



4th ITU Green Standards Week

Mobile Networks and EMF assessments in the Asia Pacific

Jack Rowley, PhD
Senior Director
Research & Sustainability
GSMA



Sustainability: reduce impacts - increase benefits



Mobile Energy Efficiency

Case Study

Warid Pakistan expects to save more than US\$ 6 million per year after trialling energy efficiency solutions

Asia: The difference the Connected Life could make in five years

2 hours a week for every commuter



Time saved commuting by reducing traffic congestion

China



India



Power to 10 million homes

47 billion kilowatt-hours saved by reducing power theft and improving usage efficiency



10 billion USD saved annually



Equivalent to the healthcare costs of a million senior citizens

Japan



South Korea



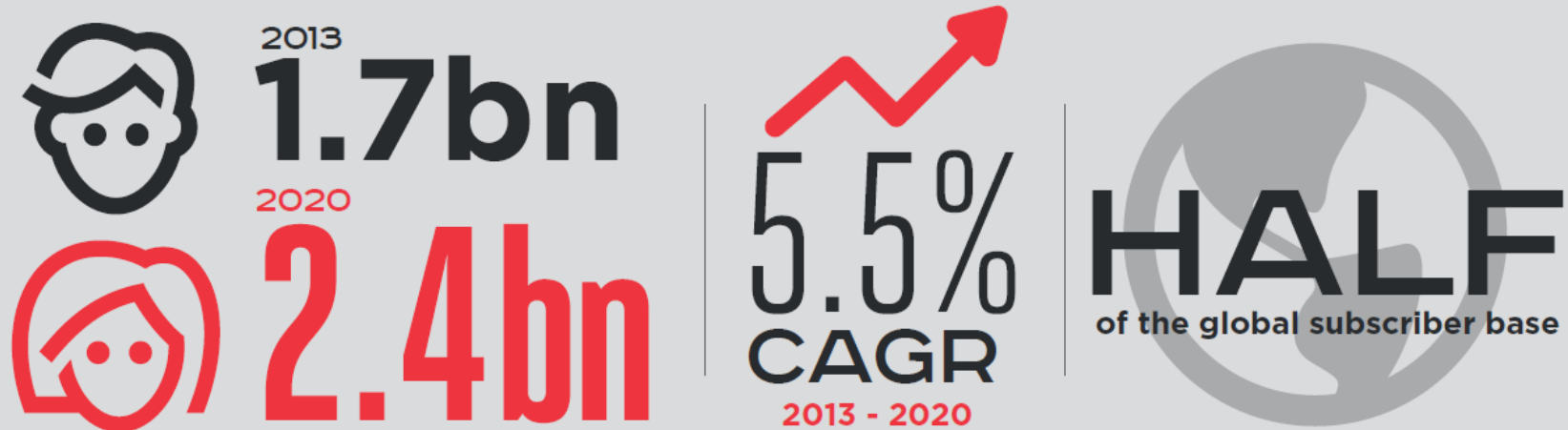
8,000 to 12,000 USD

Potential savings in after-school private education over a student's lifetime

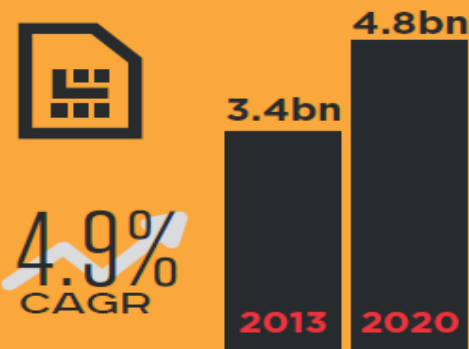


Asia-Pacific mobile economy - subscribers

Unique subscribers



Total SIM connections



Asia-Pacific mobile economy – GDP contribution

Gross domestic product

2013 mobile industry impact

US\$ 864bn



6.9%

By 2020 the mobile industry is estimated to contribute around 6.9% of regional GDP

Operator capex

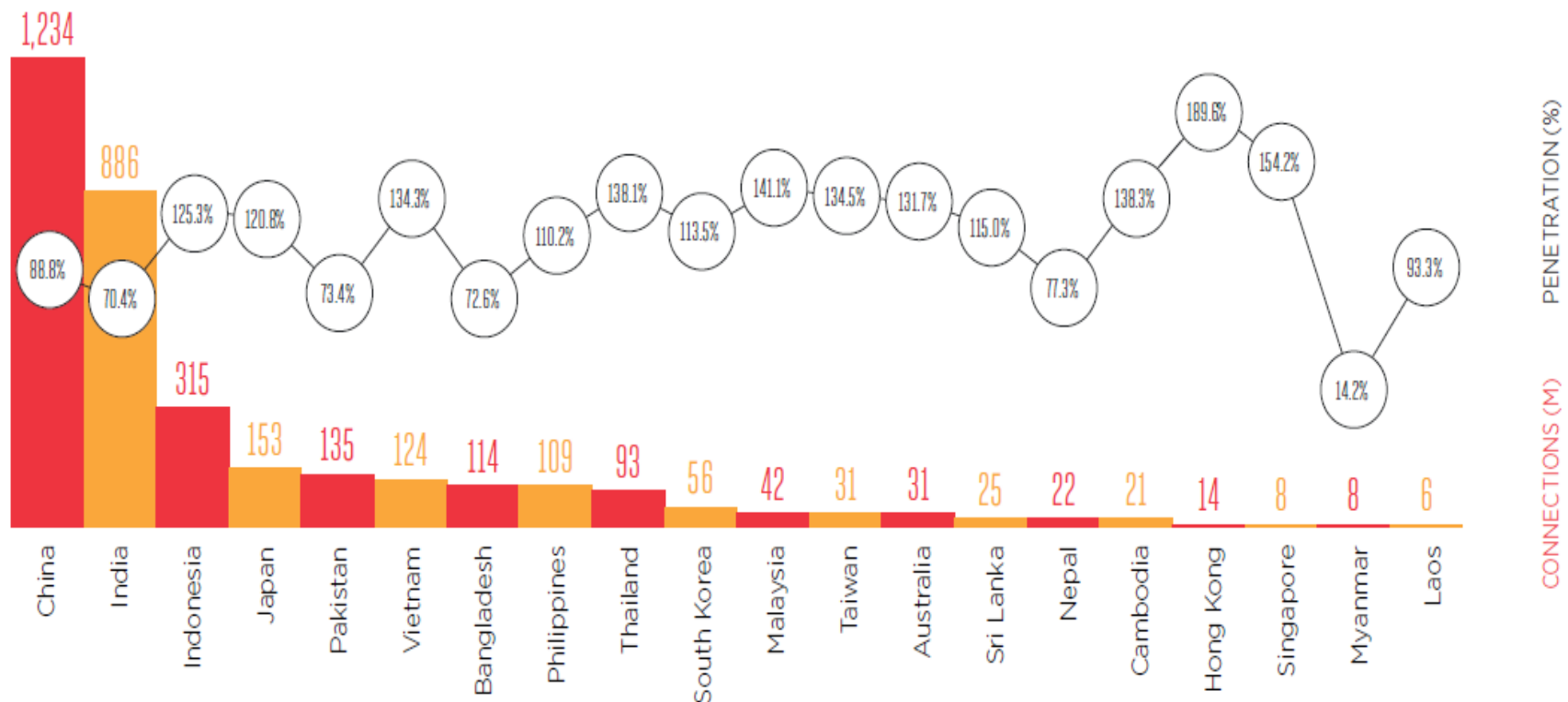
US\$ 78bn
2013

US\$ 112bn
2020

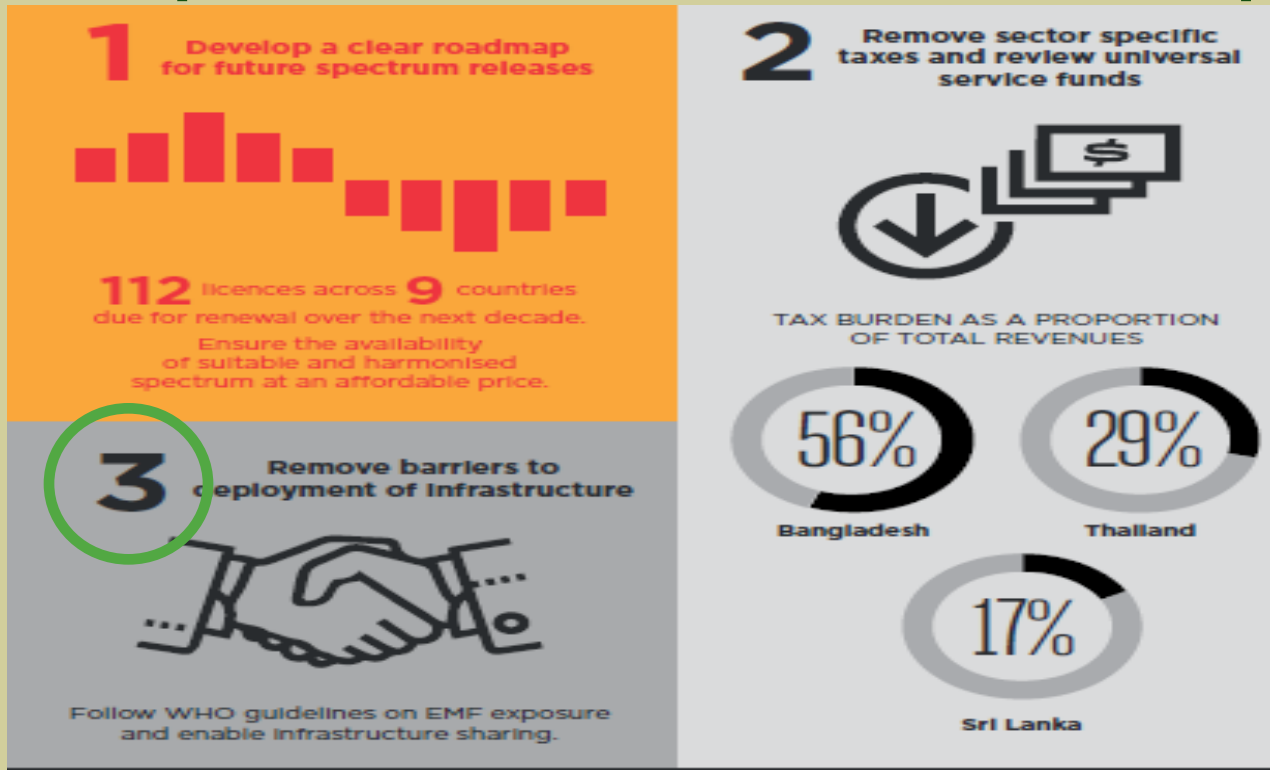
Asia-Pacific mobile economy – market diversity

Source: GSMA Intelligence

Total connections (m) and penetration rate by country (2013)



Main requirements for national broadband plans



Mobile Network Infrastructure Deployment Policies and Electromagnetic Fields

GSMA-MCIT Workshop, July 17 2014, Emerald Palace Hotel, Nay Pyi Taw, Myanmar

Conflicting information available to the public

South China Morning Post 南華早報
HONGKONG
TUE Jan 29, 2013 Updated: 5:16pm

Home News Hong Kong Trending topics Diaoyu Islands Con

Mobile Telecommunications

NEWS • HONG KONG • HEALTH

Concerns over long-term health effects of mobile phone antennae

Simon Parry Sunday, 27 January, 2013, 12:00am

ETTelecom.com
An initiative of The Economic Times

Home Corporate Policy Services Devices Infrastructure MVAS

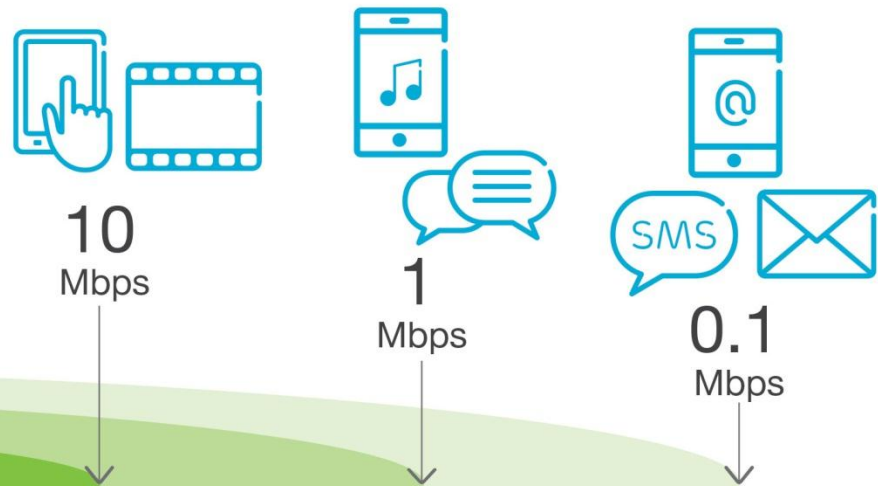
#Corporate » #Industry » #Rajan Matthews #radiation emission #Narendra Modi #EMF
#COAI

Annoyed with call drops? Blame phone tower emission myths

IANIS | 23 June 2014, 10:41 PM IST



Need for mobile network antennas



publicTECHNOLOGY.NET

Published on PublicTechnology.net (<http://www.publictechnology.net>)

Dropped signals stymie NHS mobile trials

Created 2011-09-12 09:22



Poor connectivity is hampering efforts in the NHS to exploit mobile technology that, if done properly, could deliver annual savings of at least £3,000 per doctor.

Coverage, capacity and in-building cells

04

Mobile services are connected by a network of antennas

Small cells



Free-standing masts

Building mounted

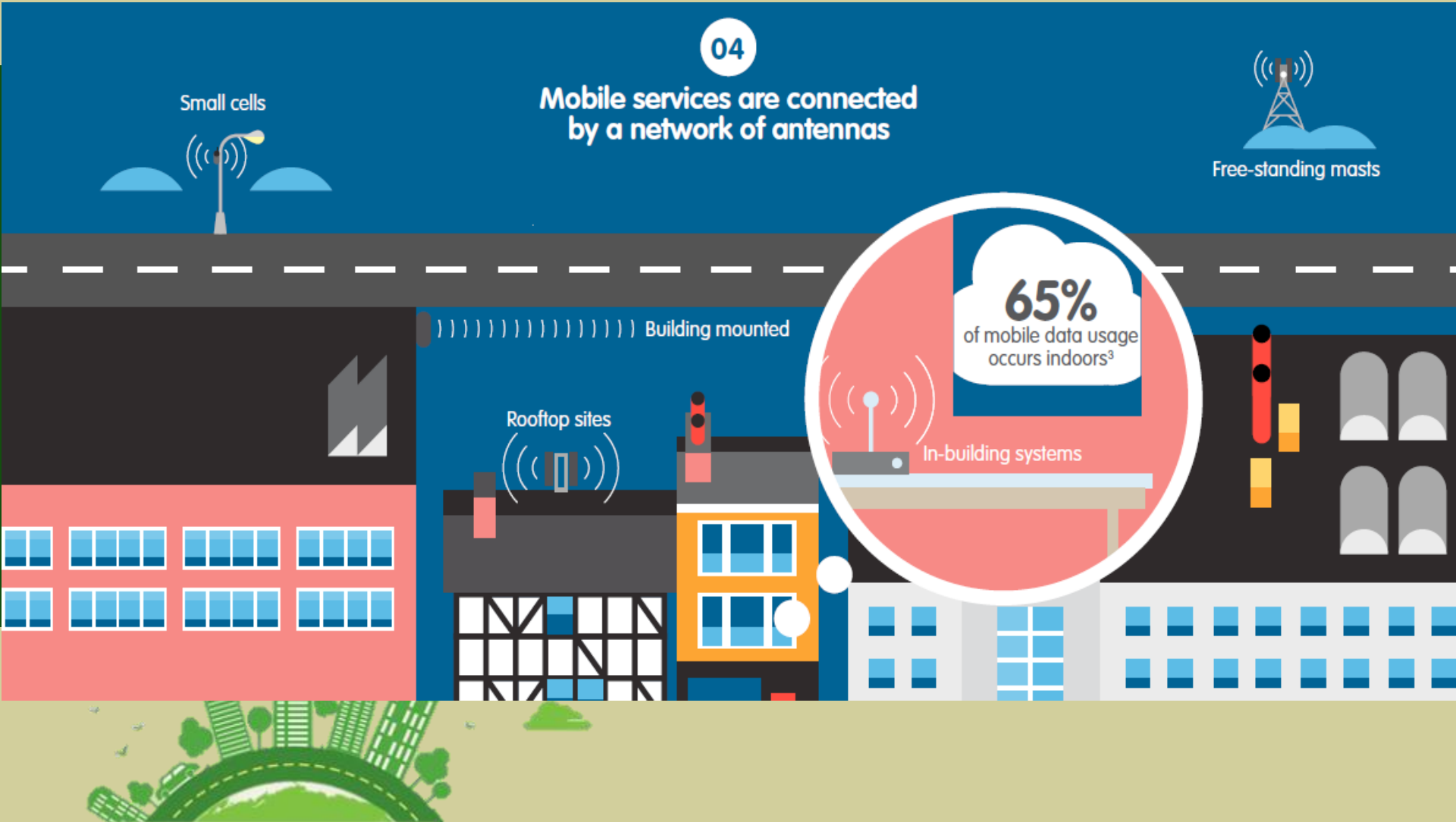
Rooftop sites



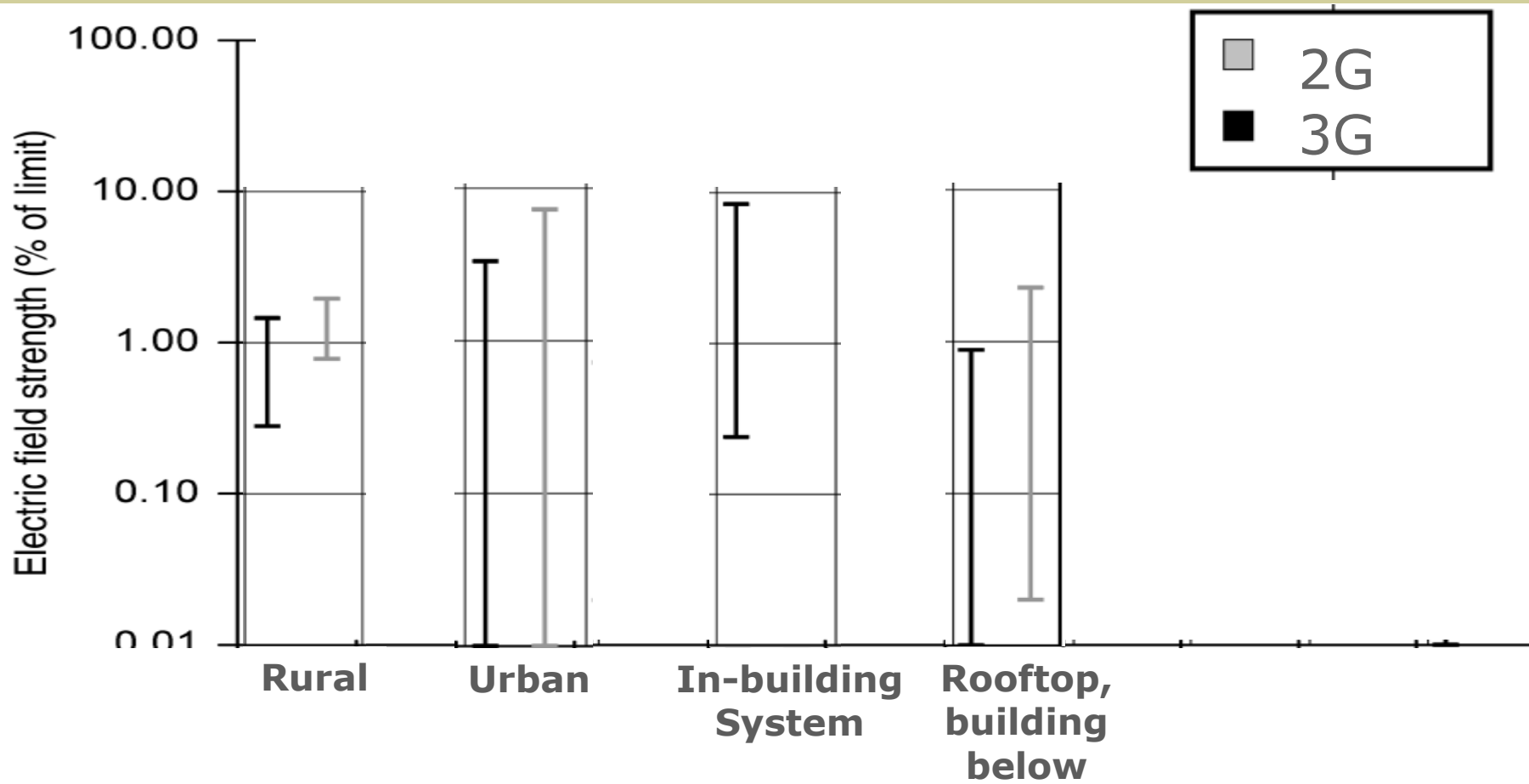
65%

of mobile data usage occurs indoors³

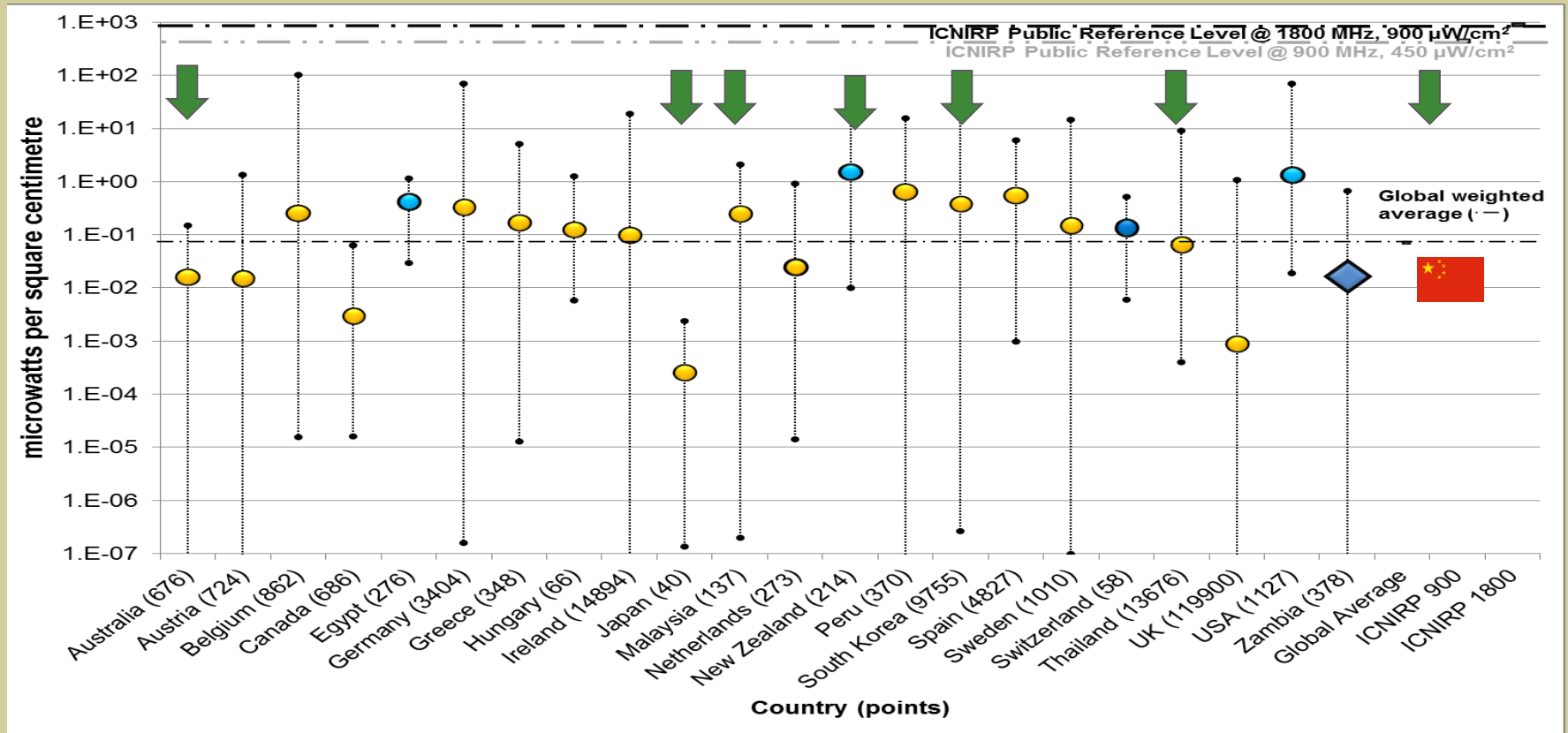
In-building systems



Similar RF exposures for all base station types



Mobile network exposures similar for all countries

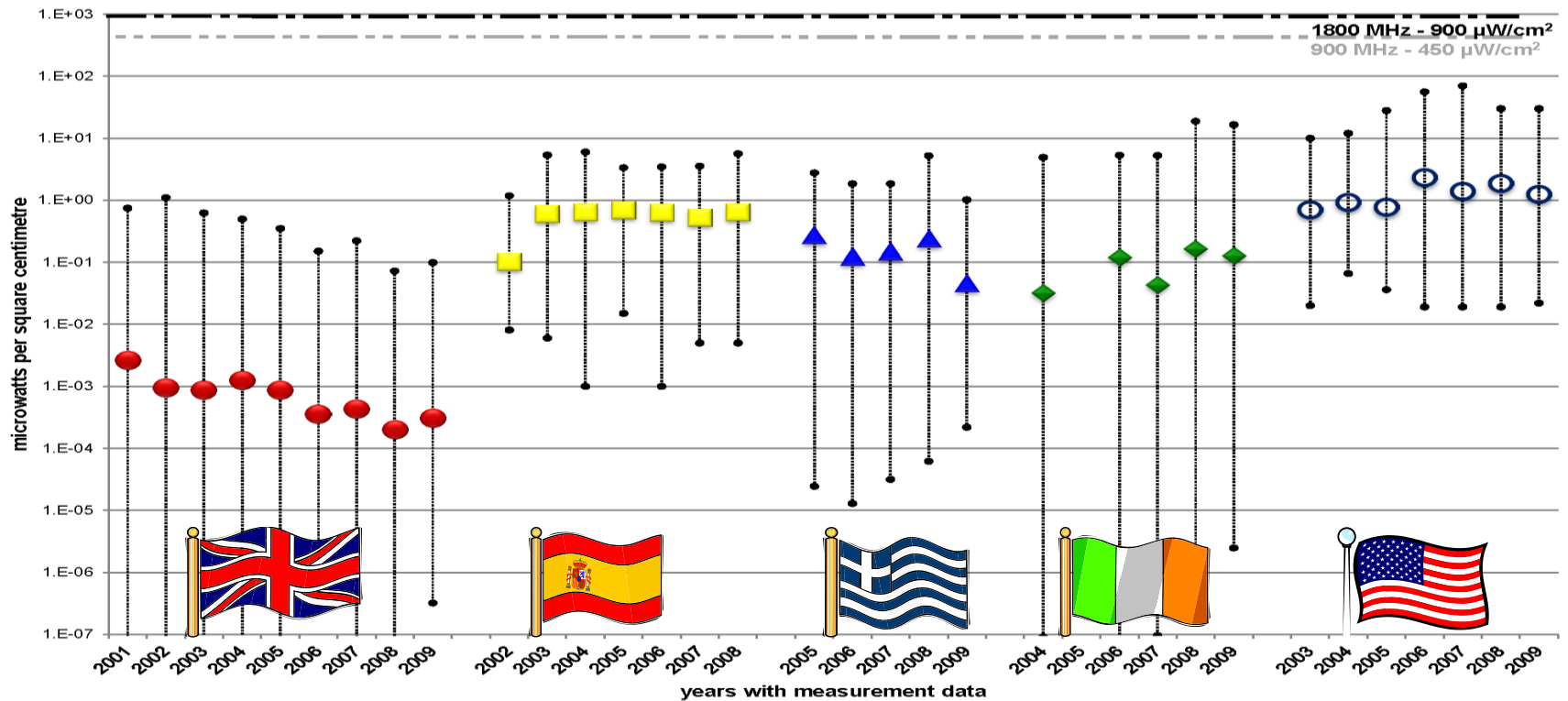


Global average more than 5,500 times below limit values.


Based on [Rowley and Joyner, 2012](#)
[Wu et al., 2013](#)

No significant change in RF levels over time

Figure 2. Minimum (●), maximum (●) and average of the narrowband measurements for the UK (●), Spain (■), Greece (▲) and Ireland (◆); and the broadband measurements for the US (○), with the year of measurement data on the horizontal axis. Note that not all years were available in all countries. For comparison, the ICNIRP reference level for the public at 900 MHz and 1800 MHz are included.

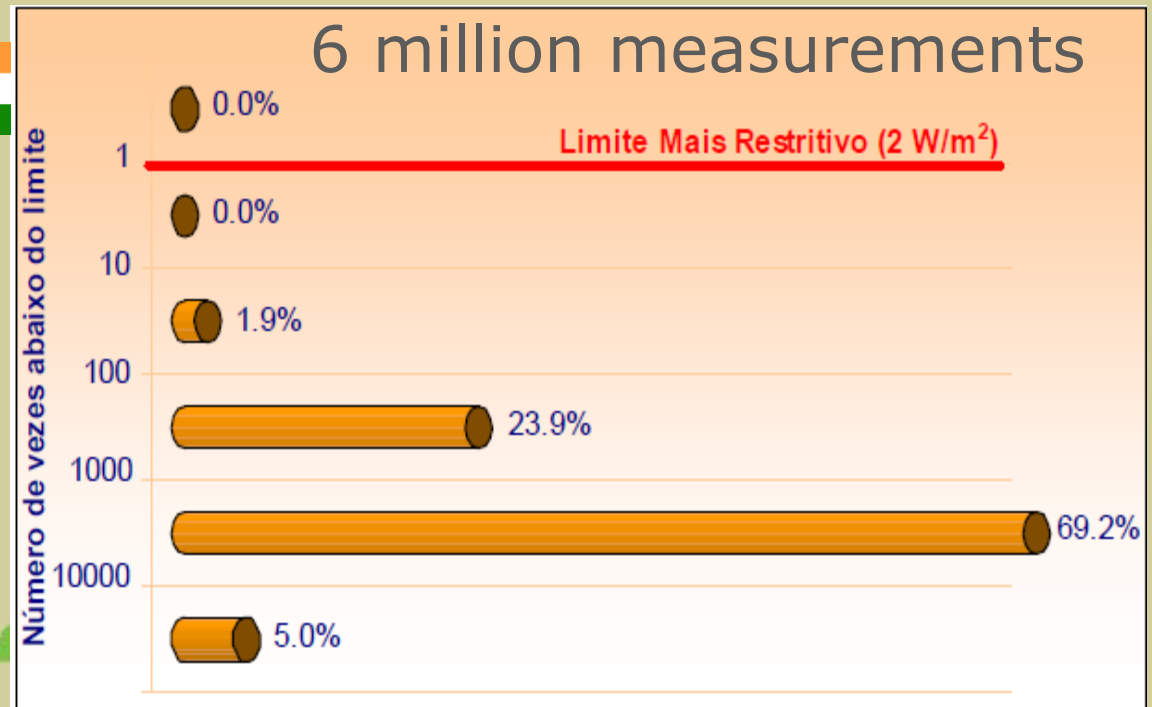


Assessing compliance for radio base stations

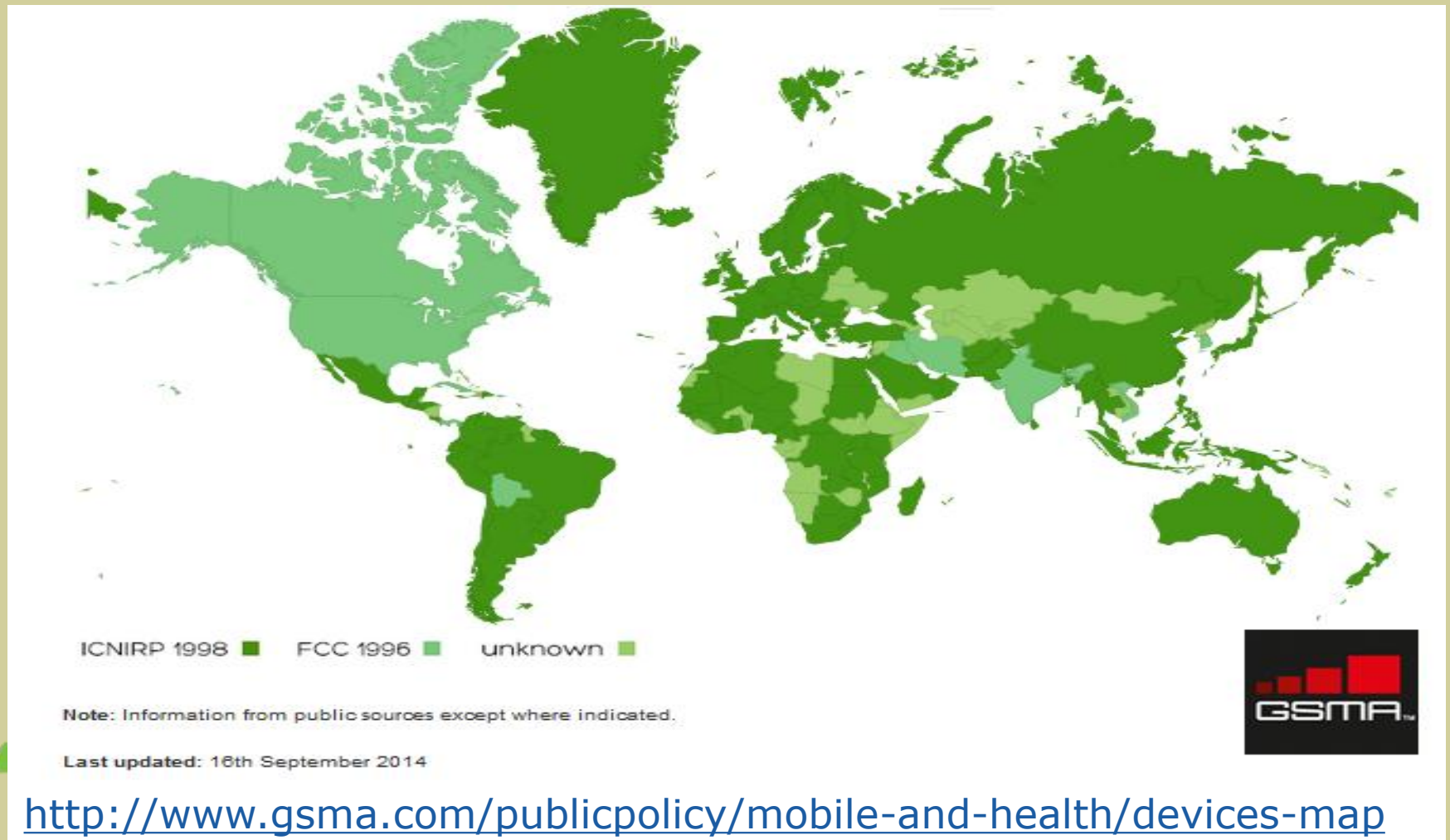
- Operator declarations. 
- Post-installation measurements.

- Sample audits. 

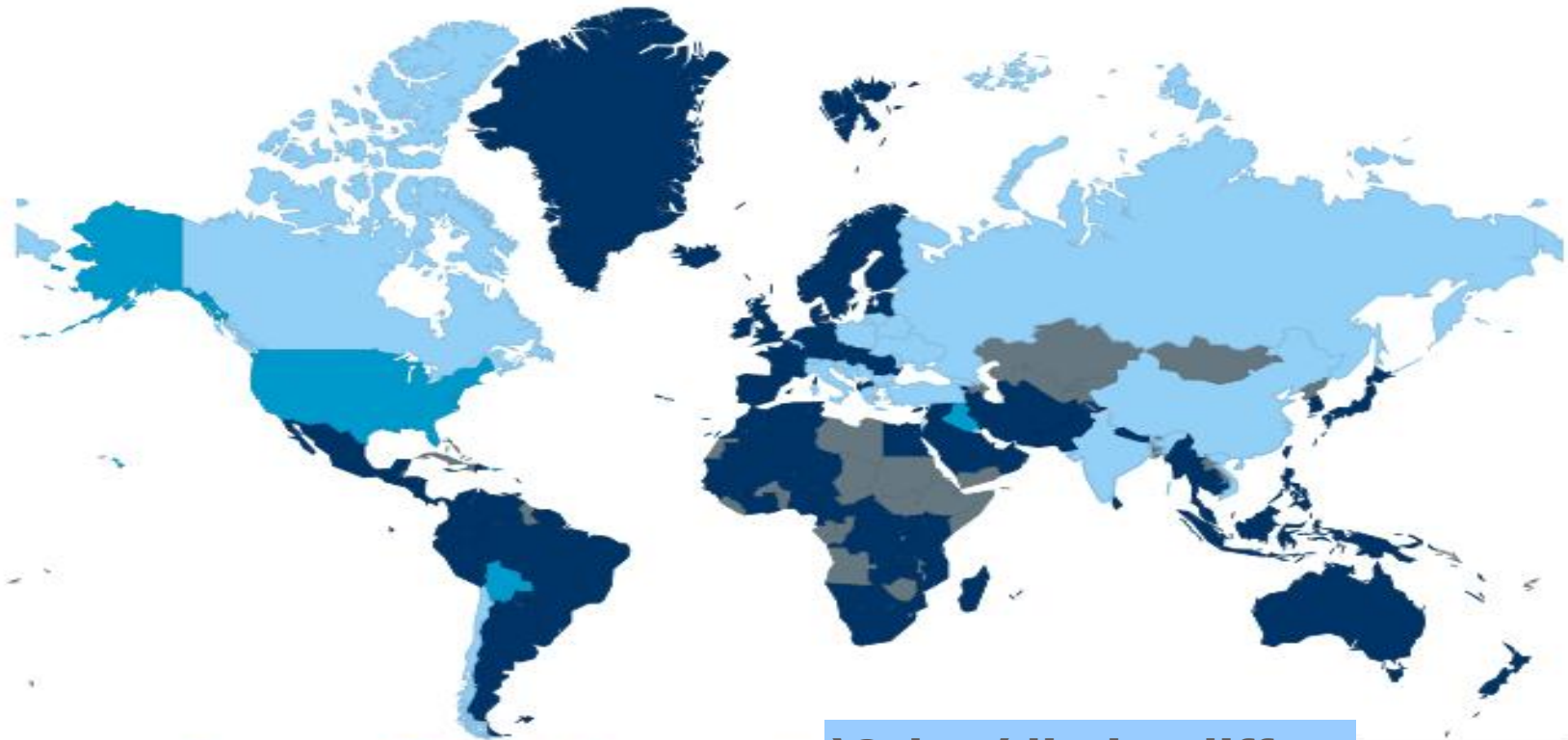
- Monitoring. 



Public RF limits – mobile devices



Public RF limits – mobile networks



ICNIRP 1998 ■ FCC 1996 ■ other ■ unknown ■

Note: Information from public sources except where indicated.

Last updated: 29th August 2014

**'Other' limits differ
and lack consistent
scientific rationale.**



<http://www.gsma.com/publicpolicy/mobile-and-health/networks-map>

Arbitrary RF limits restrict mobile networks



Arbitrary Radio Frequency exposure limits: Impact on 4G network deployment

CASE STUDIES
BRUSSELS, ITALY, LITHUANIA,
PARIS AND POLAND

- Less efficient deployments and delays.
- Antenna site sharing more difficult.
- Greater public concern.

Mobile network cost study

4 September 2013

Analysis of cost drivers related to the construction, operation and maintenance of mobile networks

EMF largest cost factor relative to neighbours.

If EU limits adopted:

- 21.5% fewer antennas.
- ~15% lower costs.



Planning exclusion zone policies are unworkable

- Political response.
- Arbitrary distances.
- GSMA supported hypothetical analysis based on Melbourne (Australia).
- Affected antennas for 500 m exclusion zone:
 - whole urban: > 50%;
 - Dense urban: 90%



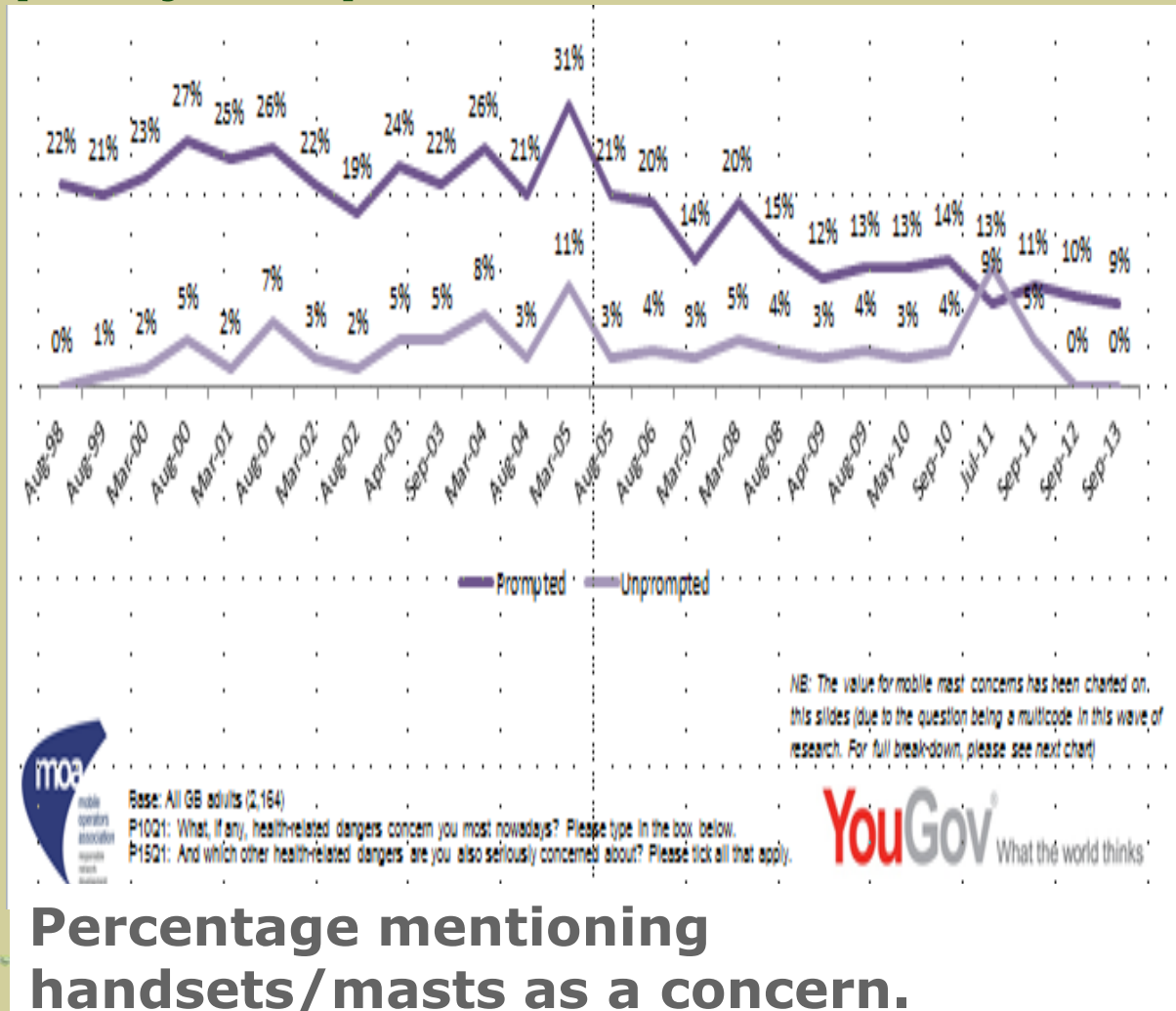
Good national deployment policy for wireless communications

- Adopt international science based RF limits for devices and networks.
- Support municipalities through policy that specifies:
 - Information, consultation and visual integration requirements.
 - Mandatory decision period for site applications.
 - Simplified procedures: small cells, low power and modifications.
- Allow site sharing where it is technically and commercially feasible.
- Grant access to government buildings and land for antennas.
- Non-political decision making.
- Communicate effectively using WHO information via trusted agencies.



Good RF policy and practice is effective

- International standards.
- Government and industry commitment.
- Persistent effort and good communication practices.



Conclusions

- Exposure levels from wireless networks are typically very small.
- Continued need for harmonisation of RF exposure limits for both devices and networks based on international scientific recommendations.
- Governments and industry should implement positive mobile network deployment policies and effective communications.
 - Adapt good practice approaches for national conditions.



Thank you

Website:

www.gsma.com/health



Health & Environment

July 2014

India should contribute to WHO review of RF evidence, mobile phone research erratic and unsatisfying according to NZ cancer expert, laws to trace the origins of Congolese conflict minerals show early signs of success, the French senate passes a bill adding precautions to wireless networks and mobile phones, consumers warned about cheap USB chargers after death of Australian woman, mobile phones in flight-mode to be used throughout the whole flight, and a new standard has been developed to give the ICT industry a uniform way to measure environmental impact.



[Laws to trace the origins of Congolese conflict minerals have shown early signs of](#)



Browse resources by category, country, year or month.

All Category
 China All Year All Month
 Find Clear

Beware of sub-standard mobile phone batteries and chargers

Mobile phone users have been warned to use only genuine mobile phone batteries and chargers after several recent media reports around the world of people being shocked and burnt by faulty counterfeit products. Recent reports by China's CCTV the South China Morning Post in Hong Kong and Swiss paper Le Matin, have all highlighted the potential problems and risks to consumers from such products. "Counterfeits are not tested to comply with the strict safety



Recent updates

- Nigerian minister contradicts deputy director over mobile phone health claims
- Five expert witnesses permitted to testify in USA cell phone litigation
- Centers for Disease Control updates cell phone factsheet

HEALTH AND ENVIRONMENT NEWS TAGS

- Wi-Fi WHO
- Scientific Expert Group
- Scientific Evidence Safety
- Risk Perception Precautions
- Policies Mobile Network
- Mobile Device LTE ITU

The GSMA in numbers

MEMBERSHIP



800

mobile operators in
over **220** countries



230 associate
members

PRESENCE



Offices in
9 countries
serving every region



Staff based in
26 countries
representing
36 nationalities

MOBILE REACH



6.6

billion
mobile
connections



3.2 billion
individual subscribers