

**National Policy
on
Antenna Structures**

Telecommunications Regulatory Commission of Sri Lanka

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National Policy on Antenna Structures

Preamble

With the rapid rollout of the telecommunication networks in the recent past the Telecommunications Regulatory Commission of Sri Lanka (TRCSL) has realized the necessity to address health, safety, economic, environmental and other impacts due to antenna structures and installations of these networks.

The Telecommunications Regulatory Commission of Sri Lanka was established under the Sri Lanka Telecommunications (Amendment) Act No. 27 of 1996, to be the National Regulatory Agency for Telecommunications in Sri Lanka. TRCSL, while promoting the sustained development in the telecommunication industry by shaping the regulatory process, will protect the public interests and be responsive to challenges in an increasingly competitive market. TRCSL will ensure that competition in the market is open, fair and effective.

This document, the **National Policy on Antenna Structures**, has been developed with the intention of safeguarding the environment and public interests while not unduly restricting the development of telecommunication services.

In order to achieve these objectives, the TRCSL appointed an Technical Advisory Committee (TAC) to address the issues related to antenna structures.

List of Abbreviations

CAASL	-	Civil Aviation Authority of Sri Lanka
CEA	-	Central Environmental Authority
EMC	-	Electromagnetic Compatibility
EMF	-	Electromagnetic Frequency
ICNIRP	-	International Commission on Non Ionizing Radiation Protection
LA	-	Local Authorities established under the Local Government Ordinance in Sri Lanka
MC	-	Municipal Council/s established under the Municipal Council Ordinance in Sri Lanka
MOD	-	Ministry of Defence, Public Security, Law and Order
PS	-	Pradheshiya Sabha established under the Pradheshiya Sabha Act
RF	-	Radio Frequency
TAC	-	Technical Advisory Committee
TRCSL	-	Telecommunications Regulatory Commission of Sri Lanka
TSP	-	Telecommunications Service Provider
UC	-	Urban Council/s established under the Urban Council Ordinance in Sri Lanka
UDA	-	Urban Development Authority
WHO	-	World Health Organization

Definitions

Antenna: One or more radiating elements used for communication purposes

Antenna Structure: A tower, platform and other parts of the structure on which antennae may be installed.

Antenna Structure Farm: A geographical location with a collection of Antenna Structures.

Canopy: A more or less continuous cover of foliage formed by adjacent treetops. The canopy layer contains the majority of the largest trees.

Technical Advisory Committee (TAC): A panel of advisors appointed by the TRCSL to advise on issues related to antenna structures.

Telecommunications Service Provider (TSP)*: One who provides Telecommunication Services to the Public.

Telecommunication Infrastructure Service Provider (TISP)*: One who provides telecommunication Infrastructure facilities.

* at present, only TSPs function as TISPs and are referred as operators.

Policy Statement 1: Sharing of Antenna Structures

Antenna Structures should be used on a sharing basis. Thus the minimum number of Antenna Structures that fulfill the technical requirements will be approved for an identified Antenna Structure Farm location.

Antenna Structures should be designed and constructed with provisions for more than one TSP. Such constructions are encouraged through incentive schemes. The cumulative EMF emission level of an Antenna Structure Farm will be maintained within the limits specified by the ICNIRP and followed by the TRCSL.

TRCSL encourages new TISPs to construct Antenna Structures. Construction activities related to an Antenna Structure should be completed within a specified period given by TRCSL.

A Technical Advisory Committee (TAC) will be appointed by the TRCSL to address any specific issues related to the implementation of Antenna Structure Policy.

The approving authority for Antenna Structures will remain exclusively with the TRCSL.

Policy Statement 2: Height Clearance

The air space around aerodromes will be maintained free from obstacles so as to permit the intended aircraft operation at the aerodrome to be conducted safely.

The maximum height of Antenna Structures will be decided by considering the recommendations of the CAASL and the MOD.

Policy Statement 3: Lightning Protection

The Antenna Structure premises should be provided with a comprehensive lightning protection scheme to minimize the lightning related damage and injury.

The lightning protection concerns related to the proximity to neighborhood of Antenna Structures will be in conformity with the National Policy on lightning protection.

Installation and maintenance of the lightning protection system shall be as per guide line issued by TRCSL on Antenna Structures.

An insurance cover should be in place, in the very rare event of lightning damage in spite of implementing above comprehensive lightning protection scheme.

Policy Statement 4: Electromagnetic Interference and Health Concerns

Base Station equipment must be in compliance with International EMC standards on RF emissions.

TRCSL shall enforce maximum field strength criteria defined by ICNIRP and adopted by TRCSL.

The compliance to RF emission standards will be monitored on a regular basis by the TRCSL to ensure public safety.

Policy Statement 5: Environmental Concerns

Natural environment of the area will be protected from any potential adverse impacts in accordance with the recommendations of relevant environmental institutions.

Policy Statement 6 : Construction of Antenna Structures

On account of the height of the antenna structure and the related risk, it is necessary to ensure the safety of workers and public in the neighborhood.

All antenna structures with height exceeding 30 m should be designed and detailed as post-disaster type structures.

All the structural designs, construction drawings and proposals should be certified by a chartered civil engineer who is specialized in structural design. Institutes and individuals who do the certification should be registered with TRC.

Insurance should be taken for the coverage of the risk of physical damage and injury during the construction of antenna structure.

During the construction, an antenna structure should be installed with an aircraft warning light as per CAASL and MOD recommendations.

TISPs should obtain development permits from respective Local Authorities. To expedite the issue of development permits, electronic document transfer is promoted.

Policy Statement 7 : Installations of Antenna Structure on Buildings

The structural stability of the buildings, which are primarily designed for purposes other than facilitating antenna structures, should be certified by a chartered civil engineer who is specialized in structural design prior to the approval for the construction of the Antenna Structure.

A lightning protection system should be installed to ensure safety of occupants.

All antenna structures on buildings with total height exceeding 30 m above ground level should be designed and detailed as post-disaster type structures.

Installations of Antenna Structures on buildings should be in conformity to the other Policy Statements.

Policy Statement 8 : Maintenance of Antenna Structures

TRCSL will maintain a complete database of all constructed antenna structures.

Maintenance of Antenna Structures will be carried out in accordance with the laid down maintenance guidelines of the TRCSL.

Lighting and painting of Antenna Structures is intended to reduce hazards to aircraft by indicating the presence of such obstacles conspicuously and must be done in accordance with recommendations of the CAASL.

TRCSL will conduct physical inspection and verification on the effectiveness of lightning protection system, RF emission level and Antenna Structure maintenance, and issue a certificate of compliance.

Policy Statement 9 : Alteration to Antenna Structures

To ensure the safety of the public and property, an Antenna Structure should not be abandoned even for short periods of time, unless otherwise it is completely removed.

When suspension of operation is envisaged, a proper procedure must be carried out by the TISP in consultation with the TRCSL.

Any structural alterations to the Antenna Structure or its supporting structure, beyond what has been envisaged in the approved design, require the certification of a chartered civil engineer who is specialized in structural design.

Removal of an Antenna Structure also requires insurance to be taken for the coverage of the risk of physical damage and injury during the removal of antenna structure.

Relevant Documents

1. BS 8100:1986 – British Standard for Lattice Towers and Masts
2. CAASL Advisory Circular No. OC/01/1998
3. Design of Building for High Winds : Sri Lanka, issued by the Ministry of Local Government, Housing and Construction, July 1980
4. Municipal Councils Ordinance
5. National Environmental Act No. 47 of 1980 and subsequent amendments
6. Pradeshiya Sabha Act, No. 15 of 1987
7. SLS 126:2004 – Lightning Protection Systems
8. Sri Lanka Telecommunications Act No. 25 of 1991 as amended by Act No. 27 of 1996.
9. TIA/EIA -222 (latest revision) – Structural Standards for steel antenna towers and antenna supporting structures issued by the Telecommunications Industry Association
10. UDA Development Regulation Circular No. 19 of 2007
11. Urban Councils Ordinance
12. Urban Development Authority Law No. 41 of 1978