

Legislative Treatment in Peru of Non-Ionizing Radiation from Telecommunication

Dr. Carla P. Sosa Vela

Contents

- Environmental responsibilities
- Regulation of exposure to non-ionizing radiation in Peru
- Conclusions

Environmental Responsibilities

National Environmental Legal Framework

I. GENERAL

1. Constitution of Peru (Arts. 2, 66, 67 and 68)
2. General Law on the Environmental, Law No. 28611.
3. Framework Law for the Growth of Private Investment, D. Leg. No. 757.
4. Law on the National Council on Environment (CONAM), Law No. 26410.
5. Penal Code, D. Leg. No. 635.
6. Law on Environmental Impact Assessment for Civil Works and Activities, Law. No. 26786.
7. Law on the National System of Environmental Impact Assessment, No. 27446.

Environmental Legal Framework for the Sector

II. SECTORAL AND SPECIFIC

1. Basic Law Modifying the Organization and Functions of the Ministries, Law. No. 27779.
2. Law on the Organization and Functions of the Ministry of Transport and Communications, Act. No. 27791.
3. Regulations for the Organization and Functions of the Ministry of Transport and Communications, D. S. No. 041-2002-MTC.
4. Maximum Permissible Limits of Non-Ionizing Radiation in Telecommunications, D. S. N° 038-2003-MTC.
5. Environmental Quality Standards for Non-Ionizing Radiation. D.S. N° 010-2005-PCM, regulated by DCD 009-2005-CONAM/CD.

Regulation of Non-Ionizing Radiation



Background

- The Deputy Minister of Communications requested CONAM, on March 8, 2001, to establish the Maximum Permissible Limits of Non-Ionizing Radiation for the Telecommunications Sector, given:
 - (i) that there were no national laws to protect the health of people and the environment from the Non-Ionizing Radiation from Telecommunication Services;
 - (ii) its responsibility, as the authority in charge of the subsector, concerning the adoption of measures to prevent this possible harm.

What have we done?

Maximum Permissible Limits of Non-Ionizing Radiation from Telecommunications– D.S. 038-2003-MTC

- Establishment of maximum permissible limits of non-ionizing radiation produced by telecommunication services, as a preventive measure to protect the population's health
- Adoption of the values established as reference levels by ICNIRP



What have we done?

Scope of application:

The State, persons and legal entities engaged in telecommunication activities utilizing the radio spectrum whose EMF is between 9 KHz and 300 GHz

Obligations charged to companies :

- ◆ Present a technical study on non-ionizing radiations before installing any radio station
- ◆ Periodic monitoring of the levels of non-ionizing radiation

Competent authority: General Directorate for the Control and Supervision of Telecommunications of the MTC

Occupational Exposure (*)

9 – 65 KHz	610	24.4	-
0.065 – 1 MHz	610	1.6 / f	-
1 – 10 MHz	610 / f	1.6 / f	-
10 – 400 MHz	61	0.16	10
400 – 2000 MHz	$3 f^{0.5}$	$0.008 f^{0.5}$	f / 40
2 – 300 GHz	137	0.36	50

(*) When people are exposed to RF as a consequence of their occupation, are aware of the potential for exposure and can exercise control over it.

Population Exposure (*)

Frequency Range	Electric Field Intensity	Magnetic Field Intensity	Power Density
	(V/m)	(A/m)	(W/m ²)
9 – 150 KHz	87	5	-
0.15 – 1 MHz	87	0.73/f	-
1-10 MHz	87/ f ^{0.5}	0.73/f	-
10-400 MHz	28	0.073	2
400-2000 MHz	1.375 f ^{0.5}	0.0037 f ^{0.5}	f / 200
2 – 300 GHz	61	0.16	10

(*) When the people exposed may not be aware of the potential for exposure or are unable to exercise control over that exposure.

Situations where NIR monitoring must be presented showing that levels will not exceed the limits established:

SERVICE/SYSTEM	MONITORING MUST BE PRESENTED IF:
<p>Radio pager service (one- and two-way)</p> <p>Mobile cellular telephony</p> <p>Trunked service</p> <p>Private services (fixed and mobile)</p> <p>Fixed wireless services</p> <p>Multi-channel analog and digital systems</p>	<p>The distance of the antenna to every point accessible to people is less than 10 meters and EIRP greater than 1230 watts.</p>
<p>Personal communication services</p> <p>Multi-channel analog and digital systems above 1 GHz</p>	<p>The distance of the antenna to all points accessible to people is less than 10 meters and EIRP greater than 1570 watts</p>
<p>Earth stations belonging to fixed service by satellite</p>	<p>Antenna elevation angle less than 25° or HPA potential greater than 25 watts or antenna diameter greater than 3.6 meters</p>
<p>All cases of stations for radio broadcasting service</p>	

TERMINAL MEASUREMENT

For measurement of terminal equipment, SAR will be used as the basic restriction according to the following table:

Exposure Characteristics	Frequency Band	Current Density for Head and Trunk	Half-Body Average SAR	Localized SAR	Localized SAR
		(mA / m ²)	(W / kg)	(head and trunk)	(limbs)
				(W / kg)	(W / kg)
Occupational Exposure	10 MHz a 10 GHz	-	0.4	10	20
Population Exposure	10 MHz a 10 GHz	-	0.08	2	4

Complementary Technical Standards

COMPLEMENTARY STANDARD	APPROVED THROUGH	DATE OF PUBLICATION
Procedures for Supervision and Control of Maximum Permissible Limits of Non-Ionizing Radiation	Ministerial Resolution N° 610-2004-MTC-03	August 16, 2004
Guidelines for Conducting Theoretical Studies of Non-Ionizing Radiation	Ministerial Resolution N° 612-2004-MTC-03	August 17, 2004
Technical Norm on Protocols for Measurement of Non-Ionizing Radiation	Ministerial Resolution N° 613-2004-MTC-03	August 17, 2004
Technical Norm on Radio Restrictions in Areas of Public Use	Ministerial Resolution N° 120-2005-MTC-03	February 23, 2005
Guidelines on the Implementation of a Register for Persons Authorized to Carry Out Theoretical Studies and Measurements on Non-Ionizing Radiation	Ministerial Resolution N° 534-2005-MTC-03, modified by Ministerial Resolution N° 379-2006-MTC/03	August 5, 2005 May 12, 2006
Guidelines for the Certification of Non-Ionizing Radiation Measurement Equipment	Ministerial Resolution N° 965-2005-MTC/03	December 22, 2005
Specific Regulations for the Harmonization of Telecommunication Equipment and Devices	Supreme Decree N° 001-2006-MTC	January 22, 2006

Complementary Standards

Technical Standard on Guidelines for Conducting Technical Studies on NIR

Establishes guidelines for carrying out theoretical studies to predict compliance with values approved as maximum permissible limits.

Technical Standard on Protocols for NIR Measurement

Establishes NIR measurement protocols to obtain a correct quantification of emission values resulting from the operation of telecommunication services. Defines methods and equipment to be used for measurement.

Complementary Standards

Guideline on the implementation of a register for persons authorized to carry out theoretical studies and measurements of non-ionizing radiation

Establishes the requirements that must be observed by persons who conduct theoretical studies and NIR monitoring.
A register has been set up for this purpose.

Guideline for the Certification of Non-Ionizing Radiation Measurement Equipment

Establishes criteria applied to the certification procedure for NIR measurement equipment
Aimed at having measurement equipment comply with technical standards ensuring correct measurement

Technical Standard on Restrictions in Areas of Public Use

Establishes restrictions on levels of electric field intensity and power density from the operation of radio stations for telecommunication services

Applied to the installation of stations in areas near base stations close to schools, hospitals, health care centers and clinics

Based on the following principles:

Principle of “As Low as Technics Allow” – ALATA

Principle of “As Low as Reasonably Achievable” – ALARA

Frequency Range	Electric Field Intensity	Power Density
	(V/m)	(W/m ²)
9 – 150 KHz	61,5	.
0.15 – 1 MHz	61,5	.
1-10 MHz	61,5/f 0.5	.
10-400 MHz	20	1
400-2000 MHz	0,972 f 0.5	f/400
2 – 300 GHz	43,1	5

Conclusions

1. The Peruvian Government has adopted precautionary measures to safeguard the health of the population.
2. The adoption of maximum permissible limits for non-ionizing radiation in telecommunication has followed the recommendation of ITU and ICNIRP, contained in the legislation of more than 30 countries around the world.
3. The installation and operation of a radio station must observe and respect environmental regulations regarding telecommunication issued by the Ministry of Transport and Communications, as well as those of other competent sectors.

Thank you for your attention.