

Wireless Telecommunications Training

Kathmandu, 24-28 Nov 2008

RF Spectrum: Engineering; Analysis, Regulation, Standardization

COURSE SCHEDULE

First Day: ITU; the RF Radio Spectrum and Radio Services

- 08:30-09:00 Registration of the participants
- 09:00-10:00 Inaugural Session- Address by; Honorable Minister for Information & communications Mr. Krishna B. Maharaa, Israel Ambassador H.E. Mr. Dan Stav, ITU Senior Advisor Mr. Sameer Sharma, NTA Chairman Mr. Bhesh Raj Kandel and MoIC Secretary Mr. Leela Mani Paudyal.
- 10:00-10:30 Hi-Tea
- 10:30-11:30 *Sameer Sharma: BDT and ITU* Initiatives on NGN: Applications and Standardization
- 11:30-13:00 ITU structure; ITU-R (Study groups); International registration and bi/multilateral coordination; ITU-R BRIFIC
- 13:00-14:00 Lunch Break
- 14:00-15:30 Analog and Digital Broadcasting: Sound Broadcasting and Video Broadcasting, including introduction to digital TV DVB-T, ATSC, ISDB-T
- 15:30-15:50 Coffee Break
- 15:50-16:30 Main cellular systems including IMT and WiMAX, broadband wireless access and broadcasting standards, the GSM (and WiFi) success; Fixed Service: point to point and point to multipoint.

Second Day: Spectrum Engineering

- 09:00-10:45 *Sameer Sharma, Regional Office for Asia and the Pacific: BDT assistance to countries on the field of Spectrum Management and broadcasting. Introduction of SMS4DC a useful tool for Spectrum Management for developing countries.*
- 10:45-11:15 Coffee Break
- 11:15-13:00 Systems characteristics: transmitters and spurious emission, Receivers-noise, sensitivity and modulation
- 13:00-14:00 Lunch Break
- 14:00-15:30 Antennas- directivity and diversity; Minimising Interference - frequency, space and time domains
- 15:30-15:50 Coffee Break
- 15:50-17:30 Satellite communications: GSO (Geostationary Satellite Orbit), non GSO and DTH; Radiolocation and Radionavigation: Radars and GPS.

Third Day: Wave Propagation

- 09:00-10:45 Free Space and the wireless path loss
- 10:45-11:15 Coffee Break
- 11:15-13:00 Digital Terrain Maps, including real-time simulations
- 13:00-14:00 Lunch Break
- 14:00-15:30 Near and far field; outdoor and indoor, attenuation by obstacles
- 15:30-15:50 Coffee Break
- 15:50-17:30 HF propagation and Sky waves, including real-time simulations.

Fourth Day: Radiation Human Hazards: Risks from RF Exposure

- 09:00-10:45 *Human Capacity Building: ITU Asia Pacific Centre of Excellence, Sameer Sharma*
- 10:45-11:15 Coffee Break
- 11:15-13:00 RADHAZ from RF transmitters, Units of exposure; RADHAZ from utility power lines and electric equipment
- 13:00-14:00 Lunch Break
- 14:00-15:30 ICNIRP, CE and FCC limits
- 15:30-15:50 Coffee Break
- 15:50-17:30 Specific Absorption Rates; Comparison of different thresholds around the world

Fifth Day: RF Regulations, Allocations and Standards

- 09:00-10:45 Government and non-Government usage; European Short Range Devices (SRD) and American electronic devices
- 10:45-11:15 Coffee Break
- 11:15-13:00 European, American and Asian ([APT](#), [ABU](#))¹: frameworks, rules and standards
- 13:00-14:00 Lunch Break
- 14:00-15:30 National Spectrum Control- RF Spectrum Management guidelines
- 15:30-15:50 Coffee Break
- 15:50-17:00 RF Spectrum Monitoring, including the ITU-R Monitoring Handbook 2002
- 17:00-17:30 Closing Sessions- Certificate Distribution, Closing Remarks, Course Conclusions.
- 18:30-21:00 Dinner

¹ The participants will assist

The Lecturer

Dr. Haim Mazar mazarh@moc.gov.il , mazar@ties.itu.int

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 Aug. 2008– "[Wireless communications, societal and risk concerns: the case of RF allocation and licensing](#)". A copy of the draft thesis 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 153 countries);

Employment: 37 years of RF experience

2001-to date: [Ministry Of Communications Israel](#) deputy RF Spectrum Management Division.
1993-2000, responsible for RF Spectrum and Licensing at [Tadiran Ltd.](#) Originator of 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](#)

Qualifications

1. Seminars given to 27 Administrations over 5 Continents on Spectrum Management and RF Planning.
2. Invited as an expert to [ITU-D 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). Vice Chairman of the technical/ administrative [RRC-06/GE-06](#) committee.
3. Contributions to all [ITU-R Study Groups](#): 1,3,4,7,8,9,10 and 11 (now [SG6](#)); contributes to [ITU-D Resolution 9](#) and Questions: [Question 11-2/2](#), [Question 20-2/2](#) .
4. Active in ITU-R [SG1](#) since 1993: Reviewed (since 1993) the [software programs for radio-frequency spectrum management](#), [Resolution R.21-3](#).
5. Staff member of the Centre for Decision Analysis and Risk Management [DARM](#).

