



Information & Communication Technologies Authority

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*Deployment of Radiocommunication Infrastructure Technical
and Administrative Standard for Electromagnetic Field (EMF)
Safety*

23 March 2011

TECHNICAL STANDARDS FOR TELECOMMUNICATION NETWORK

made under sections 18(1)(n) and 26(e) of the Information and Communication Technologies Act 2001 (as amended)

1 ACKNOWLEDGEMENT

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2 SCOPE AND OBJECTIVES

This Technical Standard for Telecommunication Network shall be known as the ***Deployment of Radiocommunication Infrastructure Technical and Administrative Standard for Electromagnetic Field (EMF) Safety***, hereinafter referred to as the Standard.

2.1 Scope

2.1.1 The Standard applies to all licensees holding a valid licence to operate a **fixed radiocommunications infrastructure (e.g. Base Stations in a Public Land Mobile Network)**.

2.1.2 The licensees shall be solely responsible for the compliance of the Standard by any contractor, agent or person working on behalf of the licensees for the purpose of:

- a) installing;
- b) intending to install;
- c) operating; or
- d) contracting or arranging for the installation of fixed radiocommunications infrastructure used, intended to be used, or capable of being used to supply Information and Communication Services including Telecommunication Services.

2.2 Objectives

The objectives of this Standard are:

- a) to apply a Precautionary Approach to the deployment of radiocommunications infrastructure;
- b) to provide best practice processes for demonstrating compliance with relevant exposure limits and the protection of the public;

- c) to ensure relevant stakeholders are informed and consulted before radiocommunications infrastructure is constructed;
- d) to specify standards for consultation, information availability and presentation;
- e) to consider the impact on the well being of the community, physical or otherwise, of radiocommunications infrastructure; and
- f) to ensure the views of Local Authorities and the Community are considered and incorporated, if need be, into the radiocommunications infrastructure site selection.

2.3 Commencement and Application of Standard

2.3.1 This standard shall come into effect on **23 September 2011** and shall apply to all new radiocommunication infrastructures.

2.4 Transitional Provisions

- 2.4.1 Licensees are invited to use the time period until this standard comes into effect to elaborate/amend their relevant procedures so as to be in compliance with this standard.
- 2.4.2 Nothing shall prevent the Licensees to implement this standard before its effective date.

2.5 Interpretation

- 2.5.1 *The provisions of the Interpretation and General Clauses Act (IGCA) shall be applicable for the interpretation of the Standard.*
- 2.5.2 This Standard shall be read so as to be consistent with the Act.
- 2.5.3 A record is deemed to include an electronic document such as an e-mail or facsimile.

3 REVISIONS

Revisions to this document shall be made, as and when required, on the basis of contributions received through public consultation exercises.

4 DEFINITIONS AND ABBREVIATIONS

For the purposes of this Standard, the following definitions and abbreviations shall apply:

Act

means the *Information and Communication Technologies Act 2001 (as amended)*

Base Station

means a radiocommunications transmitter and its associated infrastructure including any antennas, housings and other equipment.

Building and Land Use Permit

has the same meaning as in the Local Government Act 2003(as amended).

Business Day

means a day that is not a Saturday, Sunday or a public holiday.

Consultation

means a process whereby Licensees seek to inform other parties about a proposed project at particular premises with the intention of giving those parties an opportunity to respond to the proposal and to have their responses considered.

Emergency Service Organisation

includes, but is not limited to:

- (a) police forces or services;
- (b) fire services (urban and rural); and
- (c) ambulance services.

EMF

in this Standard refers to the radiofrequency portion of the electromagnetic spectrum.

Fixed Radio Links

comprises Point-to-point and Point-to-multipoint Services, fixed at both ends.

Installation

in relation to radiocommunications infrastructure, includes:

- (a) the construction of the radiocommunications infrastructure, on, over or under any land;
- (b) the attachment of the radiocommunications infrastructure to any building or other structure; and
- (c) any activity that is ancillary or incidental to the installation of the radiocommunications infrastructure (*for this purpose, installation includes an activity covered by paragraphs (a) or (b) above*).

Interested and Affected Parties

include persons who reside within the immediate vicinity of the facility and should have a direct interest, economic, physical or social in the proposed facility.

Local Authority

has the same meaning as in the Local Government Act 2003

Low RF Power Infrastructure

means one or more transmitters operating at a total maximum power into the antenna of no greater than 2 Watts.

NOTE: Examples should include micro-cells and pico-cells.

Point-to-point Service

means a carriage service which allows a person to transmit a communication to an end-user(s).

Precautionary Approach

means the approach discussed in Appendix A.

Public Land Mobile Network Service

has the same meaning as in the PLMN Licence document.

RF Hazard Area

means an area where the emission level exceeds the reference levels adopted by the ICT Authority for general public exposure to RF EMF.

Radiocommunications Infrastructure

means a base station used for communications.

RF

means radiofrequency.

5 GENERAL OBLIGATIONS ON LICENSEES

5.1 Telecommunications Network Forward Planning

A Licensee shall provide assistance, where is not unreasonable to do so, to the Local Authority in the Local Authority's forward planning for the deployment of radiocommunications infrastructure, where so requested by a Local Authority, including the following:

- (a) responding to reasonable requests for information that is to assist the Local Authority to develop forward plans;
- (b) providing the Local Authority with the Licensee's plans concerning the deployment of radiocommunications infrastructure;

- (c) providing the Local Authority with the Licensee's plans concerning service level targets for planned radiocommunications infrastructure;
- (d) providing the Local Authority with an assessment of the opportunities for co-location of radiocommunications infrastructure with the facilities of other Licensees; and
- (e) engaging in discussions with other Licensees to explore opportunities for co-location and to investigate opportunities for the coordinated, strategic and efficient deployment of radiocommunications infrastructure.

6 SITE SPECIFIC OBLIGATIONS ON LICENSEES

6.1 Application of the Precautionary Approach to Site Selection

- 6.1.1 Section 6.1 applies where a Licensee proposes to select a site for the deployment of radiocommunications infrastructure.
- 6.1.2 A Licensee shall have written procedures for site selection for radiocommunications infrastructure in relation to factors contained in clause 6.1.4 and make them available to the public on request.
- 6.1.3 The Licensee shall comply with those written procedures.
- 6.1.4 The procedures shall require, as a minimum that for each site the Licensee have regard to:
 - (a) the reasonable service objectives of the Licensee including:
 - (i) the area the planned service shall cover;
 - (ii) power levels needed to provide quality of service;
 - (iii) the amount of usage the planned service shall handle;
 - (b) minimization of EMF exposure to the public;
 - (c) the possibility to co-locate on existing telecommunications infrastructure. Where co-location is not possible, the Licensee shall give the reasons thereof, which may include considerations such as: cumulative emissions, visual obtrusiveness, physical or technical limitations, coverage and potential for interference;
 - (d) the likelihood of an area being a community sensitive location. (Examples of sites which sometimes have been considered to be sensitive include residential areas, childcare centres, schools, aged care centres, hospitals and regional icons);
 - (e) the objective of avoiding, as far as is technically possible, community sensitive locations and to give preference to industrial or built-up commercial areas;
 - (f) relevant local government telecommunications planning policies;
 - (g) the outcomes of consultation processes with Local Authorities and communities as set out in Section 6.3;
 - (h) the heritage significance (built, cultural and natural);
 - (i) the physical characteristics of the locality including elevation and terrain;

- (j) the availability of land and public utilities;
- (k) the availability of transmission to connect the radiocommunications infrastructure with the rest of the network, e.g. line of sight for microwave transmission;
- (l) the radiofrequency interference the planned service should cause to other services;
- (m) the radiofrequency interference the planned service could experience at that location from other services or sources of radio emissions;
- (n) any obligations, and opportunities, to co-locate facilities; and
- (o) cost factors.

6.2 Application of Precautionary Approach to Infrastructure Design

- 6.2.1 Section 6.2 applies if a Licensee proposes to design radiocommunications infrastructure.
- 6.2.2 A Licensee shall have written procedures for designing radiocommunications infrastructure.
- 6.2.3 With the objective of minimising unnecessary or incidental RF emissions and exposure, the procedures shall require that in designing infrastructure the Licensee have regard to:
- (a) the reason for the installation of the infrastructure considering – coverage, capacity and quality;
 - (b) the positioning of antennas to minimise obstruction of radio signals;
 - (c) the objective of restricting access to areas where RF exposure should exceed limits of the EMF reference levels adopted by the ICT Authority;
 - (d) the type and features of the infrastructure that are required to meet service needs including:
 - i. the need for macro, micro or pico cells; and
 - ii. the need for directional or non-directional antennas.
 - (e) the objective of minimising power whilst meeting service objectives; and
 - (f) whether the costs of achieving this objective are reasonable.
- 6.2.4 A Licensee shall comply with those written procedures.
- 6.2.5 Site EMF assessments shall be made in accordance with the ITU-T Recommendation K.52 prediction methodology.
- 6.2.6 The ICTA should request a copy of the site EMF estimate, and the Licensee shall provide the estimate to the ICTA within two weeks of the request being made.

6.3 Application to the ICTA for Authorisation in connection to applications to Local Authorities for Building and Land Use Permit for Installation at a New Site or for Modification of an Existing Site

- 6.3.1 Prior to applying to the ICTA for authorisation, a Licensee should have followed procedures related to notification, where applicable, as detailed in the guidelines set out by the Local Authority.
- 6.3.2 The Licensee shall also undertake consultations with the neighbourhood of a proposed site in accordance with a consultation plan drawn in conformity to the guidelines set out under Appendix B of this document
- 6.3.3 A Licensee shall submit its application for authorisation to the ICTA on the form at Appendix C once consultations with the neighbourhood have been completed.
- 6.3.4 While applying to the ICTA a Licensee shall additionally provide to the ICTA:-
- (a) the results of the site EMF assessment in terms of installation classification in accordance with ITU-T Recommendation K.52 in its application for authorisation.
 - (b) the report about the responses received from notified persons and the results of any other consultation conducted under the consultation plan.
- 6.3.5 The Report shall include:
- (a) Summary of comments received during the consultation process;
 - (b) The Licensee's consideration of these comments; and
 - (c) A statement about the Licensee's intended actions regarding the proposed work;
- 6.3.6 A copy of the report shall also be made available to any member of the public on written request;
- 6.3.7 The Local Authority may consult the ICT Authority prior to determining the application for BLP
- 6.3.8 The Licensee shall not commence the work until after it has received the authorisation of the Authority and of other relevant Authorities.

6.4 Application of Precautionary Approach to Site Operation

- 6.4.1 Licensees shall operate their infrastructure in a manner consistent with the objectives in clause 6.2.3.
- 6.4.2 Licensees shall be able to demonstrate compliance with the ICTA regulations regarding maximum human exposure limits for radiofrequency fields.
- 6.4.3 Licensees shall take appropriate measures to restrict general public access to RF hazard areas.
- 6.4.4 For each RF hazard area, a Licensee shall ensure warning signs are in place in a location and in a manner that is appropriate so that they are clearly visible.

NOTE: Refer to examples of standard signage in Appendix D – RF Warning Signs.

- 6.4.5 In assessing whether measures are appropriate, the Licensee shall have regard to:
 - (a) the category of persons who shall have access to the area;
 - (b) the need for physical barriers;
 - (c) relevant occupational health and safety requirements;
 - (d) the views of the property owner;
 - (e) any site changes that have been made; and
 - (f) any other matter which should be relevant to ensure site safety with regards to EMF.
- 6.4.6 Licensees shall ensure that technical staff of the Licensee who should be involved in activities on or adjacent to radiocommunications infrastructure are sufficiently trained in radio frequency exposure safety.
- 6.4.7 Licensees shall ensure that transmission equipment no longer in service does not transmit.

6.5 Requirement to keep Documentary Evidence of Compliance with Procedures

Licensees shall keep documentary evidence of their compliance with the Standard for a period of three years.

7 RADIO EMISSIONS AND HEALTH AND SAFETY INFORMATION

7.1 Requirement for Licensees to keep informed about EMF Research

7.1.1 Licensees should be informed and updated of the significance of the results of scientific investigations or studies on EMF via relevant scientific bodies .

7.2 RF EMR Health and Safety Information

7.2.1 A Licensee shall make available to the public, free on demand provided it not unreasonable to do so:

- (a) information regarding how they address RF EMF health and safety issues in relation to their networks; and
- (b) information about where research reports on the health and safety impacts of radiofrequency infrastructure should be obtained, by referring members of the public to the World Health Organisation (WHO) or to an industry body or Government agency where the Licensee has entered into a specific agreement for this purpose.

7.2.2 For a specific site, a Licensee shall provide free, as soon as practicable, the following information to members of the public on request:

- (a) a description of their radiofrequency infrastructure on the site;
- (b) the operating frequency of the radiofrequency transmitter;
- (c) a declaration that their infrastructure is in compliance with the ICTA adopted limits for general public exposure to RF EMF;
- (d) details of any RF hazard areas associated with their infrastructure and management practices to restrict access to RF hazard areas;
- (e) coverage information of the area.

7.2.3 This section does not apply where in the reasonable opinion of the Licensee the information is being sought for commercial purposes.

7.3 *Additional Information Supplied by Licensee*

- 7.3.1 A Licensee shall provide information about the health and safety aspects of RF transmitters in addition to that set out in Section 7.2.
- 7.3.2 The Licensee shall not assert anything to the effect that the absence of scientific proof means that there is no possibility of risk arising from the operation of radiocommunications infrastructure.
- 7.3.3 Where a Licensee provides or quotes summaries of scientific information, the Licensee shall reference the source of information.

8 COMPLAINT HANDLING

8.1 *Meaning of Complaint*

- 8.1.1 In this section a complaint means any expression of dissatisfaction or grievance made in writing to a Licensee in relation to its performance of any mandatory obligation in this Standard.
- 8.1.2 However, a complaint does not include:
 - (a) a request for information; or
 - (b) any comment on proposed work received by a Licensee during the consultation process under section 6.3.
- 8.1.3 If it appears to a Licensee that a person making a complaint requires assistance to express the complaint in writing, it is the duty of the Licensee to take reasonable steps to provide appropriate assistance to the person.

8.2 *Licensee to Develop Complaints Handling Procedure*

- 8.2.1 A Licensee shall establish a formal procedure for dealing with complaints, a copy of which may be communicated to the Authority.
- 8.2.2 The Licensee shall disseminate information about the established procedure to the public including the means which a person should make a complaint to the Licensee.
- 8.2.3 The Licensee shall ensure that its staff is sufficiently trained in entertaining and dealing with complaints from the public or any other person.

8.3 Complaint Handling Procedure

- 8.3.1 A Licensee shall acknowledge complaints, in writing, within ten working days of the receipt of the complaint.
- 8.3.2 The Licensee shall investigate the matters raised in a complaint unless the Licensee believes that the complaint is frivolous or vexatious, or is not made in good faith.
- 8.3.3 Where a Licensee decides not to investigate a matter, the Licensee shall give the complainant written notice of the decision, and of the reasons for the decision.
- 8.3.4 The Licensee shall advise the complainant of the outcome of the investigation of their Complaint in writing and any action to be taken.
- 8.3.5 Where a complainant is dissatisfied with the Licensee's response, the Licensee shall inform the complainant of the availability of alternative complaint mechanisms, for example, the one existing at the ICTA.
- 8.3.6 Licensees shall keep a written record of all complaints received and dealt by it as well as the outcome of each complaint.
- 8.3.7 Where the Licensee considers a complaint to be frivolous or vexatious the Licensee shall:
 - (a) record its decision not to proceed further with the complaint;
 - (b) inform the complainant of the availability of alternative complaint mechanisms, for example, the one existing at the ICTA.

APPENDIX A

THE PRECAUTIONARY PRINCIPLE

Terms used in the context of risk assessment are the Precautionary Principle, the Precautionary Approach, Prudent Avoidance and ALARA (As Low As Reasonably Achievable).

For the purpose of this document the Precautionary Principle may be seen as the fundamental precepts upon which a practical precautionary approach could be based.

The issue of risk assessment can be summarised as the weighing up of likely harm based on all available scientific evidence, with the cost of commercial adjustment by the Licensee.

The fundamental concept of the Precautionary Principle was summed up in 1992 at the UN Conference on Environment and Development (UNCED) in Rio de Janeiro.

Here, the Precautionary Principle was explicitly recognised and included in the Rio Declaration. It is listed as Principle 15 among the principle of general rights and obligations of national authorities.

"In order to protect the environment, the precautionary approach should be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

The application of the Precautionary Principle requires commitment to the idea that scientific proof of a causal link between human activities and its effect is not required.

The application of the Precautionary Principle to the siting of radiocommunications infrastructure should include a consideration of the uncertainty of the science on a-thermal effects.

There is a need to balance the requirement for the telecommunications industry to provide adequate service with the need of the community to be ensured of living in an environment that will not be a potential threat to health.

The World Health Organisation's advice on electromagnetic fields and public health with respect to mobile telephones and their base stations (fact sheet 193 June 2000) includes the following precautionary measures.

Precautionary measures

- **Government:** *If regulatory authorities have adopted health-based guidelines but, because of public concerns, would like to introduce additional precautionary measures to reduce exposure to RF fields, they should not undermine the science base of the guidelines by incorporating arbitrary additional safety factors into the exposure limits. Precautionary measures should be introduced as a separate policy that encourages, through voluntary means, the reduction of RF fields by equipment manufacturers and the public. Details of such measures are given in a separate WHO Background document.*

- **Individuals:** *Present scientific information does not indicate the need for any special precautions for use of mobile phones. If individuals are concerned, they might choose to limit their own or their children's RF exposure by limiting the length of calls, or using "hands-free" devices to keep mobile phones away from the head and body.*

APPENDIX B

CONSULTATION GUIDELINES

This guideline is designed to assist Licensees in developing and implementing appropriate consultation plans for individual infrastructure.

1. Desired Outcomes

In the design and installation of radiocommunications infrastructure the objectives of Local Authority and community consultations are to:

- (a) inform and receive input from Interested and Affected Parties of the proposed project;
- (b) provide adequate time for Interested and Affected Parties to consider and engage in meaningful dialogue on the project;
- (c) maximize the level of accurate and accessible information about the project to affected communities;
- (d) identify and attempt to resolve potential issues early in the planning process; and
- (e) obtain mutually acceptable outcomes on individual projects.

When considering the desired outcomes it is to be recognised that a consultation program will not always:

- satisfy all participants; or
- resolve all differences of opinion or values.

2. Determining Size and Scope of Consultation Plan

A Licensee's consultation plan for each site should be open and transparent. The size and scope of the consultation plan should be weighted against the likely impact the proposal will have on directly affected parties, relevant stakeholders and community sensitive locations.

3. Stakeholder Analysis

At an early stage in the planning process, a stakeholder analysis should be undertaken to identify who the interested parties may be and the potential for concerns to be raised about a particular proposed facility.

The greater the likelihood for concern, the greater the extent and nature of the consultation with stakeholders that is required.

Factors that should be considered in the stakeholder analysis include:

- (a) Clear identification of the proposal including consideration of the nature and siting of the facility.

Some examples of facilities which previously have been shown to be sensitive are large visually prominent facilities located very close to where people live.

- (b) Adjacent land uses and any sensitive land uses nearby.

Some examples of sites which previously have been shown to be sensitive are residential areas, child care centres, schools, aged care centres and hospitals.

(c) Identification of potentially Interested and Affected Parties at or near the proposed facility.

It is critical that a thorough search is undertaken to identify both individuals, organisations or stakeholder groups in a locality who are potentially affected. Progress Associations, Parent Groups, Sporting Groups, tenants, Occupational Health & Safety Committees and residents in adjacent Local Authority areas but living in proximity to a proposal have previously identified themselves as affected parties. Local Authority is a good source of information about potentially affected parties in a locality.

(d) Possible concerns of those individuals or groups.

Some examples of concerns that have been previously raised include health, visual amenity, potential noise and property values.

(e) The community history of the locality.

Examples of sites which have previously shown to be sensitive include localities where inadequate community consultation was undertaken in the past or where the community may have been required to deal with previous trauma, loss and controversial development such as a road proposal.

(f) Any regulatory controls at the locality.

Examples of sites which previously have been shown to be sensitive include heritage areas, scenic protection areas and national parks. The Licensee should make every effort to integrate the consultation strategy with the requirements of local planning controls and Country Planning and Environmental legislation. Engagement in seeking views of Local Authority and engaging in meaningful dialogue will facilitate the development of an appropriately scoped consultation strategy.

2.2 Consultation Tools

The following table summarises a number of consultation tools that can be selected to appropriately communicate with identified individuals and stakeholder(s). The number and type of tools to be used for any one proposal is dependent on the nature of the proposal and the potential level of concern and the stakeholders identified.

In all instances it is important that both verbal and written communications are clear, easy to understand and that opportunities for input and feedback are clearly stated. Further these communications should include ways the community can get additional information from a variety of sources.

Consultation Tools
Notify immediate residential neighbours
Advertising in local paper
Community newsletters
Door knock
Posted letters to individual residents/landowners
Consult Local Authorities
Consult Tenant stakeholders
Notify community representatives
Consult with community representatives
Notify representatives of sensitive activities
Local Authority presentations
Consult precinct committees
Open House
Consult with Members of Parliament
Forming Community Representative
Committee
Public Meeting

3. The Consultation Plan

Once the stakeholder analysis has been completed, the proposed consultation plan can be developed. Key areas that need to be addressed in the plan that is to be submitted to Local Authority include:

- (a) Background to the proposal including description of the current preferred proposal and the history and evaluation of alternative sites so far investigated.
- (b) Informal consultations so far undertaken (if any).
- (c) Consultation Plan Outline including who will be consulted, what consultation tools/methods will be used, stakeholder feedback opportunities and timeframe of consultation.
- (d) Licensee response to community feedback i.e. how the Licensee proposes to address concerns, evaluate the community response.
- (e) How the Licensee will report to Local Authority on consultation.

APPENDIX C

APPLICATION FOR AUTHORISATION IN RESPECT OF SETTING UP/MODIFICATION OF STATION.

Please provide ALL of the following information

SECTION 1	OPERATOR DETAILS
1.1 Name of Operator:-	
1.2 Correspondence Address:-	
1.3 Telephone No:-	
1.4 Fax No:-	
1.5 Email:-	

Note I: Please fill hereunder sections for EACH antenna on the site.

Note II: For bracketed numbers please SEE instructions/definitions below, as appropriate

Note III: Please ATTACH a copy of the antenna radiation patterns (horizontal & vertical) in the format provided at Annex 1

Note IV: Please check only one of the boxes, where applicable

SECTION 2 APPLICATION DETAILS	
2.1 Specify whether:-	<input type="checkbox"/> set-up of new station <input type="checkbox"/> modification of existing station
2.2 Specify licence number under which station is being set up or modified:-	

SECTION 3 STATION CHARACTERISTICS	
3.1 Station ID:-	
3.2 Class of station:-	<input type="checkbox"/> FB Base station (transmitting station in the land mobile service) <input type="checkbox"/> FL Land station (transmitting station in the mobile service) <input type="checkbox"/> FX Fixed station (transmitting station in the fixed service)
3.3 Location Address:-	
3.4 Geographical Coordinates:-	
3.5 Height above sea level (m):-	
3.6 Sector No. (where applicable):-	
3.7 Type of installation:-	<input type="checkbox"/> Ground mounted <input type="checkbox"/> Tower mounted <input type="checkbox"/> Rooftop* <input type="checkbox"/> mounted *Specify height (m) of building if installation is rooftop mounted:-

SECTION 4 EQUIPMENT DETAILS

4.1 Make & model:-

4.2 Type approval reference:-

4.2 Max mean power to antenna (dBm):-

4.3 EIRP (dBm):-

4.4 Sensitivity (dBm):-

4.5 Noise figure (dB):-

SECTION 5 FREQUENCY ⁽¹⁾

5.1 Assigned frequency(ies) or ARFCN⁽²⁾ (as appropriate)(MHz):-

5.2 Receive frequency(ies)(MHz):-

5.3 Class of emission:-						
5.4 Necessary bandwidth(MHz):-						
5.5 Channel separation(MHz):-						
5.6 Nature of service:-	<input type="checkbox"/> CO Station open to official correspondence exclusively <input type="checkbox"/> CP Station open to public correspondence <input type="checkbox"/> CR Station open to limited public correspondence <input type="checkbox"/> CV Station open exclusively to correspondence of a private agency <input type="checkbox"/> OT Station open exclusively to operational traffic of the service concerned					
5.7 Operation hours:- from to						

- (1) Please provide information, in the same format, on a separate sheet, if space not adequate.
(2) ARFCN is the Absolute Radio Frequency Channel Number.

SECTION 6 ANTENNA CHARACTERISTICS
6.1 Azimuth of maximum radiation from Grid North (deg):-
6.2 Electrical tilt (deg):-
6.3 Mechanical tilt (deg):-

6.4 Total tilt α (deg):-

6.5 Antenna height from ground/rooftop⁽³⁾ to centre of radiation (m):-

6.6 Make & model:-

6.7 Class of antenna:-

6.8 Polarization:-

6.9 Antenna Gain (dBi):-

6.10 Antenna Directivity :-

6.11 Horizontal Beamwidth (deg):-

6.12 Vertical Beamwidth (deg):-

6.13 Frequency range:- from MHz to MHz
6.14 Cross Polar Discrimination (dB):-
6.15 $A_{sl}^{(4)}$ (dB):-
6.16 Insertion loss ⁽⁵⁾ (dB):-

- (3) Please **delete** as applicable.
- (4) A_{sl} is the maximum side-lobe amplitude with respect to the maximum.
- (5) Insertion loss is $10\log(P_r/P_t)$ where P_r is power input at antenna port and P_t is power at transmitter output port.

SECTION 7 OTHER SITE DETAILS		
7.1 Adjacent Building #	Distance from site along direction of propagation (m)	Height of adjacent building above ground level (m)

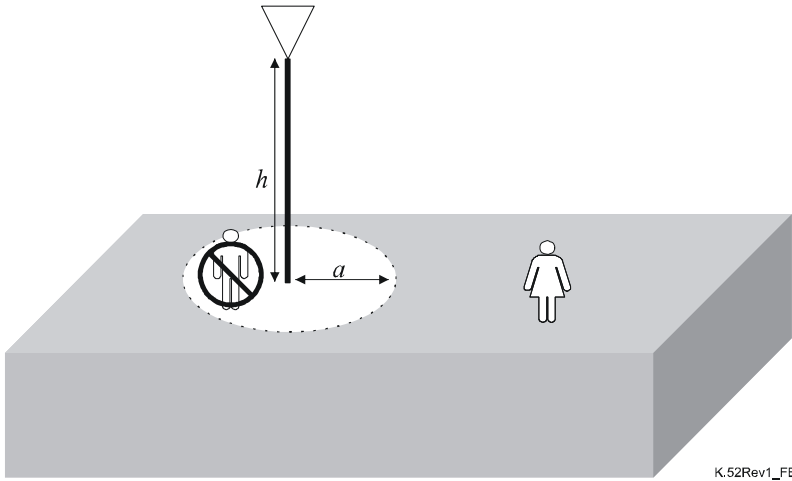


Figure 7A – Illustration of circular exclusion area

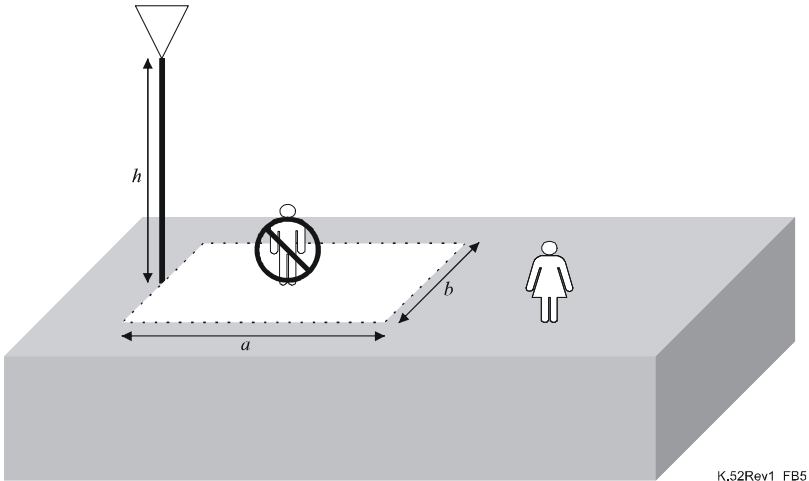


Figure 7B – Illustration of rectangular exclusion area

7.2 Please refer to Figure 7A and Figure 7B, as applicable.

Is there an exclusion area associated with the antenna? Yes No

7.3 If yes, indicate whether exclusion area is: Circular Rectangular

7.4 For circular area, state radius a (m) surrounding antenna:-

7.5 For rectangular area, state dimensions of rectangle in front of antenna in terms of

a (m) x b (m) :- x

SECTION 8 DECLARATION OF OPERATOR

8.1 I hereby declare that the station has been evaluated to comply with limits for human exposure to electromagnetic fields in accordance with ITU-T Recommendation K.52 and has been found to be

inherently compliant *normally compliant* *provisionally compliant**

8.2* In case ***provisionally compliant***, please specify the mitigation techniques to be implemented

.....

.....

.....

8.3 I hereby declare that all information contained herein is correct and accurate.

Signature:-

Signatory's Name:-

Designation:-

Date:-

Annex 1: Antenna Radiation Pattern E-plane and H-plane

Ψ/θ	Attn_E(Ψ)	Attn_H(θ)	Ψ/θ	Attn_E(Ψ)	Attn_H(θ)	Ψ/θ	Attn_E(Ψ)	Attn_H(θ)
0			120			240		
1			121			241		
2			122			242		
3			123			243		
4			124			244		
5			125			245		
6			126			246		
7			127			247		
8			128			248		
9			129			249		
10			130			250		
11			131			251		
12			132			252		
13			133			253		
14			134			254		
15			135			255		
16			136			256		
17			137			257		
18			138			258		
19			139			259		
20			140			260		
21			141			261		
22			142			262		
23			143			263		
24			144			264		
25			145			265		
26			146			266		
27			147			267		
28			148			268		
29			149			269		
30			150			270		
31			151			271		
32			152			272		
33			153			273		
34			154			274		
35			155			275		
36			156			276		
37			157			277		
38			158			278		
39			159			279		
40			160			280		
41			161			281		
42			162			282		
43			163			283		
44			164			284		

ψ/θ	Attn_E(Ψ)	Attn_H(θ)	ψ/θ	Attn_E(Ψ)	Attn_H(θ)	ψ/θ	Attn_E(Ψ)	Attn_H(θ)
45			165			285		
46			166			286		
47			167			287		
48			168			288		
49			169			289		
50			170			290		
51			171			291		
52			172			292		
53			173			293		
54			174			294		
55			175			295		
56			176			296		
57			177			297		
58			178			298		
59			179			299		
60			180			300		
61			181			301		
62			182			302		
63			183			303		
64			184			304		
65			185			305		
66			186			306		
67			187			307		
68			188			308		
69			189			309		
70			190			310		
71			191			311		
72			192			312		
73			193			313		
74			194			314		
75			195			315		
76			196			316		
77			197			317		
78			198			318		
79			199			319		
80			200			320		
81			201			321		
82			202			322		
83			203			323		
84			204			324		
85			205			325		
86			206			326		
87			207			327		
88			208			328		
89			209			329		
90			210			330		

ψ/θ	Attn_E(Ψ)	Attn_H(θ)	ψ/θ	Attn_E(Ψ)	Attn_H(θ)	ψ/θ	Attn_E(Ψ)	Attn_H(θ)
91			211			331		
92			212			332		
93			213			333		
94			214			334		
95			215			335		
96			216			336		
97			217			337		
98			218			338		
99			219			339		
100			220			340		
101			221			341		
102			222			342		
103			223			343		
104			224			344		
105			225			345		
106			226			346		
107			227			347		
108			228			348		
109			229			349		
110			230			350		
111			231			351		
112			232			352		
113			233			353		
114			234			354		
115			235			355		
116			236			356		
117			237			357		
118			238			358		
119			239			359		

APPENDIX D

RF WARNING SIGNS

The following are typical examples of signs used to inform and warn of RF radiation hazards at transmitter sites.

RF EMF Warning Signs

RF EMF warning signs are used to identify areas that should exceed the general public exposure limits. To be installed at Point of access restriction.



EMF warning sign