

Biographical Profile, Dr. Haim Mazar (Madjar)

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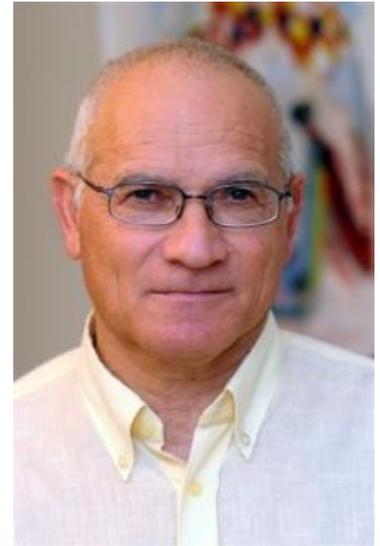
Education

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

1976 almost MSc-EE, Tel Aviv University, Israel (all studies without thesis)

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

2004-2008 PhD, Health and Social Sciences, Middlesex University, London, UK Thesis August 2008 – *"Wireless communications, societal and risk concerns: the case of RF allocation and licensing"*¹ ISBN 10: 1-59942-710-9, ISBN 13: 978-1-59942-710-2. A copy of the book is found at the ITU Library call-number 347.8 M 475.



Appointments

National award received in 1988 for the development of a Computerized Frequency Management System; Vice Chairman of ITU-R Study Group 9 - Fixed service 2000-07; ITU-T Workshop "All Star Network Access" 2004, Chair of Regulatory session; co-chaired ITU-R JRG 8A-9B. Vice Chairman of ITU-R Study Group 1- Spectrum Management since October 2007 (elected by 92 countries at Radio Assembly 2007), re-elected by 102 countries at the Radio Assembly 2012: Vice Chairman of ITU-R. Since October 2015, Vice Chairman of ITU-R Study Group 5- Terrestrial Services (elected by 88 countries at Radio Assembly 2015). 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. Contributed two training modules- 'Fixed Service' and 'Short Range Devices'- to 'Wireless Telecommunications Technologies', for the ITU Spectrum Management Training Program (SMTP). Nominated by ITU R SG1 (spectrum management), SG5

¹ Pr. David Ball is the Doctoral degree advisor

(terrestrial services) and SG6 (broadcasting) on June and November 2014 to represent them:

- for intersectoral activities with ITU-D and ITU-T, regarding the ITU Plenipotentiary Conference [Resolution 176 \(Rev. Busan, 2014\) Human exposure to and measurement of electromagnetic fields'](#); and
- to revise 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.

Employment: 45 years of RF experience

Since 1 August 2016, academic adviser of China Center of Information Industry Development (CCID). Since January 2016, a guest professor in Xihua University, Chengdu, [XHU](#), China.

Since 2015,

1. RF Spectrum Management and Engineering [ATDI Software Solutions](#)
2. Lecturer at [Sami Shamon College of Engineering, Electronic Engineering](#) teaching 4th year EE students 'advanced wireless communications':
 - [Academic_Course_Engineering_2015.pdf](#)
 - [Academic_Course_Services_2015.pdf](#)
 - [Academic_Course_Regulation EMC_HumanHazards.pdf](#)

2001-2014: [Ministry Of Communications Israel \(MoC\)](#), deputy RF Spectrum Manager: broadband; spectrum engineering; economic and legal RF ruling; human hazards;

1993-2000, responsible for RF Spectrum and Licensing at [Tadiran Ltd](#). 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 our [Largest RF Operator](#) .

Qualifications

1. Seminars and professional presentations given to more than 30 Administrations over 6 Continents on Spectrum Management and RF Planning. The last ones, 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 and in China](#) (July 2015); see later.
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 . Vice Chairman of the technical/ administrative RRC-06/GE-06 committee.
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, [contributes](#)² to all [ITU-R Study Groups](#) (and their associated [Working Parties](#)); Since July 2015, contributions also on behalf of [ATDI](#). In total around **200** technical contributions to ITU-R.
4. Active at [ITU-T Study Group 05](#) (ICT and climate change), to assess exposure from Electro Magnetic Fields, Question [7/5](#): Human exposure to electromagnetic fields (EMFs) due to radio systems and mobile equipment.

² <http://mazar.atwebpages.com/ContributionstoITU.html> specifies separately the contributions to ITU-R

5. Contributes to the two ITU-D Study Groups:
 - a) [Resolution 9](#): Participation of countries, particularly developing countries, in spectrum management
 - 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 8/1](#): Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services
 - g) [Question 7/2](#): Strategies and policies concerning human exposure to electromagnetic fields; e.g. ‘modifications to Question 7/2 Report’ Document [2/287](#).
 - h) [Question 9/2](#): Identification of study topics in the ITU-T and ITU-R study groups which are of particular interest to developing countries
 - i) 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](#) since 1992: Reviewed (since 1993) the [software programs for radio-frequency spectrum management](#), ITU-R [Resolution R.21-3](#).
7. Staff member (2004-10) of UK Decision Analysis & Risk Management DARM Centre.
8. [Certificate of Recognition of IEEE International Symposium on EMC, Istanbul, Turkey 03](#), for organizing technical sub-committees and reviewing the papers.
9. [Wiley and Sons](#) published on August 2016 the ISBN-13: 978-1118511794 book for “[Radio Spectrum Management: Policies, Regulations, Standards and Techniques](#)”.

10. **Short Range Devices (SRDs)** expertise, 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 [Spectrum Management Training Program \(SMTP\)](#);
- d) ITU Workshop on Short Range Devices, Geneva 3 June 2014; [international, regional and national regulation of SRDs](#);
- 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 the Wiley book: Short Range Devices and license-exempt RF spectrum.

11. RF: **ElectroMagnetic Fields (EMF)** and Human Exposure: presentations and papers:

- a) [COMCAS09 Global Survey Different Regulatory Approaches to NonIonizing RADHAZ and Spurious Emissions 9Nov09 TelAviv Mazar.pdf](#);
- b) [Academic Course Wireless Comms Regulation including EMF 2015.pdf](#)
- c) Presentations in China and Singapore [January 2016 Human Hazards.pdf](#) (translated to [Chinese](#));
- 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) Chapter 9 in the [Wiley book](#): Radio Frequency Human Exposure;
- g) Initiated a new 2016 ITU-R SG1 Question [239/1](#) ‘Electromagnetic field measurements to assess human exposure’

Within intersectoral activities for ITU PP [Resolution 176 \(Rev. Busan, 2014\)](#) *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-E](#) 29 March 16; ITU-T COM 5– [C 0669](#) March 16; ITU-R WP [1B/44](#)³ 26 May 2016. Prepared on June 2016 the ITU-T, D and R intersectoral response to WHO on ‘Fact sheets for review’. Invited by ITU-D to present in Bangkok [Human Hazards_Mazar_AsiaPacific_BKK_25April16.pdf](#).

³ This document was sent to the World Health Organisation (WHO) as the ITU-T, D and R intersectoral view on ‘WHO Fundamental Safety Principles’

12. **Wireless Power Transmission (WPT)** expertise:

WPT human-hazards and interference from WPT to radio services; see Report ITU-R [SM.2303-1](#) (2015) *Wireless power transmission using technologies other than radio frequency beam*. Contributed to the Israeli response to revise [CISPR 11](#).

13. **RF Spectrum Audit:**

- a. Economic value of the RF spectrum: presentation in Peru, ITU face-to-face course in Peru (June 1998).
- b. 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 the technical 3G and 4G values, for the bilateral and 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.
- c. Involvement in the Chinese 2015 ‘Spectrum Audit’ and 2016 ‘Spectrum Utilization Evaluation’;
- d. Active in ITU-R WP5D on IMT (4G and 5G) RF bands and channel arrangements;
- e. 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’;
- f. Wrote ‘Economic Environment’ including these sections ‘Economic Valuation of the RF spectrum’, ‘National Cost Accounting: the RF Spectrum as a 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’](#);
- g. MBA, [Bar-Ilan University](#), Israel Economics & Marketing;
- h. Heads on behalf of ATDI the September 2016 Zambian RF Spectrum Audit.

14. Broadband:

- a. Short and long term policies/ strategies to introduce 3G and 4G technologies;
- b. Engineering, economist and legal and regulatory frameworks;
- c. 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.

Extra-curricular: languages: English, French and Spanish, among others.

Personal interests: Protecting environment, [ancient wells and natural sources](#), [genealogy](#), archaeology, old coins, history, bird watching and etymology (origins of the words).

Community service: served as Chairman of the community at Tel-Nof. I volunteer 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. I organised three international football games in Geneva- meetings' participants versus ITU staff; see: [RRC 06, St Jean Stadium, 6 June 06](#); [WRC 07, Varembe Oct. 2007](#); and [WRC 15, Varembe, 17 Nov. 2015](#).

In the framework of the [Society for the protection of Nature in Israel](#), I 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.

Two Books, Significant Publications, Articles, Proceedings and Presentations⁴

- 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 to [National Spectrum Management, Handbook](#); ITU-R Geneva, 1995.
- 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.
- 6) Sections in ITU-R Report [SM.2012 'Economic Aspects of Spectrum Management](#); Geneva, 1997.
- 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 and 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.

⁴ <http://mazar.atwebpages.com/ContributionsToITU.html> specifies separately the contributions to ITU-R

- 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](#).
- 14) [Heading the Israeli Evaluation Group](#), contributing report [OFDMA TDD WMAN](#), ITU-R, 16 May 2007.
- 15) [The Ruling and Thresholds of Human Hazards \(ELF and EMF\) in Israel and other Countries](#); IEEE Holon, June 2007.
- 16) [Wireless Telecommunications Training program](#); Nepal, Kathmandu 24-28 Nov 2008.
- 17) [Wireless Communication: Health, Science and Policy- MoC Perspective](#), Environment and Health Fund [EHF](#) Workshop; Jerusalem, 9 September 2009.
- 18) [*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.
- 19) Contributing to [Israeli Evaluation Group](#) of ITU-R IMT-2000 and IMT-Advanced candidate IEEE technologies [Presentation](#); Dresden, October 2009.
- 20) [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.
- 21) [Regulation and Standardization of Wireless Communications in Israel, Europe and America](#) 22 December 2009; Ort Braude College.

- 22) How Geography and Culture influence RF regulation- the ISR experience, the NZL case; Wellington New Zealand Ministry of Economic Development, 4 Feb 2010.
- 23) Wireless Communications: Co-Existence between Israel and its Neighbours, IEEE, Shamoon College of Engineering; Ashdod, 17 May 2010.
- 24) ITU-R Spectrum Monitoring Handbook Reporter of chapter 2 of the Spectrum Monitoring Edition of 2011.
- 25) 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 10;
 - b. Optimised ways to transmit the video signals, 16 July 2010;
 - c. Summary of the Forum, 25 July 2010.
- 26) Cultural Factors Shaping Radio Frequency Spectrum Governance, the Netherlands, ‘Delft University of Technology’, Economics of Infrastructures, Faculty ‘Technology, Policy and Management’ 24 September 2010.
- 27) Wireless Telecommunications Systems, Academic Course for Engineering Students; Shamoon College of Engineering, 10 January 2011.
- 28) Wireless Telecommunications, Enrichment Material; MoC Israel, January 2011.
- 29) Human exposure to electromagnetic fields- Review, ISR Case-Study and Proposals, ITU-T Study Group 05 (ICT and climate change), 5 April 2011.
- 30) A Comparison Between European and North American Wireless Regulations, presentation at the ‘Technical Symposium at ITU Telecom World 2011’ <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=6100952>
- 31) Interfering thresholds of radio services and spectrum emission masks from PLT, CATV and ADSL, presentation at COMCAS 11 , 7 November 2011.
- 32) International, Regional and National RF Spectrum Management, presentation at "Afeka Tel Aviv Academic College of Engineering", 13 December 2011.

- 33) [InterComms talks to Dr. Haim Mazar](#); see a parallel interview with Dr Hamadoun Touré, ITU Secretary-General <http://www.intercomms.net/issue-19/dev-1.html> 29 October 12.
- 34) [Wireless Communications: Monitoring and Enforcement in Israel and Abroad](#) (in Hebrew), MoC Inspectors Training, Ramat Ef'al, 19 November 2012.
- 35) [Radio-Tracking of Birds: Regulation and Ruling of Radio Frequencies](#), presentation at “Animal Tracking workshop @ Hula Valley 27-29 Nov 12”, 28 November 12.
- 36) [UHF Global And Regional Ruling and Standardization - The Case Of Different Allocations To Short Range Devices \(SRDs\) & Electronic Devices](#) , Go Global Compliance Academy™ Webinar, 19 February 2013; the video.
- 37) [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.
- 38) [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.
- 39) [International, Regional and National RF Regulation and Standardization](#); presentation at "Ruppin Academic Center", 31 December 2013
- 40) [Technical limits of Human Exposure to RF from Broadcasting Emitters, Cellular Base Stations and Handsets](#), at ‘Holon institute of technology’; 30 January 2014
- 41) [International, regional and national regulation of SRDs](#), at ITU Workshop on Short Range Devices and Ultra-Wide Band; Geneva, 3 June 2014
- 42) 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]

43) 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 |

44) [Smart_Cities_RF_Human_Exposure_Ministries_of_Comms_Energy.pdf](#); presentation at intra-ministerial commission, on 21 January 2015.

45) [International, Regional and National regulation of Short Range and Electronic Devices](#), at the US Telecommunication Certification Body, Council; 15 April 2015, Baltimore USA.

46) Four presentations on January 2016 in China and Singapore- in English:

- a. [January 2016_Human Hazards_Mazar_SNG&SRTC&XHU&GDRTC.pdf](#)
- b. [January 2016_National Spectrum Control_China&SRTC&XHU.pdf](#)
- c. [January 2016_SRD_Mazar_SNG&SRTC&XHY&GDRTC.pdf](#)
- d. [January 2016_WRC_15 results_Mazar_SNG&SRTC&XHU&POL.pdf](#)

47) 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](#)

48) Two accepted papers and an invited presentation at [EMC Europe 2016](#); Wroclaw 5–9 Sep 2016:

- a. [EMC_Europe2016_Wroclaw_Sep2016_Mazar_15March16_EMF.pdf](#)
- b. [EMC_Europe2016_Wroclaw_Sep2016_Mazar_15March16_RFI.pdf](#)
- c. [Workshop_9_Sep2016_WRC_15_results_Mazar.pdf](#)

49) Presentation at the [2nd Annual Asia Pacific Spectrum Management Conference Human Hazards Mazar AsiaPacific BKK 25April16.pdf](#)

50) Wiley and Sons “Radio Spectrum Management: Policies, Regulations, Standards and Techniques” ISBN-13: 978-1118511794.