TERMS OF REFERENCE (TOR)

ASSESSMENT OF RADIATION IMPACTS FROM THE ROOFTOP ANTENNA MAST TO THE 5TH FLOOR – PITMAN HOUSE

1. TOR Information

TOR Information	Details
Procuring Entity	Médecins Sans Frontières – Eastern Africa (MSF EA), Nairobi, Kenya
Requesting Unit	MSF EA Facilities
Assignment	Independent radiation impact and exposure assessment of rooftop antenna mast and relevant accessible areas down to the 5th Floor
Location	Pitman House, Nairobi – rooftop, 5th Floor and relevant access/maintenance areas
Assignment Duration	The Consultant shall propose a detailed implementation schedule covering site work, draft reporting, MSF review and final report submission. The agreed completion period will be confirmed in the contract.
Type of Engagement	Specialist radiation survey, exposure and compliance assessment consultancy

2. Background

MSF Eastern Africa seeks an independent assessment of potential radiation exposure associated with antenna installations located on or around the roof of Pitman House. The area of interest extends from the rooftop to the topmost occupied/accessible floor (identified in the source ToR as the 5th Floor), including access routes and locations where workers may approach transmitting equipment.

The consultant shall verify the antenna/source inventory, obtain available operator technical data through the agreed site coordination arrangements, and establish the measurement-location plan during the inception phase.

3. Objective of the TOR

To engage a suitably qualified specialist to measure and assess radiation exposures associated with relevant installations at Pitman House, establish an auditable baseline from the rooftop to the 5th Floor, assess occupational and public exposure against applicable requirements, and issue technically supported recommendations and a final assessment report.

4. Specific Objectives

1. Identify and characterise radiation-emitting installations, including their orientation, output, frequency/energy and operating conditions where relevant.
2. Map relevant building areas and select representative and higher-risk measurement locations, including roof access and maintenance locations.
3. Carry out reproducible measurements using properly selected and calibrated equipment, with documented uncertainty and source operating conditions.

4. Assess the potential exposure of occupants, visitors, maintenance staff, contractors and other relevant persons under foreseeable operating scenarios.
5. Compare exposure measurements and calculations with clearly identified applicable Kenyan requirements and recognised relevant technical reference levels.
6. Identify potentially unsafe areas and recommend engineering, access-control, operational and monitoring measures where supported by the findings.
7. Provide datasets, site maps, an evidence-based risk and compliance assessment, and a clear baseline for future monitoring.

5. Scope of Services

5.1 Desktop review and assessment plan

Review available building drawings, roof layouts, source specifications, previous surveys, permits, operating schedules, site access arrangements, occupancy patterns, reported incidents and existing warning signs or restrictions. Identify missing documents and agree a practical plan for obtaining information from source operators or facility management.

- Develop a source register and preliminary plan of measurement locations, heights and source-to-person distances.
- Prepare the survey method, quality-assurance arrangements, site access plan, safe-work measures, applicable standards list and workplan for MSF review before fieldwork.

5.2 Site reconnaissance and mapping

Verify antenna/source positions, heights, orientation, directional beams, roof access and maintenance paths, surrounding structures, shielding or attenuation features, occupied 5th Floor areas, circulation areas and any locations where the public or authorised workers could reasonably be exposed.

5.3 Radiation source characterisation

For each relevant source, document where available: source type, operator/manufacturer/model, frequency or energy, transmitter operating and rated power, duty cycle, antenna gain and radiation pattern, beam direction, number of simultaneous emitters, installation height, distances and operating hours. Record missing information, assumptions and limitations explicitly.

5.4 Radiation survey and exposure characterisation

Conduct the source-appropriate field survey and relevant exposure assessment described in Sections 6 and 7, including representative and higher-risk conditions. Distinguish measured values from estimated/calculated values and avoid claiming that measurements obtained during one operating condition represent every possible source output.

6. Radiation Survey and Technical Requirements

6.1 Survey locations and measurement records

The site survey shall be risk-based and include the following categories as applicable and safely accessible. The final locations and sample sizes will be identified in the approved inception methodology.

Area	Indicative locations / evidence	Record
Rooftop / antenna vicinity	Accessible roof areas; immediately adjacent or below installations; beam directions; maintenance paths; roof entry and staircases.	Source ID, point coordinates/description, separation distance, orientation, access status.
5th Floor / occupied areas	Offices, corridors, staircases, balconies, service/common spaces and areas beneath or adjacent to rooftop sources.	Floor/room, measurement height, occupancy, date/time, source condition.
Background / reference locations	Appropriate background points and consideration of nearby installations or other sources.	Background value and how other contributions were differentiated.

6.2 Measurement methodology and quality assurance

- Select instruments suitable for the radiation type and frequency/energy range; disclose manufacturer, model, serial number, response range, accuracy and current traceable calibration certificate.
- For each point record date/time, location/height, distance and orientation, operating state, instrument/settings, units, measurement duration, repeated readings, minimum/maximum/average where relevant, environmental conditions and uncertainty.
- Include background or reference measurements, pre-use calibration/status checks, battery/zero checks where applicable, repeatability, anomalous/transient reading procedures and data-validation records.
- Document any deviation from the approved method and distinguish contributions from multiple sources using a technically appropriate procedure.

6.3 Radiation types and measurements

Type	Parameters / approach	Application rule
Radiofrequency / electromagnetic fields (RF/EMF)	Electric field (V/m), power density (W/m²), relevant frequencies; magnetic field strength (A/m) where appropriate, source combination and applicable averaging rules.	Assess where RF antenna/transmitter sources are identified; choose frequency-selective or suitable broadband methods and equipment.
Ionising radiation (conditional)	Dose rate, accumulated dose, energy spectrum or contamination only where relevant to a verified ionising source.	Not automatically presumed relevant to the rooftop antenna; confirm source existence and appropriate competence/instruments before including.
Background/reference	Distinguish environmental background and contributions from other installations, including near-field/beam circumstances as technically relevant.	Use for interpretation and comparison, not as a substitute for source-specific exposure analysis.

7. Exposure, Regulatory, Safety and Risk Requirements

7.1 Exposure and compliance assessment

Assess foreseeable normal occupation and temporary activities (rooftop maintenance, inspections, cleaning, installation/removal, emergency access and work near sources). Consider exposure time, source duty cycle, separation distance and multiple-source contributions where appropriate. Apply the correct worker or general-public limit/reference level to each case and identify its legal or technical source, frequency range and averaging period.

The consultant shall identify applicable Kenyan legislation, regulator requirements and relevant recognised international technical guidance. The selection and current applicability of standards, competent authorities and numerical limits shall be substantiated by the consultant and reviewed by MSF technical focal points. Do not combine unlike radiation types, exposure metrics or standards without a valid technical basis.

7.2 Building configuration, risk and controls

Consider the potential effects of slabs, walls, floors, ceilings, roof materials, glazing, metalwork, equipment housings and any identified shielding. Distinguish measured attenuation from assumed material effects. The risk assessment shall identify affected people, exposure pathways/duration, existing controls, residual risk and activities or locations needing additional controls.

Control category	Examples to assess / recommend when justified
Engineering	Barriers, increased separation distance, revised antenna orientation, shielding, equipment relocation or shutdown/interlock arrangements.
Administrative / access	Restricted roof access, signs, exclusion zones, safe work procedures, permit-to-work, maintenance coordination and training.
Monitoring / verification	Repeat surveys, personal or continuous monitoring where justified, alarms and a proposed re-assessment trigger/frequency.

7.3 Health, safety and incident escalation

Submit a task-specific site safety plan covering rooftop and height access, electrical hazards, radiation exposure controls, weather, PPE, restricted areas, emergencies and permission to work near source operators. The consultant must immediately notify MSF of potentially unsafe conditions or materially elevated readings; unsafe access or operation shall not proceed without suitable authorisation and controls.

8. Expected Deliverables

No.	Deliverable	Minimum evidence / content	Indicative timing
D1	Inception report and site plan	Understanding and scope; source/document gaps; survey method, instruments, calibration, H&S measures, applicable standards, measurements locations and workplan.	Before field measurements
D2	Measurement dataset	Point IDs, exact locations, source/operating status, values/units, reference/background, instrument/calibration, repeated readings, uncertainty and remarks.	After fieldwork

No.	Deliverable	Minimum evidence / content	Indicative timing
D3	Survey maps and exposure register	Source locations, sampled points, measured values, access zones and any areas requiring restrictions or further investigation.	With draft report
D4	Draft assessment report	Measurements and interpretation, exposure scenarios, regulatory and compliance comparisons, risk assessment, limitations, practical controls, baseline and proposed monitoring.	After analysis; review period per agreed plan
D5	Final assessment report	Address MSF comments; complete technical conclusions, source references, supporting calculations, appendices and actions; editable file and PDF.	At agreed completion milestone

The draft/final report should contain an executive summary, building/source inventory, methodology, instrument details, exposure results and uncertainty, applicable standards, compliance and risk interpretation, mitigation/monitoring recommendations, limitations, conclusions and traceable appendices.

9. Requirements of the Service Provider

- Legal entity or consultant with relevant qualifications in radiation protection, physics, engineering, occupational health and safety, environmental science or a directly related discipline.
- Demonstrated experience of radiation surveys and occupational/public exposure assessment appropriate to the verified source type, including relevant building/facility assessments.
- Understanding of applicable Kenyan regulatory duties and source-specific technical requirements; current professional registrations, approvals or licences where legally required.
- Competent field personnel and access to suitable calibrated equipment, with instrument descriptions and calibration certificates.
- Named technical lead; CVs, relevant assignments, samples of comparable work and independently verifiable client references.
- Independent professional assessment, confidential treatment of site/source data, safe field conduct and declaration of subcontractors or conflicts of interest.

10. Reporting and Coordination

The consultant shall coordinate the site survey through the nominated MSF EA Facilities/site representative and the building/source operators as necessary. The MSF focal point will facilitate access to available drawings, relevant rooms and roof areas and will coordinate relevant Security, ICT, HSE and Procurement input. The consultant remains responsible for safe work, competent measurements and interpretation.

Provide an inception meeting, fieldwork plan, brief progress and issue updates, immediate escalation of significant exposure concerns, a formal draft-review discussion and a final presentation or clarification session where requested. All assumptions, access restrictions and significant unresolved information gaps shall be recorded.

11. Deliverable Review and Acceptance

- All approved locations must be surveyed or explicitly recorded as not accessible, with justification and any proposed alternative.

- Instrument suitability and traceable calibration must be verifiable; measurement values, units, sampling conditions and uncertainties must be auditable.
- Each applicable occupational and public exposure assessment must state the relevant reference limit, applicable population, frequency/energy scope and comparison method.
- Site maps, datasets, risk/control recommendations and a clear location-by-location conclusion must be supplied; important uncertainties must not be hidden.
- MSF will review the draft and final report against the approved methodology and ToR; the consultant will address documented comments before final acceptance. An invoice alone does not establish acceptance.

12. Proposal / Bid Submission Requirements

- Company/consultant profile, registration and legally applicable professional qualifications or permits.
- Technical methodology and risk-based measurement strategy, including treatment of RF fields and any other source type only if relevant.
- Site approach and proposed measurement-location plan; information and access required from MSF or source operators.
- Instrument and calibration schedule, personnel CVs, quality assurance, safety plan and method for applying relevant exposure standards.
- Detailed activity plan, duration and staff deployment, with any assumptions about access, source operation or working hours.
- Details of comparable assignments and independently verifiable client references.
- Completed Annex A price schedule, taxes and disbursements separately identified, and a written list of exclusions or assumptions.

13. Evaluation Criteria

13.1 Preliminary / Mandatory Evaluation

No.	Mandatory requirement	Evidence required	Assessment
1	Legal eligibility	Registration and applicable professional/regulatory approvals.	Pass/Fail
2	Relevant technical competence	Qualified lead and evidence of similar source-appropriate radiation surveys.	Pass/Fail
3	Suitable instrumentation	Declared equipment type and valid traceable calibration certificates.	Pass/Fail
4	Safe access capability	Task-specific approach to work at height, roof access, electrical safety and source/operator coordination.	Pass/Fail
5	Complete bid and price schedule	Required method, workplan, references, schedule and commercial forms.	Pass/Fail

13.2 Technical Evaluation

No.	Technical criterion	Guiding notes / evidence	Maximum points
1	Assessment and survey methodology	Source characterisation, measurement plan, exposure scenarios, correct reference standards and methodological clarity.	25
2	Instrumentation and measurement quality	Source-appropriate meters, calibration, background, uncertainty, repeatability and traceable dataset.	20
3	Exposure, risk and compliance analysis	Worker/public comparisons, multiple sources, structural effects, risk assessment and practical mitigation.	20
4	Relevant qualifications and experience	Qualified personnel, similar assessments, relevant regulated operations and credible references.	15
5	Reporting and deliverables	Mapped dataset, draft/final report, location-level conclusions, uncertainty and usable recommendations.	10
6	Workplan, site safety and coordination	Feasible schedule, safe roof access, operator coordination, incident escalation and information gaps.	10
	TOTAL		100

The technical evaluation matrix totals 100 points. Bidders should provide evidence against each criterion. The Request for Proposals will specify any applicable qualifying threshold, award procedure and relative treatment of technical and commercial results.

13.3 Financial Evaluation – Common Comparison Basis

Financial proposals will be compared for one defined survey assignment covering the same Pitman House locations, access assumptions, measurement scope and deliverables. Each bidder must show all mandatory costs, taxes, travel and instrument charges. Bidders should complete Annex A in full. The Request for Proposals will set out any applicable financial scoring and award methodology.

14. Annex A – Standard Financial Proposal Schedule

To be completed by bidders. Quantities below represent one complete assignment or stated unit for comparability; they do not establish additional tests, visits or equipment purchases beyond the agreed ToR.

Code	Mandatory service / cost item	Comparison unit	Rate / amount
A1	Inception, document review, source inventory and survey plan	1 assignment	Bidder to quote
A2	Site reconnaissance and rooftop/5th Floor measurement mapping	1 assignment	Bidder to quote
A3	On-site measurements with calibrated instruments and QA	1 survey package	Bidder to quote

Code	Mandatory service / cost item	Comparison unit	Rate / amount
A4	Exposure modelling/calculations, applicable standards and compliance analysis	1 analytical package	Bidder to quote
A5	Risk assessment, maps, mitigation and monitoring recommendations	1 package	Bidder to quote
A6	Draft report, review responses and final editable/PDF report	1 reporting package	Bidder to quote
A7	Technical lead, site safety, field coordination and travel (unless included above)	1 package	Bidder to quote
A8	Other mandatory charges, taxes and reimbursables (itemise)	State basis	Bidder to quote
	TOTAL EVALUATED OFFER (on defined scope)		Bidder to quote

Optional or conditional work, to be quoted separately if relevant: additional source-specific instruments or ionising-radiation assessment only if a relevant source is confirmed; repeat measurements due to changed operating conditions; additional locations; further laboratory testing; extra reporting or meetings. No optional item shall be treated as a mandatory evaluated cost unless MSF defines it uniformly before issue.

15. Annex B – Survey Data and Final Conclusion Formats

The final output shall contain a location-by-location dataset and concise conclusions. The following minimum fields are required; the consultant may add appropriate technical fields where needed.

Measurement record	Fields required
Location and source	Point ID, floor/area, nearby source, source orientation/distance, measurement height.
Measurement and QA	Date/time, radiation type, frequency/energy, reading and units, min/max/mean where applicable, duration, instrument/serial, calibration and uncertainty.
Context and interpretation	Source operating condition, reference/background, occupancy/exposure scenario, applicable limit and assumptions.
Location-level conclusion	Compliance category, existing controls, additional required controls, proposed monitoring frequency and any restrictions.