



**MINISTRY OF INFORMATION AND COMMUNICATIONS
OF THE SOCIALIST REPUBLIC OF VIETNAM
AUTHORITY OF RADIO FREQUENCY MANAGEMENT**

Viet Nam update on spectrum situation

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Outline

- 1. Mobile Spectrum Usage Issues**
- 2. New spectrum for Mobile Broadband**
- 3. Viet Nam's preparation for WRC-19**

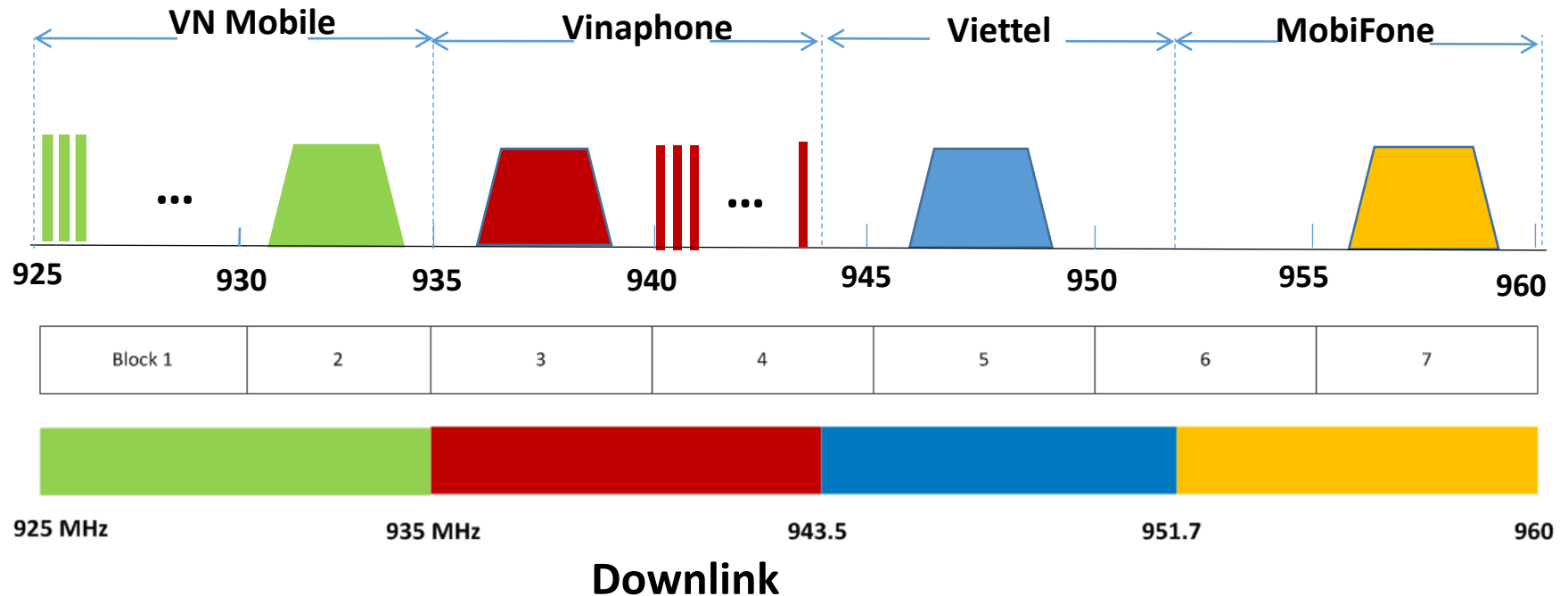
Outline

1. Mobile Spectrum Usage Issues

2. New spectrum for Mobile Broadband

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Re-farming of 900 MHz Band



- ❑ Deploy IMT-2000 in 900 MHz bands
- ❑ The trial licenses to be granted for: Viettel, Mobifone, VNPT(Vinaphone).
- ❑ Deployed thousands of sites
 - VNPT: ~7000 sites
 - Viettel: ~1000 sites
- ❑ 75% handsets support UMTS900

Re-farming of 1800 MHz Band

- ❑ Trial period: 1 year
- ❑ Max. a number of sites in one area: 100 eNodeBs
- ❑ Trial location: 3 cities
- ❑ Radio interface: LTE/LTE-A (Rel 10 and beyond), Carrier Aggregation(CA)



LTE1800 (20 MHz-GSM) & LTE2600, CA
Ha Noi, Da Nang, Ba Ria Vung Tau



LTE1800 (20MHz-GSM) & LTE2600, CA
Ho Chi Minh city, Kien Giang



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2G Switch-off Concern

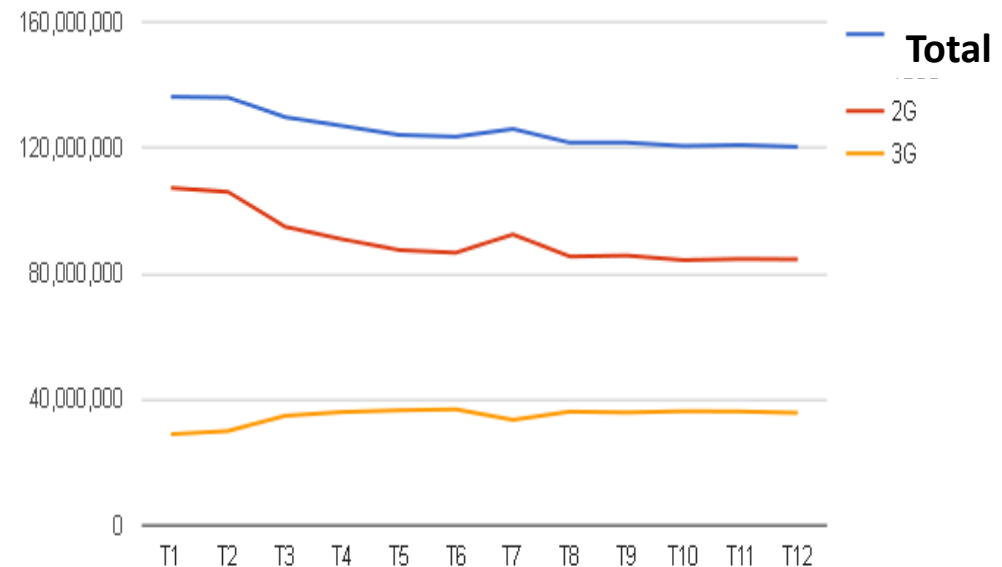
❑ 121.3 mil mobile subscribers (Mar 2016)

❑ 2G mobile subscribers account for 66%

❑ 2G services will be still launched in parallel with 3G (4G) services

❑ Proposal and Concern raised

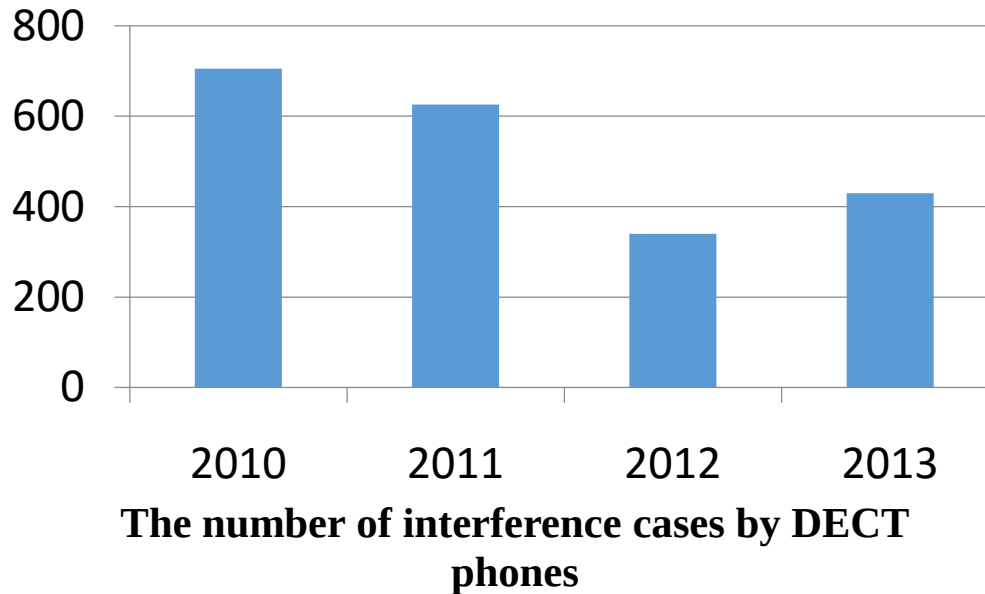
❑ Turning off 2G services, if any, must be taken with a roadmap & ensure customer benefits



***The number of 2G/3G subscribers
Jan-Dec 2015***

Interference to 3G services

Due to illegal DECT & repeater



**Non-conforming DECT 6.0 phones
interfere 3G services**

❑ Many households purchased **illegal wide band repeater** and caused serious interference to U900

❑ Indoor coverage is an question to answer



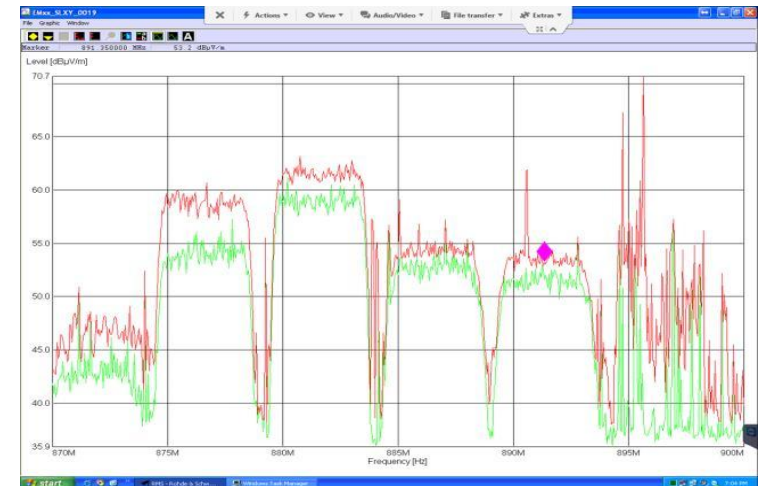
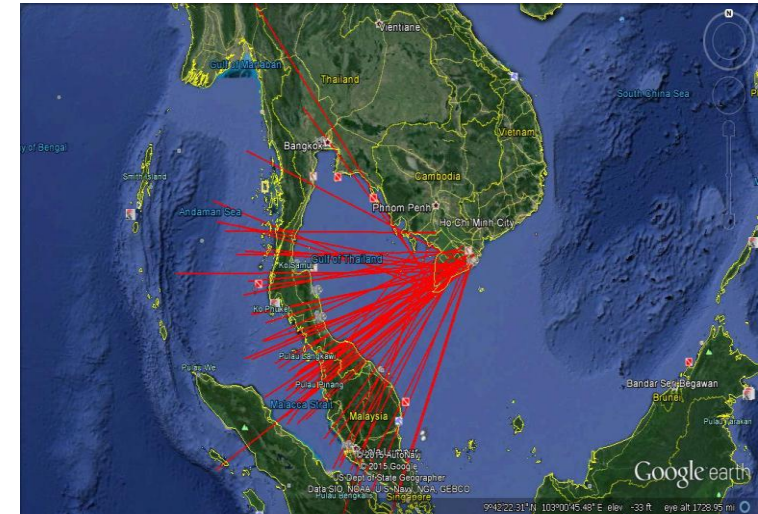
Cross-Sea Interference

Due to tropospheric propagation

❑ Interfered frequency: UL channels of E-GSM (880-890 MHz)

❑ Interfered location: Can Tho, An Giang, Kien Giang, Vinh Long, Ca Mau

❑ Interference caused sources be determined from Thailand & Malaysia



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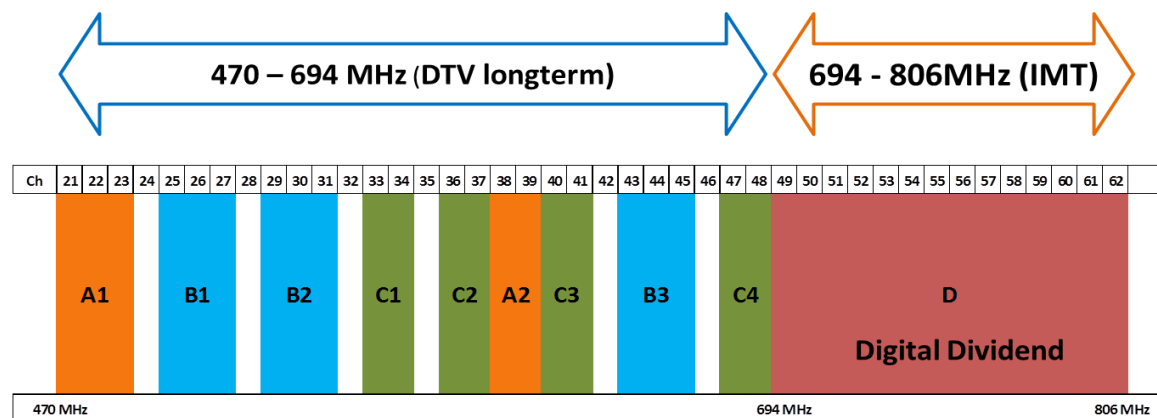
Release 700 MHz band for IMT

Updates on the TV digitalization process

❑ 182 TV stations (incl. ATV&DTV) left in the digital dividend band

❑ The number of ATV stations accounts for 25% in total of TV stations

❑ DTV accounts for 75%



A1, A2 blocks are using by analogue TV, future DTV

C1, C2, C3, C4 blocks are planned for the regional DTV

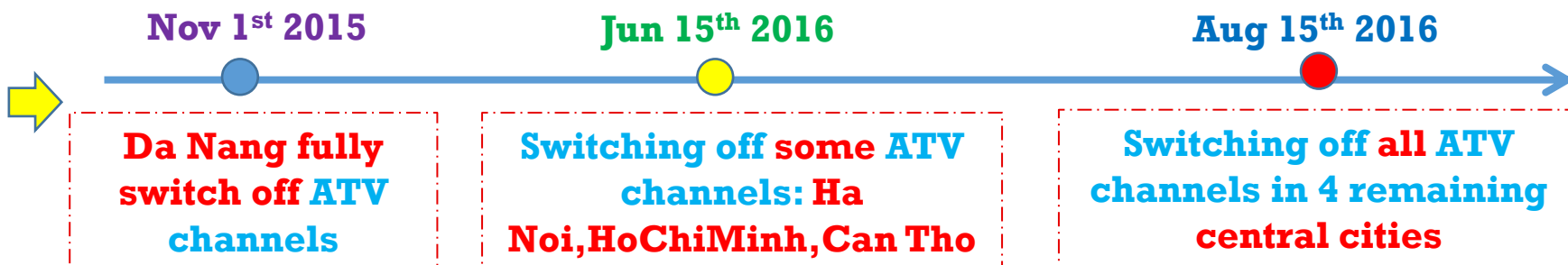
B1, B2, B3 blocks are planned for nationwide DTV

D block is used during TV digitalization period

Single Frequency network: Delta Area

All TV stations operating in 700 MHz band will be **MOVED** to below 694 MHz or **STOPPED** by 2020

Switching off ATV in 5 central cities



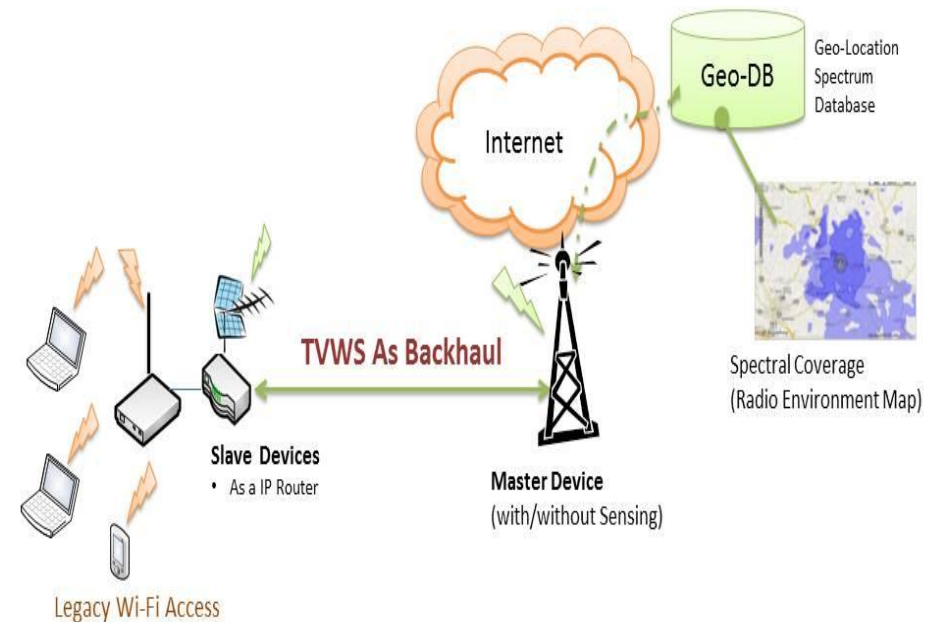
Regulatory framework for TV White Space

License or unlicensed

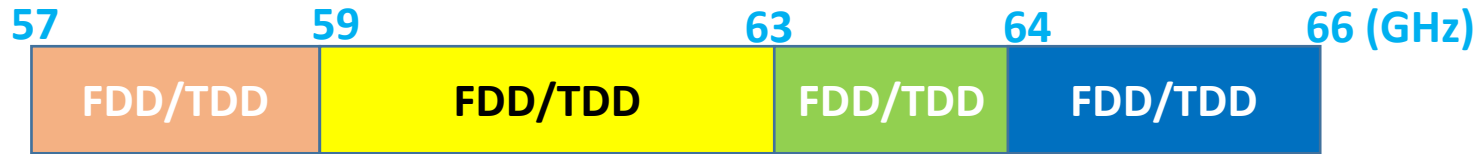
A snapshot of TVWS test result

(2013-2015):

- Coverage: 7 km (urban), 3-6.5 km (rural), 4 km (mountain)
- Channel bandwidth: 8 MHz
- Data rate: 18.29/15 Mbps
- 470-694 MHz band



Fixed wireless System in 60 GHz band

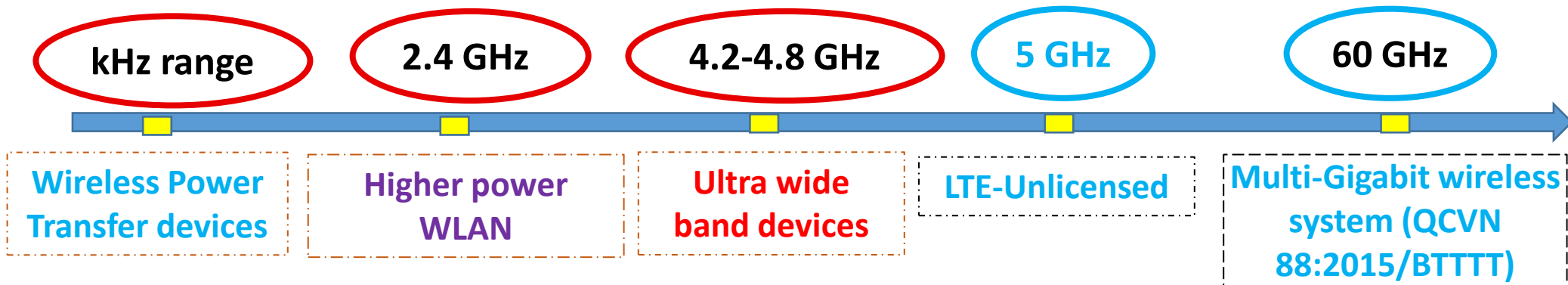


- ❑ Basis channel: 50 MHz
- ❑ Permitted bandwidth: 100 MHz (min.) – 2.5 GHz (max.)
- ❑ The type of system: Point – Point microwave, either TDD or FDD

Unlicensed radio devices

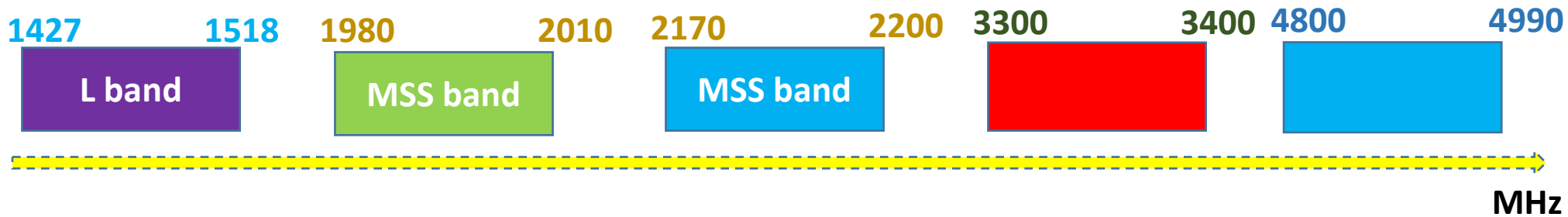
Allocation of bands for new emerging technologies

Under consideration



☐ **Harmonization** of technical regulations for SRDs usage is needed to **bring huge benefits** for end users, manufacturers and regulators

Additional spectrum for IMT after WRC-15



- ☐ Update National frequency allocation table
- ☐ Band plans for IMT services comply with ITU-R Rec.

□ ITU-R & APT meetings: **RRB** of ITU; **Vice chairman** of ITU-R
SGs; APG; AWG



□ Telecom operators be encouraged **to increase** their
participation at these meetings in the years to come

Thank you for your attention !