiation due to lack of resources in the Secretariat.

The Commission being aware that more attention needs to be paid to the issues related to non-ionising radiation, and priority to this area will be given once the human resources plan is implemented and new staff are recruited.

14. Training and Outreach

Through one of the sub-groups, the Commission started working on policies for radiation protection training. This sub-group met once in 2022.

As part of its outreach programme the Commission has held two general courses on radiation legislation and tailored courses for undertakings as well as giving a presentation at national conference run by the Society of Medical Radiographers.

The Commission gave assistance to the IAEA by hosting regional meetings here in Malta and providing staff to assist the IAEA in training of international peer reviewers and performing peer reviews in other countries.

A senior member of the Secretariat was selected by the IAEA to be an IRRS reviewer for the missions in Slovenia and Bangladesh in 2022.

15. IAEA support to the Commission

Malta receives assistance from the IAEA through various technical cooperation projects (TCPs). Proposals for TCPs are written by member states of the IAEA and then submitted for evaluation and review to the IAEA. When awarded, national TCPs are run on a two-year project cycle and may be nearly fully funded by the IAEA or co-funded with the member state. The ongoing TCPs and those ending in 2022 are summarised below.

Through the collaborative work with the IAEA the Commission has received substantial support in the way of training and equipment procurement which in 2022 exceeded €100,000.

15.1. MAT 9009: Enhancing National Capabilities on Radioactive Waste Management and Disposal of Radioactive Waste

In 2021, the IAEA approved a proposal submitted by the Commission for an ARTEMIS mission to Malta in 2022 and provide expert advice in 2023 in order for Malta to assess disposal options for radioactive waste as part of the Maltese radioactive waste management programme. Malta contributed 50% of the total project cost of €46,400 towards this project.

15.2. RER 7014: Improving Environmental Monitoring and Assessment for Radiation Protection in the Region

The Commission working with ERA, set up a radioanalytical laboratory located at the Commission's premises in Mosta. The equipment costs about €88,000 and was funded through this IAEA regional project. The equipment is being used for the gamma analysis of environmental samples.

15.3. MAT 9010: Monitoring of Gaseous Radioactive Iodine in the Air

The overall aim of the project is to strengthen the existing environmental monitoring capacities in Malta with the additional monitoring of the radionuclide Iodine-131 in air, which will fall under the responsibility of ERA. Malta will be contributing 5% of the total project cost of €67,180, towards the completion of this project. ERA monitors the levels of various radionuclides in air and reports this data to the Commission, which in turn reports to the European Commission.

The equipment is expected to be delivered in the coming months and will be installed in Bengħajsa, alongside the existing radiation monitor which measures the levels of alpha and beta radiation. The monitoring site in Bengħajsa also hosts the high-volume sampler which ERA utilises to sample air particulates and analyse the levels of radionuclides in air. The project includes a training aspect, where two members of ERA will participate in a fellowship to acquire skills on radioiodine monitoring. An expert will be visiting Malta to help with the set-up of the radioiodine monitor. ERA is also in communication with the IAEA to further discuss other training courses it could benefit from, as part of this project.

15.4. Design of national TC project for 2024-2025 for the Commission.

The Commission submitted to the IAEA a proposal for a national project designed to:

- train the newly employed staff in the regulatory body on specialised topics.
- expand the radio-analysis laboratory monitoring capabilities for the detection of radioactivity in environmental media, food and water for routine and emergency situations.

16. Future priorities for the Commission

The key priority is to ensure that the Secretariat is adequately staffed with trained personnel.

The following issues need to be addressed.

- i. Regulation of non-ionising radiation as deemed relevant.
- ii. Review the findings of the IRRS and ARTEMIS missions, in preparation for the next missions.
- iii. Develop training framework for undertakings.
- iv. Extend the testing capabilities of the radioanalytical laboratory.
- v. Review of Environmental monitoring procedure.
- vi. Further development of radon policies.
- vii. Consider the need to join the Convention on the Early Notification of a Nuclear Accident and Convention on Assistance in a Nuclear Accident or Radiological Emergency



Dr Lourdes Farrugia
Chairperson
April 2023



Mr Paul Brejza
Executive Secretary
April 2023