



Mobile Manufacturers  
Forum

First West African Conference On EMF Exposure And Health:  
“Harmonizing EMF Risk Communication And  
EMF Policy In West Africa”

Victoria Crown Plaza Hotel, Victoria Island, Lagos, Nigeria  
Wednesday, 27th And Thursday, 28th June 2012

# MOBILE PHONES AND SAFETY: INTERNATIONAL EMF POLICY DEVELOPMENTS

Thomas Barmüller, Director EMEA  
Mobile Manufacturers Forum



- About the MMF
- Information about Mobile Phones and Safety
- Regulations and Standards in Place
- Scientific Reviews and Research Databases

- International association of radio equipment manufacturers
  - Representing around 80% of global handset sales
  - The providers of the majority of global network infrastructure
- Association's focus:
  - health and safety,
  - accessibility,
  - counterfeit, and
  - environmental sustainability.
- Key areas of activity:
  - research and standards support, regulatory harmonisation and public communications

# MMF Members

- Apple
- Cisco
- Ericsson
- Intel
- LG
- Motorola Mobility
- Motorola Solutions
- Nokia
- Nokia Siemens Networks
- Samsung
- Sony
- TCT Mobile (Alcatel Mobile Phones)

# Outline



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**Don't text and  
drive.**

# ICNIRP Basic Restrictions: Mobile Phones

	ICNIRP limits		
Exposure Characteristic	Whole Body averaged Specific Absorption Rate	Local SAR averaged over 10 g of tissue	
		Head & Trunk	Limbs
Workers' exposure	0.4 W/kg	10 W/kg	20 W/kg
General Public exposure	0.08 W/kg	2 W/kg	4 W/kg

Guidelines for Limiting Exposure to Time-varying Electric, Magnetic and Electromagnetic Fields (up to 300 GHz).” Health Physics, April 1998, vol.74, number 4, pp. 494-522

# SAR ?

## Specific Absorption Rate

Measured in:

Watts / kg



Head+Trunk

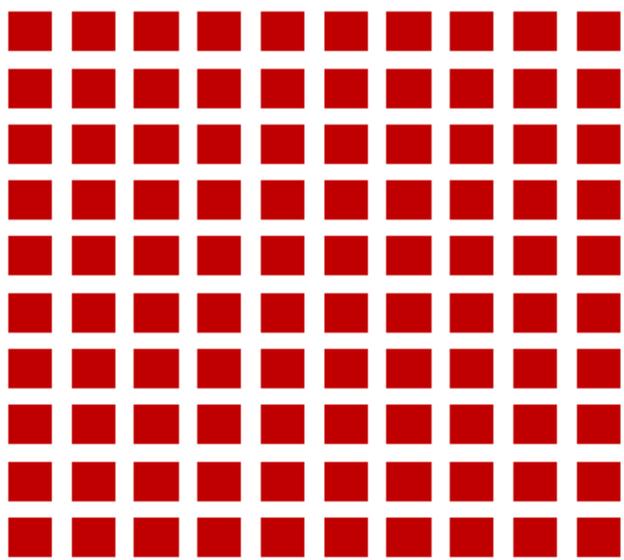
SAR

■ = 1 Watt / kg

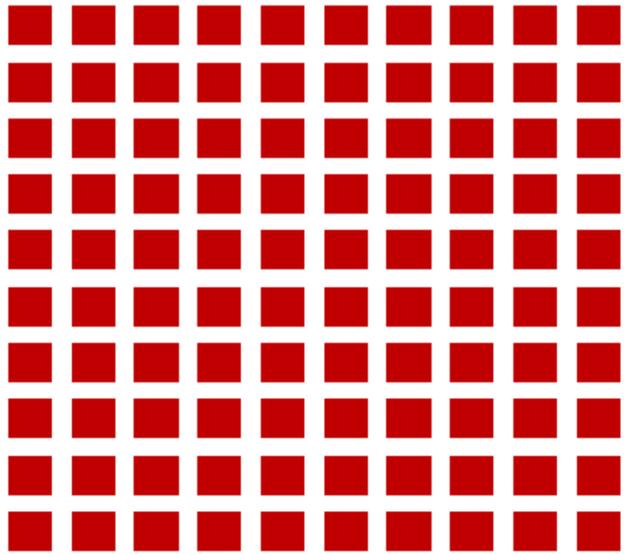
■ = 1 Watt / kg

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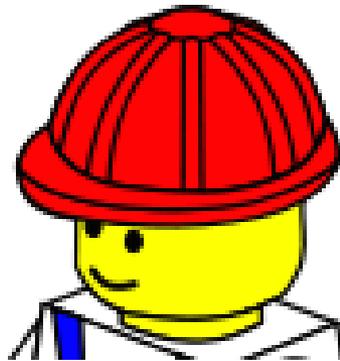
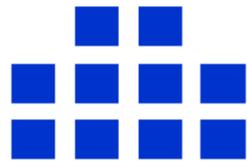
# 100+



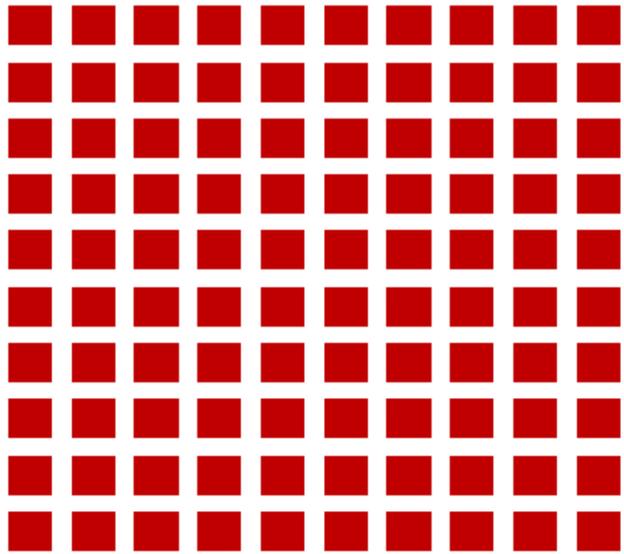
100+



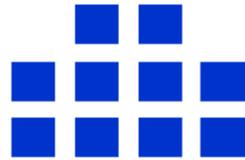
10



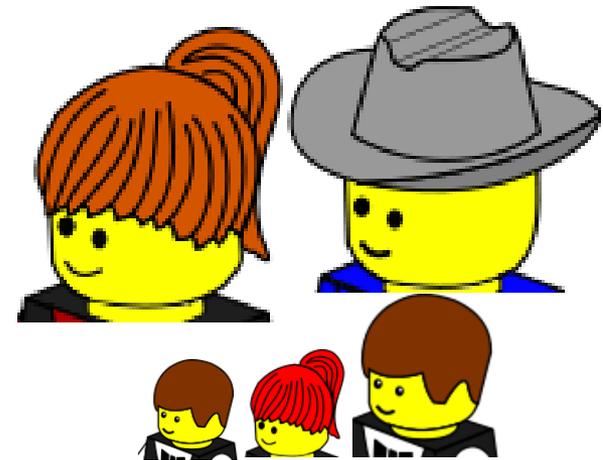
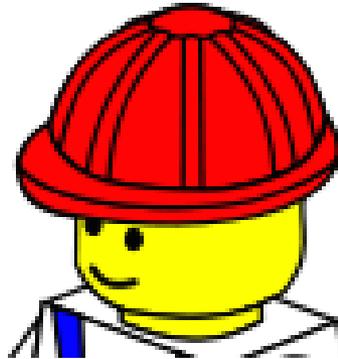
100+



10



2



# SAR Compliance Testing

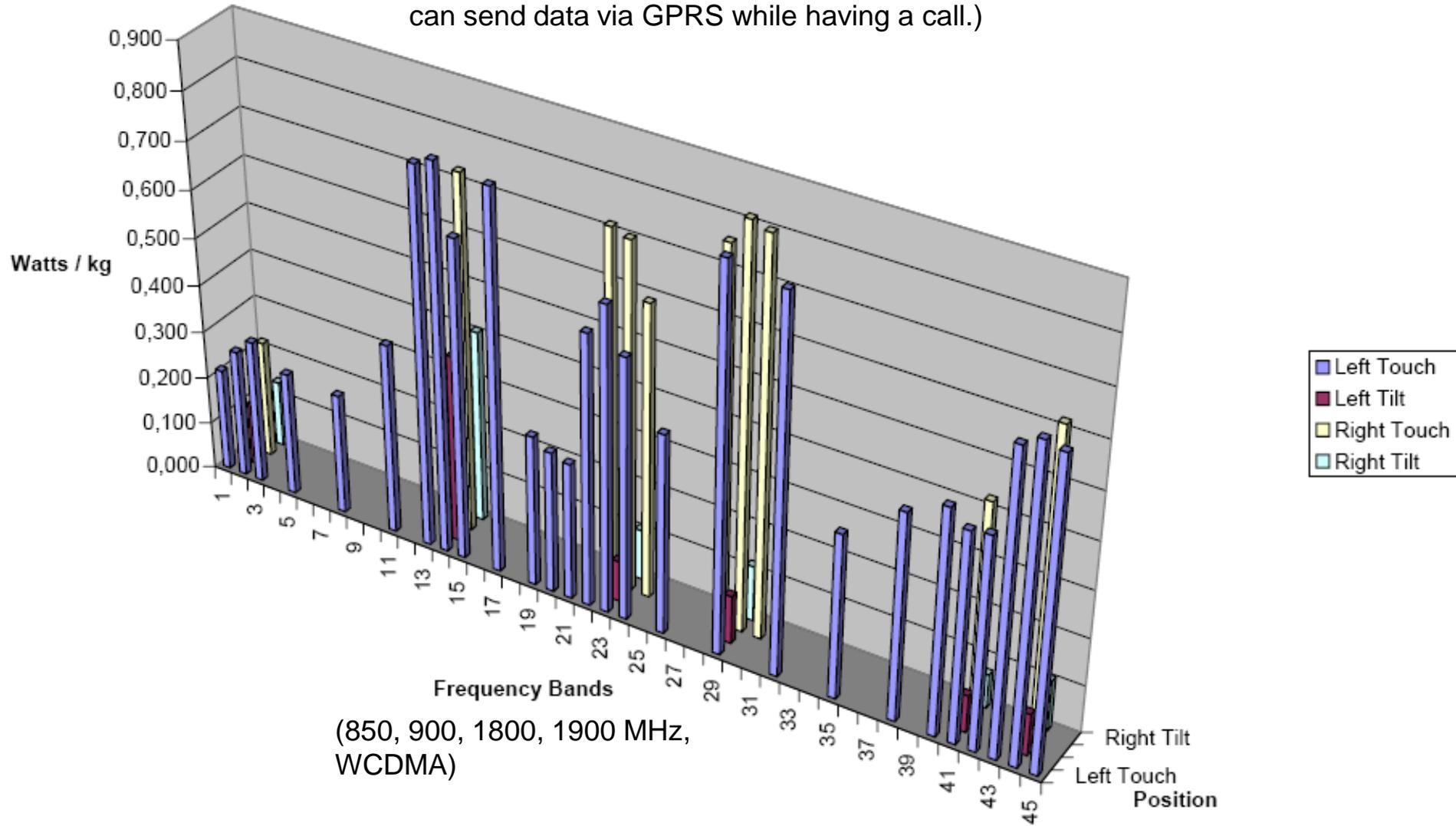
- 2 measurement standards in place:
  - IEC 62209-1 (head, no separation distance)
  - IEC 62209-2 (trunk = body-worn, separation distance of up to 25 mm can apply)
- Mobile phones are tested for compliance at the highest possible power level.
- Video on SAR testing:



- Get more info at: [www.emfexplained.info/?ID=24898](http://www.emfexplained.info/?ID=24898)

# Test at highest possible power level, report highest SAR value in user manual

**SAR values of GPRS multi-band mobile phone**  
(Dual Transfer Mode functionality, i.e. device can send data via GPRS while having a call.)



# Adaptive Power Control

- **Mobiles** only operate on the minimum power needed to make or maintain a call to **extend battery life** but this also reduces EMF exposure further.

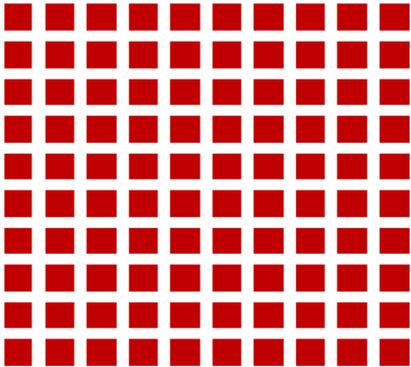


## ...but some people remain concerned

- Recommend a **hands-free kit**.
  
- Keep in mind:
  - The **suggestion** to use a hands-free kit **aims at reducing concerns**. It's not about additional or higher safety as **all compliant mobile phones are equally safe**.

# Summary 'Head + Trunk SAR'

Established  
Adverse Health  
Effect:



**All compliant mobile phones  
are equally safe.**

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- **Regulations and Standards in Place**
- Scientific Reviews and Research Databases

# Regulations and Standards in Place

- **Science-based approach prevails** as countries around the world have adopted ICNIRP limits.
- Also ITU\* recommends:  
“**If such limits do not exist**, or if they do not cover the frequencies of interest, then **ICNIRP limits** (Appendix I) **should be used.**”



# Regulations and Standards in Place

## ➤ Brazil:

- Since **2002**, ICNIRP limits had been in force based on **Resolution # 303**, issued by Brazilian National Telecommunication Agency ANATEL.
- **In May 2009**, ICNIRP's scientific rationale and limits stipulated by **federal law #11934/2009**.
- The order applies to both **network infrastructure and handsets** well as all the other radio systems (TV broadcasting, radio broadcasting, two ways radios, etc)



# Regulations and Standards in Place

## ➤ China:

- In August 2008, China officially adopted ICNIRP based limits for handsets.
- Limits for base stations are currently being prepared but MIIT has stated they see no reason for these limits not to be also based on ICNIRP.



# Regulations and Standards in Place

## ➤ India:

- In **September 2008**, the Telecom Commission of India **formally adopted ICNIRP guidelines** in India.
- The order applies to both **network infrastructure and handsets**.
- India is **currently in the process of adopting exposure measurement standards** and is looking carefully at the existing American, European and international (IEC) standards. Due to a one-sided report ICNIRP adoption is re-discussed, final decision by Sept 2012.

# Regulations and Standards in Place

## ➤ Russia:

- Russia's current EMF limits were developed before mobile communications was available. At that time the rationale completely different.
- In December 2008, the Consumer Rights Protection Agency Rospotrebnadzor, endorsed an action plan designed to harmonize EMF standards with those used internationally.
- Since December 2010, EU's Declaration of Conformity officially recognized. Upcoming accession to WTO will complete process.

# Regulations and Standards in Place

## ➤ Nigeria:

- **Bill on EMF exposure limits** discussed in National Assembly.
- The bill applies to both **network infrastructure and handsets**.
- The bill refers to limits set by the International Commission on Non-Ionizing Radiation Protection (**ICNIRP**).

Extraordinary  
  
**National  
Assembly  
Journal**

No. 62 Abuja - 17th April, 2012 Vol. 8

CONTENTS

INDEX TO LEGISLATIVE INSTRUMENTS

Bill No.	Long Title	Page
HR. 11.12.181	A Bill for an Act to Require Statutory Bodies to Prepare and Forward To The National Assembly, Through The President, Annual Reports of Its Operations and Finances, and For Other Matters Connected Therewith.	C0807 - 0809
HR. 11.12.182	A Bill for an Act to Provide For The Demotion of Officers From Certain Levels of Exposure to Electromagnetic Fields, and for Other Matters Connected Therewith.	C0807 - 0810
HR. 11.11.162	A Bill for an Act to Amend The Nigerian Securities Development Corporation Act, To Reorganize The Corporation, To Make it More Effective and For Connected Purposes.	C04915 - 0921
HR. 12.01.252	A Bill for an Act to Amend The Nigerian Geological Survey Agency (Establishment Act, 2005) to Empower The Agency To Create a Special Unit on Seismic Monitoring so as to Set Up Earthquake Warning Monitoring Stations along the National Coastline, and Related Earthquake Early Warning Devices in Other Part of the Country.	C04923 - 0924
HR. 12.01.276	A Bill for an Act to Amend The Central Bank of Nigeria Act, 2007 Act No. 7 to Appoint A Person Other Than The Governor as the Chairman of the Board of the Bank, Restrict the Powers, Functions and Duties of the Board of Directors as Members of the Board, Divest The Board of the Power of Recommendation and Approval of Other Senior Staff of the Bank, and For Other Related Matters.	C0925 - 0928
HR. 11.10.127	A Bill for an Act to Establish The Air Force Institute of Technology, Kaduna To Give Technical Training to Personnel of the Nigerian Air Force, Other Services of The Armed Forces of Nigeria and Other African Countries, and For Matters Connected Therewith.	C0820 - 0841



# Regulations and Standards in Place

## ➤ Rwanda:

- Since 2008, ITU-T K.52 (EMF exposure guidelines based on ICNIRP) is in place.
- The order applies to both network infrastructure and handsets.
- Rwanda Utilities Regulatory Authority (RURA) started to establish a close working relationship with the National Environmental Management Authority (REMA) also in terms of EMF issues.

# Regulations and Standards in Place

## ➤ Tanzania:

- In Nov 2008, the Tanzania Atomic Energy Commission (TAEC) started an initiative to implement ICNIRP guidelines in the EAC.
- In Nov 2009, conference resolution to implement WHO-based EMF policy and ICNIRP limits and science-based approach in the EAC.
- In Sept 2010, Tanzania Communication Regulatory Authority (TCRA) issued public notice to endorse ITU/ICNIRP limits





# Regulations and Standards in Place

## ➤ Zambia:

- In **August 2007**, the Communications Authority Zambia adopted **ICNIRP limits**.\*
- In **2008/2009**:
  - national baseline **survey** on more than 1,200 GSM and broadcasting transmitters **to assess EMF exposure** and compliance with EMF exposure limits.\*\*
  - Followed by a comprehensive **awareness program explaining the results** and the future steps.\*\*
- In **June 2011: EMF stakeholder conference** (organized by Zambia Regulatory Authority, GSMA and MMF)

\*Source: ZM.S.102 \*\*CAZ Regulatory Report 2009

# Regulations and Standards in Place

## ➤ Conclusion:

- **Strong trend toward** the adoption of **ICNIRP** based exposure limits taking into account the updated scientific body of evidence
- **Countries around the world have adopted ICNIRP** limits, including world's two most populated countries.
- Those countries have **reviewed and accepted the scientific rationale** underpinning the ICNIRP approach.

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- **Scientific Reviews and Research Databases**

# Scientific Reviews: Body of Scientific Evidence

**2005**

"... the scientific research, when taken together, does not indicate a significant association between cell phone use and health effects."<sup>1</sup>

"The scientific studies examined in the risk dialogue do not support suspicions that mobile telephony has harmful effects on health."<sup>2</sup>

"... insufficient contemporary proof with regard to increased cancer risk to change mobile phoning habits."<sup>3</sup>

**2006**

"...for adult brain tumours there is no association with mobile phone use for at least up to, say, ten years of use. For longer latency the majority of the evidence also speaks against an association, but the data are still sparse. [...] exposure from transmitters is unlikely to be a health risk."<sup>1</sup>

"... provided mobile phones do not exceed the limits of recognised standards, there will be no harmful effects. [...] no substantiated evidence that there are adverse health effects resulting from the emissions of mobile phone towers or base stations."<sup>2</sup>

"... no firm evidence to date that RF emissions from cell phones cause ill health."<sup>3</sup>

**2007**

"Reviews of all the research have not found clear, consistent evidence of any adverse effects."<sup>1</sup>

"...no evidence that mobile phones bring hazards to health when used under normal operating conditions. [...] Despite densely-packed transmitters on some rooftops in residential areas [...], the buildings are absolutely safe to live in."<sup>2</sup>

"... no adverse short or long-term health effects have been found"<sup>3</sup>

"... present guidelines provide adequate protection against any adverse effect established so far."<sup>4</sup>

**2008**

"The scientific evidence does not show a danger to any users of cell phones from RF exposure, including children and teenagers."<sup>1</sup>

"Over the past 15 years [...] hundreds of studies looking at the biological effects of the radiofrequency energy emitted by cell phones [...]. The majority of studies published have failed to show an association between exposure to radiofrequency from a cell phone and health problems."<sup>2</sup>

"There is insufficient evidence to indicate a causal association between cell phone use and intracranial tumours."<sup>3</sup>

"The overall conclusion is that exposure from transmitters is unlikely to be a health risk."<sup>4</sup>

**2009**

"It is concluded from three independent lines of evidence (epidemiological, animal and in vitro studies) that exposure to RF fields is unlikely to lead to an increase in cancer in humans..."<sup>1</sup>

"With reference to radio frequency, available data do not show any excess risk of brain cancer and other neoplasms associated with the use of mobile phones."<sup>2</sup>

"Recent studies have not shown effects from RF fields on human or animal reproduction and development. No new data have appeared that indicate any other effects on human health."<sup>3</sup>

"Results of epidemiological studies to date give no consistent or convincing evidence of a causal relation between RF exposure and any adverse health effect."<sup>4</sup>

**2010**

"Overall, no increase in risk of glioma or meningioma was observed with use of mobile phones."<sup>1</sup>

"Overall, these incidence data from the United States based on high-quality cancer registries do not provide support for the view that use of cellular phones causes brain cancer."<sup>2</sup>

"The scientific consensus is that, [...] there is no clear evidence of adverse health effects from the use of mobile phones or from phone masts."<sup>3</sup>

"For none of these outcomes is there sufficient evidence of a causal association between exposure and disease."<sup>4</sup>

**2011**

"Present evidence from clinical and epidemiological studies indicates that there is no causal relationship between exposure to the radio frequency fields used in mobile telephony and adverse effects on health."<sup>1</sup>

10,220

2005

10,898

2006

11,671

2007

12,410

2008

13,128

2009

14,205

2010

14,544 (until 31 May, 2011)

2011

# Body of Scientific Evidence



Mobile Manufacturers  
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www.emf-portal.de



EMF-Portal - Willkommen

Registrieren Impressum Kontakt

powered by femu

## EMF-PORTAL



### Informationen zu den Wirkungen elektrom

Home  
Zielsetzung

Publikationen  
Suche  
Themenbereiche

Übersichten

Glossar

Feldquellen

Grundlagen

Links

Aktueller Status:  
15964 erfasste  
Publikationen.  
(Stand: 25. Jun  
2012)

Status 25 June 2012:  
**15964**



Literatursuche



Grafische Übersichten



Glossar



### Neue Zusammenfassungen

**21.06.12: Response of Hippocampal Neurons and Glial Cells to Alternating Magnetic Field in Gerbils Submitted to Global Cerebral Ischemia.**

Raus S, Selakovic V, Manojlovic-Stojanoski M, Radenovic L, Prolic Z, Janac B (2012), Neurotox Res: in press

**21.06.12: Deficits in water maze performance and oxidative stress in the hippocampus and striatum induced by extremely low frequency magnetic field exposure.**

Cui Y, Ge Z, Rizak JD, Zhai C, Zhou Z, Gong S, Che Y (2012), PLoS One 7 (5): e32196

**21.06.12: Semen parameters.**

Trummer K, Trummer H (2011), Andrologia 43 (5): 312 - 316

**19.06.12: Low Frequency Electromagnetic Field Exposure on the Antioxidant**

Martinez-Speza MA, Verdugo-Diaz L (2012), Arch Med Res: in press



**25.06.12: Occupational**

Valic B, Kos B, Gajser J (2012), Int J Hyg Environ Health 215 (6): 603 - 608

**25.06.12: Simultaneous**

Valic B, Kos B, Gajser J (2012), Int J Hyg Environ Health 215 (6): 603 - 608

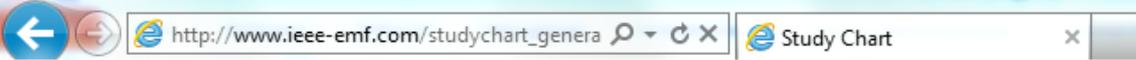
**25.06.12: The effects of**

Boga A, Binokay S, Gajser J (2012), Int J Hyg Environ Health 215 (6): 603 - 608

**22.06.12: Low Frequency**

Human Vascular Calcium Signaling  
Li Y, Song LQ, Chen Y, et al (2012), Arch Med Res: in press

# Body of Scientific Evidence



- Home
- View EMF Studies (Static,ELF) 0-300 Hz
- View EMF Studies (Intermediate) 300 Hz-300 KHz
- View EMF Studies (RF/mmW/THz) 300 kHz-300 GHz
- Advanced Search
- Citation List (Author Search)
- E-mail

Study Type/Subtype	Ongoing	Reported but Not Published	Published
<b>Engineering &amp; Physics</b>			
Auditory Pathology & RF Hearing	0	0	1
Computational Dosimetry & Experimental Models of Humans	6	2	94
Computational Dosimetry in Animals	1	0	6
Computational Dosimetry in Cell Culture	0	0	10
Computational Dosimetry Methods	0	0	18
Dielectrometry, Spectroscopy & Tissue Parameters	3	0	44
Electromagnetic Interference & Compatibility	5	8	72
Experimental Dosimetry in Animals	1	1	9
Experimental Dosimetry in Humans	2	0	0
Exposure - Animals	1	0	7
Exposure - Cell Culture	0	0	7
Exposure Systems	0	0	1
Hearing Aid Com...	0	0	37
Induced Current, Con...	0	0	16
Instrumentation	0	0	6
M...			
RF			
RF			
RF			
Theoretical Mechanisms	3		
Thermoregulation and Time-Temperature Thresholds	0		

**Status 25 June 2012 (various study types):**  
2929

# Thank you.

## Questions? Further Information needed?



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**Since December 2006: MMF's Director for Europe, Middle East and Africa** and responsible for the co-ordination of the association's activities in the region.

**2000 – 2006: Forum Mobilkommunikation,**

Austrian national trade organisation, Managing Director

**1990 – 1999: Member of the Austrian Parliament,**

focused on infrastructure issues, telecommunication, renewable energy and environment

**1990: Master of Laws,** University of Graz, Austria.