25 June 2023

Biographical Profile, Dr. Haim Mazar (Madjar)

International Telecommunication Union (ITU) and World-Bank expert

h.mazar@atdi-group.com +972 506236222, web http://mazar.atwebpages.com/

This CV is found at http://mazar.atwebpages.com/CVMazarEN.pdf

Published Wiley and Sons on August 2016 Mazar's ISBN-13: 978-1118511794 book for "**Radio Spectrum Management: Policies, Regulations, Standards and Techniques**". The book is already translated to Chinese.

1 Education

1971, **BSc-EE**, Technion - Israel Institute of Technology, Haifa

1988, **MBA**, Bar-Ilan University, Israel; Economics & Marketing

2008, **PhD**, Health and Social Sciences, Middlesex University, London, UK Thesis ceremony – *"Wireless communications, societal and risk concerns: the case of RF allocation and licensing"*, ISBN13: 978-1-59942-710-2. Focus on Radio Frequencies (RF).

2 Appointments

National award received in 1988 for the development of a Computerized Frequency Management System; Vice Chairman of ITU-Radio Study Group (SG) 9 - Fixed service 2000-2007; ITU-T (standardization) Workshop "All Star Network Access" 2004, Chair of Regulatory session; co-chaired ITU-R JRG 8A-9B. Vice Chairman of ITU-R SG 1- Spectrum Management since October 2007 (elected by 92 countries at Radio Assembly 2007), re-elected by 102 countries at the Radio Assembly 2012. **Since October 2019, Vice Chairman of ITU-R SG 5- Terrestrial Services** (re-elected by 84 countries at Radio Assembly 2019). Vice Chair since May 2016 of ITU-R Working Party 5C (WP 5C) - Fixed wireless systems; HF systems in the fixed and land mobile services. Chair ITU-R Working Group 5C-3 'Systems above 86 GHz and interdisciplinary topics'. Active also at ITU-R SG 3 (Radiowave propagation), SG 4 (Satellite services), SG 6 (Broadcasting service) (mainly in WP 6A terrestrial broadcasting delivery), SG 7 Science services. Contributed to three ITU-D training modules- 'Fixed Service', 'Short Range Devices' and 'Electronic Magnetic Fields and Health' for the ITU Academy, Spectrum Management Training Program (SMTP). ITU-R, D and T intersector coordinator on RF-EMF for ITU. Co-Rapporteur of ITU-D Q 7/2 on EMF for 2018-2022 period.

3 Employment

52 years of RF experience and 32 years of wireless regulation, lectures in five continents, consulting to Administrations (Bhutan, Botswana, Bulgaria, Burundi, Cameroon, China, Columbia, Jordan, Tanzania, Togo, Zambia), and Industry around the world (Medtronic, Go-Global, Comarcom, Electreon, Levitection, Magos, Neteera, Powermat, Infosight, TCI …). Dr. Mazar consulted the World-Bank 'West African Regional Communications Infrastructure Program' (WARCIP) on a spectrum-control project in Togo; completed on 28 May 2020; full satisfaction of the World-Bank.

- Since June 2015: RF Spectrum Management and Engineering **ATDI**
- Since September 2018, lecturer at Sami Shamoon College of Engineering, Electronic Engineering (SCE)
- 2001–2014: Ministry of Communications Israel (MoC), deputy RF Spectrum Manager
- 1993–2000: RF Spectrum and Licensing at Tadiran Systems. Originated the Spectrum Management System "Iris"
- 1990–1992: Head RF Spectrum and Licensing Department at MoC
- 1989–1990: Avionics and RFI Engineer at Israel Aerospace Industries
- 1985–1989: RF Spectrum Manager of Israel Largest RF Operator

a) China

Official consultant to the Chinese Ministry of Industry and Information Technology (MIIT); engineering consultant to the Chinese 'State Radio Monitoring Center Testing Center (SRTC)'. Academic adviser of China Center of Information Industry Development (CCID). Since January 2016, guest-professor in Xihua University, Chengdu, XHU, China.

b) Academia

Lecturer at Sami Shamoon College of Engineering, Electronic Engineering teaching 4th year EE students 'advanced wireless communications':

- Academic_Course_ Engineering_2020.pdf
- Academic_Course_ Services_2020.pdf
- Academic_Course_Regulation_EMC_HumanHazards_2020.pdf

c) Reviews

1. Certificate of Recognition of IEEE International Symposium on EMC, Istanbul, Turkey 03, for organizing technical sub-committees and reviewing the papers
2. Polish National Institute of Telecommunications the Journal of Telecommunications and Information Technology
3. 2020 IEEE Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS) (reviewer of 2016, 2017, 2018, 2020, 2021, 2023 symposiums); appears on the conference's list of technical program committee members
4. IEEE COMCAS 2021- Antennas, Propagation and Scattering
5. MDPI- RF human-hazards

4 Projects since 2017

Based also on his active participation at ITU RRC-06[1] (GE06) and ITU WRC-15, the Author completed RF audits, which comprise socio-economic impacts of wireless communications, focusing on the broadcasting and mobile services.

1 On April 2017, for Zambia ICT Authority (ZICTA)

i. Broadband Spectrum Audit

ii. Pricing Model; see also 'The regulatory framework of wireless regulation in CEPT and CE; UK as a Case Study'

2 On June 2017, for the Bhutan InfoComm and Media Authority (BICMA) the new National Radio Rules and Assessment of Spectrum Management, and an up-to-date pricing model. In addition to the comprehensive Report, the Audit includes the new national frequency allocations table; see presentation. The pricing model is implemented in Bhutan. BICMA published in 2021 the National Radio Frequency Allocations Plan (2021) and the National Radio Rules and Regulations (2021).

3 On December 2018, for Cameroun Ministry of Posts and Telecommunications (MINPOSTEL), Dr. Mazar served as the international expert on socio-economic impact of using the RF Spectrum 470–694 MHz in Cameroon. See (in French) the proposed technical solutions and cellular recommendations.

4 On August 2019, 'Economic models of the RF spectrum' (in French) for the Cameroon *Agence de régulation des télécommunications* (ART).

[1] The Regional Radiocommunication Conference for planning of the digital terrestrial broadcasting service in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz (RRC-06) Geneva, 15 May - 16 June 2006

5 On 30 September–4 October 2019, ITU mission for Zambia 'Auctioning Training & Technical Assistance'.

6 On 3–4 Dec. 2019, Warsaw International Conference: EMF and the Future of Telecommunications; ITU-D mission TA No 2713-2019 Warsaw, 2 presentations:

a. WarsawEMF2019_Mazar_IEEE95.1_ICNIRPguidelines_ITU3Dec2019.pdf
b. WarsawEMF2019_Mazar_WRC19_5G_IMT2020_ITU4Dec19.pdf

7 West African Regional Communications Infrastructure Program – WARCIP; World-Bank mission to conduct an international tender on spectrum-control in Togo; completed on 28 May 2020.

8 Dr. Mazar conducted successfully the Policy and Regulation Initiative for Digital Africa (PRIDA) Track 1, ITU mission SSA-32914. The administrative and technical elements of the three workshops can be retrieved at ITU-D Africa website Documents Capacity building workshop on SMS4DC. Those are the three Workshops:

a. 2-4 March 2020 see agenda of all week Zanzibar, Tanzania. 02nd to 06th March 2020 and click, to get the presentations on modern spectrum management

b. English On-line workshop, 20th April to 1st May 2020, agenda. Click, to get the first week presentations of these modules on modern spectrum management

c. Atelier en Français en ligne, 11-22 mai 2020 agenda . Click, to get the first week presentations of these modules on modern spectrum management

9 In the framework of PRIDA[2], ITU mission SSA-32914, Dr. Mazar served as the Pan-African technical coordinator of ITU for Track 1, action 1.2 'Guidelines for wireless broadband deployment in Africa'.

10 ITU mission 26146 October 2020 'Implementing 5G for Good: Does EMF Matter?'

See also Report Sept. 2021 ITU Implementing 5G for Good, Do electromagnetic fields matter?

11 ITU Regional Radiocommunication Seminar 2021 (RRS-21) for the **Americas** (in Spanish), E-meeting, 26 April - 7 May 2021, Forum, Spectrum Licensing models keynote speaker.

12 ITU RRS-21 for **Africa**, E-meeting, 5-16 July 2021, Forum, Spectrum Management and Monitoring Licensing, keynote speaker: Modern Spectrum Management and Monitoring: new sensors, higher bands.

[2] ITU and PRIDA jointly organised the ITU-PRIDA RRS 2023 for Africa, kindly hosted by the Agence de Régulation des Postes et des Communications Électroniques (ARPCE) from the Republic of the Congo in cooperation with the African Telecommunications Union (ATU)

13 ITU RRS-21 for **Africa**, E-meeting, 5-16 July 2021, Forum, Session 5 5G deployment challenges in Africa: RF Human Hazards Implementing 5G for Good: EMF Concerns.

14 ITU RRS-21for **Asia** E-meeting, 11-22 October 2021, Forum, Spectrum Management and Monitoring Licensing, keynote speaker: Modern Spectrum Management and Monitoring: new sensors, higher bands.

15 ITU RRS-22 for **Asia and the Pacific**, Nadi, Fiji, 15-20 December 2022 'Modern spectrum management and monitoring' 19 Dec. 2022 Moderator/ keynote speech

16 ITU RRS-23 **for Africa**, Brazzaville, Congo, 20-23 June 2023; Programme 'Broadband Systems (Terrestrial & Space) Spectrum Issues' Speaker 5, on behalf of ITU-R SG5

5 Qualifications

1. Seminars and professional presentations given to more than 30 Administrations over 6 Continents on Spectrum Management and RF Planning. For examples, with ITU-D, Wireless Telecommunications Training program Kathmandu 24-28 Nov 2008 and Wellington New Zealand Ministry of Economic Development on 4 Feb 2010 How Geography and Culture influence RF regulation- the ISR experience, the NZL case.

2. Invited as an ITU-D expert to Long Distance Seminar on Spectrum Engineering and Regulations in Asia for Asia Pacific Broadcasting Union and South America; including 'face-to-face course in Peru' (June 1998) in Spanish, and to ITU-D Regional Development Forums for the Africa region on "Modern spectrum Management and Transition from Analogue to Digital Broadcasting – Trends and Technologies" Banjul (Gambia), 14 - 16 July 2010[3].

3. On behalf of Israel, contribution to the ITU Plenipotentiary Conference (PP-10) Online access to all ITU publications; in addition to contributions to ITU-T and ITU-D Study Groups. Since 1991 contributes[4] to all ITU-R Study Groups (and their associated Working Parties). More than **260** technical contributions to ITU-R. Since July 2015, contributions also on behalf of ATDI.

4. Actively participates at all ITU-R World Radio Conferences and Radio Assemblies since Torremolinos 1992.

5. Actively participates at WTDCs meetings (Malta 1998, Buenos Aires 2017, Kigali 2022) and contributes to the two ITU-D SGs:

[3] See more info at ITU website; such as Mazar's presentation
[4] http://mazar.atwebpages.com/ContributionstoITU.html specifies separately the contributions to ITU-R

a) Resolution 9: Participation of countries, particularly developing countries, in spectrum management (see from 21 April 2023 Contribution 'implementation ITU-R and ITU-D collaboration', to ITU-R and D
b) Question 1/1: Policy, regulatory and technical aspects of the migration from existing networks to broadband networks in developing countries, including next-generation networks, m-services, OTT services and the implementation of IPv6;
c) Question 2/1: Broadband access technologies, including IMT, for developing countries
d) Question 4/1: Economic policies and methods of determining the costs of services related to national telecommunication/ICT networks, including next-generation networks
e) Question 5/1: Telecommunications/ICTs for rural and remote areas
f) **Question 7/2**[5]: Strategies and policies concerning human exposure to electromagnetic fields; e.g. 'modifications to Question 7/2 Report' Document 2/287. ATDI's contribution 'EMF: Revisions of ITU-D Resolution 62 and Question 7/2' to ITU-WTDC 2017 assisted to revise Question 7/2 and its Resolution 62
g) Questions: ex Q. 11-2/2, Q. 20-2/2, and Q. 21/1- see Cellular industry can directly create employment , RGQ 21/1/014-E 20 Jan 2009, and ex Q. 23/1 (see Q.7/2): Human exposure to electromagnetic fields- Review, ISR Case-Study and Proposals and Human exposure to electromagnetic fields - Israel case study, monitoring system, proposals and system presentation

6. Active in ITU-R SG1 (Spectrum Management) since 1992: reviewed (since 1993) the software programs for radio-frequency spectrum management, ITU-R Resolution R.21-3.
7. Active in CEPT Working Group Spectrum Engineering (SE); participates regularly at SE 24, on Wireless Power Transfer (WPT) and Short Range Devices (SRDs); invited as expert by the Chairman.
8. Staff member (2004-10) of UK Decision Analysis & Risk Management DARM Centre.

6 Special Expertise

1. **Short Range Devices** (SRDs), presentations and papers:
   a) ITU-T All Star Network Access, 4June04 Unlicensed Wireless Networks.pdf
   b) International SRD Webinar, 19 February 2013
   c) Prepared the SRD Module on SRD for the ITU Academy, Spectrum Management Training Program (SMTP)
   d) ITU Workshop on Short Range Devices, Geneva 3 June 2014; international, regional and national regulation of SRDs

[5] Dr. Mazar serves as co-rapporteur of Q 7/2

e) The US Telecommunication Certification Body, Council; 15 April 2015, Baltimore USA; International, Regional and National regulation of Short Range and Electronic Devices
f) Presentations in China and Singapore Beijing_SRMC 9July15_SRD.pdf (translated to Chinese)
g) EMC_Europe2016_Wroclaw_Sep 2016_Mazar_20April16_RFI.pdf
h) Chapter 3 in Wiley book: Short Range Devices and license-exempt RF spectrum
i) ITU Workshop on IoT, (hyperlinks to ITU web) IoT deployment in SRD networks; the video https://www.itu.int/webcast/archive/r2015-19sg1 includes 16 minutes presentation 2:36:13 till 2:53:10; Geneva on 22 November 2016
j) Regulating_SRD_Israel_MoC_28Jan2019_Mazar.pdf
k) Zanzibar5_March2020_UnlicensedSpectrumSRD_Mazar.pdf Original presentation in Zanzibar Workshop, on 3 March 2020
l) Participates regularly at CEPT, SE 24 on Short Range Devices

2. **RF Spectrum Audit and RF pricing**
a) Academic MBA, Bar-Ilan University, Israel; Economics & Marketing
b) Economic value of the RF spectrum: presentation in Peru, ITU face-to-face course in Peru (June 1998)
c) Participated at Israeli 3G and 4G RF Spectrum Audit and Auctions:
   i. assisted in defining the specific RF bands and the channel bandwidths
   ii. provided technical 3G & 4G values, for bilateral & multilateral agreements
   iii. assisted to define the RF Spectrum rules, and to measure the spectrum occupancy in borders; quantified the 4G Coverage, Capacity and Quality of Service for the last 4G Auction 2015
   iv. promoted successfully the passive and active network sharing
d) Involvement in the Chinese 2015 'Spectrum Audit' and 2016 'Spectrum Utilization Evaluation'
e) Active in ITU-R WP5D on IMT (4G and 5G) RF bands & channel arrangements;
f) Active in ITU-D Study Group 1 on Question 4/1: Economic policies and methods of determining the costs of services related to national telecommunication/ICT networks, including next-generation networks'
g) Wrote 'Economic Environment' including these sections 'Economic Valuation of the RF spectrum', 'National Cost Accounting: the RF Spectrum as an Non-Produced Asset', 'Fee Policy', 'Different Types of Auctions' and 'Determining the Annual-Fees' in his Wiley 2016 book 'Radio Spectrum Management: Policies, Regulations, Standards and Techniques'
h) Developed in 2017 the pricing models for Zambia and Bhutan. The RF fees are implemented in Bhutan; see National Radio Rules and Regulations (2021). These equations are documented in ATDI's contributions to ITU: 'proposed revision of report ITU-R SM.2012 'Economic aspects of spectrum management' document 1B/205, 13 November 2017. See SM.2012-6 (06/2018) section 4.8 'Opportunity cost and administrative incentive pricing: simple, functional and linear equations'

i) Serves as the international expert at the Cameroon Telecommunications Regulatory Board 2019 project 'Realization of a study on the real economic value of the radio frequency spectrum in Cameroon'
j) Recruited by ITU to conduct on 30 September–4 October 2019 a mission in Zambia 'Auctioning Training & Technical Assistance'
k) Zanzibar2_March2020_SpectrumUseEfficiencyEconomicValue&Refarming_Mazar.pdf Original presentation in Zanzibar Workshop, on 4 March 2020
l) Zanzibar6_March2020_AfricanWirelessBroadbandSpectrumAwards&Auctions_Mazar.pdf Original presentation in Zanzibar Workshop, on 3 March 2020.

3. **Broadband** expertise

   i. Advances short and long-term policies and regulatory frameworks to introduce 4G/5G technologies;
   ii. Public bidding and auction procedures to license the RF bands 800 MHz, 900 MHz, 1800 MHz, 2 GHz and 2.6 GHz for 3G and 4G cellular;
   iii. Active participation at ITU-D:
      a) Question 1/1: Strategies and policies for the deployment of broadband in developing countries
      b) Question 2/1: Strategies, policies, regulations and methods of migration and adoption of digital broadcasting and implementation of new services
      c) Question 5/1: Telecommunications/ICTs for rural and remote areas
      d) Question 1/2: Creating smart cities and society: Employing information and communication technologies for sustainable social and economic development
   iv. ITU mission in Warsaw, 4 Dec. 2019 'WRC-19, additional spectrum allocations for IMT-2020 (5G mobile)'
   v. Original presentations in ITU Zanzibar Workshop, on 3 March 2020:
      a) African Wireless Broadband Spectrum Awards & Auctions
      b) Spectrum Sharing, Dynamic Spectrum Access & Whitespace

4. **Antenna Patterns**

   a) Since nomination on Oct. 2015 as Vice Chair ITU-R SG5, revision of four ITU-R Recommendations:
      i. **F.699**: Reference radiation patterns for fixed wireless system antennas for use in coordination studies and interference assessment in the frequency range from 100 MHz to 86 GHz
      ii. F.1245: Mathematical model of average and related radiation patterns for point-to-point fixed wireless system antennas for use in interference assessment in the frequency range from 1 GHz to 86 GHz
      iii. F.1336: Reference radiation patterns of omnidirectional, sectoral and other antennas for the fixed and mobile service for use in sharing studies in the frequency range from 400 MHz to about 70 GHz
      iv. M.1851: Mathematical models for radiodetermination radar systems antenna patterns for use in interference analyses
   b) Papers and presentations on antennas:
      i. IEEE Texas Symposium on Wireless and Microwave Circuits and Systems 6 April 2018 'Regulating and Standardizing Directive Antenna Patterns to Improve Coexistence'
      ii. Ashdod: 2019_23May19_Directive_Ant_Patterns_Mazar.pdf
   c) Section 5.5 Antennas: Fundamental Parameters, in the author's Wiley book: "Radio Spectrum Management: Policies, Regulations, Standards and Techniques".

5. **RF- Electro Magnetic Fields** (EMF) and Human Exposure, presentations and papers:

Co- Rapporteur of ITU-D Q 7/2 on EMF for 2018-2021 period. Rapporteur on intersectoral (ITU-R, D and T) activities for ITU Plenipotentiary Resolution 176 (Rev. Dubai, 2018) '***Measurement and assessment concerns related to human exposure to electromagnetic fields***'. Rapporteur to the World Health Organisation (WHO) and International Commission on Non-Ionizing Radiation Protection (ICNIRP) of ITU-T Study Group 05 (ICT and climate change), to assess exposure from Electro Magnetic Fields, Question 3/5 'Human exposure to electromagnetic fields (EMFs) from ICTs'. Prepared the ITU intersectoral response to the public consultation of the Draft ICNIRP 'Guidelines on limiting exposure (100 kHz to 300 GHz)'. Nominated by ITU R SG1 (spectrum management), SG5 (terrestrial services) and SG6 (broadcasting) on June and November 2014 to represent them on EMF.

a) COMCAS09_Global_Survey_Different_Regulatory_Approaches_to_NonIonizing_RADHAZ_and_Spurious_Emissions_9Nov09_TelAviv_Mazar.pdf
b) Presentations in China and Singapore January 2016_Human Hazards.pdf (translated to Chinese)
c) Smart_Cities_RF_Human_Exposure_Ministries_of_Comms_Energy.pdf; presentation at intra-ministerial commission, on 21 January 2015
d) Presentation at the 2nd Annual Asia Pacific Spectrum Management Conference Human Hazards_Mazar_AsiaPacific_BKK_25April16.pdf
e) EMC_Europe2016_Wroclaw_Sep 2016_Mazar_20April16_EMF.pdf
f) Initiated a new 2016 ITU-R SG1 Question **239/1** 'Electromagnetic field measurements to assess human exposure'
g) ITU Workshop on "5G, EMF & Health" (Warsaw, Poland, 5 December 2017)'ATDI Coverage & EMF contours, around 5G base stations';
h) Revising for the World Health Organization (WHO) RF Environmental Health Criteria (EHC) Monograph: Chapter 2: Sources, measurements and exposures pdf. In addition, ITU-R contact person to revise the WHO Fundamental Safety Principles and Fact Sheets
i) Convener of the ITU workshop on 9 October 2018 on modern policies, guidelines, regulations and assessments of human exposure to RF-EMF, including 5G and Radio human hazards. My presentation 'ITU recent activities on EMF'
j) EMC-2019_23May19_Exposure_Limits_Mazar.pdf
k) Contributions to develop and revise Report ITU-R SM.2452-1 (07/2022)- EMF measurements to assess human exposure
l) ITU mission in Warsaw TA 2713, 3 Dec. 2019 'EMF, New ICNIRP Guidelines and IEEE C95.1-2019 Standard: Differences and Similarities'
m) ITU mission SSA 30604 April 2020; third Spectrum Management Training Programme (**SMTP)** EM2-5 module on 'EMF Health'
n) Chapter 9 on RF-EMF Human Hazards, retrieved from Mazar Wiley book; April. 2021
o) ITU purchase-order 323974, ITU Regional Forum for Europe: 22-23 Oct. 5G Strategies, Policies and Implementation October 2020 'Implementing 5G for Good: Does EMF Matter?'

p) Academic_Course_ Wireless_Comms_Regulation_including EMF_2020.pdf

q) Additional ITU Contributions: 25 Jan.16 5A/22 8 March 16; 5C/17 1 April 16; ITU-D SG2RGQ/129 29 March 16; Activities for ITU PP Resolution 176 (Rev. Dubai, 2018) *Human exposure to and measurement of electromagnetic fields*' Contributions and Liaison Statements to ITU-R, D and T; last ones: ITU-R 6/395 6 July 2015, 1/140 21 May 15, 5/232 13 July 2015; 5A/8 25 Jan.16 5A/22 8 March 16; 5C/17 1 April 16; ITU-D SG2RGQ/129 29 March 16; ITU-T COM 5– C 0669 March 16; ITU-R WP 1B/44[6] 26 May 2016. Prepared on June 2016 the ITU intersectoral response to WHO on 'Fact sheets for review'. EMF: Revisions of ITU-D Resolution 62 and Question 7/2, WTDC-17/27, 21 August 2017. Represents ITU-T SG5 (environment) at ITU-R, ITU-D and WHO. Together with China, proposals for April 2018 meeting of work-plan and table of content of the Report. For October 2018 meeting Chapters 1 and 2 of the Q 7/2 Report, see SG2RGQ/45. For March 2019 ITU-D SG2 meeting: Output Report of Question 7/2, revised "Chapter 2 - ITU activities", Document 2/137; Output Report on Question 7/2, Chapter 3: Updated international RF EMF exposure limits, Doc. 2/147; Annual progress report for Question 7/2, Document 2/161…

1) Contribution to the ITU-T SG5 'focus group on smart sustainable cities'
   a. Active to develop Technical report on "Electromagnetic field (EMF) considerations in smart sustainable cities"
   b. SSC-0214: Comments from Israel on "EMF around Fixed Point-to-Point systems", fg-ssc-0211, contribution for the 14-16 October 2014 meeting.
2) Among others, five Contributions in 2014 to ITU-T Study Group 5 on Question 7/5: Human exposure to electromagnetic fields (EMFs) due to radio systems and mobile equipment:

Number	Received	Title
[405]	2014-07-21	RF Human Hazards - Intersectoral activities
[328]	2014-07-07	EMF around Fixed Point-to-Point systems - comments to COM 5 - C 0309
[327]	2014-07-07	K.mpis recommendation draft -review of COM 5 - C 0311
[326]	2014-07-07	RF Human hazards, safety precautions; observations to COM 5 - C 0312
[306]	2014-06-10	Draft EMF Guide - inclusion of the comments received during Rapporteurs Meeting

This Contributions and others…

	[222] (Rev.1)	Proposed modifications to Document SG5-C118-R1 'Proposal for additional text and revisions for K.BPrac'	ATDI	Q3/5	2018-04-14

[6] This document was sent to the WHO as the ITU-T, D and R intersectoral view on 'WHO Fundamental Safety Principles'

3) ATDI was very active to assist developing 2017 ITU-D Report on EMF, Question 7/2; those are the contributions where Dr. Mazar is contact person.

Number	Title	Source	Date
[425]	Revision of Resolution 62: Measurement concerns related to human exposure to EMF	ATDI	2017-02-17
[410]	Proposed revision of Question 7/2	ATDI	2017-02-08
[287]	Proposed modifications to Question 7/2 report	ATDI	2016-07-28

And joined contributions with China to ITU-D SG2 and 2021 ITU-D Q 7/2 Report.

[38]	Proposed Table of Content for the Report of Question 7/2	**China** (People's Republic of) , **ATDI**	Q7/2	2018-04-20
[37]	Proposed work-plan (2018-2021) for Question 7/2	**China** (People's Republic of) , **ATDI**	Q7/2	2018-04-20

Enclosed some ATDI Contributions to ITU-D SG2 Q 7/2 Report (Mazar is main editor):

Number	Title	Source	Date
[392]	Draft Liaison Statement to ITU-T Q3/5, ITU-R WPs 1A, 1C, 5A, 5B and 6A	ATDI	2021-01-11
[363]	Proposed revisions to the Final Report for Question 7/2 to WTDC-21	Co-Rapporteurs for Question 7/2	2021-01-11
[289]	Report for Q7/2 to WTDC-2021: Revision of Chapters 1, 2, 3 and Annex 2	ATDI, France	2020-01-08
[147]	Output Report on Question 7/2, Chapter 3: Updated international RF EMF exposure limits	ATDI	2019-01-28
[137]	Output report of Question 7/2, revised "Chapter 2 - ITU activities"	ATDI	2019-01-15
[38]	Proposed Table of Content for the Report of Question 7/2	China , ATDI	2018-04-20
[37]	Proposed work plan (2018-2021) for Question 7/2	China , ATDI	2018-04-2

4) Three papers published end of 2021 on 5G and EMF; see ‘publications’ last page.

5) Mazar contributed the 2022 Appendix I ‘**exposure limits**’ Recommendation ITU-T K.91: Guidance for assessment, evaluation and monitoring of human exposure to radio frequency electromagnetic fields.

6) On 19 June 22 Nagoya Japan, on behalf of ITU ‘Compliance with the new 2020 RF Guidelines’ https://www.icnirp.org/cms/upload/presentations/MiniSymposium2022/MazarICNIRP_Nagoya2022.pdf links to the presentation.

7 Extra-curricular

Languages: Hebrew, English, French and Spanish; understands Italian, Portuguese, Bulgarian, Russian.

Personal interests: playing football; protecting environment, bird watching, entering ancient wells and natural sources, genealogy, archaeology, history, origin of alphabet and etymology (origins of the words), old coins (active member of the Tel Aviv - Israel Numismatic Society),.

Community service: served as Chairman of the community at Tel-Nof. Volunteered as the Inspector of the Modiin association to conserve archaeological sites. Member Association of football-club Maccabi Jaffa; leader and active player at a local football team. Organised three international football games in Geneva- meetings' participants versus ITU staff; see: RRC 06, St Jean Stadium, 6 June 06; WRC 07, Varembé Oct. 2007; and WRC 15, Varembé, 17 Nov. 2015.

In the framework of the Society for the protection of Nature in Israel, actively assisted Bilha Givon - founder and Director of Sustainable Development for the Negev; we succeeded to divert the Voice of America (VOA) broadcast emitters, which were originally planned for installation in the Arava; the 16 high power transmitters are now operating in Kuwait.

8 Publications

Two books, significant publications, articles, proceedings &presentations[7]; Citations

1) L-O-S radio links, clearance above tall buildings, IEEE Jerusalem, 1991; the 17th Convention; 5-7 March; page(s):145–148; ISBN: 0-87942-678-0.
2) Guiding principles in national RF spectrum management, Electromagnetic Compatibility. *From a Unified Region to a Unified World*; IEEE Herzelia, 1992.
3) Annex, section 4.2.4 National Spectrum Management, Handbook; ITU-R Geneva, editions 1995 and edition 2005.
4) Chapter 5 in the Spectrum Monitoring Handbook; ITU-R Geneva, 1995.
5) Using Minimum Data-Elements & Operator Inputs, in National Spectrum Management Systems, *International Wroclaw Symposium on Electromagnetic Compatibility (EMC), 1996*; ISBN: 83-901999-4-7.
6) Sections in ITU-R Report SM.2012-2 (2005) 'Economic Aspects of Spectrum Management; Geneva, 1997. See also SM.2012-6 (2018), Section 4.8.
7) Preparation of Handbooks for Developing Countries: contributing to Economic, Organizational and Regulatory Aspects of National Spectrum Management, Final Report; ITU-D Geneva, 1999.
8) Contributions to ITU-D Resolution 9 and Questions: Question 11-2/2 (on digital broadcasting), Question 20-2/2 (on broadband telecommunications); Q. 21/1 (Impact of telecommunication development on the creation of employment).
9) Regulations versus standards in approving telecom equipment, IEEE TelAviv, 2002, the 22nd Convention; 1 December; pages: 121–2; ISBN: 0-7803-7693-5.
10) Spectrum Monitoring Handbook, Ch. 6, 2002 version; ITU-R, Geneva 2002; and revisions on 2005 (see Handbook 2011).
11) Worldwide, Regional and National Unlicensed and Unprotected RF allocations, for Wireless Network Access (including Social Issues); 4 June 2004; ITU-T workshop all-star network access; Geneva, 2-4 June 2004.
12) Contributing to ITU-R Handbook on computer aided techniques for spectrum management; authoring annex 3 Iris; Geneva, 2005; and Revision on 2015.
13) Authoring main parts of ITU-R recommendations on digital TV co-sharing with land mobile and fixed services thoroughly applied at GE06 Agreement Geneva 2006 (RRC06):
    a. F.1670 2006 Protection of fixed wireless systems from terrestrial digital video and sound broadcasting systems in shared VHF and UHF bands;
    b. M.1767 2006 Protection of land mobile systems from terrestrial digital video and audio broadcasting systems in the VHF and UHF shared bands allocated on a primary basis.

[7] http://mazar.atwebpages.com/ContributionstoITU.html specifies separately the contributions to ITU-R

14) Heading the Israeli Evaluation Group, contributing report OFDMA TDD WMAN, ITU-R, 16 May 2007. Presentation; Dresden, October 2009.

15) The Ruling and Thresholds of Human Hazards (ELF and EMF) in Israel and other Countries; IEEE Holon, June 2007.

16) Wireless Telecoms Training program; Nepal, Kathmandu 24-28 Nov 2008.

17) ***An Analysis of Regulatory Frameworks for Wireless Communications, Societal Concerns and Risk: the Case of Radio Frequency (RF) Allocation and Licensing*** Boca Raton Florida: Dissertation.Com, 2009**.**

18) A Global Survey and Comparison of Different Regulatory Approaches to Non-Ionizing RADHAZ and Spurious Emissions, IEEE TelAviv, COMCAS, November 2009. Hyperlink to the slides presentation; 9 November 2009.

19) Regulation and Standardization of Wireless Communications in Israel, Europe and America 22 December 2009; Ort Braude College.

20) How Geography and Culture influence RF regulation- the ISR experience, the NZL case; Wellington New Zealand Ministry of Economic Development, 4 Feb 2010.

21) Wireless Communications: Co-Existence between Israel and its Neighbours, IEEE, Shamoon College of Engineering; Ashdod, 17 May 2010.

22) ITU-D Regional Development Forums 2010 for the Africa region on "Modern spectrum Management and Transition from Analogue to Digital Broadcasting – Trends and Technologies", Banjul (Gambia), 14 - 16 July 2010:
    a. Policies and Strategies to Optimise the Use of the RF Spectrum, 14 July 2010;
    b. Optimised ways to transmit the video signals, 16 July 2010;
    c. Summary of the Forum, 25 July 2010.

23) Cultural Factors Shaping Radio Frequency Spectrum Governance, the Netherlands, 'Delft University' of Technology, Economics of Infrastructures, Faculty 'Technology, Policy and Management' 24 September 2010.

24) ITU-R Spectrum Monitoring Handbook Rapporteur of Chapter 6 of the Spectrum Monitoring Edition of 2011.

25) Human exposure to electromagnetic fields- Review, ISR Case-Study and Proposals, ITU-T Study Group 05 (ICT and climate change), 5 April 2011.

26) A Comparison Between European and North American Wireless Regulations, presentation at the 'Technical Symposium at ITU Telecom World 2011'.

27) Interfering thresholds of radio services and spectrum emission masks from PLT, CATV and ADSL, presentation at COMCAS 11 , 7 November 2011.

28) International, Regional and National RF Spectrum Management, presentation at "Afeka Tel Aviv Academic College of Engineering", 13 December 2011.

29) InterComms talks to Dr. Haim Mazar; see a parallel interview with Dr Hamadoun Touré, ITU Secretary-General http://www.intercomms.net/issue-19/dev-4.html 29 October 12.

30) How Geography and Culture influence the RF Spectrum Management, Yahud, 12 March 2013; in Hebrew. Lecture in "The Electromagnetic Spectrum Management and Challenges" workshop, dedicated to Ziva Arbel.

31) Technical limits of Human Exposure to RF from Cellular Base Stations and Handsets, Jerusalem, 11 April 2013. Professional presentation of the Ministry of Communications to the experts of Ministry of Environmental Protection, human-exposure monitoring laboratories and cellular operators.
32) International, Regional and National RF Regulation and Standardization; presentation at "Ruppin Academic Center", 31 December 2013.
33) Wireless Telecommunications, Enrichment Material; MoC Israel, 4 January 2014.
34) Technical limits of Human Exposure to RF from Broadcasting Emitters, Cellular Base Stations and Handsets, at 'Holon institute of technology'; 30 January 2014.

35) Four presentations on January 2016 in China and Singapore; translated to Chinese:
    a. January2016_Human_Hazards_Mazar_SRTC_in_Chinese.pdf ;
    b. January2016_National_Spectrum_Control_SRTC_in_Chinese.pdf ;
    c. January2016_SRD_Mazar_SRTC_in_Chinese.pdf ;
    d. January2016_WRC_15_Results_Mazar_SRTC_in_Chinese.pdf .
36) Three papers at EMC Europe 2016; Wroclaw 5–9 Sep 2016:
    a. EMC_Europe2016_Wroclaw_Sep 2016_Mazar_20April16_EMF.pdf ;
    b. EMC_Europe2016_Wroclaw_Sep 2016_Mazar_8May16_RFI.pdf;
    c. Workshop_9 Sep2016_WRC_15 results_Mazar.pdf.
37) ITU mission at the 2nd Annual Asia Pacific Spectrum Management Conference Human Hazards_Mazar_AsiaPacific_BKK_25April16.pdf.
38) **Wiley and Sons "Radio Spectrum Management: Policies, Regulations, Standards and Techniques" ISBN-13: 978-1118511794**.
39) Cameroon, Yaounde Commonwealth Telecommunications Organisation, Spectrum Management Forum, 2 Nov.16; Spectrum Re-Farming: Framework and Methodology
40) ITU Workshop on IoT, IoT deployment in SRD networks; the video https://www.itu.int/webcast/archive/r2015-19sg1 includes 16 minutes presentation 2:36:13 till 2:53:10; Geneva on 22 November 2016.
41) ITU Workshop on "5G, EMF & Health" (Warsaw, Poland, 5 December 2017), 'ATDI Coverage & EMF contours, around 5G base stations' see also https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20171205/Documents/S3_Haim%20Mazar.PDF.
42) The ITU inaugural CIS Spectrum Management Conference; Yerevan, Armenia 12-14 December 2017 "Connecting the unconnected: Spectrum policy to help bring affordable connectivity to all".
43) ITU Regional Workshop Practical use of Radio Regulations Yerevan, Armenia, 14-15 December 2017, 'The essential RF parameters of modern wireless terrestrial'
44) IEEE Texas Symposium on Wireless and Microwave Circuits and Systems 6 April 2018 'Regulating and Standardizing Directive Antenna Patterns to Improve Coexistence'.
45) ITU activities to allocate additional RF for 5G, above 24 GHz Herzliya; 25 July 2018.
46) 'ITU recent activities on EMF' 10 October 2018 at ITU workshop on modern policies, guidelines, regulations and assessments of human exposure to RF-EMF.
47) Cameroun Cellulaires_ affectation_bande_470 694_21Dec18_French.pdf .
48) Cameroun Solutions_techniquesDTTV_MPT_UHF_21Dec2018_French.pdf .
49) Regulating_SRD_Israel_MoC_28Jan2019_Mazar.pdf .
50) EMF_HumanHazardsConcerns_Modiin25March19_Mazar.pdf .
51) EMC-2019_23May19_Exposure_Limits_Mazar.pdf .
52) EMC-2019_23May19_Directive_Ant_Patterns_Mazar.pdf .
53) Heron5G_RF_regulations_6June19_Mazar.pdf .
61) ITU mission in Lusaka for Zambia 30Sept.–4Oct. 2019 'Auctioning Training & Technical Assistance'.

62) ITU mission in Warsaw TA 2713 for Poland 3 Dec. 2019 'EMF, New ICNIRP Guidelines and IEEE C95.1-2019 Standard: Differences and Similarities'.
63) ITU mission in Warsaw TA 2713 for Poland, 4 Dec. 2019 'WRC-19, additional spectrum allocations for IMT-2020 (5G mobile)'.
64) PRIDA Zanzibar1_March2020_**SpectrumHarmonisationAfrica**_Mazar.pdf.
65) PRIDA Zanzibar2_March2020_**SpectrumUseEfficiencyEconomicValue&Refarming**_Mazar.pdf .
66) PRIDAZanzibar3March2020_**SpectrumSharingDynamicSpectrumAccessWhitespace**_Mazar.pdf .
67) PRIDA Zanzibar4_March2020_**MobileInfrastructureSharing**_Mazar.pdf .
68) PRIDA Zanzibar5_March2020_**UnlicensedSpectrumSRD**_Mazar.pdf.
69) PRIDA Zanzibar6_March2020**AfricanWirelessBroadbandSpectrumAwards&Auctions**_Mazar.pdf
70) PRIDA Track 1(T1) On-line English workshop 20thApril–1stMay2020. First_week_slides_v2.
71) PRIDA Track 1(T1) Atelier de renforcement des capacités sur la gestion moderne du spectre 11–22 mai 2020. First_week_slides_v2.
72) EMF Human Hazards Presentation Maccabim 9June2020.
73) 2020 IEEE Israel Conference on Electromagnetic Compatibility (EMC), 15 Oct. 2020; Updated Human Exposure Standards IEEE 2019 and ICNIRP 2020, towards 5G applications.
74) ITU Regional Forum for Europe 5G Strategies, policies and implementation; ITU purchase-order 323974; 23 Oct 2020. EMF and other challenges- Setting the context; RF Human Hazards. Implementing 5G for Good: Does EMF Matter? See also Report Sept. 2021 ITU Implementing 5G for Good, Do electromagnetic fields matter?
75) ITU Regional Radiocommunication Seminar 2021 (RRS-21) for the **Americas**, E-meeting, 26 April - 7 May 2021, Forum, Spectrum Licensing models keynote speaker (in Spanish) .
76) ITU Regional Radiocommunication Seminar 2021 (RRS-21) for **Africa**, E-meeting, 5-16 July 2021, Forum, Spectrum Management and Monitoring Licensing, keynote speaker: Modern Spectrum Management and Monitoring: new sensors, higher bands.
77) RRS-21 for **Africa**, E-meeting, 5-16 July 2021, Forum, Session 5 5G deployment challenges in Africa: RF Human Hazards Implementing 5G for Good: EMF Concerns.
78) RRS-21for **Asia** E-meeting, 11-22 October 2021, Forum, Spectrum Management and Monitoring Licensing, keynote speaker: Modern Spectrum Management and Monitoring: new sensors, higher bands.
79) Strengths and Limitations of Conventional Approaches to the Risk Assessment and Management of EMF Exposure from 5G and B5G Networks; Frontiers, co-author with Pr. David J. Ball; published on 03 November 2021.
80) Science and Politics of Base Station Electromagnetic Field Risks; co-author with Pr. David J. Ball; click here for the presentation of the paper in IEEE COMCAS 2021on 2 November 2021.
81) Misunderstandings about radiofrequency electromagnetic field exposure and 5G misinformation; co-author with Dr Jack Rowley, GSMA; click here for the presentation of the paper in IEEE COMCAS 2021on 2 November 2021.
82) ITU's Perspective on Compliance with the new 2020 RF Guidelines; Nagoya, Japan; on 19 June 2022, on behalf of ITU.
83) Hearing loss - the silent thief of cognition: international, regional and national regulations of the wireless part; see also at https://www.itu.int/en/ITU-T/jca/ahf/Documents/docs-2022/Oct/JCA-AHF-Doc477.zip