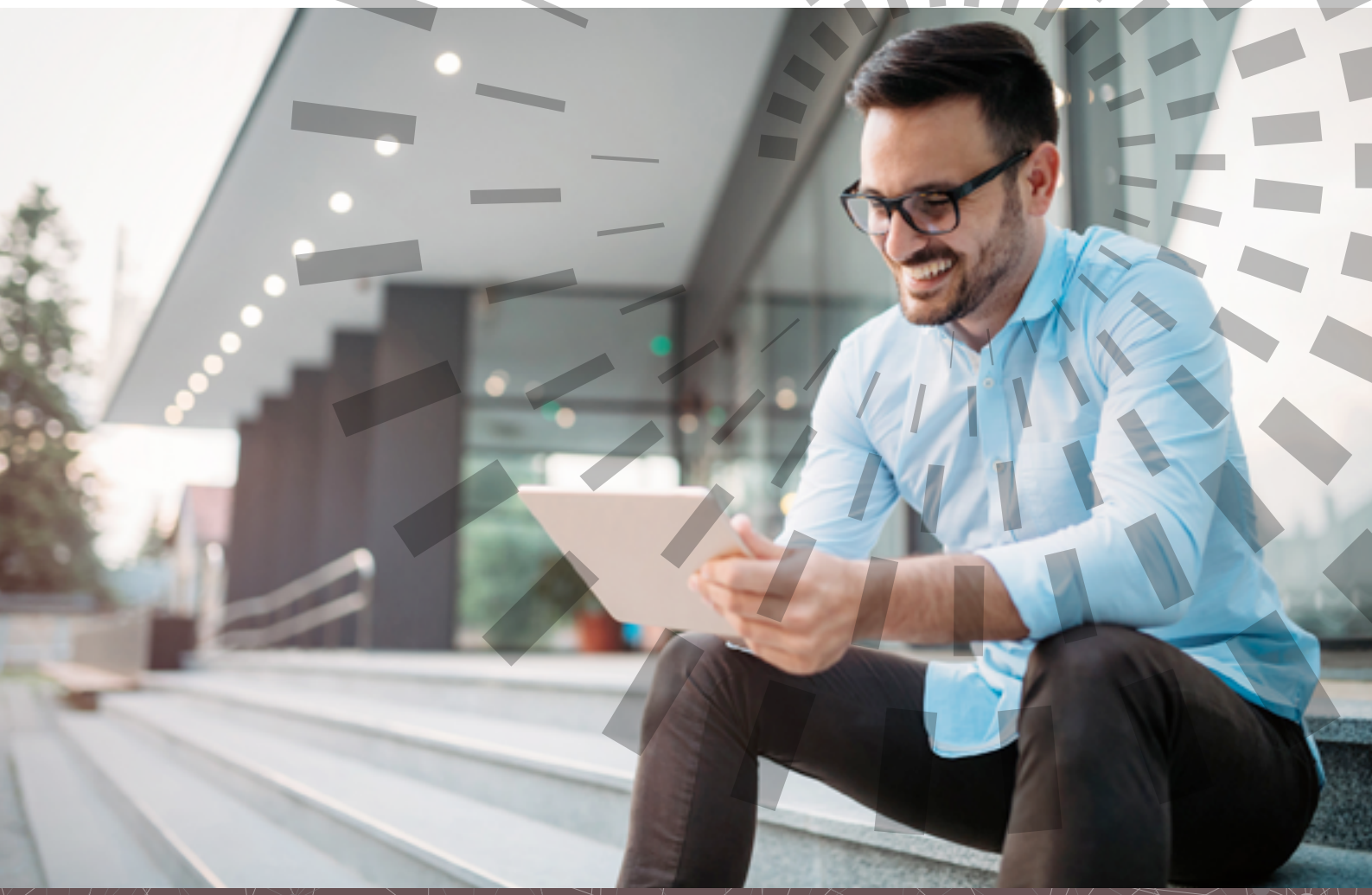
MWF

Mobile & Wireless Forum



ANNUAL REPORT 2019

Key highlights

80 stakeholder organisations part of GARI feature review	**200+** scientific papers published as a result of MWF support to date	**536,000** average page views on GARI website	**500+** updates on Twitter and LInkedIn
1190 listed devices in the GARI phone section	**20+** Governments encouraged to adopt new ICNIRP standards	**500+** media reports tracked	**26** submissions to individual governments
100+ weekly reports issued	**29+** International meetings	**34** science updates	**40** weekly conference calls
7 submissions to ITU and CITEL	**12** published blog articles	**6** new Viewpoints	**5** Study in a Slide summaries of recent research

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Introduction

The MWF is an international association of companies with an interest in mobile and wireless communications including the evolution to 5G and the Internet of Things. Its members include Alcatel OneTouch (TCT Mobile), Apple, Cisco, Ericsson, Huawei, Intel, LG, Motorola Mobility (Lenovo), Motorola Solutions, Qualcomm, Samsung and Sony.

The association is incorporated as a not for profit body with scientific purpose and continues an active research program that helps address identified research needs for expert bodies and standards committees. The association focuses its efforts in four main areas:

- EMF & Health
- Device compliance
- Mobile accessibility
- Device integrity and security

As a result of our support for ongoing research and evidence-based contributions to public policy making, the MWF has positioned itself as a proactive and reliable partner in the development of state-of-the-art standards, addressing questions about the health and safety of wireless devices, promoting mobile accessibility and raising awareness about the dangers of counterfeit and sub-standard devices.

5G EMF research agenda

The MWF has been supporting research relating to 5G since 2015. The '6GHz+' phase I project supported research to enhance the understanding of the dosimetric aspects of millimeter waves and to develop efficient and accurate procedures for EMF compliance testing. This initial program was followed up with a 'phase II' which then looked at the effect of averaging time on exposure in the mmW range, the effect of the reactive near-field on energy absorption by biological tissue and measurements of power density from realistic 5G devices at 28 GHz and 60 GHz by means of a novel inverse-source methodology. These projects have resulted in at least 12 scientific publications to date.

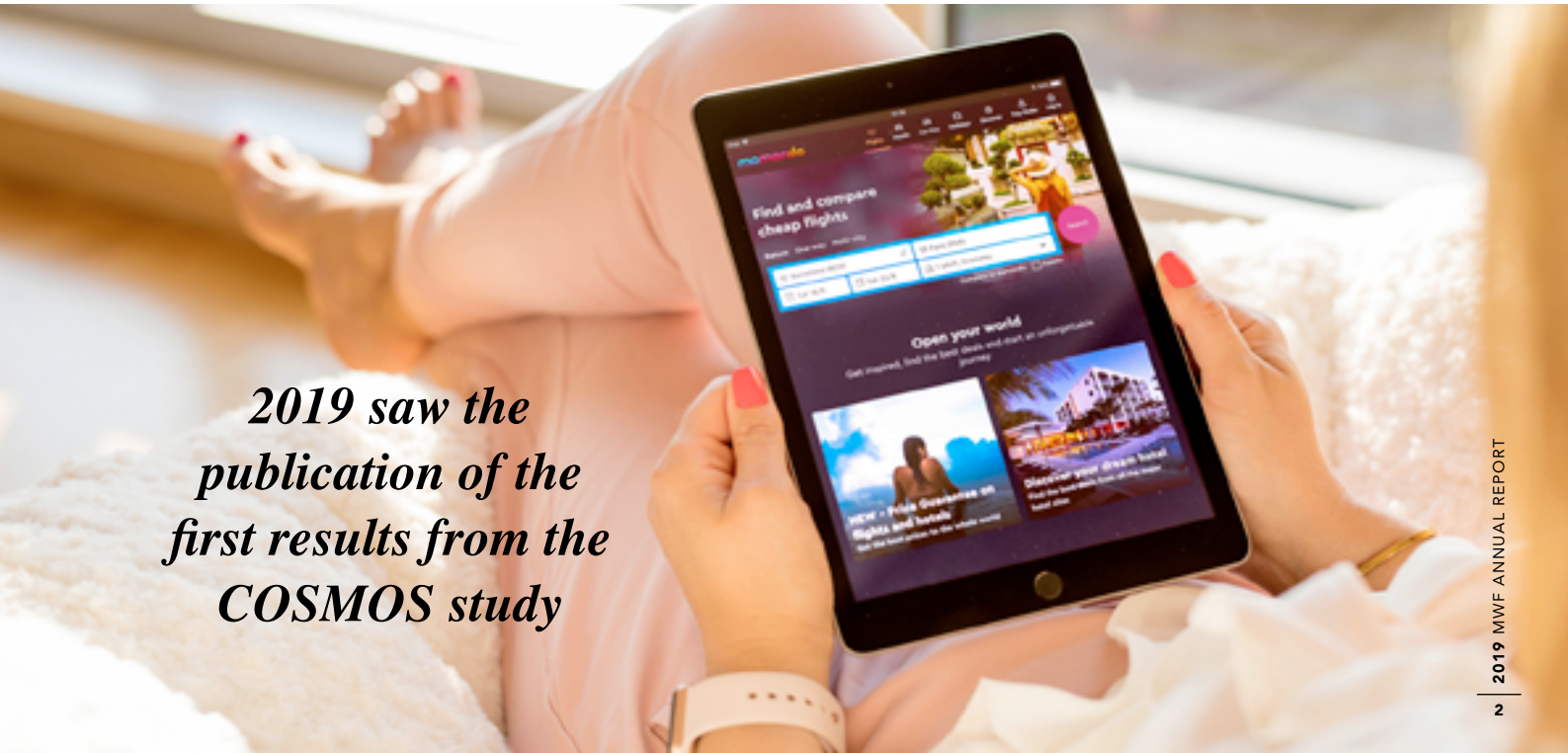
At the end of 2018, the MWF decided to develop a research agenda with the intention to identify a number of research activities to be recommended and carried out in 2019-2020. A total of 14 new projects were agreed upon. Projects included in-situ measurements of 5G networks, a literature review of health effect studies at mmWave frequencies, thermal thresholds for localized exposure, realistic transmit power and test exclusions for 5G user equipment, the study of power density as an exposure metric, numerical investigations of SAR in hand and extremities and compliance assessment of multiple IoT systems in residential environments.

Preliminary results from some of these projects were presented in the plenary session on 5G exposure evaluation at the BioEM 2019 Conference.

In 2019, the MWF also reviewed its research policy and rather than just encouraging the publication of results in peer-reviewed journals, we now encourage researchers to publish in peer-reviewed open source journals, thereby ensuring that results are available to an even wider audience.

2019 also saw the publication of the first results from the COSMOS study. This is another large multi-country epidemiological study with the MWF having provided support to the Finnish component of the project.

The MWF also agreed to support an update to the Latin America Science Review, which was initially undertaken some years back. The aim of this project is to review all of the EMF related research undertaken within Latin America through an open international symposium and resulting in a published paper that can help inform policy making within the region.



2019 saw the publication of the first results from the COSMOS study

International standardization: new ICNIRP and IEEE standards

2019 was notable for the publication of the latest IEEE C95.1 RF exposure standard and the submission for publication of the revised ICNIRP guidelines. The ICNIRP guidelines were first published in 1998 and while there have been a number of restatements of the guidelines since then, the publication of the new guidelines will play an important role in clarifying some of the areas not covered off in the earlier guidelines particularly at the higher frequencies as well as in communications about the continued relevance and applicability of the standards.

However, as important as this revision of the ICNIRP guidelines and IEEE exposure standard C95.1 is, their worldwide adoption will not be automatic. It will be important throughout 2020 to make the case to countries on why it is important to update their national regulations to these standards.

IEC standards

Throughout 2019, the MWF and its members actively contributed to the work of Joint Working Groups 11 of IEEE and IEC on 'Determining the power density of the electromagnetic field associated with human exposure to wireless devices operating in close proximity to the head and body using computational techniques, 6 GHz to 300 GHz'; Joint Working Group 12 on 'Measurement procedure for the assessment of power density of human exposure to radio frequency fields from wireless devices operating in close proximity to the head and body – Frequency range of 6 to 300 GHz'; and Joint Working Group 13 on 'Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices'.

These standards and their worldwide adoption are crucial for the wireless industry to ensure that devices can be sold in all major markets and that compliance assessment procedures are coherent across countries.

MWF members were also involved in IEC Technical Committee 106 working on 'Case studies supporting IEC 62232 – Determination of RF field strength, power density and SAR in the vicinity of radio-communication base stations for the purpose of evaluating human exposure', and the 'Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz to 300 GHz)'. Crucially, IEC 62232 introduces for the first time the concept of actual maximum exposure based on time-averaging. The MWF also followed the work on a 'Guide to assess the EMF exposure of Internet of Things (IoT) technologies' and the development of an IEC EMF compliance assessment guide.

The MWF promotes the adoption of harmonized standards ensuring that compliance assessment procedures are consistent across countries

EMF regulatory developments

In Europe, the MWF closely monitored the work of the European Commission in regard to 5G and related technologies and submitted comments to a number of public consultations that will shape the EU's future regulations and initiatives in this area.

The MWF also tracked the many parliamentary questions submitted in the European Parliament on the topic of 5G and wireless technologies, and the European Commission's answers to these questions. Consistently, the European Commission has said in their replies to such questions that the exposure limits recommended at EU level by Council Recommendation 1999/519/EC are safe.

The MWF regularly participates in meetings of the EU's Expert Group on Radio Equipment and the Radio Equipment Directive Compliance Association (REDCA), as well as ANSES' Committee of Dialogue in France and contributed our technical expertise and international experience to the various discussions. Within the REDCA, the MWF contributed in particular to Technical Guidance Note 20 on 'SAR Testing and Assessment Guidance', focusing on Hand-SAR risk assessment and measurement procedures, as well as to the drafting of Technical Guidance Note 30 on Risk Assessment.

Time averaging

The concept of averaging SAR measurements over a 6-minute time period is one of the three key elements of the existing RF exposure standards – the other two being the limit value and the averaging mass. However, despite it being an integral part of the standards, no regulator has implemented the 6-minutes averaging into national regulations in a way that can allow its deployment in today's devices. The MWF has formed a task group to develop an industry proposal to take to regulators and standards bodies that would provide a consistent framework for the implementation of time averaging.

In France, the MWF participated in the stakeholder committee of French health authority ANSES, followed the work of the equivalent stakeholder committee of telecom regulator ANFR which focuses on technical discussions around 5G including exclusion zones around 5G base stations, new exposure indicators and reports from 5G pilot sites. The MWF also monitored the implementation of the 2015 EMF Law for which the final application texts were published only at the end of 2019. The MWF informed the government that the seemingly small change on requiring the display of Limb SAR is in fact a major new requirement and is working with the authorities on finding a feasible way forward.

The MWF also responded to the publication by ANSES on *'the possible health effects associated with high specific absorption rate values from mobile telephones carried close to the body'*. While the scientific assessment was broadly in line with other bodies, ANSES continued its practice of making policy and technical recommendations that go way beyond the scientific conclusions and on which they have little to no expertise. The MWF wrote a detailed

letter to the head of ANSES, copying the letter to ANFR as well as to the three Ministries overseeing the various recommendations to outline our concerns and the technical shortcomings of the report.

In Belgium, the rollout of 5G in Brussels had to be stopped because of the city's arbitrary low exposure limits that did not leave room for new additional infrastructure, and political unwillingness to move towards international, science-based standards. Switzerland faces a similar issue with estimations that if the country wants to introduce 5G while maintaining the lower than ICNIRP exposure limits, this would necessitate the construction of approximately 26,000 additional antenna sites, the upgrading of approximately 5,000 existing installations, at a cost of approximately CHF 7.9 billion for the investments and approximately CHF 2.1 billion for operation over five years. In this scenario, the time required to establish high-quality nation-wide 5G coverage in Switzerland was estimated as 20 to 30 years, according to the report by the government's working group on Mobile Radio and Radiation on behalf of the Federal Department of the Environment, Transport, Energy and Communications (DETEC)[1].

In light of these developments, the MWF published an updated version of our technical paper on the 'Implications for Mobile Communications Infrastructure of Arbitrary Radio Frequency Exposure Limits' which discusses the impacts that lower limits have on network operation and planning, EMF compliance implications and the community, social and policy impacts.

In the US, the MWF worked extensively to promote the adoption of the new exposure standards. The MWF filed comments to the FCC stressing the importance of adopting a science-based standard that is harmonized with the limits around the world and that ensures high level consumer protection. The MWF met with the Commissioner's Wireless Advisers, held technical briefings with OET and lab staff and also met with the FDA in order to promote adoption of harmonized standards.

Reasonably foreseeable conditions of use

The phrase 'reasonably foreseeable conditions' is used in Article 17 'Conformity assessment procedures' of the RED but not defined. Thus, the MWF participated in the work on the definition of reasonably foreseeable conditions. This work was performed in WG 20 of CENELEC TC106X. The final report of the group was adopted but since several definitions of reasonably foreseeable conditions exist BTWG 143 was invited to discuss how this concept should be implemented (e.g. horizontally or vertically as WG 20 preferred). BTWG informed that they will not provide a horizontal definition of reasonably foreseeable conditions and encouraged TC106X to proceed with the work on a Technical Report (TR).

1 Report Mobile Radio and Radiation Published by the working group on Mobile Radio and Radiation on behalf of the Federal Department of the Environment, Transport, Energy and Communications (DETEC): https://www.newsd.admin.ch/newsd/message/attachments/59387.pdf

International collaboration

The MWF actively participates in the work of international bodies such as the Interamerican Telecommunications Commission (CITEL), the International Telecommunications Union (ITU). We also work closely with the GSM Association (GSMA) with whom the MWF developed key messages on 5G and actions to promote the harmonization of EMF exposure limits throughout the EU as well as a smooth rollout of 5G infrastructure.

As sector member of ITU-D, the MWF contributed to the drafting of the SG 2/7 report 'Strategies and policies concerning human exposure to electromagnetic fields' and worked in particular on the chapter about 'RF exposure and children', recommending to follow existing advice from the World Health Organisation (WHO). This input will be used to update the existing report from the study period 2014-2017. The MWF regularly attends SG 2/7's face to face meetings and provides input to the ongoing discussions.

The MWF closely follows the work of WHO and ICNIRP on RF EMF related issues, and maps what national health agencies and International Expert Committees publish in regard to RF EMF and human health, like for example the EU's Scientific Committee on Health, Environment and Emerging Risks (SCHEER) report on 'personal communication and listening devices', or the Public Health Agency of Sweden's report on 'Elektromagnetiska fält'[2].

2 https://www.folkhalsomyndigheten.se/livsvillkor-levnadsvanor/miljohalsa-och-halsoskydd/tillsynsvagledning-halsoskydd/elektromagnetiska-falt/

EMF media coverage

2019 started with a large number of alarmist and misleading articles on 5G published across the globe. The MWF developed a media Q&A Kit and from this responded to such articles, contacting journalists and media outlets with responses to the articles, technical information and necessary scientific background.

From the second quarter onwards, we saw a welcome change with the publication of much more balanced articles in major national media outlets, like *Le Monde* in France, *The New York Times* in the US or the *BBC* in the UK. These articles were well researched, balanced and explained the current state of scientific and technical knowledge.

The MWF continues to promote more informed and accurate media coverage, especially on 5G

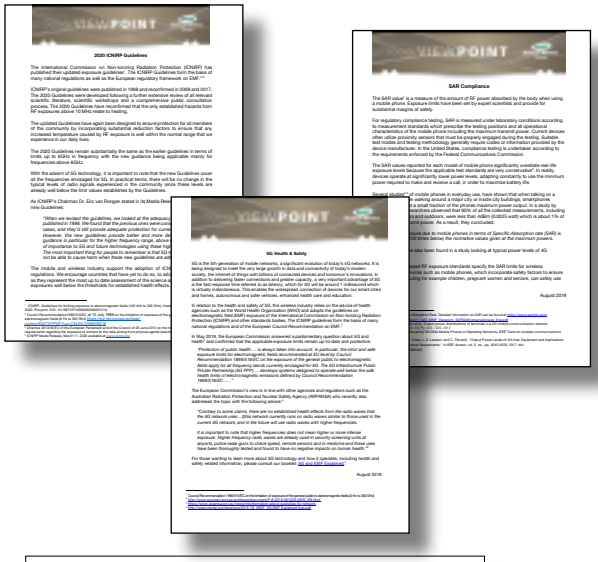
Communications

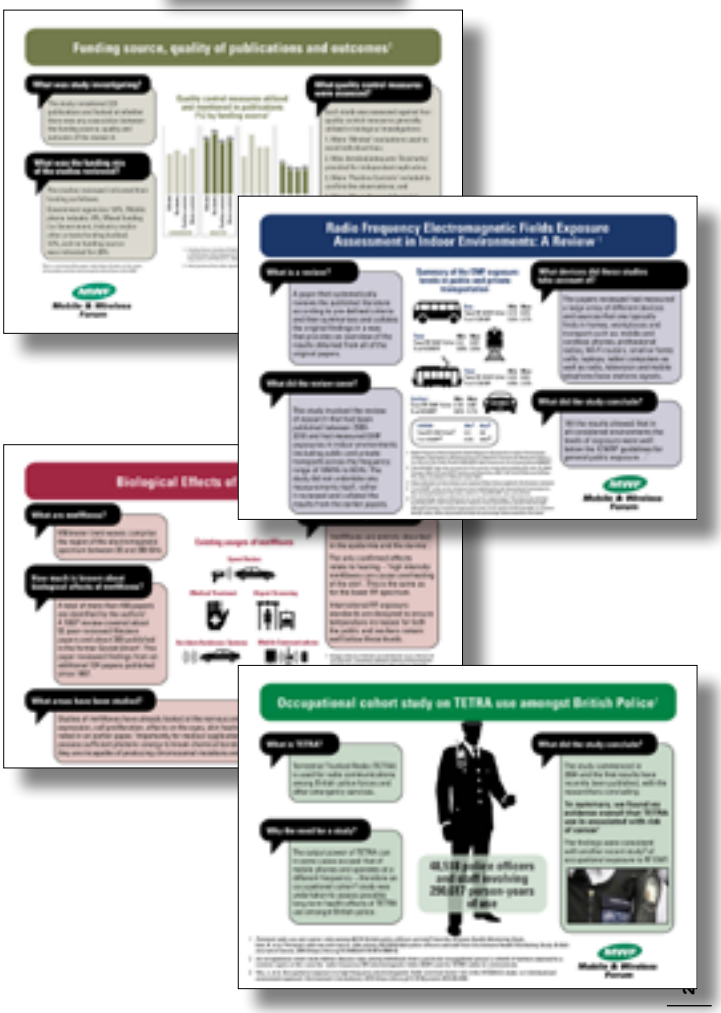
To support our activities on international, national and regional level, the MWF maintains five issue websites, contributes to the EMFexplained website and provides a variety of publications, communications materials and social media updates.

Our Viewpoints continued to be well received by stakeholders and in the course of the year we published them on the following topics:

- ANSES Opinion on SAR
- 5G: Health and Safety
- Biological Effects of Millimeter Waves
- SAR Compliance
- Implications for Mobile Communications Infrastructure of Arbitrary Radio Frequency Exposure Limits
- Brussels & 5G
- The Importance of Quality Control Measures in Scientific Studies

We also supplemented the Viewpoints with new 'Studies-in-a-Slide' which seek to highlight papers (particularly review papers) that provide an overview of an area of research and where the results can be conveyed visually. Again these were well received by stakeholders.



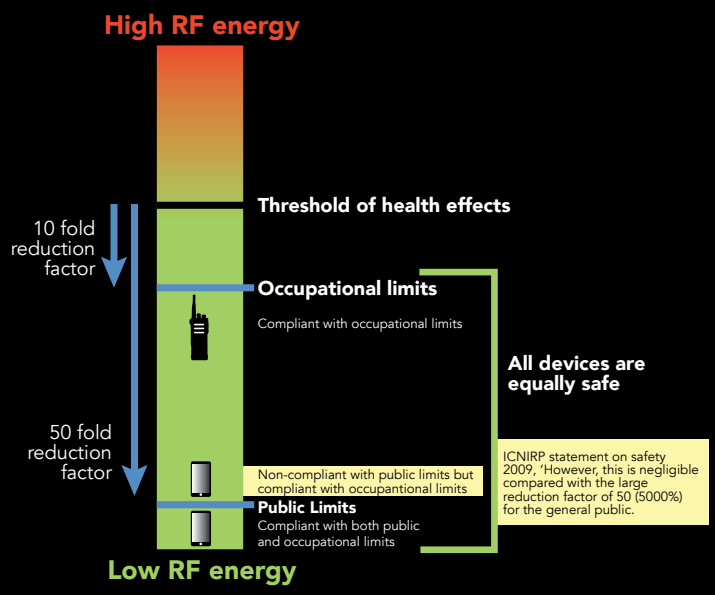


Compliance versus safety

The MWF continued discussions with governments and regulatory authorities around the difference between compliance and safety. ICNIRP has been very clear that even if a device were to exceed the public exposure level, its use would still be safe since the threshold for any established health effect is 5000% higher than the limit.

Rodney Croft, representative of ICNIRP confirmed in a 2019 presentation: 'Indeed restrictions have been derived such as that all restrictions are highly conservative estimates that will remain protective unless they are exceeded by a substantial margin.'

While industry is of course committed to ensure compliance with all existing regulations, this distinction between safety and compliance becomes important in discussions in France, where the activist community argues that older devices that have been put on the market under different applicable exposure standards, would not be safe to use any longer and would have to be taken off the market. The devices were compliant at the time of entering into the market and are still safe to use, even if exposure standards have changed in the meantime.



Device related developments

In the Americas, several countries ruled that FM chips in mobile devices should be activated in order to facilitate the access to free FM radio information and enhance the role that FM radio plays in emergencies and national catastrophes.

Two countries – Italy and France – issued provisions on digital radio in devices that have radio receivers, effectively making the activation of DAB+ obligatory. Neither country seemed aware at time of issuing of these provisions that the soon to be entering into force European Electronic Communications Code would effectively overrule these provisions and the MWF engaged with both governments to find acceptable solutions for the transition period.

The MWF also promoted electronic compliance labelling both within international bodies such as the ITU, the EU and CITEL, as well as on national level. Within CITEL, the MWF presented a proposal for 'Electronic Compliance Labeling', based on MWF's 'E-labeling Industry Code', receiving an 'approval in principal' which is to be confirmed in the next CITEL meeting in 2020.

At the end of 2019, the MWF launched a dedicated e-labelling initiative which aims at transitioning from physical labels on the packaging and/or device towards having all relevant information as an e-label in the device. This would provide a number of benefits to industry, market surveillance authorities and also consumers who would benefit from richer and easily accessible information about the device and its compliance with international standards throughout the entire life of the product rather than as a wasteful group of papers that are almost never read and discarded soon after purchase.

Counterfeit and security

Latin America is one of the regions that is most affected by the influx of counterfeit and fake devices. In reaction to an increased awareness of the challenges and threats posed, several Latin American countries have taken steps to fight the issue on a national level, such as in Brazil.

In Brazil, the local smartphone market saw an increase of more than 500% of smuggled smartphones for 2019 compared to 2018, according to a study undertaken by the electro-electronic industry trade association, due to high unemployment and reduced purchasing power of the consumers. According to estimates of the Market Consultants IDC Brasil, the total sales of smartphones would be around 44.6 million – approximately the same figure as 2018, meaning that smuggled devices are taking an increasingly larger slice of the local market at around 10% - and considering that the average selling price is around 40% lower, this is a trend that is likely to continue in the absence of further government action.

In Peru, a program for the blocking of irregular mobiles with invalid or altered IMEIs has been approved and implemented by the government. That program started in April 2019 and to date the numbers indicate that about 1.5 million devices each month were blocked.

Colombia continued with the implementation of its program to combat counterfeits which started in 2015 and which has also blocked millions of irregular handsets.

Building on its membership in CITEL, the MWF asked member countries who have already implemented nationwide anti-counterfeit programs, to provide a status report on the evolution and progress with these programs. A consolidated overview is expected for the first CITEL PCC.I meeting in 2020.

In Africa, Madagascar, Uganda and Nigeria have all taken action against counterfeit and stolen devices in 2019, with measures specifying that every device must have a single, non-changeable identifier and nationwide information campaigns to warn consumers against counterfeit and sub-standard devices flooding the markets. The director of the Nigerian Communications Commission said: 'Substandard, counterfeiting or non-type approved handsets is a global menace and much more in the Third World and developing economies. The NCC is now undertaking an initiative at the regional level in collaboration with the ATU, WATRA and MWF to form a regional synergy in developing a framework for combating counterfeiting of ICT devices in the West African sub-region.'

As an example of the scale of the issue in Africa, a study by the Anti-Counterfeits Agency in Kenya estimated that 70% of consumers use counterfeit goods.

Warnings to consumers about counterfeit smartphones were also issued by the Czech Trade Inspection Authority after a large number of fake counterfeit phones and accessories was seized in the pre-Christmas shopping season 2018. A 2019 report by the European Union Office for Intellectual Property estimated a loss of up to 15.5% of sales in 11 sectors in Bulgaria due to counterfeit and pirated products – mobile devices being one of the sectors. Similar high estimates were given for Malta, Romania and other EU countries. The UK IPO and IP Crime Group warned that 98% of fake iPhone chargers put consumers at risk.

The US National Crime Prevention Council (NCPC) also confirmed that consumers are more likely to encounter counterfeit goods in the holiday season. A test conducted by the U.S. Government Accountability Office found that 20 out of 47 products sold by third-party sellers online were revealed to be counterfeits. These products are not limited to but include mobile phones and accessories. And Canadian authorities warned that tech-savvy scammers are selling fake smartphones to unsuspecting buyers. They say that this is a new trend where fraudsters are selling smartphones that look convincingly like the real things.

Leveraging on the MWF's membership in ITU, the MWF organized a session at an ITU's Regional Workshop in Thailand on the topic of illegal, counterfeit and stolen devices.

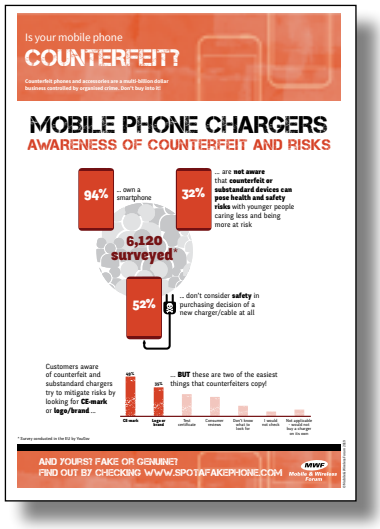
One solution that can help countries is the Device Identification, Registration and Blocking System (DIRBS), which is now a free open-source solution provided by Qualcomm. Pakistan introduced it in 2018 allowing the identification and blocking of smuggled and unregistered mobile phones in the country. Bangladesh Telecommunication Regulatory Commission (BTRC), who launched a similar program with their NOC Automation and IMEI Database (NAID) service to prevent the import of illegal cell phones. The service allows users to send the IMEI by SMS to a central database maintained by BTRC to check whether the handset they are looking to purchase has been legally imported and to receive confirmation back by SMS. If the IMEI of their phone is in the database they also have the option to lock it if the device is stolen.

ITU is very active on the issue of counterfeit and fake devices and there is strong participation in ITU from countries that are strongly affected by these issues. One of the new work times identified in the last session of ITU-T SG11/Q15 was IMEI reliability and the drafting of a Technical Report on Reliability of IMEI identifiers. SG11/Q15 is working on a report with recommendations on how to improve the reliability of the IMEIs, which are mostly compromised through tampering and duplication.

IMEI Tampering is a huge issue for the governments as it has direct bearing on security as it encourages crime and causes tax revenue loss for the country. There is currently a strong momentum amongst governments to implement systems to curb counterfeits and ensure genuine devices have tamper-proof IMEIs. Some countries start to regulate that if IMEIs can be tempered with on the device, they do not get type-approved.

A second work item within SG11/Q15 is the impact of counterfeit devices on the network.

The MWF is updating the Resource Guide for Governments since we continue to receive good feedback on the document. The updated version will be submitted to ITU for formal adoption.



Finally, the MWF also co-sponsored together with DigitalEurope a study by RPA on the Common Charger 2.0, and in this respect, the MWF's interest was to understand the awareness of (or lack of) risks associated with counterfeit chargers among European citizens. A consumer survey by YouGov shed light on the awareness of consumers - while 94% of survey participants own a smartphone, 32% of them are not aware that counterfeit or substandard devices can pose health and safety risks with younger people caring less and being more at risk. 52% of consumers don't consider safety in purchasing decision of a new charger/cable at all and those that do look for the CE-mark (49%) or logo/brand (35%) – two of the easiest elements for counterfeiters to copy.

Accessibility

Given the key role mobile devices have come to occupy in our daily lives and in accessing services it becomes even more important to ensure that the devices can be used by everyone – including people with disabilities, users with temporary functional limitations and elderly users.

It is not surprising therefore that many governments around the world are creating legal frameworks to ensure that technology is truly accessible for all users. In Europe, this was most evident through the adoption, after many years of discussions, of the European Accessibility Act (EAA).

The EAA is a market access directive, outlaying accessibility requirements for ICT devices and services marketed in Europe. Its scope includes smartphones and computers as well as electronic communications services, the 112 emergency number calls, access to audio-visual media services, e-books, and e-commerce.

The MWF played a constructive role in the discussions on the European Accessibility Act providing detailed inputs, comments and technical expertise resulting in an Annex I that is now formulated around functional requirements rather than the prescription of specific features which will encourage and foster further innovation rather than tying devices down as time goes by.

Once the final form of the EAA was available, the MWF undertook an analysis of how this horizontal directive impacts on sector specific directives such as the Radio Equipment Directive (RED). There are still many open questions about this, and we keenly await the issuing of the standardization mandate by the European Commission to ensure that these questions can be addressed in future harmonised standards.

The MWF will also participate in the expert group that will be established to ensure the implementation and compliance with the EAA in all Member States, and will adapt the GARI database to fit within the framework created.

The MWF also followed the implementation of the EU's Web Accessibility Directive under which public sector websites and documents must be accessible after September 2019, but which has also been extended to private companies in some of the Member States.

In the US, new requirements for Hearing Aid Compatibility compliance entered into force, namely Wireless Service Providers must post on their websites expanded information about their handsets' HAC capabilities and retain records on the HAC capabilities of handsets that they no longer offer, and Wireless service providers must file their annual certifications of compliance with the FCC's HAC requirements.

In Australia, the MWF chaired the review of the Australian Accessibility Code C625 and its associated reporting matrix G627, resulting in an updated features matrix (fully compatible with GARI) that devices entering the Australian market need to report on.

Despite this regulatory trend towards ensuring accessibility in ICT products and services and the innovations taking place in this area, a survey carried out by the European Disability Forum (EDF) showed that many people with disabilities are worried about new and emerging technologies. The most prominent worries were related to lack of accessibility, lack of standards and issues of interoperability with assistive technology.

This shows the consistent need for better information to consumers about the accessibility features of ICT devices in the market today and underlines the

importance of the GARI database, that endeavours to help consumers with and without disability to find devices that work for them.

Indeed, the GARI database continued to expand in 2019 and now provides information on well over 300 accessibility features within 1,500 devices, ranging from smartphones to Smart TVs, tablets, and Wearables. The GARI website and database were also translated into Hebrew following a lot of interest at the Access Israel Congress, which means that the site is now available in 19 different languages.

Also, the number of organisations actively using GARI is constantly increasing. In 2019, the Australian Information on Disability, Education & Awareness Services (IDEAS) in cooperation with the National Consumer Organisation ACCAN deployed their new website providing accessibility-related information on a range of different product categories featuring GARI data in their section on accessible mobile phones. The information was supplemented with the national retail chains where consumers can buy the devices and presented in an easy to read format.

The wealth of information in the GARI database also fed into the development of ETSI's 'User-centered terminology for existing and upcoming ICT devices, services and applications', which was published in August 2019.

The value of our work in this area was also acknowledged by France's main association in support of the blind and visually impaired, *HandicapZéro* who recognised the collaboration with the MWF in their booklet celebrating the association's 30-year anniversary. Equally appreciated was GARI's mention by *AbilityNet* and *Action on Hearing Loss* in the UK which described GARI as a great online resource

where people can go to learn about and find accessible devices.

Throughout 2019, the MWF also contributed to the work of ITU-D's Study Group 1, Question 7/1 on the 'Access to Telecommunications/ICT services by persons with disabilities and specific needs', encouraging Member States to consider the GARI database as a tool to help comply with Article 9 of the UN Convention on the Rights of Persons with Disabilities. We presented GARI at the ITU Regional Development Forum for Europe in Rome, the M-Enabling Summit in Washington, the M-Enabling Forum in Düsseldorf, the Accessible Americas in Quito Ecuador and the Accessible Europe meeting in Malta.

The MWF also contributed to the work of the French Forum Médias Mobiles, a high-level working group with participation of the Culture Ministry, stakeholder organisations and industry on making audio-visual services and products more accessible.

GARI was updated to support members in their accessibility reporting in the US, in particular by providing a feature that exports information uploaded to GARI into a Section 508 template, which can then

be finalized and submitted when selling to public bodies in the US.

Continuing our commitment to regular stakeholder reviews, the MWF completed the 5th GARI feature review and received detailed feedback from organisations in 11 countries. This feedback included suggestions for a number of new features for the mobile phone and Smart TV sections as well as accessibility related apps that should be listed in GARI. The stakeholders also expressed their interest in seeing GARI expanded to include more product groups and more manufacturers.

To help measure the social impact and value of projects such as GARI the MWF commissioned a social research study that looked at various stakeholder groups and how they were using GARI and the value that they derived from it. In a survey of users of the GARI website 70% of respondents indicated that mobile devices make a huge difference in facilitating access to services and society in general. Around the same number also found GARI to be a useful source of information in selecting an appropriate mobile device.

There is no doubt that GARI is highly valued. The major challenge is to respond to user needs who need further insight on products as the market evolves. Almost all stakeholders believe that GARI should be the hub for further information and we will continue to evolve the program to reach an even wider audience particularly those in the health and community services to help bring the information to those who can benefit most.

The MWF's 5th GARI Feature Review received feedback from organisations in 11 countries

Outlook 2020-21

In 2020, the MWF will work actively towards the widespread adoption of the revised ICNIRP guidelines and IEEE TC95.1 standard. Emphasis will also be put on explaining the importance and the implementation of time-averaging in device compliance testing.

The MWF will continue supporting valuable research that will be key in compliance assessment and in the development of relevant standards. We will also continue our fact-based communications on wireless technologies, 5G and IoT devices and debunk claims made to alarm and concern the population.

In the area of accessibility, the MWF intends to increase the social value of the GARI project by further expanding the usage of the database amongst stakeholders. The MWF will work with the European Commission and interested parties at the European level on the implementation of the European Accessibility Act and contribute to the development of harmonized standards for the benefit of members.

We will also continue to build alliances for the introduction of electronic labelling – in Europe and beyond – and promote the Device Identification, Registration and Blocking System (DIRBS) as one of the means to identify and block counterfeit and substandard mobile phones in national communications networks.

The MWF will continue supporting valuable EMF research

MWF staff

Michael Milligan
Secretary General
michael.milligan@mwfai.org

Thomas Barmüller
Director EMEA
thomas.barmueller@mwfai.org

Chuck Eger
Snr. Director, North America
chuckeger@gmail.com

Aderbal Bonturi Pereira
Director Latin America
aderbal.pereira@mwfai.org

Sabine Lobnig
Deputy Director Communications and Regulations
sabine.lobnig@mwfai.org

Appendix: research publications

The MWF's support of scientific research has resulted in the following peer-reviewed publications:

2020 (to date)

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Mobile & Wireless Forum

Bergostraat 115
Merelbeke 9829,
Belgium

Av. Paulista, 2300 - Piso Pilotis
CEP 01310-300
Sao Paulo/SP Brazil

15th Floor,
100 Queen's Road Central, Central,
Hong Kong

www.mwfai.org

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