



Government of Papua New Guinea
National Information and Communications
Technology Authority

Request for Proposal

Request for Proposal (RFP): CONSTRUCTION OF A 40-METRE SELF-SUPPORTING
TOWER FOR NICTA

NATIONAL INFORMATION & COMMUNICATIONS TECHNOLOGY AUTHORITY

2025

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1 Introduction and Background

The National Information & Communications Technology Authority (NICTA) has recently entered into a contract with a reputable international company on behalf of the State to deliver a Spectrum Monitoring System for Papua New Guinea. As part of this initiative, NICTA is seeking written proposal from local qualified and experienced contractors for the design, fabrication, and construction of a 40-meter self-supporting steel tower at its headquarters in Port Moresby, Papua New Guinea. This tower will serve as critical infrastructure to enhance the country's telecommunications and spectrum monitoring capabilities.

2 Purpose of RFP

The objective of this RFP is to engage a qualified contractor to deliver a comprehensive tower project, spanning from site preparation and design to material procurement, construction, and final commissioning. The tower must be designed to support spectrum monitoring activities, with features such as antenna mounting capabilities and high structural stability. As outlined in the Technical Specifications, the tower must adhere to EIA/TIA-222 standards, utilize internationally approved materials to ensure strength and corrosion resistance, and account for wind loads, environmental factors, and safety requirements.

3 Project Scope

The scope of work for this project detailed below.

3.1 Conduct Site Preparation and Analysis

- Perform a detailed site survey and geotechnical analysis: The bidder must thoroughly assess the selected site to determine its suitability for tower construction. This involves geotechnical testing to understand the soil's composition, density, and moisture content, as well as its capacity to bear the tower's load. Identifying potential risks like erosion, flooding, or seismic activity is crucial to mitigate structural failures.
- Ensure site suitability: Based on the analysis, the bidder must recommend any necessary preparatory measures, such as soil reinforcement, grading, or drainage improvements, to ensure the site can safely support the tower's foundation and structure.
- The project location is at NICTA Head Office, Punaha ICT Haus, Section 34, Allotment 19 & 20, Cnr of Frangipani & Croton Street, Hohola. Estimated project area is 10m x 10m (100 square meter)

3.2 Prepare Structural Designs.

- The bidder must develop comprehensive engineering plans for the 40-meter self-supporting tower, ensuring it can support a total load of **100 kg** under all weather and wind conditions, plus 200 kg (two workers) in calm wind conditions. The design should include provisions for mounting antennas and equipment and cable

management: The designs must integrate pathways for routing cables and space for attaching additional equipment securely, allowing future scalability.

- The Technical Specifications require that the tower be designed and constructed in compliance with EIA/TIA-222 standards, using materials that meet international quality benchmarks to ensure structural integrity and corrosion resistance, while accounting for wind loads, environmental conditions, and operational safety.
- The structural design must comply with local regulatory standards. Once completed, the design must be submitted for review and approval by the relevant authorities.

Note: In order to reduce architectural costs, it may be recommended to use the design of an existing 40m 3-leg or 4-leg communication tower in PNG. These towers are designed to carry about the same weight and withstand high wind speeds. The only addition is the required top platform. The wind load of the monitoring antennas is less than that of standard antennas for mobile communication systems.

3.3 Perform Environmental and Safety Analysis

- Conduct wind load analysis: The bidder must assess the tower's ability to withstand winds of up to 150 km/h, using regional data and engineering calculations to determine necessary structural reinforcements like bracing, anchor points, and material thickness.
- Consider environmental factors: The tower must be designed to withstand harsh conditions such as corrosion, temperature fluctuations, and lightning, using anti-corrosive materials, proper grounding, and protective coatings for durability and safety.

3.4 Procure Materials and Construct the Tower

- Source high-quality materials: The bidder must obtain construction materials that meet or exceed industry standards. This includes galvanized steel that is resistant to corrosion, as well as high-strength concrete and weather-resistant fittings to ensure structural integrity over time.
- Construct a stable foundation: Based on the geotechnical findings, the foundation design should distribute the tower's load evenly, preventing settlement or instability. This may involve pouring reinforced concrete footings, piles, or pads, depending on soil conditions.
- Assemble and erect the tower: The bidder is responsible for erecting the tower according to approved plans, ensuring vertical alignment and structural balance. This includes on-site quality checks and adherence to safety protocols during construction.

3.5 Provision to Integrate Spectrum Monitoring Features

- The tower must provide properly positioned platforms or brackets for mounting a steel tube that carries antennas, spectrum monitoring devices, and RF cables, as specified in Appendix B. These mounting provisions should securely fix the equipment while ensuring easy accessibility for maintenance and adjustments.
- The tower design must include a landing platform at the 40 m top level to provide safe access for maintenance personnel. This platform should be a metal grid construction with a minimum diameter of 4 m, durable, non-slip, and compliant with

safety standards to ensure worker safety during equipment installation or servicing. Details of the tower top are outlined in Appendix C.

- The bidder must also implement a cable management system, such as trays or conduits, to protect RF and other cables from environmental exposure.
- Proper grounding systems must be installed to safeguard equipment against electrical faults and lightning damage, adhering to industry best practices for safety and performance.

3.6 Test, Commission, and Report

- Perform structural integrity testing and final inspections: Before handover, the bidder must conduct comprehensive testing to confirm that the tower meets all design and safety requirements. This includes load testing, alignment checks, and ensuring proper tensioning of structural components.
- Provide as-built documentation: Detailed as-built drawings, maintenance manuals, and certification reports must be prepared and delivered to NICTA. This documentation serves as a permanent record of the tower's specifications and construction details.
- Commission the tower and handover: The bidder must carry out final commissioning, which involves activating the monitoring systems, verifying the operational readiness of all installed equipment, links and officially transferring the structure to NICTA's operational team with a final project sign-off.

4 Proposal Guidelines

This RFP outlines the requirements for a transparent and competitive selection process. All proposals must provide a clear and detailed response to each element specified in this RFP. Proposals that fail to meet the outlined requirements will not be considered.

Bidders are required to submit comprehensive proposals that address all elements listed in the scope of work, including technical specifications, project timelines, budget, and compliance with safety and operational standards. Proposals must include detailed information about the bidder's experience, qualifications, and proposed solutions, demonstrating the ability to meet the technical and operational requirements of the 40-meter self-supporting tower project.

Proposals must be prepared and submitted using the provided Proposal Template included with this RFP. The template includes clear guidelines to assist bidders in structuring their submissions. Proposals must be received electronically by **4:30 PM on 15th February, 2025** via email to **supplytender@nicta.gov.pg**. Submissions received after the deadline will not be considered. Proposals should include a detailed cost breakdown, a project timeline, and evidence of the bidder's capacity to deliver within the specified scope and requirements.

All inquiries regarding this RFP should be directed to **gnakau@nicta.gov.pg**. Mr. Gabriel Nakau is the Spectrum Monitoring Project manager and will oversee the tower project and facilitate communications.

5 Proposal Evaluation Criteria

NICTA will assess proposals based on several criteria, with price being a significant factor but not the only consideration. We are seeking suppliers who deliver the best overall value relative to the investment required for the 40-meter self-supporting tower construction. Proposals should demonstrate a clear understanding of the project objectives and how their pricing structure aligns with these goals. NICTA will evaluate proposals based on the following criteria:

Compliance: The proposal must adhere to all RFP requirements, including technical specifications, project timelines, and budget.

Technical Approach: The feasibility, quality, and completeness of the proposed solution. This includes the bidder's understanding of the tower's design, grounding, lightning protection, and spectrum monitoring needs.

Experience and Qualifications: The bidder's relevant experience in constructing towers of similar scope and complexity, and the qualifications of the project team.

Cost-Effectiveness: The overall cost of the proposal and its alignment with the value provided, ensuring a balance between price and quality.

Project Timeline: The bidder's ability to meet the project deadlines and deliverables, ensuring timely completion without compromising quality.

Safety and Environmental Considerations: The bidder's approach to safety, environmental protection, and adherence to regulatory standards throughout the construction process.

Maintenance and Support: The provision of ongoing technical support, maintenance services, and warranties after the tower is commissioned.

The evaluation process will consider the following:

Criteria	Weight (%)
Compliance with Technical Requirements	30
Relevant Experience and Expertise	25
Cost-effectiveness	20
Safety and Environmental Standards	15
Timeline and Deliverables	10

6 Project Timeline

6.1 Request for Proposal Timeline:

All proposals are to be submitted by **4:30pm on 15th February 2025** via email **ONLY** to **supplytender@nicta.gov.pg** with the **Subject: Proposal for EC24-RFP40T-SMPHQ**

The evaluation of proposals will be completed within two weeks following the submission deadline. During this period, if additional information or clarification is required, bidders will be promptly notified to provide the necessary details or participate in discussions.

A decision on the successful bidder will be finalized within two weeks after the evaluation phase. Once the selected bidder is notified, contract negotiations will commence to formalize the agreement. Bidders who are not selected will be informed of the outcome after the evaluation process is fully concluded.

6.2 Project Realisation Timeline:

The construction of the 40-meter self-supporting tower, including all associated features such as landing platforms, mounting provisions, cable management, and grounding, will be completed within 5 months from the signing of the contract. This timeline includes site surveys, design approvals, procurement, and construction. The final stages will involve testing, commissioning, and handover to NICTA, ensuring the tower meets all operational and safety requirements.

Activity	Deadline
RFP Issuance	[Insert Date]
Deadline for Questions and Clarifications	[Insert Date]
Proposal Submission Deadline	[Insert Date]
Proposal Evaluation Period	Two weeks post-submission
Contract Award and Project Kickoff	[Insert Date]
Project Completion and Handover	[Insert Date] (5 months post-award)

7 Project Management and Communication

For effective communication and regular updates between NICTA and the successful contractor, the contractor must appoint a Project Manager as the primary point of contact for NICTA. The Project Manager will be responsible for overseeing the execution of the project, ensuring timely progress, and maintaining continuous communication with NICTA's designated Project Manager.

Weekly progress reports must be submitted to NICTA, outlining milestones achieved, challenges encountered, and the actions taken to address them. Additionally, regular meetings will be scheduled to review the project's progress, address any emerging issues, and ensure alignment with the established timeline and specifications. Mr. Gabriel Nakau, the Spectrum Monitoring Project Manager, will oversee the project and facilitate communication between the contractor and NICTA.

8 Project Budget

The estimated budget for this project will be disclosed during the vetting process. Proposals must include a detailed cost breakdown covering materials, labour, equipment, and any other expenses.

9 Bidder Qualifications

To be eligible for the 40-meter self-supporting tower project, bidders must meet the following criteria:

Experience: Bidders must demonstrate proven experience in constructing telecommunications towers, or similar purposes. Past projects should showcase the bidder's ability to handle full project execution, including design, procurement, and installation.

Technical Expertise: The bidder must have expertise in designing structures compliant with both International Telecommunication Union (ITU) standards and Papua New Guinea's national regulations. This includes an understanding of specific requirements for supporting monitoring equipment and environmental durability. Ensuring compliance with all relevant regulatory requirements in PNG is essential.

Project Management Skills: Bidders should provide evidence of successfully managing projects within strict timelines and budgets. This includes a clear plan for resource allocation, milestone management, and risk mitigation to ensure timely delivery.

Financial Stability: Bidders must demonstrate financial stability to handle project funding and ensure that all resources, personnel, and materials are available throughout the project. Financial statements and proof of liquidity may be required to show the bidder's capacity to meet the project's financial demands.

10 Confidentiality

All proposals will be treated as confidential and used solely for evaluation purposes. Proprietary information submitted by bidders will not be disclosed without prior consent.

11 Contact Information

For inquiries regarding this RFP, please contact:

Name: Gabriel Nakau
Title: Spectrum Monitoring Project Manager
Phone: 3033262
Mobile: 7217 1170
Email: gnakau@nicta.gov.pg

12 Appendices

12.1 Appendix A: Site Location and Conditions

- **LOCATION**
 - The tower construction site is located at the NICTA Headquarters, **Section 23, Allotment 19 &20, Frangipani Street, HOHOLA, NCD**, Port Moresby, Papua New Guinea. Coordinates: 9°26'56.641S, 147°10'57.648
- **ACCESSIBILITY**
 - The site is accessible via Frangipani Street. Heavy-duty vehicles, including cranes and delivery trucks, can access the site via a paved driveway leading directly to the proposed tower location.
- **SITE PREPARATION**
 - The designated area for tower construction has been cleared and levelled. Contractors will need to ensure that any additional preparatory work, such as soil stabilization or foundation excavation, is included in their scope.
- **UTILITIES AND FACILITIES**
 - Temporary power supply and water for construction activities are available within 50 meters of the site.
 - Contractors may set up a temporary site office or storage facility in the adjacent parking lot with prior approval.
- **ENVIRONMENTAL AND SAFETY CONSIDERATIONS**
 - Contractors must adhere to environmental regulations to prevent disturbances to nearby facilities.
 - Noise levels should be managed during construction, particularly during business hours (8:00 AM – 5:00 PM, Monday to Friday).
- **LOGISTICAL CONSIDERATIONS**
 - Delivery of materials and equipment must be coordinated with NICTA's project team to avoid disruptions to ongoing operations at Headquarters.
 - Secure storage for construction materials is available onsite, but the contractor is responsible for their own security arrangements.
- **GEOGRAPHICAL AND CLIMATIC CONDITIONS**
 - Port Moresby experiences tropical weather, with possible rain showers and high temperatures. Contractors should plan construction timelines with potential weather disruptions in mind.

12.2 Appendix B: Spectrum Monitoring Antenna System

The following monitoring antenna system is provided by Rohde & Schwarz or its sub-contractor. This is mounted on top of the mast. The main structure is to be mounted in the centre, the additional rod antenna (HE010E) is to be mounted on the hand rail.

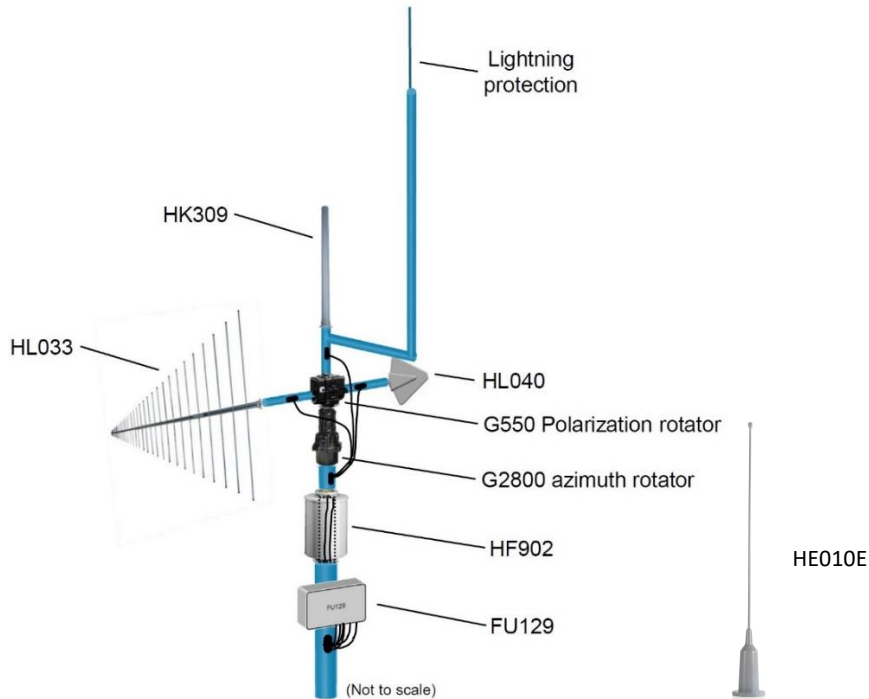


Figure 1: Schematic drawing of the antenna system showing its components

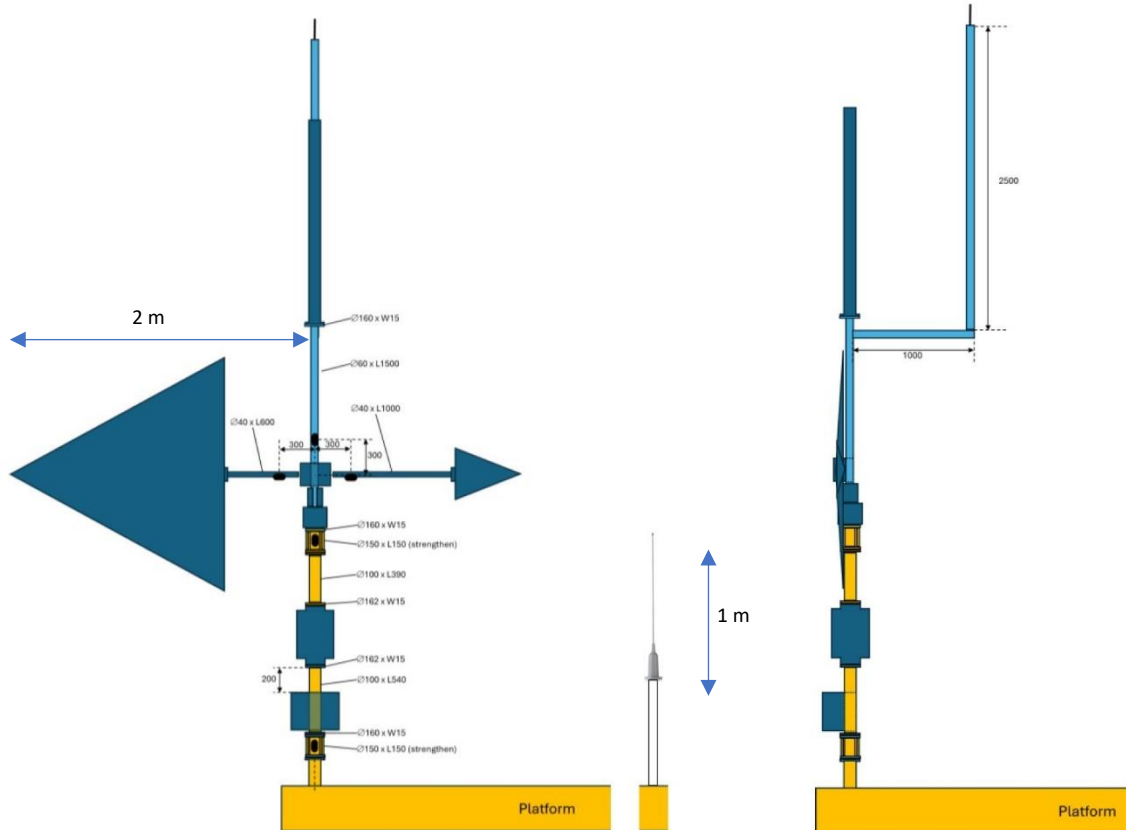


Figure 2: Dimensions of the antenna system

12.3 Appendix C: Tower top design

The following figure shows the principal design of the tower top.

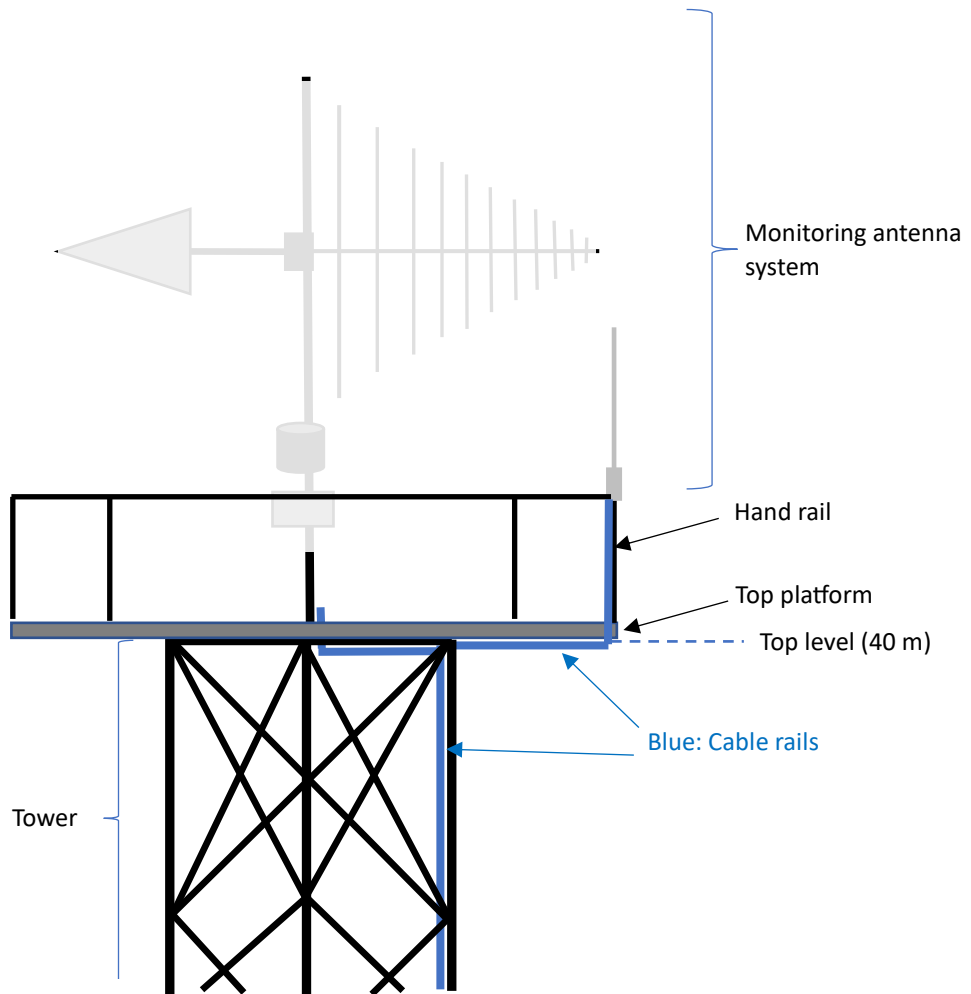


Figure 3: Side view of tower top (example of a 3-leg tower)

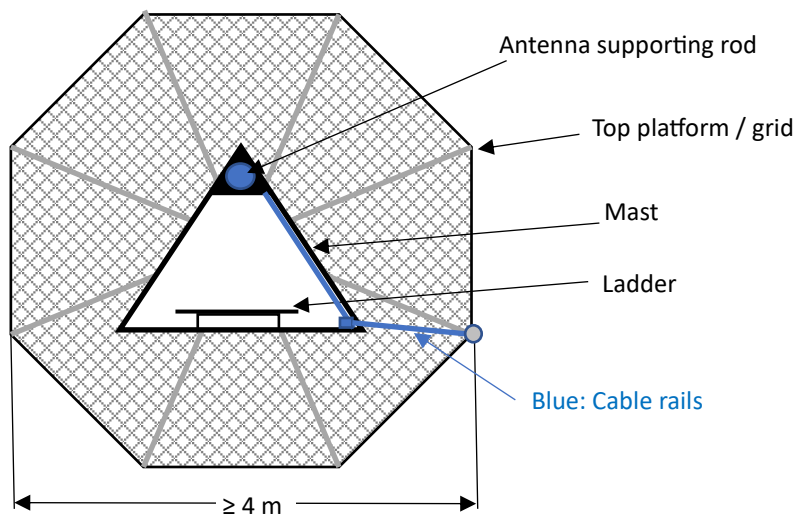


Figure 4: Top view of tower top (example of a 3-leg tower)

The top platform should be made of a steel grid and able to carry the weight of two workers. The largest dimension of the grid holes should be anything less than 10 cm (see the following figure for an example).

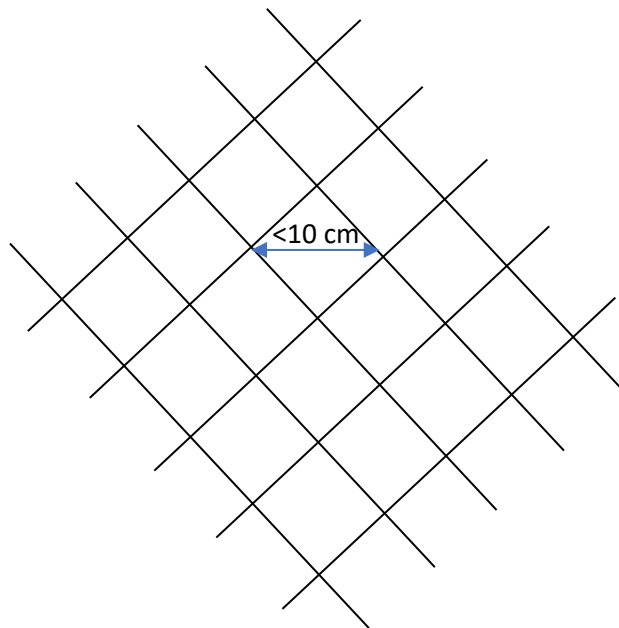


Figure 5: Minimum grid spacings of the top platform

12.4 Appendix D: Compliance Checklist

- PNG regulatory standards for telecommunications towers
- EIA/TIA-222 standards