

A Case Study on Health Issues Caused by Mobile Phone Usage and Awareness of SAR Value in Mobile Phones

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Abstract

In this fast growing world mobile phones has become one of important device in every ones life. It's been used by all age group people for different application apart from calling and texting. The advance in mobile technology has brought many new applications using mobile. But still one question arises in mind that people really aware of Safety standard especially SAR value. What is SAR value means? It's the specific absorption ratio measure of amount of radio frequency intensity or energy absorbed by body when using mobile phones. It is defined as the power absorbed per mass of issue and has units of watts per kilogram (W/kg). In this case study I have tried to brief some of the major hazards caused due to more use of mobile phone and also included the base line for getting a mobile phone by comparing with some top

Keywords:

1. SAR Adoption in India

India has adopted ICNIRP guidelines as the standard for safety limits of exposure to radio-frequency energy produced by mobile handsets for general public as follows: Whole-body average SAR of 0.08 W/kg, localized SAR for head and trunk of 2 W/kg, and localized SAR for limbs 4 W/kg.

Specific Absorption Rate (SAR) testing procedure is being finalized by Telecom Engineering Centre (TEC). The SAR test laboratory is also being set up in TEC, Delhi, for testing of revised SAR standards of mobile handsets imported or manufactured in India^{1,13}.

2. Effect of Mobile Phone Usage

International Agency for Research on Cancer (IARC), a part of WHO designates cell phones as "possible human

carcinogen" [Class 2B]. You may feel warm sensation or pain which may lead to tinnitus ("Ringxiety" - sensation of cell phone ring) then to irreversible hearing loss at last chance of occurrence of Ear Tumor. A Cell phone transmits 1 to 2 Watts of power for 6 minutes usage in a day⁴⁻⁸.

3. International Case Study on Mobile Phone Radiation⁹⁻¹²

Around 230,000-290,000 Swedish men and women- Out of a population of 9,000,000 are now Electro Hypersensitive (EHS).

Scientists found between 1996 and 2006 died in Belo Horizonte a total of 4924 victims of cancer types that may be caused by electromagnetic radiation, such as tumors in the prostate, breast, lung, kidneys and liver^{2,3}.

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4. Some of Mobile Phone SAR Comparisons

4.1 Nokia

Sl. No.	Mobile type	SAR value
1	Nokia C1	1.16 W/kg over 1g
2	Nokia Lumia 930	0.60 W/kg over 10g
3	Nokia Lumia 520	1.09 W/kg over 10g
4	Nokia N97	0.58 W/kg.
5	Nokia N70	0.93 W/kg.
6	Nokia X	1.14 W/kg over 10g
7	Nokia X7	0.94 W/kg
8	Nokia 101	1.28 W/kg.

4.2 Samsung

Sl. No.	Mobile type	SAR value
1.	Galaxy Ace S5830	0.69 W/kg over 1g
2.	Galaxy Y S5360	0.57 W/kg over 1g
3.	Galaxy Ace Plus S7500	0.49 W/kg over 1g
4.	Galaxy Ace Duos I589	0.43 W/kg over 1g
5.	Galaxy Ace 2 I8160	0.52 W/kg over 1g

4.3 Apple Iphone

Sl. No.	Mobile type	SAR value
1.	Apple Iphone 3G	0.235
2.	Apple Iphone 3GS	0.19

5. Conclusion

In India people are unaware of mobile phone hazards, one important parameter to be considered in buying a mobile phone is SAR value. It is recommended that people should use mobile phone as minimum possible. Avoid giving mobile phones to children as the effect is more on them. The above case study gives a brief about mobile phone risk and comparing different mobile models. All companies are trying to reduce the SAR value as possible. So it's our duty to find the right mobile and use minimum.

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