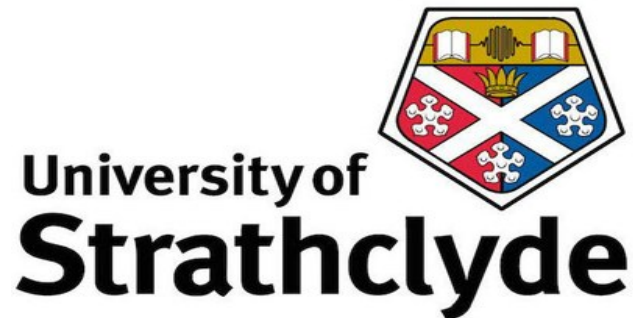


Busting the Myths About 5G – Facts Versus Fiction

Muhammad A. Imran and Yusuf A. Sambo (University of Glasgow, Scotland),
Robert Stewart (University of Strathclyde, Scotland), and Rahim Tafazolli
(University of Surrey, England)

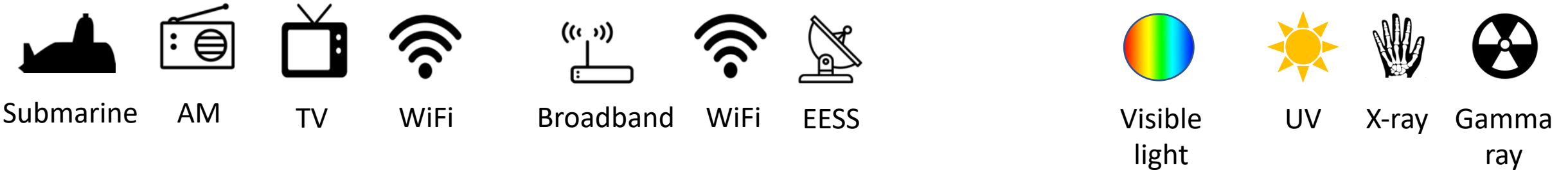
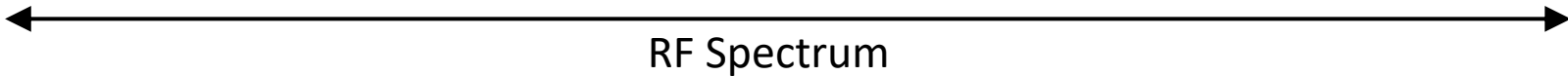
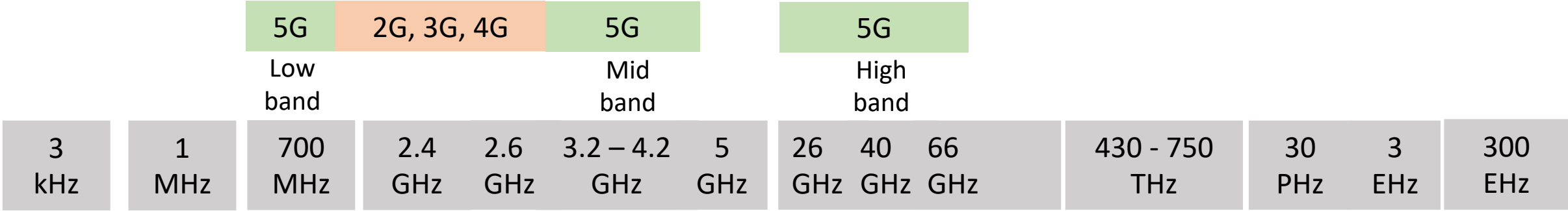
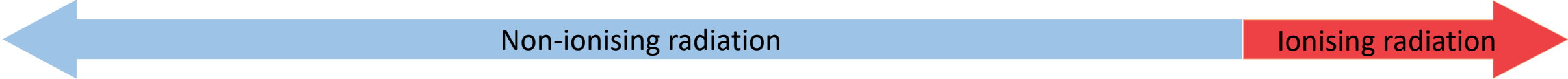


University
of Glasgow



UNIVERSITY OF
SURREY

EM Spectrum



RF Classification

International Agency for Research on Cancer



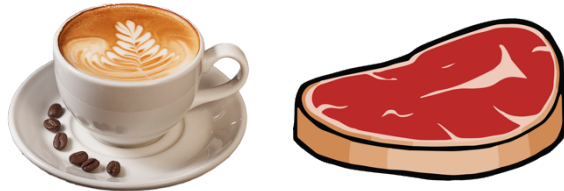
PRESS RELEASE
N° 208

31 May 2011

IARC CLASSIFIES RADIOFREQUENCY ELECTROMAGNETIC FIELDS AS POSSIBLY CARCINOGENIC TO HUMANS

Lyon, France, May 31, 2011 -- The WHO/International Agency for Research on Cancer (IARC) has classified radiofrequency electromagnetic fields as **possibly carcinogenic to humans (Group 2B)**, based on an increased risk for **glioma**, a malignant type of brain cancer¹, associated with wireless phone use.

IARC
Group 2A



IARC
Group 2B



How are mobile phones now classified?

The IARC classifies different substances and exposures according to whether they are likely to cause cancer. The IARC had classified mobile phones as belonging to Group 2B on their scale, which means there is a possibility they cause cancer in humans.

Within the IARC scale, there are five categories of risk:

- **Group 1:** there's extremely strong evidence that an agent causes cancer. Smoking and asbestos are in this category.
- **Group 2a:** an agent is 'probably carcinogenic to humans'. The evidence in animal studies is 'sufficient' but 'limited' in humans.
- **Group 2b:** an agent is 'possibly carcinogenic to humans'. There is limited evidence in humans that it causes cancer and the evidence from animal studies is 'less than sufficient'. This is the new classification for mobile phones. Cancer Research UK consider Group 2B to mean that, 'there is some evidence for a risk but it's not that convincing'.
- **Group 3:** an agent is 'not classifiable as to its carcinogenicity to humans'. This means that the evidence is inadequate and limited in humans and animals.
- **Group 4:** an agent is probably not carcinogenic to humans.

Ofcom EMF Measurements in the UK



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City	Measurement Location	Highest All Band Value (% of ICNIRP)	Highest 5G Band Value (% of ICNIRP)
Belfast	Lanyon Place	0.0807	0.0006
Birmingham	Mailbox Birmingham	0.4688	0.0386
Bristol	Aztec West Bus. Park	0.1431	0.0010
	St. Augustine's Parade	0.0460	0.0068
Cardiff	Newport Road	0.0978	0.0016
	The Senedd	0.1195	0.0060
	St David's Centre	0.0823	0.0041
Edinburgh	Gorgie Road	0.1419	0.0004
Glasgow	Renfrew Street	0.1399	0.0044
Liverpool	Harker Street	0.4608	0.0239
	Lawrence Road	0.1371	0.0069
	Hatton Garden	0.0894	0.0011
London	Canary Wharf	1.4960	0.0000
	Charing Cross	0.5970	0.0014
	Grays Inn Road	0.0420	0.0013
	Pentonville Road	0.0711	0.0117
	Victoria Station	0.2483	0.0042
	Waterloo Station	0.3828	0.0065
Manchester	Chester Road	0.3017	0.0053
	Crumpsall Vale	0.0736	0.0016
	Great Bridgewater St	0.2460	0.0019
Stevenage	Wedgwood Gate	0.0654	0.0008

EMF Regulation



Study Group question addressing human exposure to EMF from ICTs



Public Health
England



ICNIRP

Ofcom
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Federal
Communications
Commission



United States
Environmental Protection
Agency

National Environmental Policy Act
(NEPA) implements rules on RF
emissions from radio transmitters.

European Union Directive 2013/35/EU

DIRECTIVE 2013/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 26 June 2013

on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) (20th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) and repealing Directive 2004/40/EC

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,



Planning permissions

- Councils
- Municipals
- Regional
- National

Selected EMF Projects



World Health
Organization

International EMF Project



Low EMF **Ex**posure Future **Net**works



GERoNiMO

Generalized EMF research using novel methods
An integrated approach: from research to risk
assessment and support to risk management

Low Electromagnetic Emission Wireless Network Technologies

5G and beyond

Edited by

Muhammad Ali Imran, Fabien Hélot
and Yusuf Abdulrahman Sambo

