

**GOVERNMENT OF INDIA
MINISTRY OF COMMUNICATIONS
DEPARTMENT OF TELECOMMUNICATIONS**

**RAJYA SABHA
STARRED QUESTION NO. 249
TO BE ANSWERED ON 11TH AUGUST, 2023**

EFFECTS OF RADIO FREQUENCY RADIATION

249 SHRI NARAIN DASS GUPTA:

Will the Minister of Communications be pleased to state:

(a) whether Government has taken note of the ill-effects of uncontrolled radiation of Radio Frequency (RF) affecting pre-adolescent children, pregnant women, elderly people, patients with pace makers, birds, flora and fauna, insects etc.; and

(b) steps taken by Government to control ill-effects of RF near cellular towers in residential areas?

ANSWER

**MINISTER OF RAILWAYS, COMMUNICATIONS &
ELECTRONICS AND INFORMATION TECHNOLOGY
(SHRI ASHWINI VAISHNAW)**

(a) to (b) A statement is laid on the Table of the House.

STATEMENT TO BE LAID ON THE TABLE OF RAJYA SABHA IN RESPECT OF PARTS (a) to (b) OF RAJYA SABHA STARRED QUESTION NO. 249 FOR 11TH AUGUST, 2023 REGARDING “EFFECTS OF RADIO FREQUENCY RADIATION”.

(a) & (b) World Health Organization (WHO) in its Fact Sheet No. 304, May 2006 on Electromagnetic Fields and Public Health (Base Stations and Wireless Technologies) has concluded that “considering the very low exposure levels and research results collected to date, there is no convincing scientific evidence that the weak RF Signals from base stations and wireless networks caused adverse health effects. From all evidence accumulated so far, no adverse short or long term health effects have been shown to occur from the RF Signals produced by base stations.”

In August 2016, drawing conclusion from scientific research, WHO has recorded on its website that “In the area of biological effects and medical applications of non-ionizing radiation approximately 25,000 articles have been published over the past 30 years. Despite the feeling of some people that more research needs to be done, scientific knowledge in this area is now more extensive than for most chemicals. Based on a recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields.”

In February, 2020, WHO has again clarified, in Question & Answer (Q&A) published on its website on “5G mobile networks and health”, that “To date, and after much research performed, no adverse health effect has been causally linked with exposure to wireless technologies.”

International Telecommunication Union (ITU) in its Guide on electromagnetic fields and health of 2020 has referred to WHO note, in terms of EMF and health as "All reviews conducted so far have indicated that exposures below the limits recommended in the International Commission for Non Ionizing Radiation Protection (ICNIRP) 1998 EMF guidelines, covering the full frequency range from 0-300 GHz, do not produce any known adverse health effect.” Studies and further research in this area for better health risk assessments and knowledge about biological effects are on going process.

Government is following relevant International agencies/ organizations such as World Health Organization (WHO), International Commission on Non Ionizing Radiation Protection (ICNIRP), International Agency for Research on Cancer (IARC) and International Telecommunication Union (ITU) for possible effects of radio radiation on humans, flora and fauna.

ICNIRP have issued guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 ghz). ICNIRP has prescribed its norms for general public exposure as under:

Frequency Range	E-Field Strength (Volt/Meter)	H-Field Strength (Amp/Meter)	Power Density (Watt/Sq.Meter)
400MHz to 2000MHz	$1.375f^{1/2}$	$0.0037f^{1/2}$	$f/200$
2GHz to 300GHz	61	0.16	10

(f is frequency in MHz)

Both WHO and ITU recommend to adopt ICNIRP guidelines for EMF exposure. 137 countries have already adopted ICNIRP norms. ITU in 2019 has noted that “Because disparities in standards around the world have caused increasing public anxiety about exposure from the introduction of new technologies, WHO has commenced a process of harmonization of EMF standards worldwide.”

The Government of India has adopted extremely strict norms for EMF radiation which is 10 times more stringent than the safe limits prescribed by ICNIRP. The present EMF exposure limits laid down for Base Transceiver Stations (BTSs) in India are as follows:

Frequency Range	E-Field Strength (Volt/Meter)	H-Field Strength (Amp/Meter)	Power Density (Watt/Sq.Meter)
400MHz to 2000MHz	$0.434f^{1/2}$	$0.0011f^{1/2}$	$f/2000$
2GHz to 300GHz	19.29	0.05	1

(f is frequency in MHz)

Telecom Service Providers have complained that such stringent norms have adverse impact on quality of service.

Government of India has put in place a well-structured process and mechanism so that Telecommunications Service Providers (TSPs) strictly adhere to these prescribed norms including submission of certificate by Telecom Service Providers before commercial start of BTS site and extensive audit of compliance. DoT has provisioned to impose financial penalty on defaulting TSPs whose BTSs are found exceeding the prescribed EMF emission limits and closure of BTSs as per procedure if they are not brought within prescribed emission limits.
