



Outlook on 5G Technology in Thailand

Network Planning & Strategy, TRUE Corporation
February 2018

For informational purposes only

5G Framework: including 4G and network evolution

5G

4G evolution

- Motivated by wide area coverage
 - Addressing new services across large areas

New Radio

- Motivated by high frequency bands and bandwidths
- Addressing most demanding requirements on speed and delay

4G/5G architectural evolution

- Covering Network Virtualisation, Software Defined Networking, Cloud-RAN, and Mobile Edge Computing

4G LTE Development

- Thailand's **First Commercial 4G** Network 2013
- **98% 4G** Population Coverage 2016
- **World's First Largest 4T4R** Network 2016
- **World's First Thin GSM** 2017

4G Spectrum

Portfolio

1800

2100

900

Technology

Portfolio

- 4x4 MIMO
- 3 CC CA
- Inter-Site CA
- UL CA

5G Technology Demo



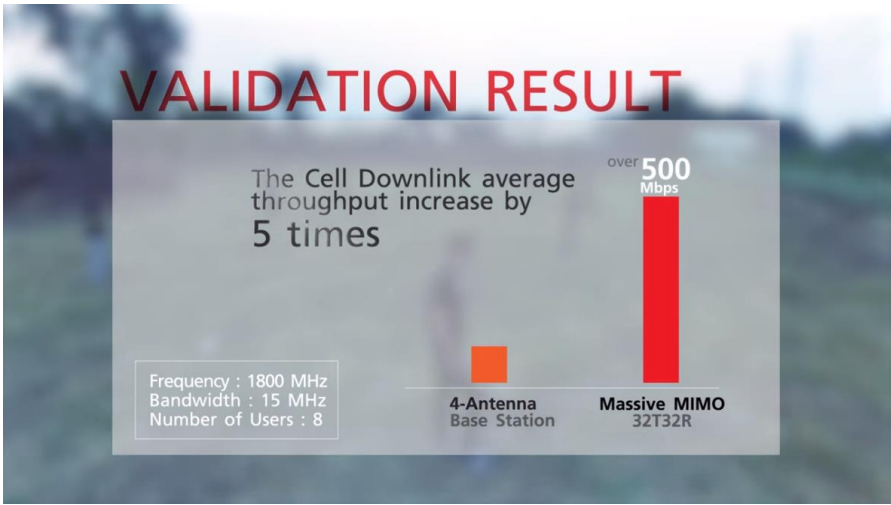
First 5G Demo in Thailand to achieve 6Gbps with Ericsson



First 700Mbps Demo with current spectrum (1800MHz, 2100MHz and 900MHz with 4x4MIMO and 256QAM) with Ericsson

<https://www.matichon.co.th/news/440664>

5G Technology Trials: Massive MIMO 32T32R



Towards 5G Massive IoT: Cellular IoT Trials

Cellular IoT Trials

Cat-M1



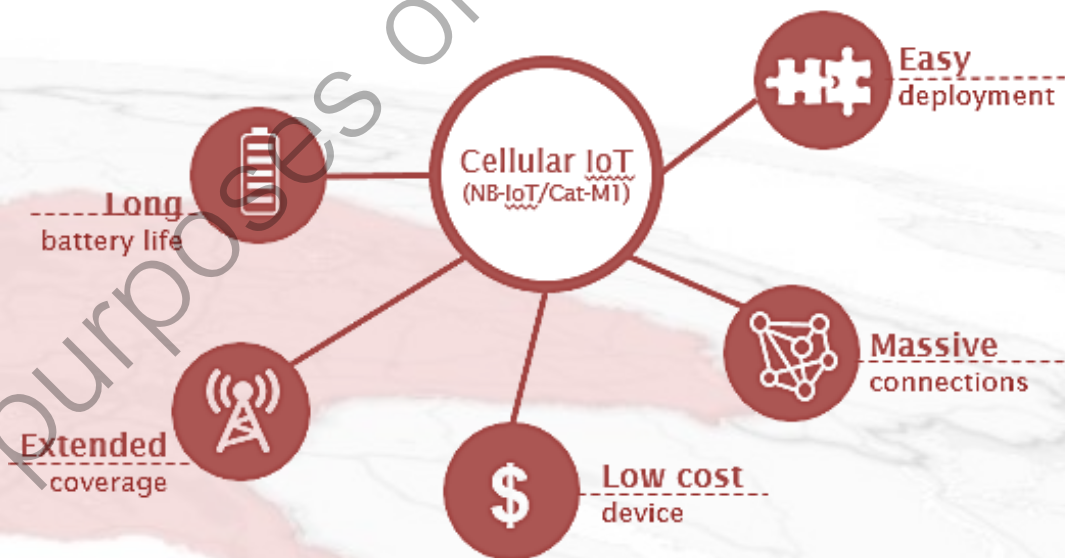
Lab tests



Live Demonstration and Field Trials

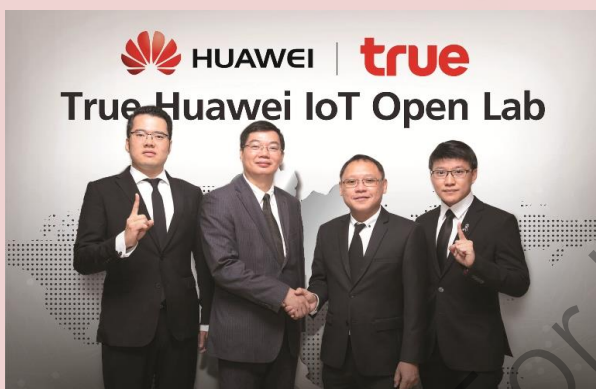


IoT Open Lab



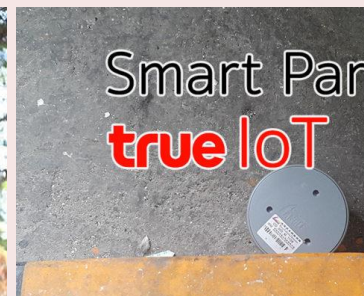
IoT Open Lab

Portfolio



Live Demo

Portfolio

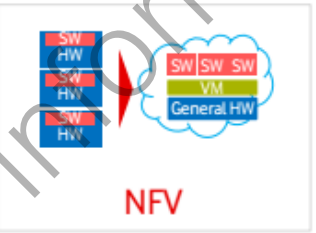
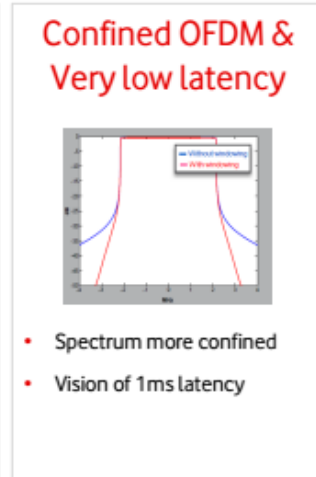
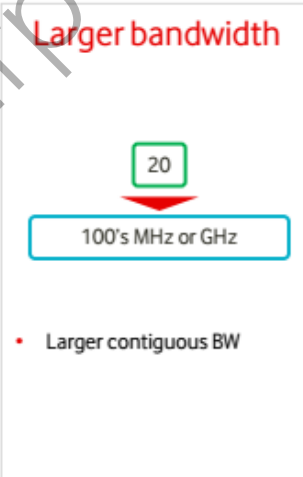
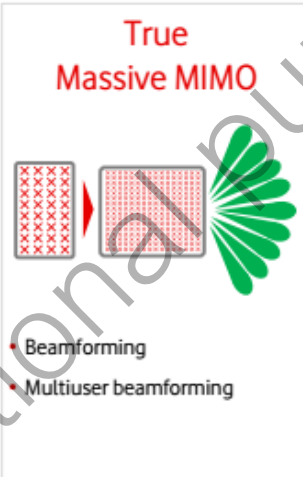
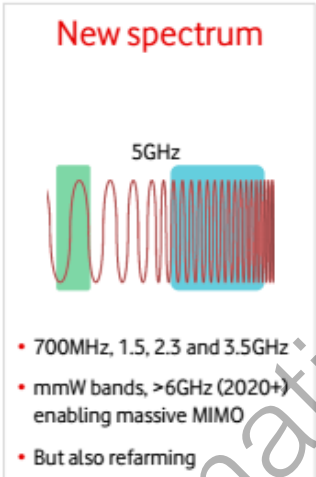
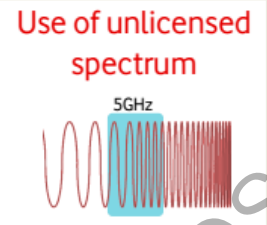
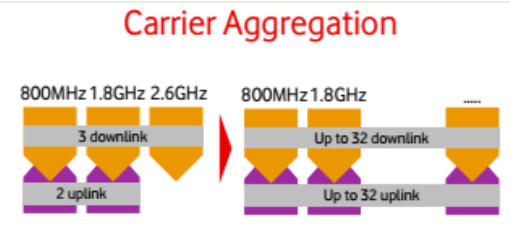


Upcoming 5G technology trials

4G Evolution

5G
New Radio

4G & 5G
architectural
evolution



Challenges on New 5G Spectrum bands in Thailand

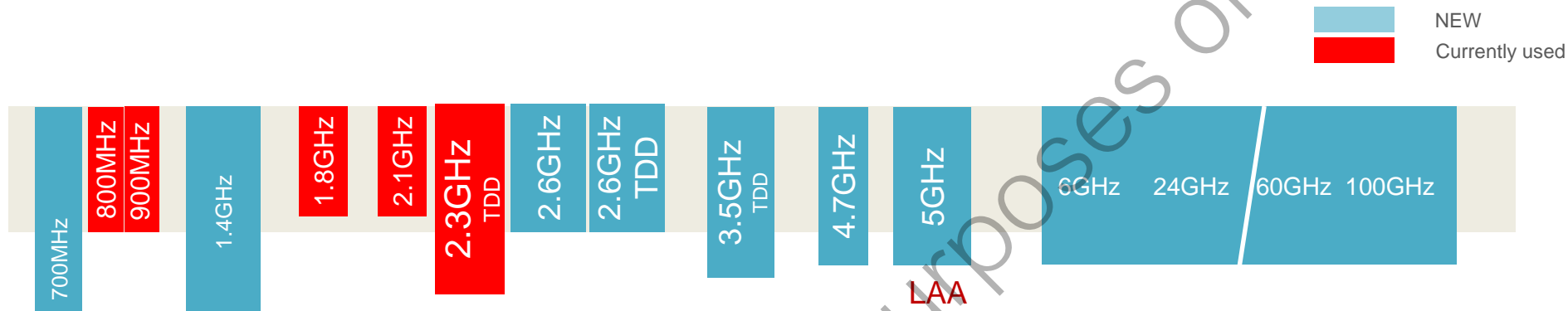


Table 14.1-1: Frequency range/LTE band requested by operators

Frequency range/LTE band	Operators whose request is included in the frequency range
3.3-4.2 GHz	NTT DOCOMO, INC., KDDI, SBM, CMCC, China Unicom, China Telecom, KT, SK Telecom, LG Uplus, Etisalat, Orange, Telecom Italia, British Telecom, Deutsche Telekom
4.4-4.99 GHz	NTT DOCOMO, INC., KDDI, SBM, CMCC, China Unicom, China Telecom,
24.25-29.5 GHz	NTT DOCOMO, INC., KDDI, SBM, CMCC, KT, SK Telecom, LG Uplus, Etisalat, Orange, Verizon, T-mobile, Telecom Italia, British Telecom, Deutsche Telekom
31.8-33.4GHz	Orange, Telecom Italia, British Telecom
37-40 GHz	AT&T, Verizon, T-mobile
1.427-1.518G	Etisalat
Band 1	China Unicom, China Telecom
Band 3	CMCC, China Telecom
Band 7	CHTTL, British Telecom
Band 8	CMCC
Band 20	Orange
Band 28	Orange
Band 41	Sprint, China Telecom, C-Spire, China Unicom
band 66	T-mobile

Main stream for 5G NR

New 5G spectrum bands in Thailand remain to be addressed.

Source: ETSI, TR 138.912 V.14.00

PAVING THE WAY

TO

5G

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THANK YOU

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