



ITU WORKSHOP ON  
SHORT RANGE DEVICES AND  
ULTRA WIDE BAND

**GENEVA, SWITZERLAND  
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[www.itu.int/go/ITU-R/RWP1B-SRD-UWB-14](http://www.itu.int/go/ITU-R/RWP1B-SRD-UWB-14)



**ITU WORKSHOP on  
SHORT RANGE DEVICES (SRDs)  
AND ULTRA WIDE BAND (UWB)  
(Geneva, 3 June 2014\*)**

# **SRD and its Challenge**

## **— SRD Management in China**

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*\* in conjunction with the June 2014 block of  
meetings of ITU-R Study Group 1*



# Foreword



- Radio management is playing an essential role in building an information society.
- There is increasing demand for, and use of, short-range devices (SRDs) for a wide variety of applications throughout the world.
- Implementation of regulations for SRDs is a matter for national administrations, but encouraging SRDs regional/global spectrum harmonization could reduce the potential for harmful interference from SRDs to radiocommunication services.



# OUTLINE



**Challenges of SRDs**

**SRDs Management in China**

**Considerations**

**Summary**



# PART I



## Challenges of SRDs

### SRDs Management in China

### Considerations

### Summary



- **Many reports studied the challenges of SRDs**
- **Two new challenges from different views**
- Challenge 1
  - The current application scenarios of SRDs may be different from previous analysis, so potential interference may occur.
    - Report ITU-R SM.2153: “SRDs are used virtually everywhere”
    - Application scenarios of SRDs may differ from the result of simulation analysis
    - Accordingly, it is required to update relevant technical standards and to improve the management.



## ■ Challenge 2

- The widely application of SRDs, especially with a growing expansion in areas such as medical care, makes the issue of global harmonization of SRDs more urgent.
  - the increasing application of short-range radio technology in areas such as medical care
  - Report ITU-R SM.2210: “It would be very difficult to harmonize frequency bands for all SRDs.”
  - Resolution ITU-R 54: “to study on the regional and/or global harmonization of technical and operating parameters...”



# PART II



Challenges of SRDs

**SRDs Management in China**

Considerations

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## 1. Overview

- The radio management activities in China follow the guideline
  - to implement a scientific regulation
  - to protect the resources
  - to ensure safety
  - to promote the development
- Confronted with challenges from SRDs management, China responds positively
  - establishes regulatory policies
  - sets series of technical standards
  - takes part in ITU activities
    - ITU-R SG1 TG1/8, WP1A, WP1B, workshops
    - ITU-T concerning Internet of Things
    - RA-2012 ( Resolution ITU-R 54 )
    - WRC-12 ( Agenda item 1.19 and 1.22 )
    - APT activities related to SRDs



## 2. Principles of SRDs Management

- The SRDs Management in China adheres to the following principles:
  - RF parameters should ensure the SRD system can be safely used without causing harmful interference to existing radiocommunication operations (systems)
  - both the requirements of users and interests of manufacturers should be take into account so as to be in line with international norms and the development of relevant industries in China
  - radio resource should be used efficiently
  - ...

## 3. Important Regulatory Provisions

- Issued Regulation on Micro-Power (Short-Range) Radio Devices Management in 1998.
  - if SRDs cause harmful interference, the operation of SRDs must be stopped
  - necessary examination or test from the radio regulatory authority is required
  - no SRD be circulated if technical parameter cannot satisfy the requirements specified in the Regulation
  - users cannot arbitrarily change the designed parameters such as operating frequency, transmitting power...
- To keep pace with fast development of SRDs, China made prompt adjustments and revised those requirements of SRDs in time.



- *Technical Requirements for Micro-Power (Short-Range) Radio Devices, 2005*
  - China made prompt adjustments and revised those requirements of SRDs in 2005.
    - a milestone of SRDs Management in China
    - keeping consistent to a large extent with relevant ITU-R Recommendations and industry practices. (Added to Report ITU-R SM.2153)
    - classifying SRDs into 14 types and specifying relevant parameters for each type of device
    - pushing forward the harmonization of SRDs.



# SRDs Management in China



- *14 types of SRDs defined in the Technical Requirements for Micro-Power (Short-Range) Radio Devices, 2005*

General transmitting SRDs

General radio remote-control devices

Wireless audio transmitters and measuring devices for civilian purposes

Biomedical telemetry transmitters

Analogue cordless telephone

2.4GHz Band Digital cordless telephone

Special radio remote device for crane and transportation

Radio remote-control equipment used in industry

Equipment for radio data transmission

Special radio remote device for weighing

Radio control sets for devices for civilian purposes

Model and toy remote-control devices

Automotive radars (distance measuring)

Public Wireless Interphone

## 4. RFID management in China

- RFID in China plays an irreplaceable role in identification, item tracing, anti-counterfeiting of products, goods management and the like
  - In 2007, China issued Interim Provision on Application of RFID Technology in 800/900MHz

Frequency ranges (MHz)	Transmitting Power (e.r.p)
840.50-844.5 920.50-924.5	2W
840-845 920-925	100mW

\*For details, please refer to the Provision provided on the official website [www.miit.gov.cn](http://www.miit.gov.cn)

# SRDs Management in China



■ *Part of Table 5 to Report ITU-R SM. 2255*  
**Bands and technical rules for RFID**

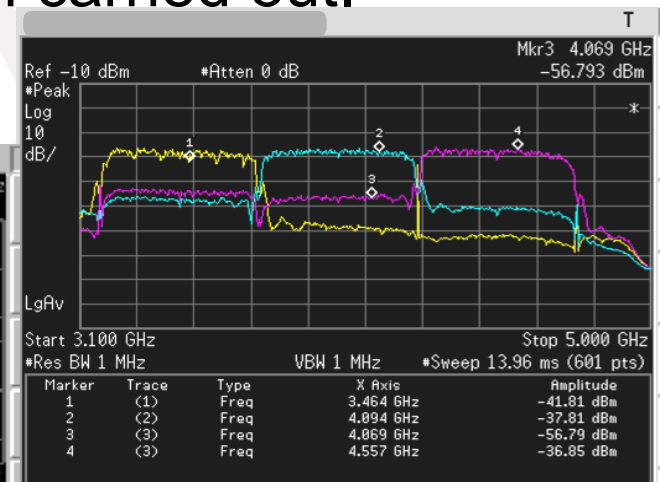
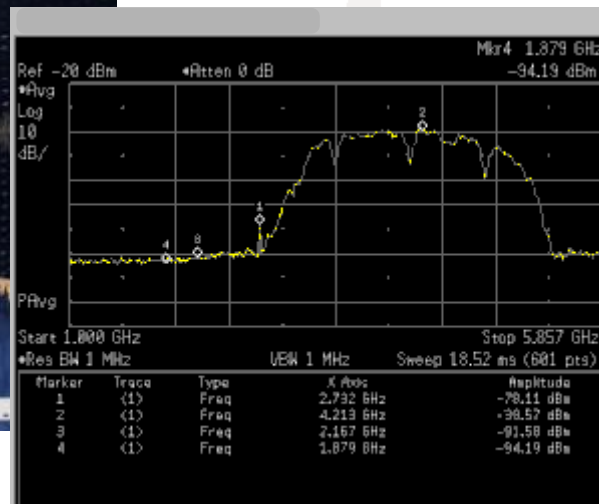
CHINA	USA	CANADA	AUSTRALIA	Countries Members of CEPT	Republic of Korea	New Zealand	Israel
840.5-844.5 MHz: 2 W e.r.p. ; 920.5-924.5 MHz: 2 W e.r.p.  840-845,920-925 MHz: 100mW e.r.p  FHSS Channel space: 250 kHz	860-960 MHz (902-928 MHz ISM Region 2) 4 W e.i.r.p., digital modulation	860-960 MHz (902-928 MHz ISM Region 2) 4 W e.i.r.p., digital modulation	918-926 MHz: 1 W e.i.r.p. 920-926 MHz: 4 W e.i.r.p. 915-928 MHz: 1W e.i.r.p. (frequency hopping and digital modulation transmitter s, RFID may use where they comply)	Included in Annex 11 of ERC Recommendation 70-03 Up to 2W e.r.p. in 865-868 MHz Channel size: 200 kHz; 865-865.6 MHz:100 mW e.r.p.; 865.6-867.6 MHz:2 W e.r.p.; 867.6-868 MHz:500 mW e.r.p.	917-923.5 MHz: 4 W e.i.r.p. Passive RFID with the exception of the output RF power is 10 mW	918-926 MHz: 1 W e.i.r.p.	915-916.8 MHz, only; In average out of band below 915 MHz, -74 dBm per 100 kHz. Above 917 MHz, -46 dBm per 30 kHz

- **Effects of the *Provisions on RFID management in China***
  - according to incomplete statistics, as of the end of 2013
    - nearly 200 types of RFID devices have passed the type approval
    - the average annual growth of the RFID industry scale reached 36.87% in 2007-2012
    - the industry scale in 2013 was estimated to reached 32 billion Yuan.
    - China's efforts on frequency planning with respect to RFID in relevant frequency bands make significant contributions to the global development of RFID industry and SRDs regional/global harmonization



## 5. UWB management in China

- China pays close attention to the UWB technology and management.
- China actively took part in conferences of ITU-R TG1/8 since 2004 and a large number of simulations and tests have been carried out.



# SRDs Management in China



- In 2008, China issued Provisions on Frequencies used by UWB Technology.
  - based on current situation of domestic frequency utilization and keeping in line with international norms to the maximum extent with an objective of promoting the steady development of the UWB industry.
  - China timely issued the notice related to frequencies used by UWB technology and specified the application requirements for interference mitigation technology

Frequency ranges*	Max E.I.R.P. density ( dBm/MHz, RMS)	Frequency range	Max E.I.R.P. Density ( dBm/MHz, RMS)
<1.6GHz	-90	6.0-9.0GHz	-41
1.6-3.6GHz**	-85	9.0-10.6GHz	-70
3.6-6.0GHz	-70	>10.6GHz	-85

\* UWB's bandwidth (-10dB) no less than 500MHz. Type of Approval Certificate required. Managed as SRD.

\*\*After 2014. Jan 1<sup>st</sup>, 4.2-4.8GHz Band UWB with EIRP density up to -41 dBm/MHz must use interference mitigation technology, otherwise the maximum EIRP density of which shall not exceed -70dBm/MHz.

\*\*\*For details, please refer to the Provision provided on the official website [www.miit.gov.cn](http://www.miit.gov.cn)

## 6. Intelligent Transportation SRDs Management in China

- ITS has developed rapidly in China
- The management of ITS SRDs in China is consistent with the international mainstream
  - in 2002, issued the Notice on Use of Frequency Band of 5.8GHz and provided 5725-5850MHz for vehicle automatic wireless recognition system
  - in 2003, issued Notice on Issues Related to Wireless Short-Range Communication System for ITS. Technical parameters have been specified therein, being consistent with the international mainstream
  - in 2005, arranged 76-77GHz to automotive ranging radars
  - in 2012, issued the Notice on Publication of Frequencies for Short-Range Automotive Radars in Frequency Band of 24 GHz
  - WRC-15 Agenda Item 1.18

\*For details, please refer to the Provision provided on the official website [www.miit.gov.cn](http://www.miit.gov.cn)

## 7. Biomedical SRDs Management in China

- the need for frequencies by biomedical telemetry SRDs has been boosted
- fully taking international trends into accounts, China set out its own related frequency planning in due time
  - For purposes of promoting the development of micro-power (short-range) radio technology and meets social needs, on the basis of domestic situations on frequency allotment and utilization
  - in 2007, added 402-405 MHz for SRDs biomedical telemetry devices
  - This is another move of China in the global harmonization process of SRDs frequencies

\*For details, please refer to the Provision provided on the official website [www.miit.gov.cn](http://www.miit.gov.cn)

## 8. Other SRD management in China

- China issued a Notice on Addition of Frequency Band of 800 MHz to Operational Frequencies for Micro-Power (Short-Range) Radio Applications and added 868-868.6MHz as operational frequencies for SRD applications in 2008. Classified as “radio control devices for civilian purposes” in the *Technical Requirements for Micro-Power (Short-Range) Radio Devices, 2005*
- In 2006, China released a Notice on Issues Related to Application of Micro-Power (Short-Range) Radio Technology in Frequency Band of 60 GHz. ( 59-64GHz )
- ...

\*For details, please refer to the Provision provided on the official website [www.miit.gov.cn](http://www.miit.gov.cn)



Challenges of SRDs

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## ■ **Consideration 1**

### ➤ To cooperate globally

- bilateral or multilateral coordination
- Guarantee the usability of SRDs
- Resolution ITU-R 54:
  - to continue studies, in collaboration with standardization organizations and scientific and industrial organizations, on the regional and/or global harmonization of technical and operating parameters, including frequency ranges and interference mitigation techniques for SRDs;
  - to continue studies to enable implementation of advanced technologies for SRDs, thereby in particular focusing on a strategy for the future;
  - and in particular to conduct studies to collect information on SRDs which use advanced spectrum access and frequency tuning range techniques in order to understand their capabilities, meanwhile ensuring protection to radiocommunication services.





## ■ **Consideration 2**

- To apply the cognitive radio technology to the SRDs
  - to make such devices more intelligent
  - capable of self-adapting
  - to reduce harmful interference
  - more flexibility for SRDs frequency harmonization



## ■ **Consideration 3**

- Global standardization for Biomedical SRDs
  - Electromagnetic interference may threat patients' life
  - Connectivity of global medical resource
  - Quick response
  - Saving people
  - Bridging the digital gaps



Challenges of SRDs

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## ■ **SUMMARY**

Regional/global harmonization of SRDs needs to:

- tailor specific measures to suit local conditions
- attach great importance to safety and usability
- strengthen bilateral and multilateral cooperation concerning technologies and managements
- enhance cooperation within the framework of ITU-R and relevant regional organizations

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**THANK YOU!**

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