

RF Radiation Readings of Various Wireless Sources

Please note these are instantaneous readings.

RF radiation levels fluctuate up and down, which is the nature of pulsed RF signals (so peak levels are actually higher than what's depicted)

The readings should be used to reflect order of magnitude of differences in RF levels when devices are on/antennas are on compared to when they are off.

RF Radiation – Cell Towers

School “W”, upstairs Bldg B

2.409mW/m² = 0.2409uW/cm²



School “S”, next to field

4.384mW/m² = 0.4384uW/cm²



RF Radiation Readings



My Backyard

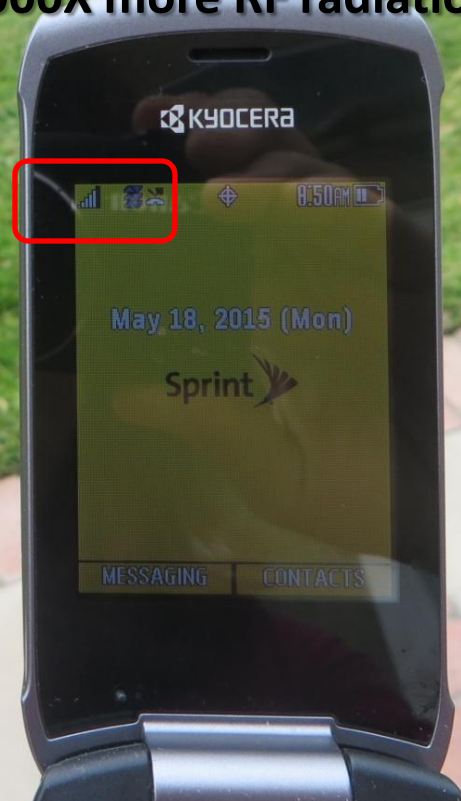
0.0036mW/m2 = 0.00036uW/cm2

Even at this low RFR level, I have 5 bars
Sprint Tower 1 mi away!

Range of a tower is 3-5 mi.

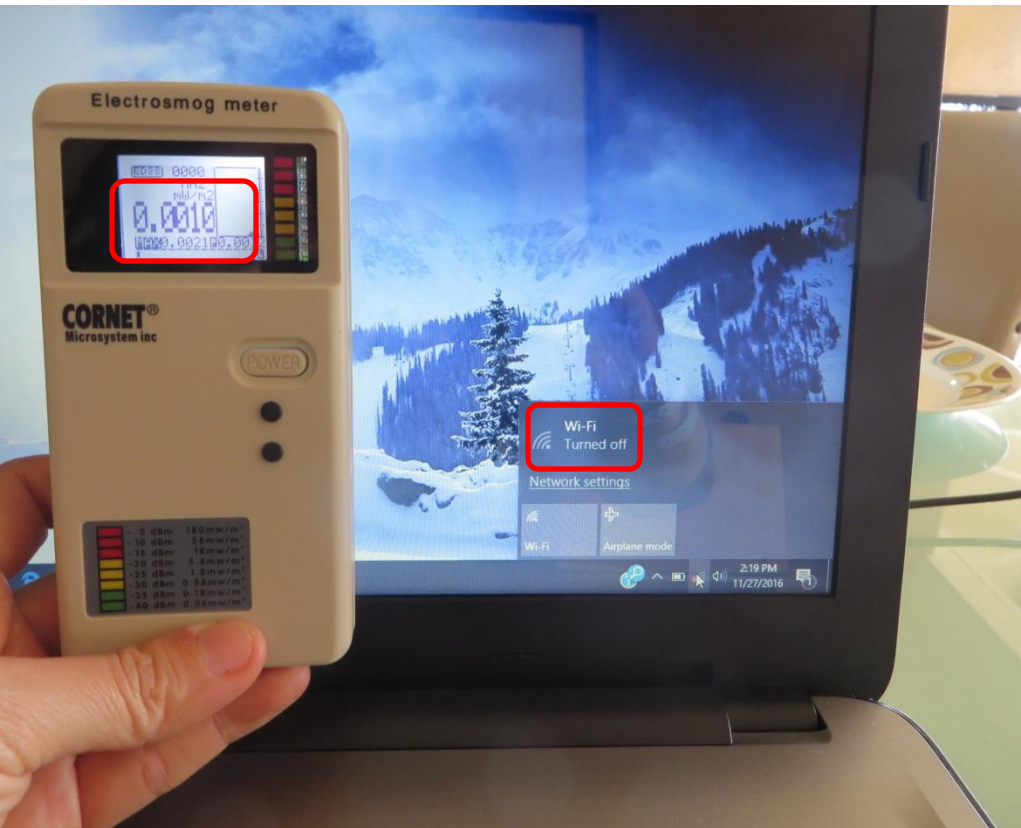
So why site them next to schools, subjecting
Children to 1000X more RF radiation?

5 out of 6 bars →

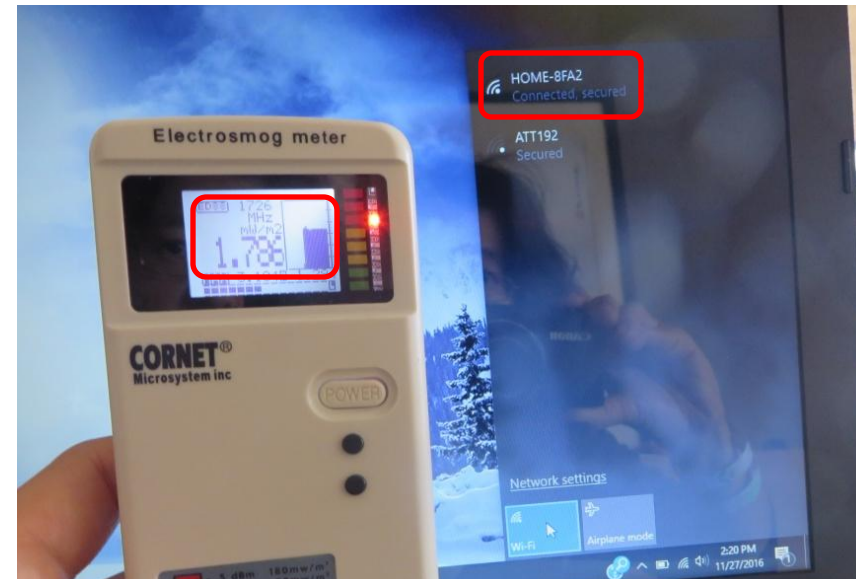


Laptop Radiation – Wi-fi On vs.Off

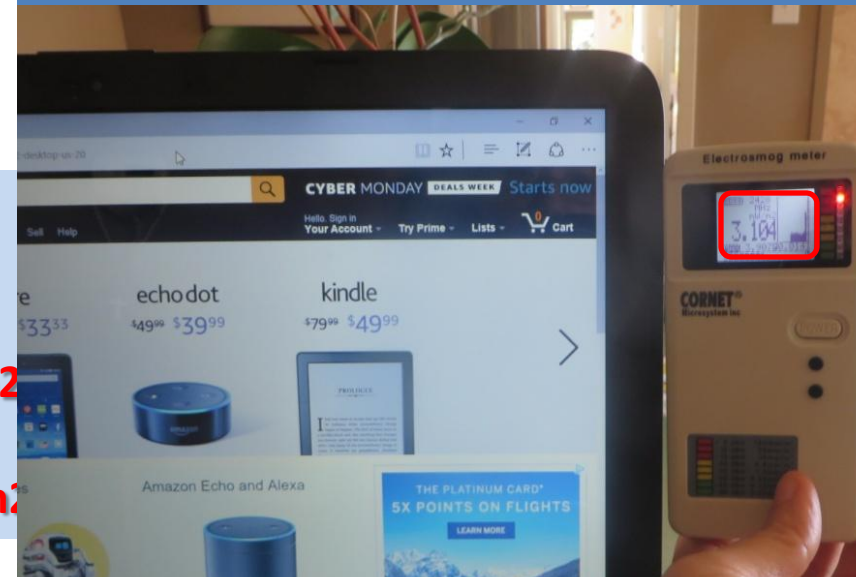
Wi-Fi Turned Off on laptop



Wi-Fi On, no webpage open



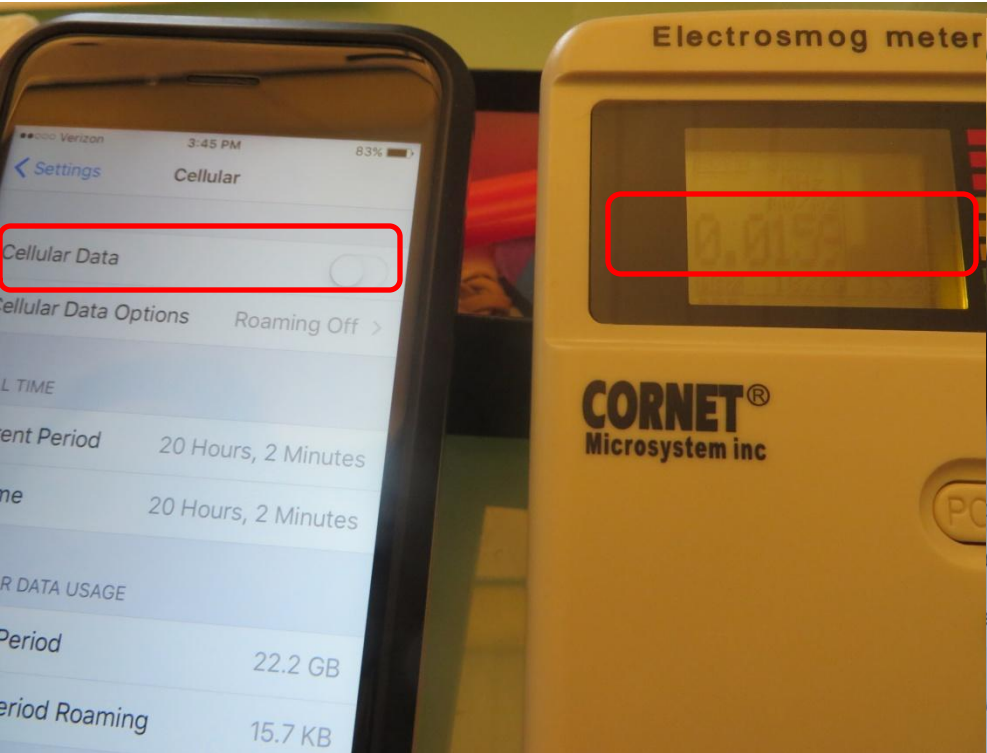
Wi-Fi On, webpage open on Amazon



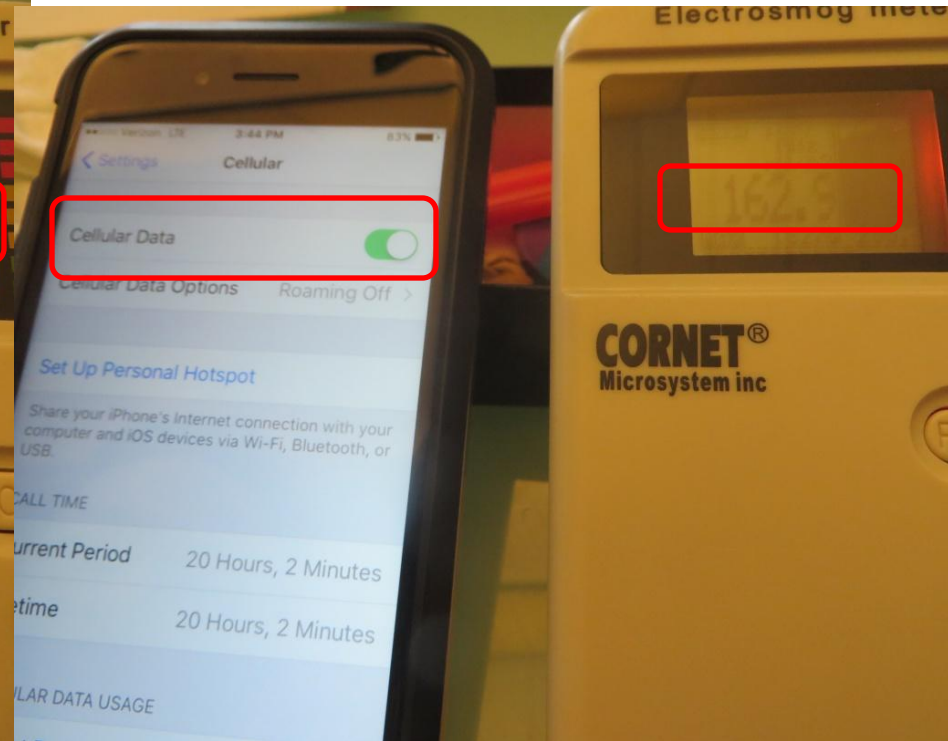
**When Wi-fi OFF, RF radiation is at lowest,
0.0010 mW/m² = 0.0001uW/cm² (ambient level)
When Wi-fi ON, even though not using internet ,
RF 1000X+ higher at 1.786 mW/m² =0.1786uW/cm²
When Wi-fi ON AND using internet,
RF 3000X+ higher at 3.104 mW/m² = 0.3104uW/cm²**

iphone Radiation – LTE On vs.Off

LTE Antenna off



LTE cellular data ON



When LTE antenna is off, RF radiation at $0.0159 \text{ mW/m}^2 = 0.00159 \mu\text{W/cm}^2$

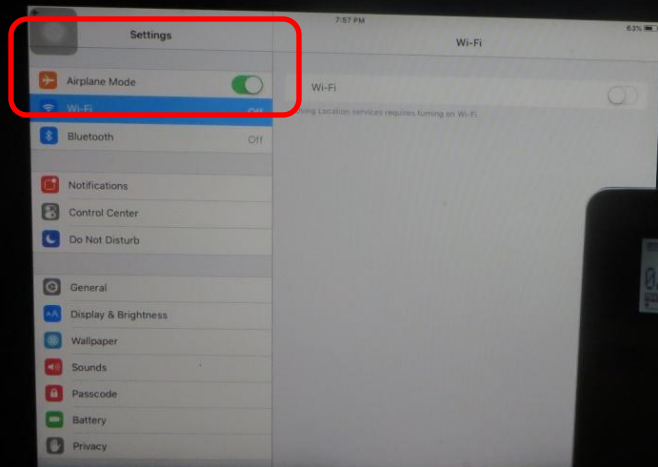
When LTE is ON, RF radiation at 10,000X+ higher at $162.9 \text{ mw/m}^2 = 16.29 \mu\text{W/cm}^2$

Carrying phone on your body , holding it to your head, holding it in your hand connected to LTE exposes you to high levels of RF radiation

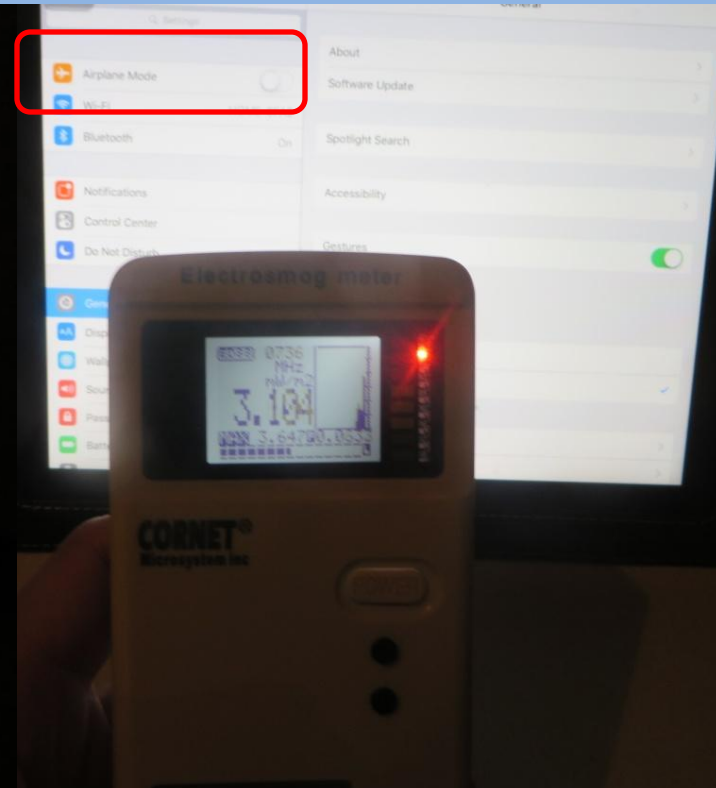
Turn off LTE antenna when not using internet or airplane mode (shuts off all antennas)

ipad Radiation – Wi-fi On vs.Off

Airplane Mode On (Wi-Fi Off)



Airplane Mode off (Wi-Fi On)

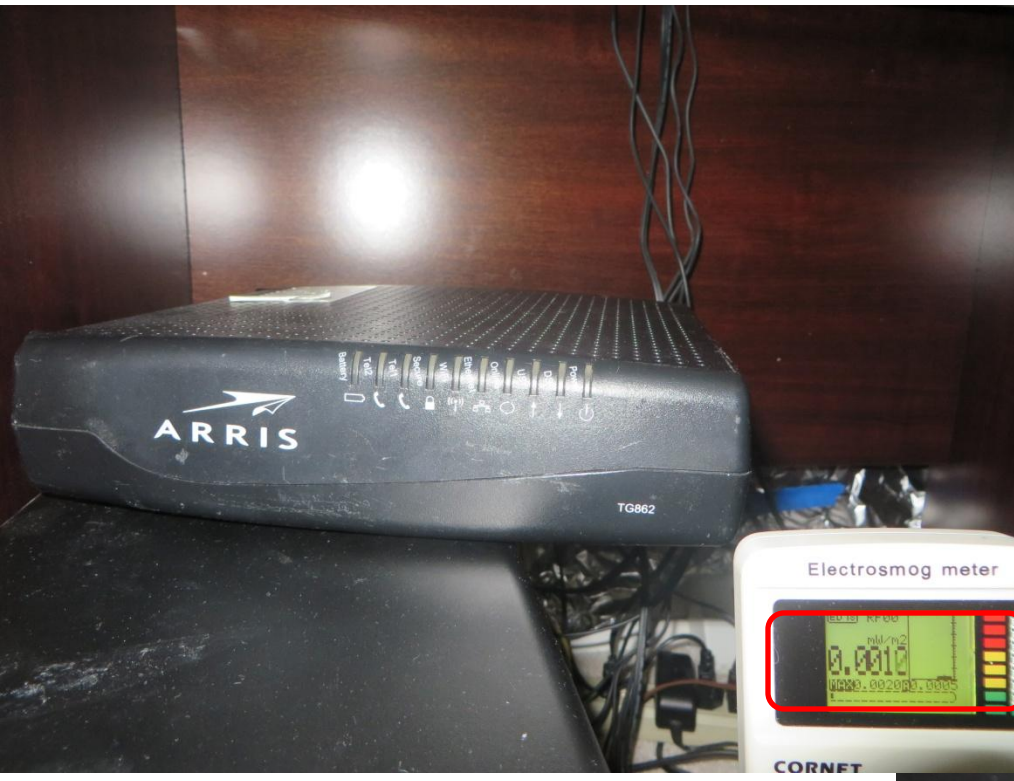


**When Airplane Mode On (Wi-fi off), RF radiation is at ambient levels, 0.0015 mW/m².
When Airplane Mode Off (Wi-fi on), RF over 2000X higher at 3.104 mW/m² =
0.3104uW/cm².**

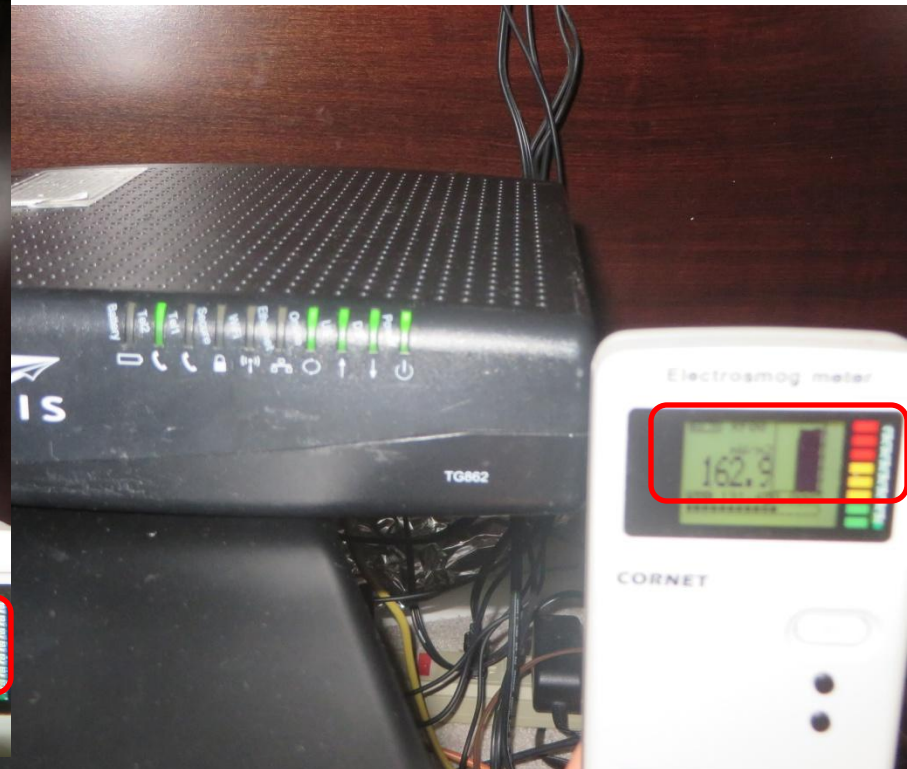
Don't hold ipad on your lap or in your hands . Use it on a stand at a table.

Home Wi-Fi Router

Wi-Fi OFF – 0.0015mW/m² (ambient level)



Wi-Fi ON – 162.9 mW/m² (ambient level)



**When wi-fi is off, RF radiation is at ambient levels for the room, 0.0010 mW/m².
When wi-fi is on, RF over 10,000X higher at 162.9 mW/m² = 16.29uW/cm².**

**Sitting close to wi-fi router exposes your body to high levels of RF radiation.
Turn off wi-fi when not in use, and before going to bed at night.**

**To see health effects at these RF levels,
look at the table on the next slides.
It is from the 2012 Bioinitiative Report
(Note: Table lists RF readings in $\mu\text{W}/\text{cm}^2$)**

2012 Bioinitiative Report

- Compendium by 29 int'l scientists/doctors - 21 PhD's, 10 MD's
- 3800 peer-reviewed, published studies on bioeffects from RF radiation
- EU Parliament used 2007 version to set limits

The screenshot shows a web browser window with the URL www.bioinitiative.org/table-of-contents/ highlighted by a red rectangle. The page features a blue sidebar with navigation links: "Editors' Notes", "What's New?", "BioInitiative Report", "Table of Contents", "Preface", "Conclusions", "Research Summaries", "RF Color Charts", "Participants", "Media", and "Contact". The main content area displays a "DOWNLOAD THE REPORT" button and a list of 24 sections, each preceded by a plus sign. The sections are: SECTION I: PREFACE, SECTION II: TABLE OF CONTENTS, SECTION 1: SUMMARY FOR THE PUBLIC AND CONCLUSIONS, SECTION 2: STATEMENT OF THE PROBLEM, SECTION 3: THE EXISTING PUBLIC EXPOSURE STANDARDS, SECTION 4: EVIDENCE FOR INADEQUACY OF THE STANDARDS, SECTION 5: EVIDENCE FOR EFFECTS ON GENE AND PROTEIN EXPRESSION, SECTION 6: EVIDENCE FOR GENOTOXIC EFFECTS - RFR AND ELF DNA DAMAGE, SECTION 7: EVIDENCE FOR STRESS RESPONSE (STRESS PROTEINS), SECTION 8: EVIDENCE FOR EFFECTS ON IMMUNE FUNCTION, SECTION 9: EVIDENCE FOR EFFECTS ON NEUROLOGY AND BEHAVIOR, SECTION 10: EFFECTS OF EMF FROM WIRELESS COMMUNICATION UPON THE BLOOD-BRAIN BARRIER, SECTION 11: EVIDENCE FOR BRAIN TUMORS AND ACOUSTIC NEUROMAS, SECTION 12: EVIDENCE FOR CHILDHOOD CANCERS (LEUKEMIA), SECTION 13: EVIDENCE FOR EFFECTS ON MELATONIN: ALZHEIMER'S DISEASE AND BREAST CANCER, SECTION 14: EVIDENCE FOR BREAST CANCER PROMOTION, SECTION 15: EVIDENCE FOR DISRUPTION BY THE MODULATING SIGNAL, SECTION 16: PLAUSIBLE GENETIC AND METABOLIC MECHANISMS FOR BIOEFFECTS OF VERY WEAK ELF MAGNETIC FIELDS ON LIVING TISSUE, SECTION 17: EVIDENCE BASED ON EMF MEDICAL THERAPEUTICS, SECTION 18: FERTILITY AND REPRODUCTION EFFECTS OF EMF, SECTION 19: FETAL AND NEONATAL EFFECTS OF EMF, SECTION 20: FINDINGS IN AUTISM CONSISTENT WITH EMF AND RFR, SECTION 21: MOBILE PHONE BASE STATIONS: WELL-BEING AND HEALTH, SECTION 22: PRECAUTION IN ACTION - GLOBAL PUBLIC HEALTH EXAMPLES SINCE BIOINITIATIVE 2007, SECTION 23: THE PRECAUTIONARY PRINCIPLE, and SECTION 24: KEY SCIENTIFIC EVIDENCE AND PUBLIC HEALTH POLICY RECOMMENDATIONS. The browser's taskbar at the bottom shows the Windows logo, several application icons, and the system clock indicating 2:34 PM on 4/12/2015.

www.bioinitiative.org/table-of-contents/

Editors' Notes

What's New?

BioInitiative Report

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4/12/2015

2012 Bioinitiative Report

School News | x New Report Rec x Dr. Magda Hava x www.magdahav x Expert Studies | x safeschool.ca/u x apps.fcc.gov/ec x Google Maps x www.bioinitiat
 ioinitiative.org/report/wp-content/uploads/pdfs/BioInitiativeReport-RF-Color-Charts.pdf

Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

Power Density (Microwatts/centimeter2 - uW/cm2)		Reference
As low as (10 ⁻¹³) or 100 femtowatts/cm2	Super-low intensity RFR effects at MW resonant frequencies resulted in changes in genes; problems with chromatin conformation (DNA)	Belyaev, 1997
5 picowatts/cm2 (10 ⁻¹²)	Changed growth rates in yeast cells	Grundler, 1992
0.1 nanowatt/cm2 (10 ⁻¹⁰) or 100 picowatts/cm2	Super-low intensity RFR effects at MW resonant frequencies resulted in changes in genes; problems with chromatin condensation (DNA) intensities comparable to base stations	Belyaev, 1997
0.00034 uW/cm2	Chronic exposure to mobile phone pulsed RF <u>significantly reduced sperm count,</u>	Behari, 2006
0.0005 uW/cm2	RFR decreased cell proliferation at 960 MHz GSM 217 Hz for 30-min exposure	Velizarov, 1999
0.0006 - 0.0128 uW/cm2	<u>Fatigue, depressive tendency, sleeping disorders, concentration difficulties, cardio-vascular problems</u> reported with exposure to GSM 900/1800 MHz cell phone signal at base station level exposures.	Oberfeld, 2004
0.003 - 0.02 uW/cm2	In children and adolescents (8-17 yrs) short-term exposure caused <u>headache, irritation, concentration difficulties</u> in school.	Heinrich, 2010
0.003 to 0.05 uW/cm2	In children and adolescents (8-17 yrs) short-term exposure caused <u>conduct problems in school (behavioral problems)</u>	Thomas, 2010
0.005 uW/cm2	In adults (30-60 yrs) chronic exposure caused <u>sleep disturbances,</u> (but not significantly increased across the entire population)	Mohler, 2010
0.005 - 0.04 uW/cm2	Adults exposed to short-term cell phone radiation reported <u>headaches, concentration difficulties</u> (differences not significant, but elevated)	Thomas, 2008
0.006 - 0.01 uW/cm2	Chronic exposure to base station RF (whole-body) in humans showed <u>increased stress hormones; dopamine levels substantially decreased; higher levels of adrenaline and nor-adrenaline;</u> dose-response seen; produced chronic physiological stress in cells even after 1.5 years.	Buchner, 2012
0.01 - 0.11 uW/cm2	RFR from cell towers caused <u>fatigue, headaches, sleeping problems</u>	Navarro, 2003

2012 Bioinitiative Report

Magda Havas, x www.magdahavas. x Expert Studies | An x safeschool.ca/uplo x apps.fcc.gov/ecfs/ x Google Maps x www.bioinitiative.c x Inbo
 tive.org/report/wp-content/uploads/pdfs/BioInitiativeReport-RF-Color-Charts.pdf

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0.01 - 0.05 uW/cm ²	Adults (18-91 yrs) with short-term exposure to GSM cell phone radiation reported <u>headache, neurological problems, sleep and concentration problems.</u>	Hutter, 2006
0.005 - 0.04 uW/cm ²	Adults exposed to short-term cell phone radiation reported <u>headaches, concentration difficulties</u> (differences not significant, but elevated)	Thomas, 2008
0.015 - 0.21 uW/cm ²	Adults exposed to short-term GSM 900 radiation reported changes in mental state (e.g., calmness) but limitations of study on language descriptors prevented refined word choices (stupified, zoned-out)	Augner, 2009
0.05 - 0.1 uW/cm ²	RFR linked to adverse neurological, cardio symptoms and cancer risk	Khurana, 2010
0.05 - 0.1 uW/cm ²	RFR related to headache, concentration and sleeping problems, fatigue	Kundi, 2009
0.07 - 0.1 uW/cm ²	Sperm head abnormalities in mice exposed for 6-months to base station level RF/MW. Sperm head abnormalities occurred in 39% to 46% exposed mice (only 2% in controls) abnormalities was also found to be dose dependent. The implications of the pin-head and banana-shaped sperm head. The occurrence of sperm head observed increase occurrence of <u>sperm head abnormalities</u> on the reproductive health of humans living in close proximity to GSM base stations were discussed."	Otitolaju, 2010
0.38 uW/cm ²	RFR affected calcium metabolism in heart cells	Schwartz, 1990
0.8 - 10 uW/cm ²	RFR caused emotional behavior changes, free-radical damage by super-weak MWs	Akoev, 2002
0.13 uW/cm ²	RFR from 3G cell towers <u>decreased cognition, well-being</u>	Zwamborn, 2003
0.16 uW/cm ²	Motor function, <u>memory and attention</u> of school children affected (Latvia)	Kolodynski, 1996
0.168 - 1.053 uW/cm ²	<u>Irreversible infertility</u> in mice after 5 generations of exposure to RFR from an 'antenna park'	Magras & Zenos, 1997
0.2 - 8 uW/cm ²	RFR caused <u>two-fold increase in leukemia</u> in children	Hocking, 1996
0.2 - 8 uW/cm ²	RFR <u>decreased survival in children with leukemia</u>	Hocking, 2000
0.21 - 1.28 uW/cm ²	Adolescents and adults exposed only 45 min to UMTS cell phone radiation reported increases In headaches.	Riddervold, 2008