

Huawei 1.9GHz LTE TDD Solutions in China

Feb. 26th, 2012 Tokyo

www.huawei.com

Author/ Email: Xu Changqing / xuchangqing@huawei.com

Version: V1.0

HUAWEI TECHNOLOGIES CO., LTD.



Barcelona | 27 Feb 2012 - 1 Mar 2012

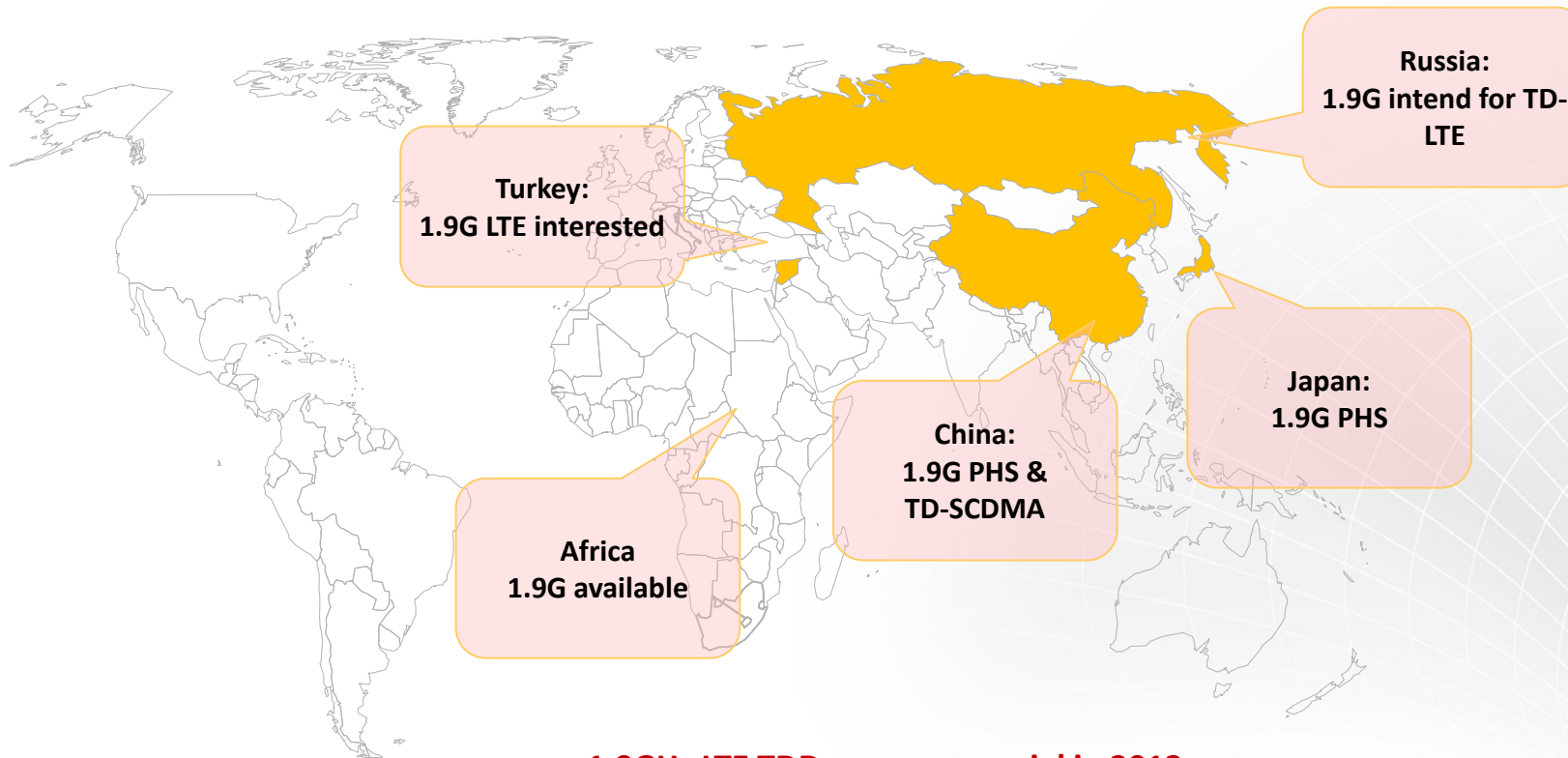


Contents

- **1.9GHz: Value Spectrum for LTE TDD**
- **Huawei 1.9GHz LTE TDD E2E Solutions**
- **CMCC 1.9GHz Pre-commercial trial in Hangzhou**

1.9GHz Spectrum location Worldwide

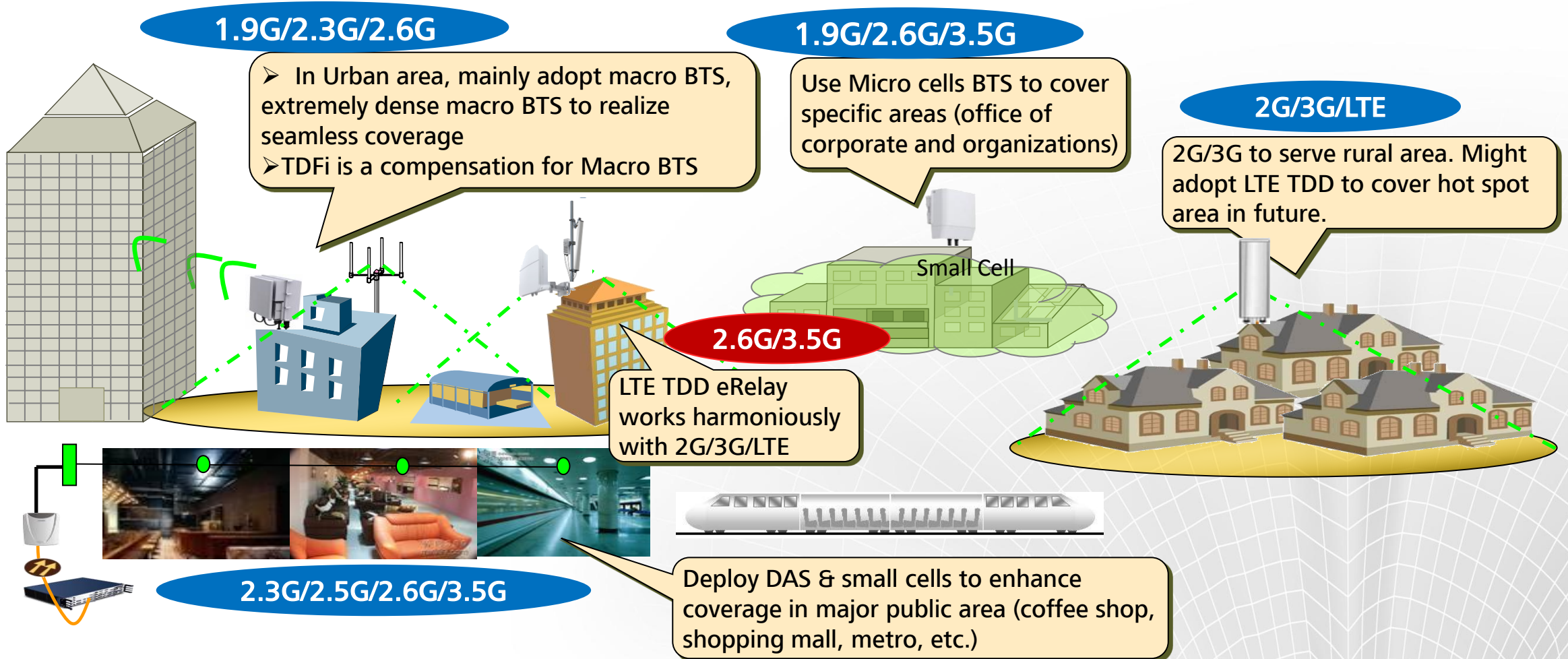
- 1.9GHz spectrum is widely located across Asia, Europe and Africa
- LTE TDD is the primary choice for 1.9GHz spectrum utilization



1.9GHz LTE TDD : go commercial in 2012

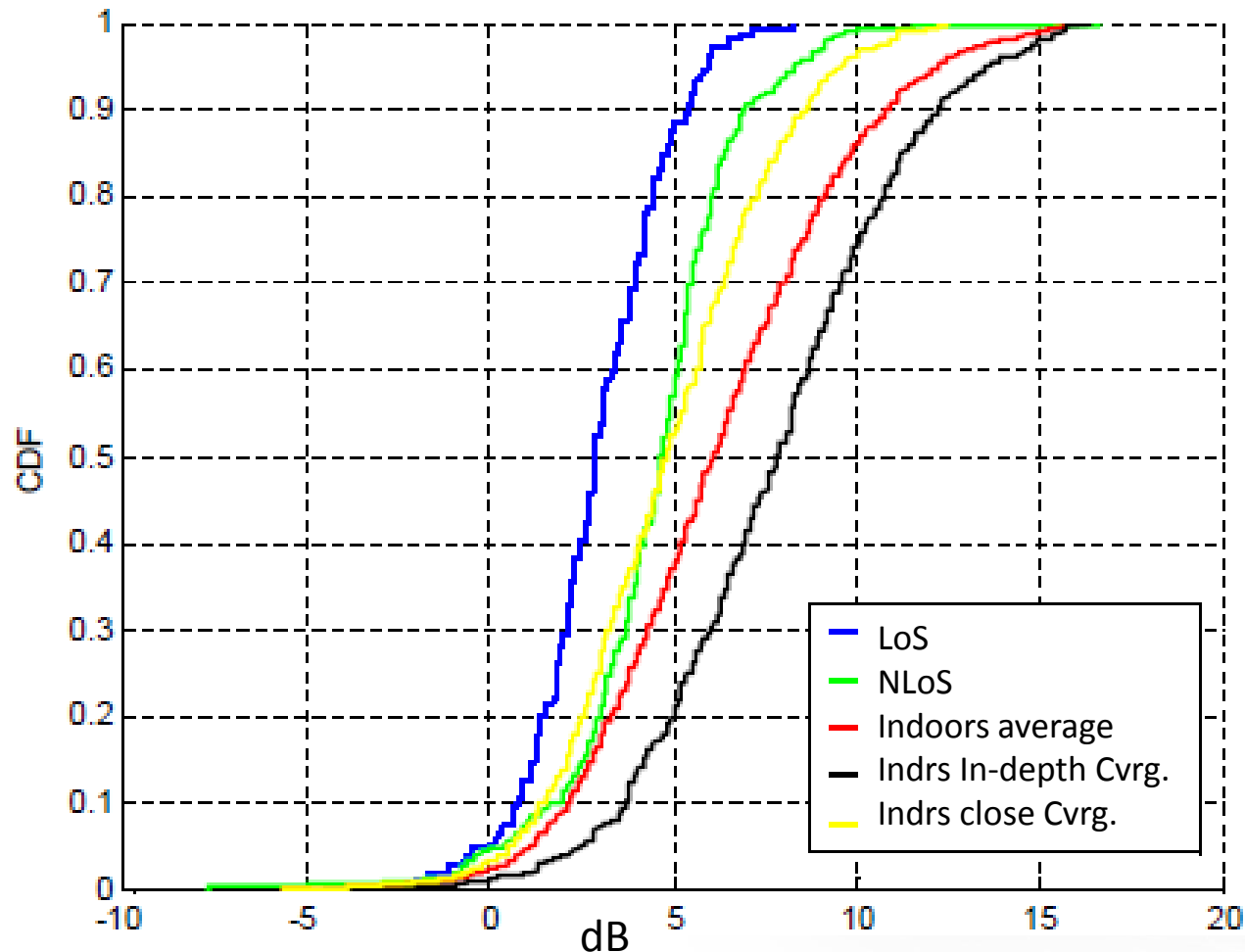
LTE BAND NUMBER	ALLOCATION (MHZ)
33	1900 - 1920
34	2010 - 2025
35	1850 - 1910
36	1930 - 1990
37	1910 - 1930
38	2570 - 2620
39	1880 - 1920
40	2300 - 2400
41	3400 - 3600

1.9GHz is value spectrum for LTE TDD deployment I



1.9GHz may be deployed in many important scenarios

1.9GHz is value spectrum for LTE TDD deployment II



LTE TDD 1.9GHz vs 2.6GHz coverage test

Outdoors:

Line of Sight: 2.9dB

Non Line of Sight: 4.5dB

Compliant with theoretical calculation.

Indoors:

Indoors average: 6.3dB

Close window coverage: 4.9dB

Tiny differences in Penetration loss.

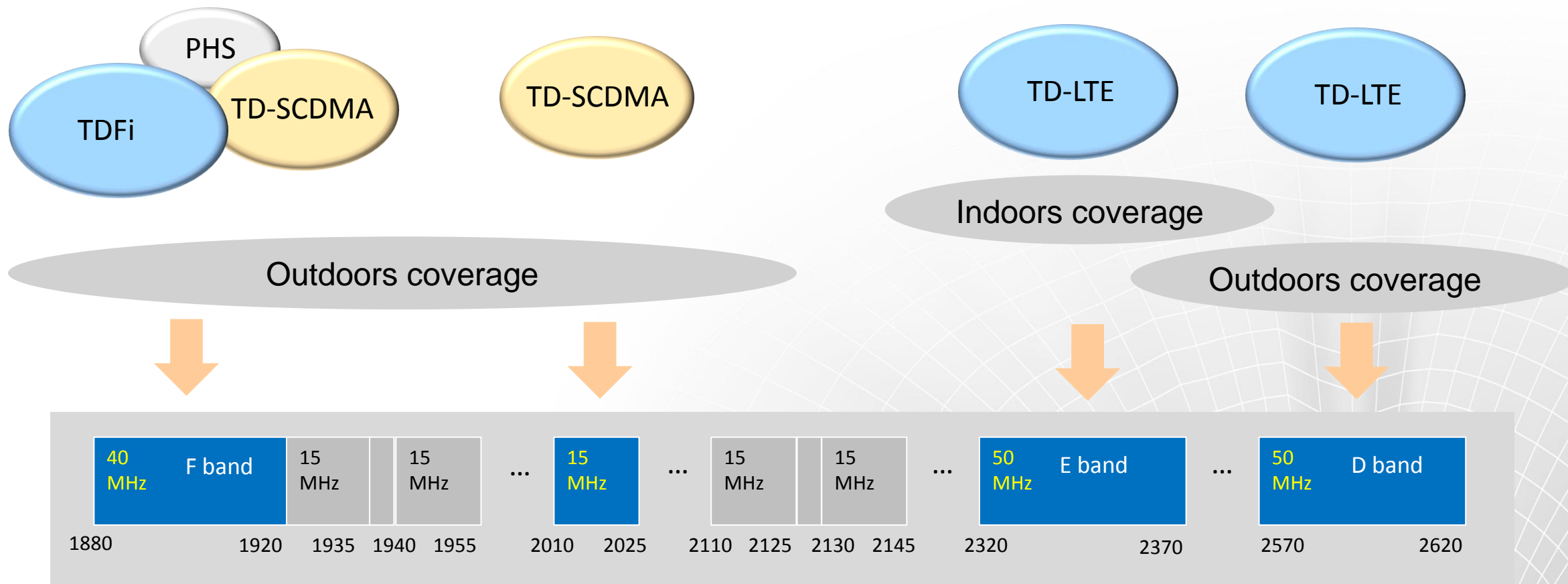
In-depth coverage: 7.8dB

Attenuation increase by different frequencies.

Source: CMRI test report on LTE TDD 1.9G/2.6G

1.9GHz save a lot site acquisition cost in LTE TDD deployment

TDD Spectrum Allocation in China



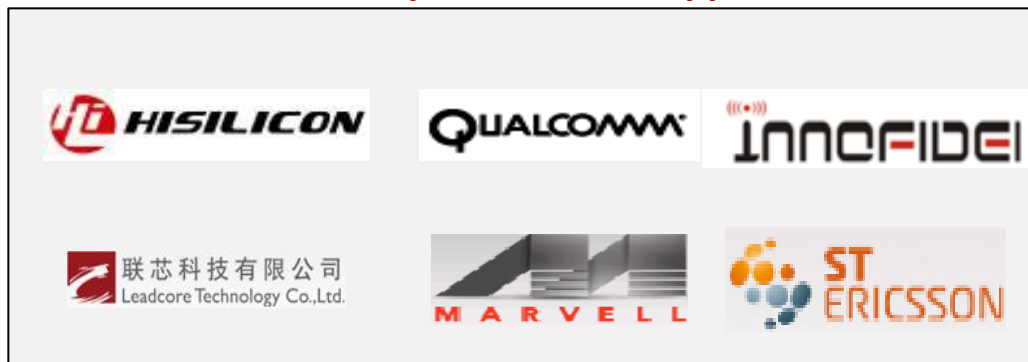
China Mobile starts trial for 1.9G smooth migration

Contents

- **1.9GHz: Value Spectrum for LTE TDD**
- **Huawei 1.9GHz LTE TDD E2E Solutions**
- **CMCC 1.9GHz Pre-commercial trial in Hangzhou**

LTE TDD 1.9GHz industry chain already formed

TD-LTE Terminal Chipset vendors support 1.9G & TDS



TD-LTE Terminal Chipset vendors support 1.9G



1.9GHz CPE



2011Q2

1.9GHz dongle



2011Q3

1.9GHz TDFi



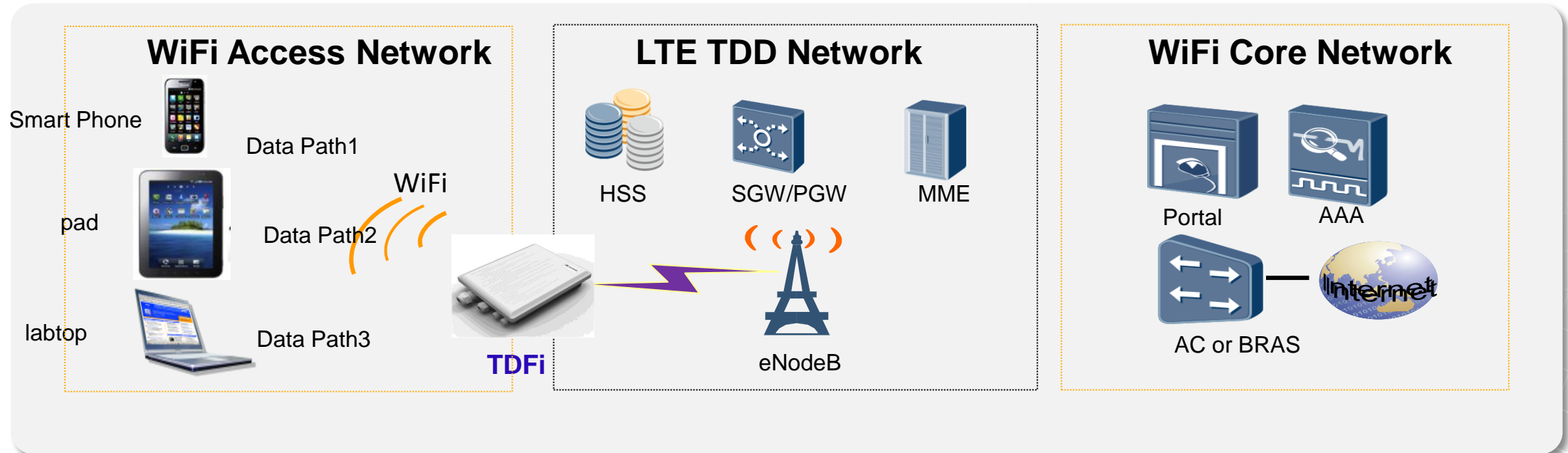
2011Q4

1.9GHz
Mobile Wifi



2012Q3

TDFi: LTE TDD + WiFi, Broader Experience, Easier Access



Authentication: WiFi user and AP identified by AC, WiFi user differentiated by username and password

QoS: WiFi user QoS guaranteed by WiFi network mechanism

Accounting: WiFi user accounting by WiFi AAA

Extend LTE TDD service to WiFi users with manageable QoS

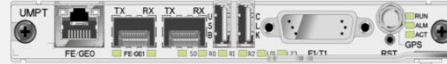
Multi-band RRU & Powerful BTS support 1.9GHz LTE TDD

Highest Integrated Giga BBU



BBU3900

UMPT



LBBP



- DL+UL: **1.5Gbps/Card**

- **3x20M 4T4R/Card**



RRU3232

4T4R

Full Band: **1.9/2.3/2.6/3.5G**

IBW: 40MHz

Largest Shipment Volume



Upgrade 8-pole antenna,
improve spectrum efficiency.
Extend network capacity.

TDS → TDS/TDL co-antenna

Hangzhou: 1.9G TD-SCDMA upgrade to TD-LTE

Outdoors

antenna (FA)

FA broadband antenna, **no need for upgrade**

FA-RRU

Software upgrade TDL/TDS,
Hardware only 1 optical module

Optical Interface

Hardware only need 1 pair fiber

BBU (phase 4)

TDS/TDL co-
frame/power/clock/interface

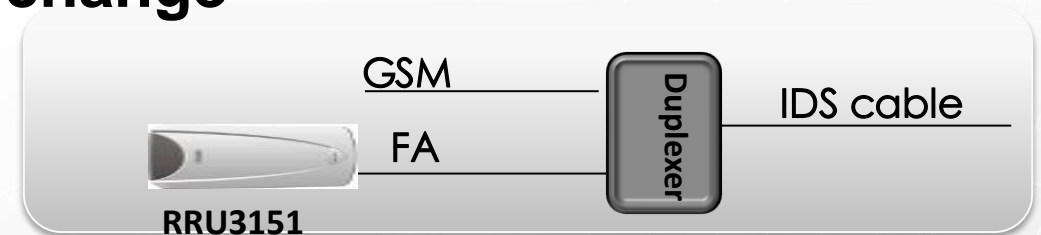
**Hardware: new LTE control board &
Baseband Card**



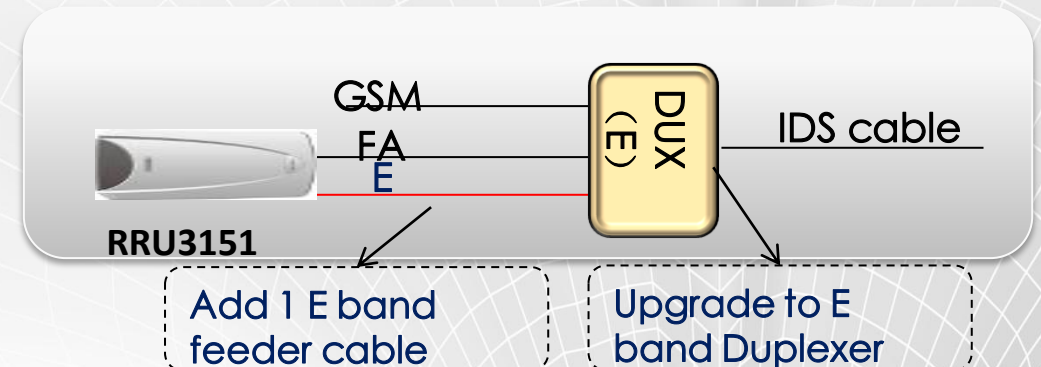
**Only small
hardware change**

Indoors

Before upgrade

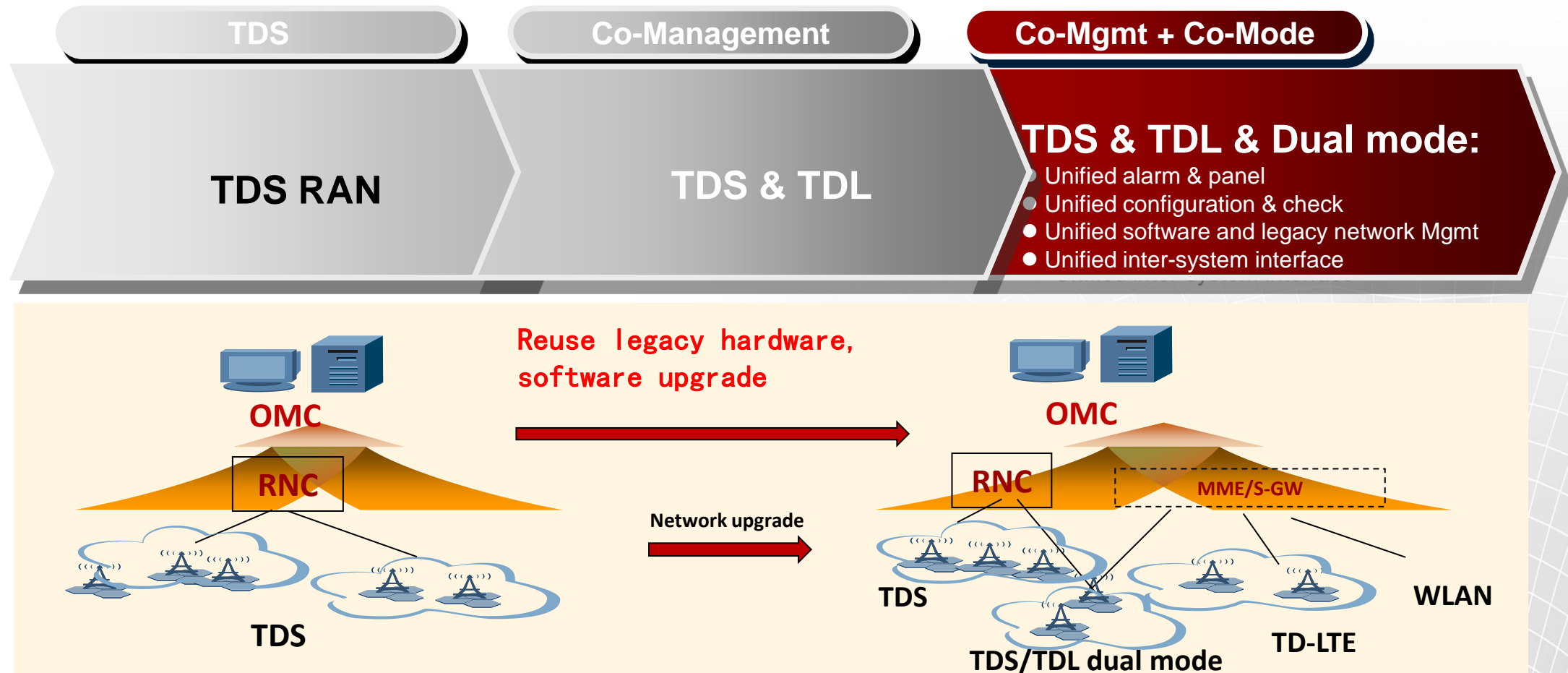


After upgrade



Save site acquisition cost, Shorten network deployment time.

SingleSON: TD-SCDMA & TD-LTE Co-O&M



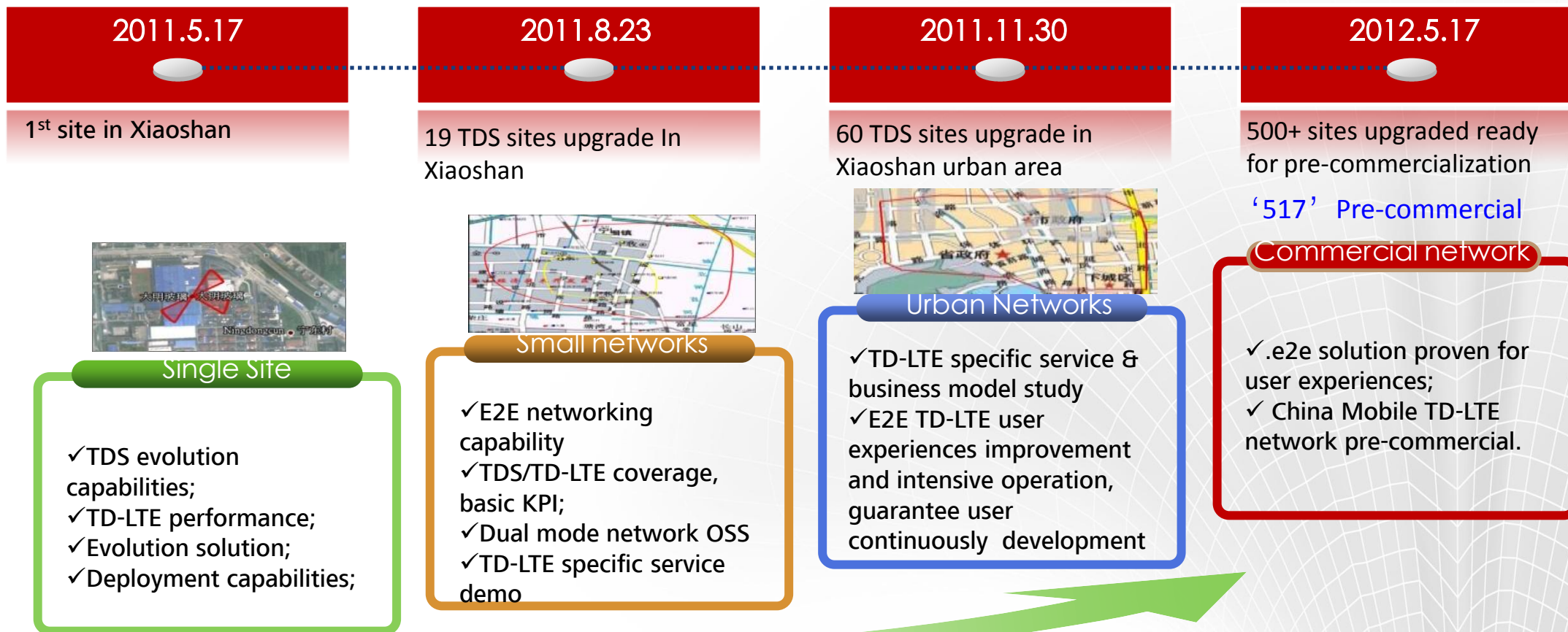
SingleSON solution for GSM, TD-SCDMA, TD-LTE, WLAN harmonization

Contents

- **1.9GHz: Value Spectrum for LTE TDD**
- **Huawei 1.9GHz LTE TDD E2E Solutions**
- **CMCC 1.9GHz Pre-commercial trial in Hangzhou**

Hangzhou: The Largest TDS/TDL Dual-mode Network in China

- ✓ China Mobile is constructing the largest TDS-TDL dual mode network.
- ✓ The TD-LTE network will go for pre-commercial in May 2012.



TDFi offers easy, flexible Wireless Broadband access

- Quick Wifi deployment by Wireless Broadband for outdoors & indoors.
- Offload data from GSM & TD-SCDMA
- Attract more terminals enjoy LTE TDD broadband service

Outdoors Hotspot (TDFi)



Commercial area, expo
centre

Bank shops, Starbucks
etc.

Bus & Metro
transportation

Indoors Hotspot (CPE, MiFi)



home & office
buildings

People happily Experience wireless Broadband service in Hangzhou



TDFi amounted in bus stop and in bus.

- ✓ 1.9GHz TDFi solution provides WBB service in bus.
- ✓ All terminals can access to this Wifi network, include smartphone, pad, notebook etc.

Huawei TDFi solution guarantees successful Hangzhou pre-commercialization

Summary

- 1. 1.9GHz is value spectrum, potential for LTE TDD**
- 2. Huawei leads LTE TDD with innovative E2E solution**
- 3. 1.9GHz LTE TDD offers quality user experiences**



Thank you

www.huawei.com