

Republic of Lebanon

Telecommunications Regulatory Authority

Decision No: ---/ 2010

Human EMF Exposure Limit Regulation

The TRA, during its meeting held on --/--/2010

Pursuant to law No 431 dated 22/07/2002 (Telecommunications Law), in particular Article 23,

Pursuant to Decree No 14264 dated 4/03/2005 (Financial and administrative management of the Telecommunications Regulatory Authority),

Pursuant to Decree No 1 dated 08/02/2007 (Appointment of the TRA Board),

And upon the advice of the Council of State (Opinion No. --/2008-2009 dated --/--/2010),

Issued the following regulation:

Chapter 1: Purpose and scope of the Regulation

Article 1. Background

1. This human (Electro-Magnetic Field) EMF Exposure Limit Regulation (the Regulation) forms part of the regulations issued by the Telecommunications Regulatory Authority (the Authority) of Lebanon in accordance with the Telecommunications Law No. 431 of 2002 (Telecommunications Law). This Regulation is designed to establish technical specifications and requirements applicable to telecommunications network and subscriber equipment.
2. This Regulation is a binding regulation that states the official policies and procedures of the Authority. It may be subject to review and amendment as deemed necessary by the Authority in light of the development of the Lebanese telecommunications market, changes to Lebanese national laws impacting the telecommunications sector, or other factors.

Article 2. Legal basis

According to the Telecommunications Law in general and Article 23 in particular, the Authority shall ensure that telecom equipment does not cause any damage to the telecommunications network, safety and public health. The health impact of exposure to EMF emissions on the public and workers falls within the mandate of Article 23 of the Telecommunications Law.

Article 3. Purpose

The purpose of this Regulation is to set national limits for the level of EMF exposure that is considered acceptable for the public and workers to protect them from potential health effects of man-made non-ionizing radio frequency in the living and working environment.

Article 4. Scope

1. This Regulation sets EMF exposure limits in the frequency range 3KHz to 300 GHz for the public in areas to which the public has access and for workers in their places of work.
2. This regulation does not apply to patients under long term medical care receiving EMF exposure from diagnostic or treatment equipment, to equipment that does not require Type Approval, or to the military.

Chapter 2: Definitions

Article 5. Definitions

Terms defined in the Telecommunications Law shall have the same meaning when used in this Regulation. In the event of conflict or ambiguity between the terms defined herein and the terms defined in a spectrum management and licensing regulation or in the Telecommunications Law then the following order of precedence shall apply:

1. Telecommunications Law.
2. Spectrum management and licensing regulation
3. Human EMF exposure limit regulation

Other terms are defined as follows:

Adverse health effect: A biological effect that has a detrimental effect on mental, physical and/or general well being of exposed people, either in the short-term or long term.

Agency: A body nominated by The TRA to provide advice to, or act on behalf of, the TRA with regard to this Regulation.

Basic Restrictions: Restrictions on exposure to electric, magnetic, and electromagnetic fields that are based directly on established health effects. Depending upon the frequency of the field, the physical quantities used to specify these restrictions are current density (J), specific energy absorption rate (SAR), and power density (S). Only power density in air, outside the body, can be readily measured in exposed individuals.

Compliance: Conformity with the requirements of this Regulation

Current Density: A vector quantity whose magnitude is the ratio of the magnitude of current flowing in a conductor to the cross-sectional area perpendicular to the current flow and whose direction points in the direction of the current.

Declaration of Compliance: A document signed by a supplier or manufacturer or other such body nominated by the TRA that attests that the device or installation to which the Declaration refers meets the requirements of this Regulation.

Device: A manufactured product that produces EMF.

Electromagnetic Fields (EMF): A physical entity carrying or storing energy in empty space and manifesting itself by exerting forces on electric charges. For purposes of this Regulation EMF includes static electric and magnetic fields as well as time-varying electric, magnetic and electromagnetic fields with frequencies in the range 3KHz to 300GHz. Electromagnetic fields can be sub-divided into two components:

4. Electric field E [measured in Volts per metre or V/m]
5. Magnetic field H [measured in Amperes per metre or A/m]

Electro-medical equipment: Electrical devices, instruments or prostheses employed to investigate or treat patients under medical supervision.

Equipment: Manufactured industrial, commercial, consumer or medical products that produce EMF.

Exposure: The subjection of a person to electric, magnetic, or electromagnetic fields or to contact currents other than those originating from physiological processes in the body and other natural phenomena.

Exposure Limit: An upper limit placed on human exposure to EMF to protect against adverse physiological responses that are causally related to the fields. Such limits are not intended to provide protection against other effects (e.g., psychological) arising from fear of such exposures.

Frequency: The number of repetitions per unit time of the oscillations of an electromagnetic wave. The higher the frequency, the greater is the energy of the radiation and the smaller the wavelength. Frequency is measured in Hertz.

Health: A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (World Health Organization (WHO).)

Installation: A construction that incorporates a source of EMF.

Occupational exposure: All exposure to EMF experienced by workers in the course of performing their work.

Owner: The person or company who owns, or is responsible for, the operation of an installation emitting EMF into the environment or workplace.

Phantom: A physical model containing tissue-equivalent material used to simulate the body in an experimental dose measurement.

Power Density (Specific Power or Power per unit of Volume): The amount of radiant energy concentrated at a point. It is an approximation of the peak-power output expressed in Kilowatts / unit stack volume (or in horsepower per cubic inch).

Public: Everyone who is not a worker, member of the military or a patient under medical care.

Public exposure: All exposure to EMF experienced by members of the general public, excluding occupational exposure and exposure during medical procedures.

Reference Level: EMF exposure Level provided for practical exposure assessment purposes to determine whether the Basic restrictions are likely to be exceeded. Some Reference Levels are derived from relevant Basic restrictions using measurement and/or computational techniques and some address perception and adverse indirect effects of exposure to EMF.

Sources: Devices or installations that produce EMF.

Specified sources: Sources that are identified by name, nature or location to which a Regulation pursuant to the Telecommunications Law refers to.

Specific Energy Absorption Rate (SAR): It is a measure of the rate at which energy is absorbed by the body when exposed to a radio frequency (RF) electromagnetic field. It is defined as the power absorbed per mass of tissue and has units of watts per kilogram [1]. SAR is usually averaged either over the whole body, or over a small sample volume (typically 1g or 10g of tissue). The value cited is then the maximum level measured in the body part studied over the stated volume or mass. It can be calculated from the electric field within the tissue as:

$$\text{SAR} = \frac{\sigma E^2}{\rho}$$

Where

σ is the sample electrical conductivity

E is the RMS (Root-Mean-Square) electric field expressed in V/m

ρ is the sample density

Root Mean Square (RMS): The square root of the mean of the square of a time variant function, $F(t)$, over a specified time period from t_1 to t_2 . It is derived by first squaring the function and then determining the mean value of the squares obtained, and taking the square root of that mean value

$$F_{rms} = \sqrt{\frac{\int_{t_1}^{t_2} F(t)^2}{t_2 - t_1}}$$

Worker: An employee or self-employed individual who is subjected to EMF exposure at work, and can be either a trained worker or a worker in an area where EMF limits will not be exceeded.

Annex 1 illustrates the properties of electromagnetic field regions and discusses the mathematical interdependencies between the measurements of the E- and H-fields.

Annex 2 shows rules to measure electromagnetic fields (E-field) upon exposure to a single or multiple sources (frequencies)

Annex 3 shows simplified methods for the calculation of the minimum safe distances to antennas of transmission stations

Chapter 3. EMF Exposure Limits and Compliance Procedures

Article 6. EMF Exposure Limits

1. For the purposes of this regulation, the recommendations by the International Commission of Non-Ionizing Radiation Protection (ICNIRP)¹, which are also recognized by WHO, with respect to Basic Restrictions and Reference Levels shall be adopted as the relevant EMF Exposure Limits in Lebanon.
2. In this regulation, there are two kinds of EMF exposure limits:
 - a. Basic Restrictions are quantities that may be difficult to measure directly. In some instances, they can only be calculated using mathematical methods or measured in phantom. Basic restrictions shall never be exceeded.
 - b. Reference levels are expressed in quantities that can be readily measured by a variety of scientific instruments. Reference Levels may be exceeded provided the Basic Restrictions are not exceeded
3. **Basic restrictions for public exposure** in areas to which the public have access are set out in table1.

Frequency Range (f)	Current density for head and trunk mA m⁻² (RMS)	Whole-body average SAR W Kg⁻¹	Localized SAR (head and trunk) (W Kg⁻¹)	Localized SAR (limbs) W Kg⁻¹	Power density (W m⁻²)
Up to 1 Hz	8	-	-	-	-
1-4 Hz	$8/f$	-	-	-	-
4 Hz-1KHz	2	-	-	-	-
1-100 KHz	$f/500$	-	-	-	-
100 KHz – 10MHz	$f/500$	0.08	2	4	-
10 MHz- 10GHz	-	0.08	2	4	-
10- 300GHz	-	-	-	-	10

Table 1 “Basic Restrictions - Public Exposure”

¹ Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz)”, Health Physics, vol 74, no. 4, April 1998; www.icnirp.de.

4. **Basic restrictions for workers** in their occupational environment are set out in table 2.

Frequency Range (f)	Current density for head and trunk mA m⁻² (RMS)	Whole-body average SAR² (W Kg⁻¹)	Localized SAR³ (head and trunk) (W Kg⁻¹)	Localized SAR (limbs) (W Kg⁻¹)	Power density (W m⁻²)
Up to 1 Hz	40	-	-	-	-
1-4 Hz	$40/f$	-	-	-	-
4 Hz-1KHz	10	-	-	-	-
1-100 KHz	$f/100$	-	-	-	-
100 KHz – 10MHz	$f/100$	0.4	10	20	-
10 MHz- 10GHz	-	0.4	10	20	-
10- 300GHz	-	-	-	-	50

Table 2 “Basic Restrictions - Occupational Exposures”

5. **Reference Level⁴ for public exposure** in areas to which the public have access is set out in table 3.

Frequency Range (f)	E-field strength (Volts m⁻¹)	H-field strength (Amperes m⁻¹)	Equivalent plane wave power density S_{eq} (W m⁻²)
Up to 1 Hz	-	$3.2 \cdot 10^4$	-
1-8 Hz	10000	$3.2 \cdot 10^4$	-
8 Hz- 25 Hz	10000	$4000/f$	-
0.025-0.8 KHz	$250/f$	$250/f$	-
0.8-3 KHz	$250/f$	5	-
3-150 KHz	87	5	-
0.15-1MHz	87	$0.73/f$	-
1-10MHz	$\frac{87}{f^{1/2}}$	$0.73/f$	-
10-400MHz	28	0.073	2
400-2000MHz	$1.375 f^{1/2}$	$0.0037 f^{1/2}$	$f/200$
2-300GHz	61	0.16	10

Table 3 “Reference Levels - Public Exposure”

² All SAR values (for Public and Occupational exposure) are to be averaged over any 6-minute period

³ The localized SAR (for Public and Occupational exposure) averaging mass is any 10g of contiguous tissue; the maximum SAR is the value used for the estimation of exposure

⁴ For frequencies between 100 KHz and 10 GHz, the averaging time is 6 minutes (for Public and Occupational exposure). For frequencies exceeding 10 GHz, the averaging time is $68/f^{1.05}$ minutes (for Public and Occupational exposure)

6. **Reference Levels for workers** in their occupational environment are set out in table 4.

Frequency Range (f)	E-field strength (Volts m⁻¹)	H-field strength (Amperes m⁻¹)	Equivalent plane wave power density S_{eq} (W m⁻²)
Up to 1 Hz	-	1.63 10 ⁵	-
1-8 Hz	20000	1.63 10 ⁵	-
8 Hz- 25 Hz	20000	2 10 ⁴	-
0.025-0.82 KHz	500/f	20/f	-
0.82-65 KHz	610	24.4	-
0.065-1MHz	610	1.6/f	-
1-10MHz	610/f	1.6/f	-
10-400MHz	61	0.16	10
400-2000MHz	3f ^{1/2}	0.008 f ^{1/2}	f/40
2-300GHz	137	0.36	50

Table 4 “Reference Level – Occupational Exposure”

Article 7. Compliance procedures

1. Areas where members of the public have access and where EMF exposures are or at below the Reference Levels set out in table 3 are in compliance with this Regulation.
2. In areas where members of the public have access and where the Reference Levels set out in table 3 are exceeded, an evaluation must be undertaken to establish if EMF exposures exceed the Basic restrictions. Where EMF exposures are at or below the Basic restrictions set out in Table 1, they are in compliance with this Regulation.
3. Areas where members of the public have access and where EMF exposures exceed the Basic restrictions set out in Table 1 are not in compliance with this Regulation. Such areas are subject to the measures set out in Article 8.
4. Unless an evaluation shows that there are no risks of adverse health effects, the following categories of worker shall have their exposure to EMF in their working environment subject to the same limits as those applicable to members of the public, namely Basic restrictions as set out in Table 1 and Reference Levels as set out in Table 3:
 - a. Workers who share the same area or environment with the public by virtue of the nature of the service being provided to the public.
 - b. Women who have declared their pregnancy to their employer
 - c. Workers having metallic prostheses, cardiac pacemakers, defibrillators and other electro-medical devices that are known to suffer adverse interference from EMF exposure Levels in which they work.
 - d. Workers who have not received appropriate training regarding workplace procedures in areas where the Basic restrictions set out in Table 2 could be exceeded

5. Workplaces where workers, other than those in the worker categories listed in Article 7 item 4, are exposed to EMF at or below the Reference Levels set out in table 4 are in compliance with this Regulation.
6. Workplaces where workers, other than those in the worker categories listed in Article 7 items (5- 4), are exposed to EMF that exceeds the Reference Levels set out in Table 4 an evaluation must be undertaken to establish if EMF exposures exceed the Basic restrictions. Where EMF exposures are at or below the Basic restrictions set out in table, such workplaces are in compliance with this Regulation.
7. Workplaces where workers, other than those in worker categories listed in Article 7 items (5- 4), are exposed to EMF in excess of the Basic restrictions set out in Table 2 are not in compliance with this Regulation and are subject to appropriate measurements.
8. The TRA may require a manufacturer, importer, installer or operator of any installation or device to demonstrate compliance with the exposure limits by means of software simulation/ modelling of EMF field, field measurement, declaration of compliance or by a certificate of compliance from a body approved by the TRA.
9. The TRA, in establishing compliance procedures, shall take into account any relevant agreements relating to the mutual recognition and acceptance of testing of products emitting EMF, where they exist.
10. The TRA may establish or nominate an appropriate body or Agency for the purposes of administering the compliance framework established by The TRA.
11. The TRA shall verify Compliance with this Regulation by performing direct measurement, type testing, calculation, modelling or verification by the Agency defined in Article 7 items (5-10).

Article 8. Reporting and Measurement

1. All measurements and/or evaluation to establish compliance with this regulation are subject to verification by the TRA or the Agency nominated by the TRA. EMF compliance results will remain valid as long as EMF exposure Levels are not subsequently increased.
2. Where measurements are not made under worst case conditions, EMF exposure for the worst-case conditions should be calculated or extrapolated on the basis of the measured values. Measurements and/or calculations should take account of exposures to multiple sources and multiple frequencies using the appropriate protocols
3. Further measurements and/or evaluations may be required following any changes likely to significantly increase EMF exposure to the public or workers, such as following additions of equipment or installations generating EMF area.
4. The TRA shall maintain a record of verified EMF compliance or publish field measurements studies conducted for this purpose.
5. The TRA or its authorized Agency may publish or disseminate information, measurements, or any other such matter relevant to the provision of this regulation as is deemed appropriate.

Chapter 4. Responsibilities and Enforcement

Article 9. Service Provider's Responsibility

Service Providers in general and Wireless Service Providers and Radio and Television Broadcasters in particular as well as any user of radio transmitting equipment to deliver a telecommunication service must adhere to the following guidelines and restrictions to ensure that the transmitted power and radiation levels comply with the TRA specifications:

- a. Ensure the compatibility of operating wireless stations with the standards set in TRA's document "RTTE technical requirements".
- b. Service providers must take all EMF affecting factors into consideration. Service providers will be held completely responsible for the accuracy of their evaluation results and for complying with all the requirements and guidelines to maintain the safety regarding the levels of radiations as set by the ICNIRP guidelines mentioned in this Regulation.
- c. Conducting EMF measurements at traffic peak times and reevaluating them upon any change in any of the characteristics of the wireless site; for example, change in Transmission Power or Antenna Gain.
- d. Defining restricted areas for high-radiating broadcasting transmission sites where the general public will be prohibited from entry within a specified boundary from such sites. These areas should be marked with warning posters indicating the risk of exposure to transmitting radio antennas.
- e. Complying with the respective Reference Levels defined in tables table 3 and 4 of this Regulation for the general public and occupational employees outside the restricted areas.
- f. In case work is to be performed in areas where radiation Levels exceed the occupational safety Levels, the station must either be shut down or its transmission power must be decreased to an acceptable level until the work is completed. Alternatively, workers must be supplied with appropriate safety equipment shown to be effective at the operating frequencies.
- g. Taking immediate action when any high exposure level is detected and decreasing the transmission powers of the antennas until they become in compliance with the safety Levels set in Table 3 and Table 4 of this Regulation.

Article 10. Enforcement

1. The TRA shall require the owner of any installation where exposure in areas accessible to the public exceeds the EMF exposure limits, to take such measures as necessary including marking and labelling and to restrict public access and/or reduce the EMF emissions from a source or sources contributing to the exposure.
2. The owner of an installation shall ensure that workers, who are exposed to EMF at work, receive any necessary information and training relating to their exposure and are made aware of any mitigating measures to comply with EMF exposure limits.
3. The TRA shall determine the appropriate measures to be undertaken in areas to which both the public and workers have access and which do not comply with this Regulation. Such measures may include:
 - a. Extending the boundaries of areas where public Reference Levels in table 3 may be exceeded, and restricting public access to those areas.
 - b. Requiring the use of appropriate signs, warning and public notices.
 - c. Engineering or administrative controls.
 - d. Other measures according to Section 7 of Telecom Law 431 "Control and inspection procedures and imposing penalties".

Article 11.

This Regulation will be published and entered into force upon its publication in the Official Gazette.

Beirut on the -- of -- 2010

Dr. Kamal Shehadi

Chairman of the Telecommunications Regulatory Authority

Annex 1. Electromagnetic Field Regions

Electromagnetic fields can be subdivided into two components:

1. Electric field **E** [measured in Volts per metre or V/m]
2. Magnetic field **H** [measured in Amperes per metre or A/m]

The **E**-field and the **H**-field are mathematically interdependent⁵ in the radiating far-field region. The measurement locations for most transmitter installations lie well within the radiating far-field region, as the wavelengths of the transmitted signals are relatively short and the antennas are typically located many metres from any public area.

In the radiating far-field region only one component needs to be measured, as the other component can be easily derived from it. Normally it is only the electric field which is measured in this region.

In the case of transmitters of very long wavelength signals, such as long wave radio (1.19 km wavelength), the **E**-field and **H**-field must be measured separately as the point of measurement will most likely lie within the reactive near-field region. This is the region located less than one wavelength from the radiating antenna. Here, the relationship between **E** and **H** becomes very complex and there is no direct correlation between both components of the electromagnetic field.

For antennas where the maximum antenna dimension, D , is large relative to the wavelength a radiating near-field region exists where the **E** and **H** components can be considered locally normal; moreover the **E/H** ratio can be assumed constant (and almost equal to Z_0 , the intrinsic impedance of free space.)

Based on ITU-T recommendation K.61 and ECC/ REC/ (02)04, table 5 defines the main properties of EMF in different field regions (where D is supposed to be large compared with the wavelength λ)

	Reactive near-field	Radiating near-field	Radiating far-field
Lateral edge of the region measured from the antenna	0 to λ	λ to $\lambda + 2D^2/\lambda$	$\lambda + 2D^2/\lambda$ to ∞
$Z = E/H$	$\neq Z_0$	$\approx Z_0$	$= Z_0$
Component to be measured	E & H or evaluate the SAR	E or H	E or H

Table 5 “Field Regions around an Electromagnetic Source (Antenna)”

⁵ $E = H \times Z_0$ where Z_0 (characteristics impedance of free space) ~ 377 ohm

Annex 2. Measurement of Electromagnetic Fields (Exposure to a Single and Multiple Frequency Fields)

In accordance with ITU-T recommendation K.61, the resultant electric field is calculated using the following formula: $E_{resultant} = \sqrt{\sum_1^n E_n^2}$

where n is the number of transmitted channels including the channel that owns the maximum electric field. For compliance with this regulation, the resultant electric field must not exceed the reference levels (i.e., exposure to a single frequency field.) It should be noted that the ICNIRP guideline limits vary according to frequency as illustrated in the table 6

Service Band (Transmitting or base stations)	Radio frequency range (MHz)	ICNIRP electric field limit V/m
FM (Sound Broadcast)	87 - 108	28
VHF (PMR, Broadcast, Fixed)	174 - 230	28
UHF (PMR, Broadcast, Fixed)	470 - 862	[29.80 – 40.36]
GSM 900 (Mobile)	935 - 960	[42.04 – 42.60]
GSM 1800 (Mobile)	1805 - 1880	[58.41 – 59.61]
UMTS (3G Mobile, W CDMA, CDMA 2000, etc)	2210 – 2170 (2.1GHz)	61
MBWA (WiMAX, LTE, etc)	2300 – 2400 (2.3 GHz)	61
RLAN/ WLAN (WiFi)	2400 – 2483.5 (2.4 GHz)	61
Fixed/ Mobile Wireless Access (WiMAX, LTE, etc)	2500 – 2690 (2.5/ 2.6 GHz)	61
Fixed/ Portable Wireless Access	3400 – 3600 (3.5 GHz)	61

Table 6 “Maximum Permissible Exposure Limit for Public Exposure”

In most cases, a typical transmitting site contains many transmitting stations operating on many frequencies. In this case, the electromagnetic field has a complex structure with many components of different frequencies and different field strengths. According to ITU-T recommendation K70, the exposure assessment in an environment of multiple sources (frequencies) requires the calculation of the cumulative exposure W_t (total exposure ratio):

$$W_t = \sum_{i=100KHz}^{300GHz} \left(\frac{E_i}{E_{l,i}} \right)^2$$

Where E_i is the electric field strength at frequency i and $E_{l,i}$ is

the ICNIRP reference limit (maximum permissible exposure) at frequency i . Thus all the operating frequencies, at a given site, must be considered in a weighted sum, where each individual source is pre-rated according to the limit applicable to its frequency.

For compliance with this regulation, the cumulative exposure must be less than 1.

Annex 3. Calculation of the Compliance Distances

In accordance with ITU-T recommendation K.70, table 7 presents simplified expressions⁶ for the calculation of the minimum distances to antennas of transmission stations, not taking into account any other radiating EMF sources.)

Radio frequency range	Public Exposure	Occupational exposure
1 to 10 MHz	$R = 0.1\sqrt{eirp \times f}$	$R = 0.0144 \times f \times \sqrt{eirp}$
10 to 400 MHz	$R = 0.319 \sqrt{eirp}$	$R = 0.143 \sqrt{eirp}$
400 to 2000 MHz	$R = 6.38 \sqrt{eirp/f}$	$R = 2.92 \sqrt{eirp/f}$
2000 to 300000 MHz	$R = 0.143 \sqrt{eirp}$	$R = 0.0638 \sqrt{eirp}$

Table 7 “Minimum Distances for Compliance with the Exposure Limits ”

Where **R** is the minimum antenna distance in meters

f is the frequency in MHz

eirp is the effective radiated power in the direction of the largest antenna gain in watts.

Since the above calculation of the minimum safe distances does not take into account the accumulative effect of multiple antennas of transmitting radio stations, each radio station Service Provider must ensure that the accumulative electric fields or power densities at any given site does not exceed the maximum permissible levels set in this regulation

⁶ The expressions in table 7 are derived considering that the radio stations are operating with gain of the antenna in the radiating far-field region

Table of Contents

Chapter 1: Purpose and scope of the Regulation	2
Article 1. Background	2
Article 2. Legal basis	2
Article 3. Purpose	2
Article 4. Scope	2
Chapter 2: Definitions	3
Article 5. Definitions	3
Chapter 3. EMF Exposure Limits and Compliance Procedures	6
Article 6. EMF Exposure Limits	6
Article 7. Compliance procedures	8
Article 8. Reporting and Measurement	9
Chapter 4. Responsibilities and Enforcement	10
Article 9. Service Provider's Responsibility	10
Article 10. Enforcement	11
Article 11	11
Annex 1. Electromagnetic Field Regions	12
Annex 2. Measurement of Electromagnetic Fields (Exposure to a Single and Multiple Frequency Fields)	13
Annex 3. Calculation Of The Compliance Distances	14