

# Tunisia

Report on EMF Activities to 23<sup>th</sup> International Advisory Committee on EMF, June 2018.

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## I. RESEARCH ACTIVITIES IN TUNISIA

Few research activities related to EMF exposure and health risks have been conducted in Tunisia until now. Principal research activities are conducted by the “Laboratory of Integrated Physiology, Faculty of Sciences of Bizerte”.

### ❖ Recent publications have been:

- **Effect of sub-chronic ferrous sulfate treatment on motor skills, hematological and biochemical parameters in rats.** (*Arch Environ Occup Health*. 2017 Oct 25;1-6).

Ammari M, Elferchichi M, Othman H, Sakly M, Abdelmelek H.

- **Postnatal development and behavior effects of in-utero exposure of rats to radiofrequency waves emitted from conventional WiFi devices** (*Environ Toxicol Pharmacol* 2017 Jun; 52:239-247).

Othman H, Ammari M, Rtibi K, Bensaid N, Sakly M, Abdelmelek H.

- **Effects of repeated restraint stress and WiFi signal exposure on behavior and oxidative stress in rats** (*Metab Brain Dis* (2017 Oct; 32(5):1459-1469).

Othman H, Ammari M, Sakly M, Abdelmelek H.

- **Effects of prenatal exposure to WIFI signal (2.45GHz) on postnatal development and behavior in rat: Influence of maternal restraint** (*Behav Brain Res*. 2017 May 30; 326:291-302).

Othman H, Ammari M, Sakly M, Abdelmelek H.

- **Prion theory: Induction of Prion Diseases by Nanoparticles Conversion (Prpc To Prpsc) Related to Electromagnetic Field** (*J NeurolNeurosurg* 6(1): OAJNN.MS.ID.555676 (2017).

Hanini A, Rjeb A and Abdelmelek H.

- **Book: Pr. Hafedh Abdelmelek: Carthage Lab: Green biosynthesis of quantum dots Paperback – December 18, 2017 (Modulation of green biosynthesis of quantum dots by RF).**

The technical committee studying health impacts of NIR at ANCSEP is using the scientific researches provided by national and international agencies and bodies. It conducts bibliographic studies and publishes technical opinions and advises to national departments to take measures to prevent potential health risks.

## **II. REGULATIONS**

The three projects of legislations fixing exposure limits to EMF from 0 to 300 GHz and SAR of telecommunication terminals are not published yet. The ministerial circular which fixed the exposure limits for RF bands is still in force.

## **III. AREA AND PUBLIC CONCERNS AND NATIONAL RESPONSES**

The people, who are living near mobile phone base transceiver stations (BTS) antenna, are considered to be the population with the highest risk of exposure.

The ad hoc working group charged with reviewing complaints filed regarding the installation of mobile phone base stations has met four times in **2017** and has treated **61** cases. The ad hoc working group suggests that cellular phone BTS antennas should not be sited closer than 100 m to sensitive institutions (schools, kindergartens, hospitals...) to minimize exposure of their occupants.

The national technical committee on Non-Ionizing Radiation health impact (NIR) provides scientific advice and guidance on the health and environmental effects to protect people and environment by referring to relevant international organizations opinions. As such it is responsible for advice to health and environmental authorities on any health problem related to NIR.

## **IV. POLICIES AND MEASURES REGARDING THE EXPOSURE TO EMF AND EMF RISK MANAGEMENT**

With more than **7000** radio stations for mobile telephony (BTS, Node B...) installed in Tunisia, the National Agency of Frequencies (ANF) is in charge of controlling compliance with ICNIRP limits values of EMF level exposure for public.

The control measurements of public exposures are made according to in-situ measurement protocol adopted by the National Agency of Frequencies in France (ANFR), which is in accordance with the requirements of standard **NF EN 50492**.

The control measurements of public exposures are also made:

- either in the systematic control framework of EM fields levels;
  - or following a complaint of citizens;
- The parameter measured is the total average of electric field strength.

The measure in one point covered all radiofrequencies between 30 MHz and 3 GHz (HF, FM, PMR, TV, Radar, GSM, DCS, DECT, UMTS and LTE):

- 1- Determining the maximum exposure point (Worst case);
- 2- Detailed analysis per sub-band

Since **2009**, the ANF has realized more than **693** measures in the context of compliance control of public exposure, on the whole country. From January 2017 to June 2018, ANF had measured 113 sites, **64%** of the measures are below 2 V/m and **94 %** are below 6 V/m. The maximum level measured is 6.73 V/m.

- All measurements prove that the exposure of Tunisian population to RF electromagnetic fields is significantly lower than the limits allowed by the current regulatory framework.
- The website "[www.cartoradio.tn](http://www.cartoradio.tn)" or "[www.anf.tn](http://www.anf.tn)" available to the public enables access to the results of the EM field measurements synthesized by measuring sheets for a given site.

Currently, there are 14.3 Million subscribers and 2.5 million new mobile phones annually are sold.

## **V. PROSPECTS:**

- Development of regulatory framework to protect population and workers against RF potential health risks.
- Continue the process of developing knowledge of all professionals (health, telecommunication, collectivities, etc.).
- Engaging more communication and information activities for citizens.