

DoIMo SIM

Training set for simulation of Gamma dose and dose rate



The new training devices DoIMo SIM (dose and dose rate meter) and CoMo-170 SIM (contamination detection device) are designed for the practice-oriented training of radiation protection officers and first responders. The technically modified devices respond to radio waves (DoIMo SIM) or to magnetic fields (CoMo SIM) and can therefore be used for training scenarios even without radioactive sources.

Benefits

- Realistic display of measured values
- Display of large-area contamination (CoMo SIM) or large areas with increased dose rate (DoIMo SIM)
- No radioactive sources no radioactive sources needed
- Training in the fictitious mSv range without real dose exposure
- Training with fictitious overflow messages (out of measurement range)
- No handling permit required
- No transport of radioactive sources

Key figures

Approx **100** mSv/h

➔ Max. dose rate range DoIMo SIM

>**3** Gamma

➔ Training sources can be used for the DoIMo SIM

>**40** Meter

➔ Range of the DoIMo SIM radio source

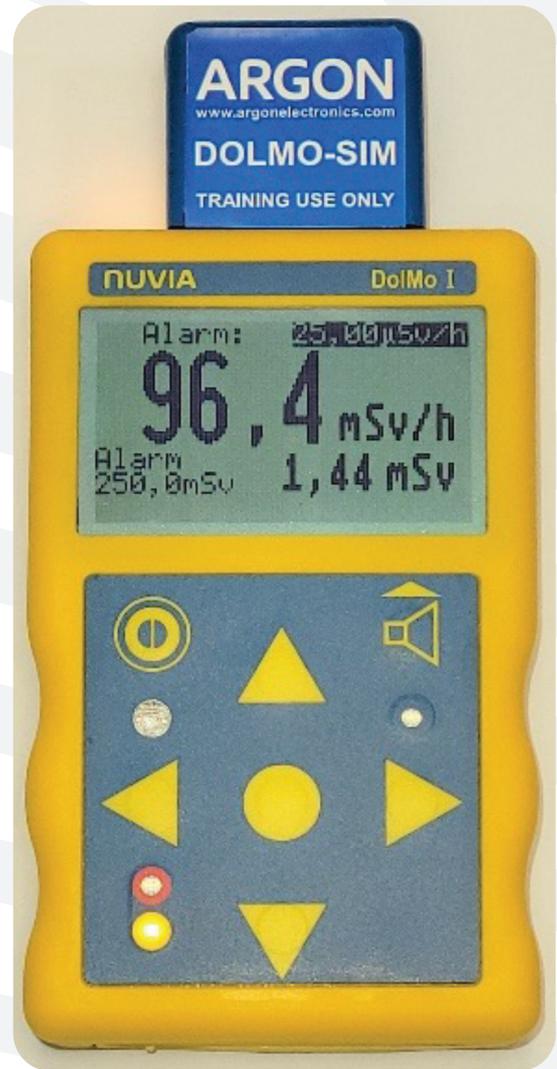
Technical details DoIMo SIM with RAD-SIM GS4-A Gamma simulation source

Technical data DoIMo SIM: The DoIMo SIM largely has the same features as a regular DoIMo. Depending on the desired firmware version, it corresponds to the DoIMo F or the DoIMo I standard device for the fields of nuclear power and medicine.

Measuring and display range: up to 96.4 mSv/h, can only be used in combination with the RADSIM GS4-A Gamma simulation source. The measuring device is designed for training purposes only. The DoIMo F SIM (version for fire department operations) features dose and dose rate warning thresholds according to the German Fire Department Regulations 500 (25 µSv/h, 1, 15, 100, 250 mSv). In the standard version, the warning thresholds can be set as needed.

Simulation source: The RADSIM GS4-A gamma simulation source has 9 factory set activity levels. At simulated activity level 9, an approximate distance of 50 m or 160 feet can be expected. The source features a selector switch for easy adjustment of the desired fictitious activity.

| Level | Activity | Dose Rate [µSv/h] | | |
|-------|-----------|-------------------|----------|-------|
| | | 1 m | 1.8 m | 10 m |
| 1 | >15 MBq | 1.45 | 0.47 | 0.1 |
| 2 | >300 MBq | 25.4 | 7.9 | 0.38 |
| 3 | >950 MBq | 75.2 | 24.6 | 0.97 |
| 4 | ≈ 300 GBq | 23,300 | 7,400 | 274 |
| 5 | ≈ 600 GBq | 48,300 | 15,400 | 559 |
| 6 | ≈ 900 GBq | 71,900 | 22,700 | 821 |
| 7 | ≈ 1.5 TBq | overflow | 36,500 | 1,370 |
| 8 | ≈ 3 TBq | overflow | 77,000 | 2,720 |
| 9 | ≈ 7 TBq | overflow | overflow | 5,160 |



DoIMo SIM



Example: Hazard labels for radioactive substances

Proposals for training

Determine hazard zone – Place one or more radio sources in a damaged vehicle (possibly with real signage) or in a debris field and have the emergency services mark the restricted area (e.g. at 25 $\mu\text{Sv/h}$) around the vehicle or the debris field. Different distances can be achieved by shielding the radio source on one side with lead or steel plates.

Check transport packages – Prepare several packages with hazard labels for radioactive substances. Write down a transport index from 0.1 to 0.9 and a nuclide such as I-131 or Co-60. Position the RADSIM GS4-A Gamma simulation source behind the packages and change the position of the selector switch as desired. The trainee's task is to compare the different dose rate readings on the DoIMo SIM with the calculated value at a distance of 1 meter. If the measured value is below the calculated value (total transport index $\times 10 = \text{max. dose rate in } \mu\text{Sv/h}$ at a distance of one meter from the packages), it can be assumed that the shielding has not been damaged, e.g. after an accident.

Track down a lost source after a satellite crash, accident or act of war – Hide one or more radio sources in a thin-walled metal box or in a cardboard box and hide them in a debris field, wooded area or away from an accident site. Then select a low activity level to make the task more difficult.



Vehicle signage with orange warning sign and class 7 transport sign