



Leading  
Global Communications  
**SEMICONDUCTORS**



# **WIN** Semiconductors

*Wireless • Information • Networking*



Company Presentation

October 2015

# Safe Harbor Notice



- *This presentation contains certain forward-looking statements that are based on current business expectations and are subject to known and unknown risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements.*
- *Except as required by law, we undertake no obligation to update any forward – looking statements, whether as a result of new information, future events or otherwise.*

# Outline

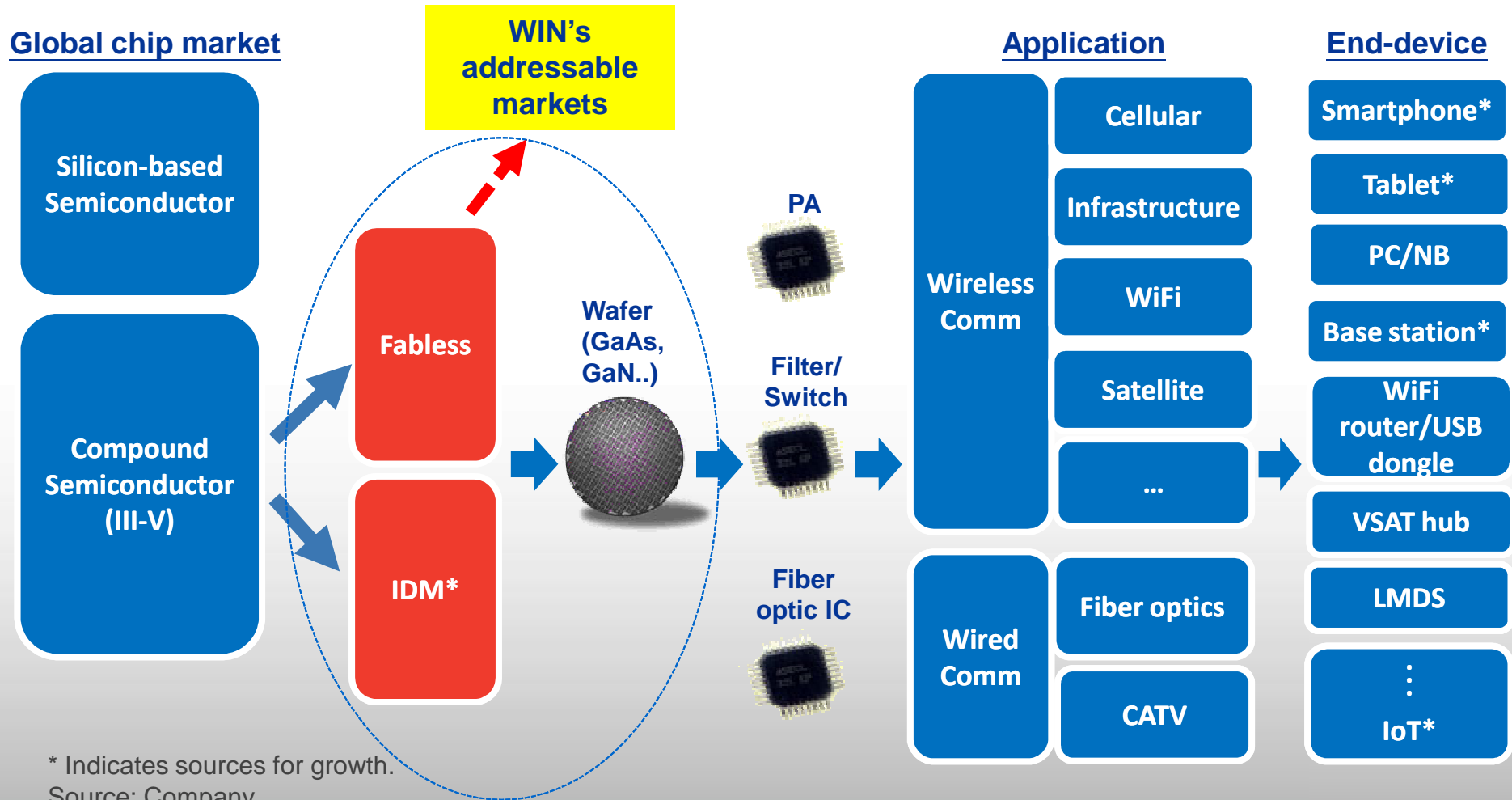
- ✓ **Market Outlook**
- ✓ **Technology**
- ✓ **The WIN Strategy**
- ✓ **Financial Review**
- ✓ **Q&A**

# Market Outlook

# WIN's Market Positioning



- WIN positions itself as a dedicated compound semiconductor wafer foundry offering foundry works to fabless and IDM customers who target in communication applications.



# Summary of Growth Momentum (2015)



**4G Smartphones**

**IoT Gateway**

**5G Network**

## Short Term:

- 3G is the basic
- 4G (TD) LTE rapidly adopted
- 802.11ac dual bands

## Mid-Term:

- Wi-Fi 11ac MIMO for mid/low-end smartphones and routers
- Wi-Fi & 3G/4G for IoT
- Strong infrastructure growth

## Long Term:

- Pre-5G launch (e.g. through broadband satellite, dense cells, ...)
- 5G launch with massive IoT deployment

# Near Term Momentum (2015)

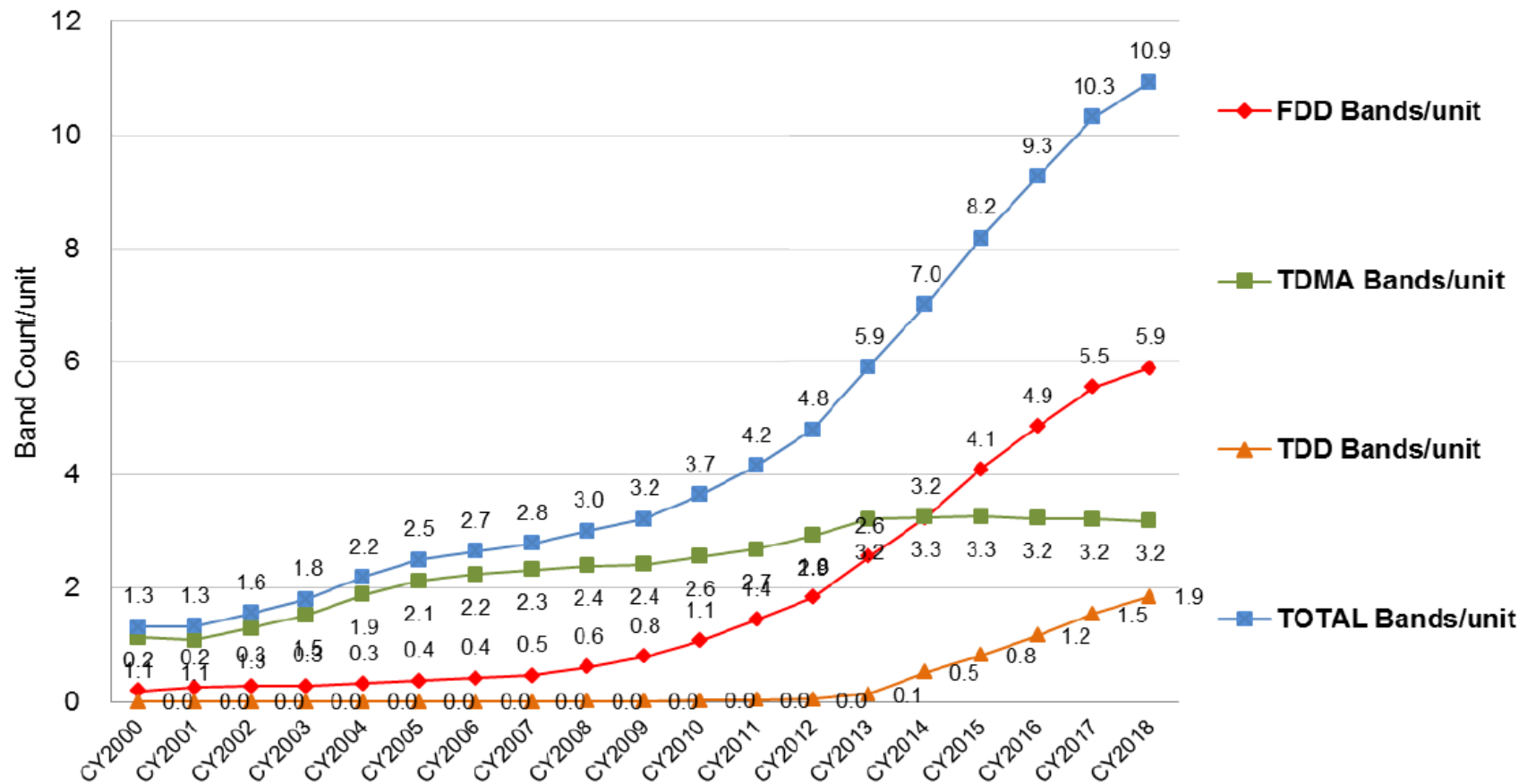


- More LTE and/or TD-LTE bands will continue to be adopted.
- Demand on flagship smartphones continues to be strong.
- Mode and frequency multiplicity is the direction of new smartphone development in China.
  - China Mobile demanding “five modes and 10 frequencies” is an example.
- Launch of new flagship smartphones.

# 4G/LTE Lifting Band Count per Device



- Frequency bands per mobile handset device are rising rapidly due to 4G/LTE.



Note: TDD and FDD are two competing LTE data transmission standards

Source : Navian, RF Devices/Modules for Cellular, Dec. 2014

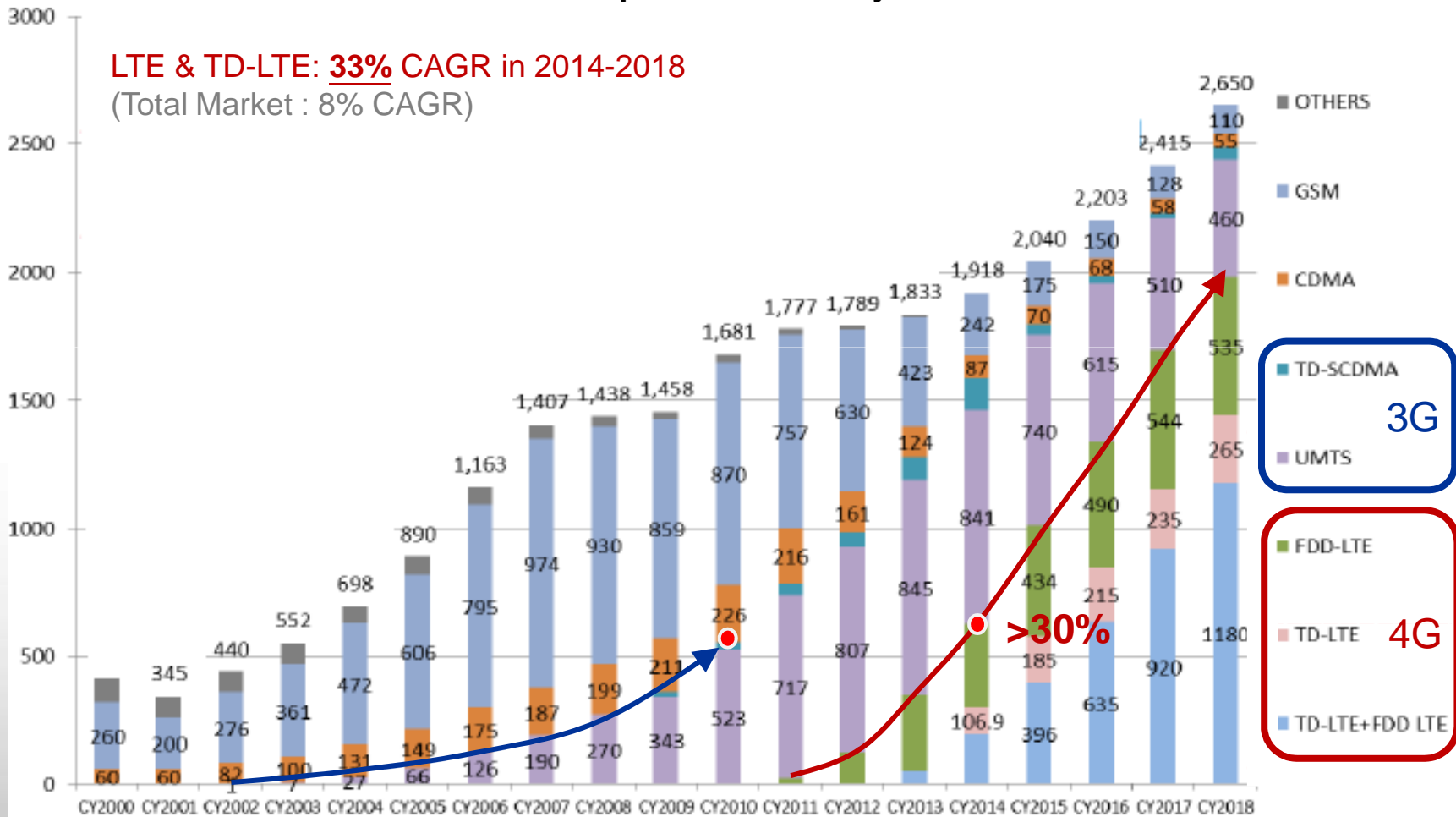


# LTE Penetration on Track to Rise



Million units

Cellular terminal shipment forecast by cellular standard



→ 3G Penetration

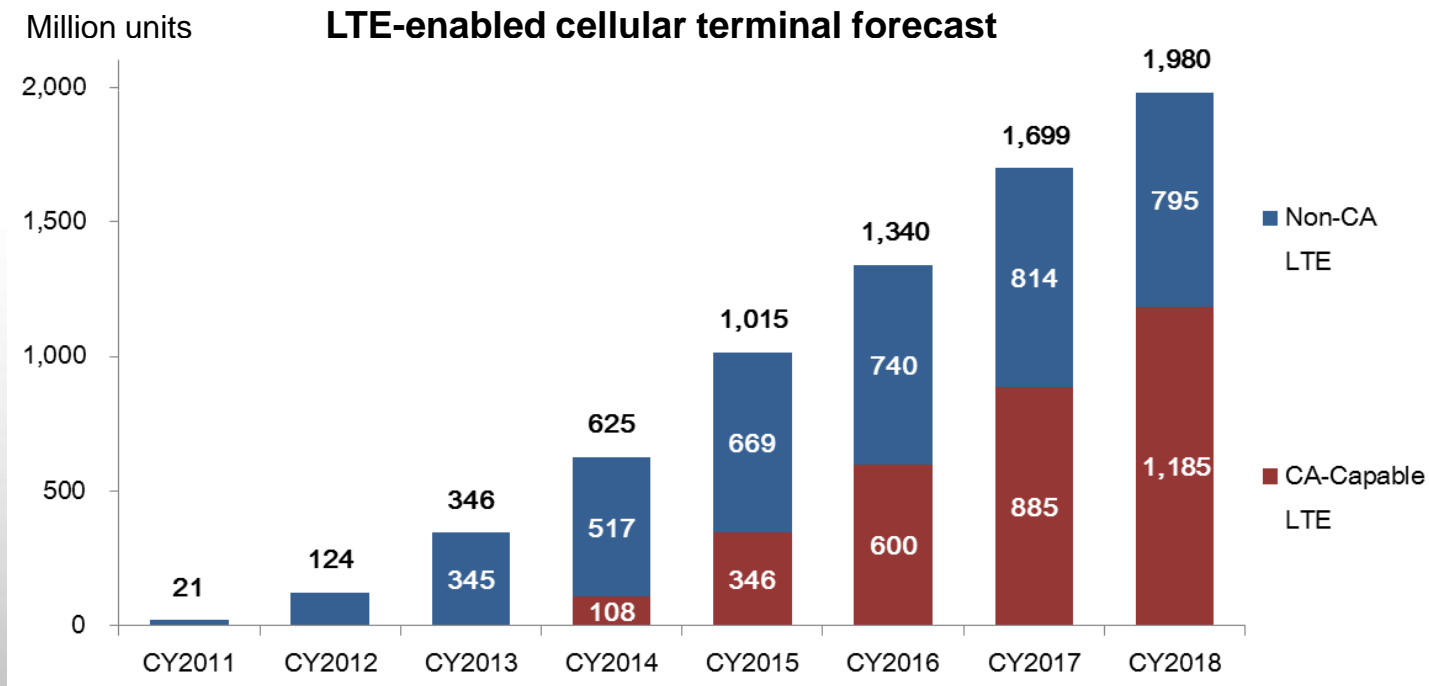
→ 4G Penetration

Source : Navian, RF Devices/Modules for Cellular, Dec. 2014

# CA Supporting Demand for GaAs



- Carrier aggregation (CA) driven by LTE-A should support the demand for GaAs PAs rather than any silicon-based solutions, since GaAs PAs have unparalleled advantages on linearity and efficiency.
- Devices that support CA are expected to grow to 1,185M units in 2018 from 108M in 2014, representing the key driver to the overall LTE device growth.



Source : Navian, RF Devices/Modules for Cellular, Dec. 2014

## Near/Mid-Term Momentum (2015~2018)

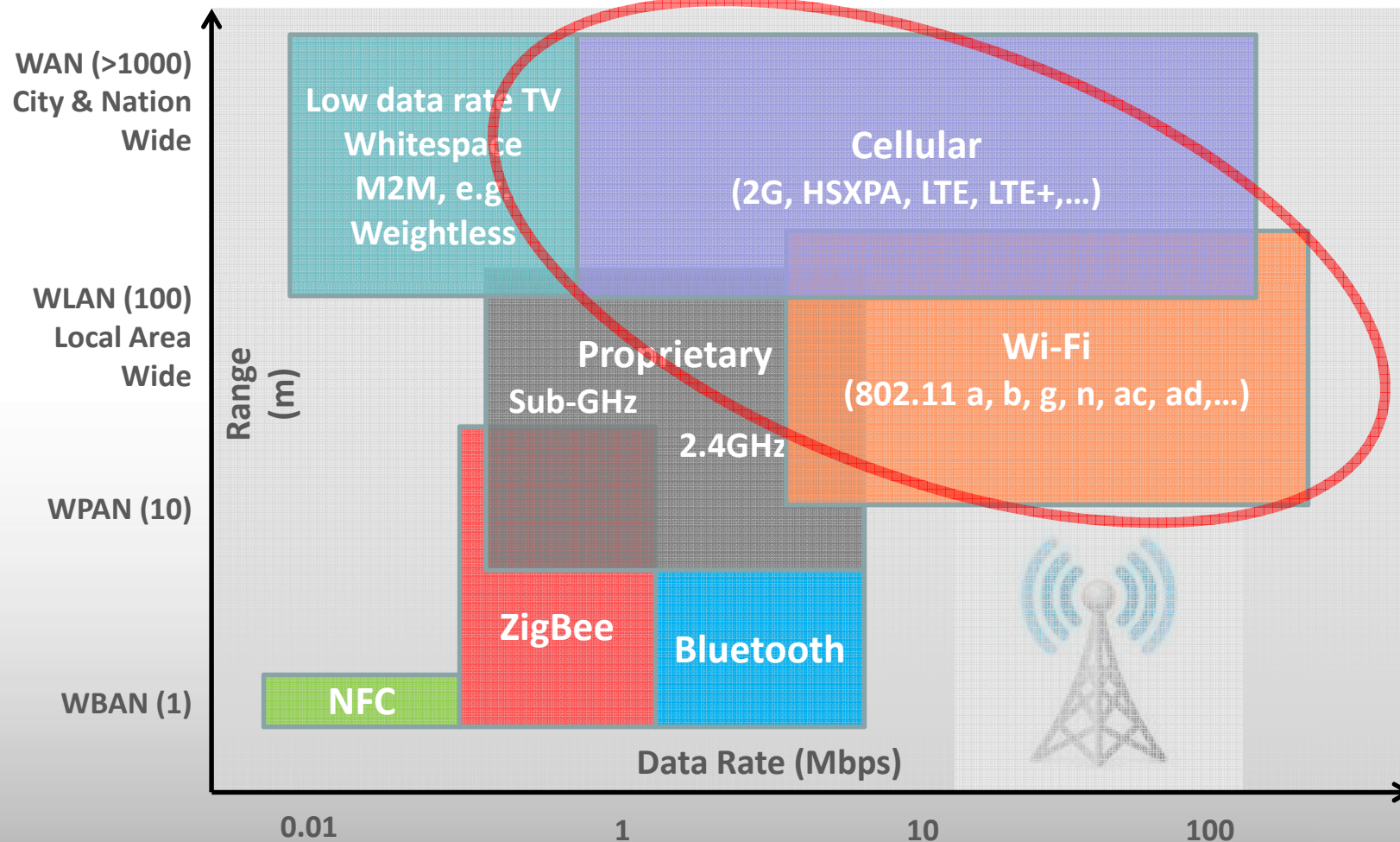


- Wi-Fi PA and FEM will generate a significantly higher growth rate than cellular PA.
- More and more smartphones will adopt external FEM/PA for 5GHz 802.11ac solution.
- 802.11ac routers quickly move toward MIMO.
- IoT wireless connectivity adopts Wi-Fi and 3G/4G as the gateway router.
- Strong growth in broadband wireless infrastructure demand driven by demand on global mobile data traffic largely increased.

# GaAs Opportunities in IoT Wireless Connectivity



### Today's Wireless Landscape

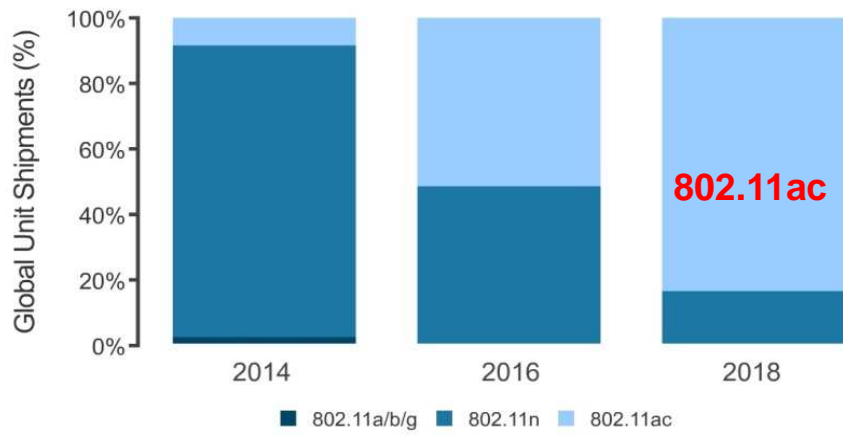


# 802.11ac Router Growth Trend (2014-18)



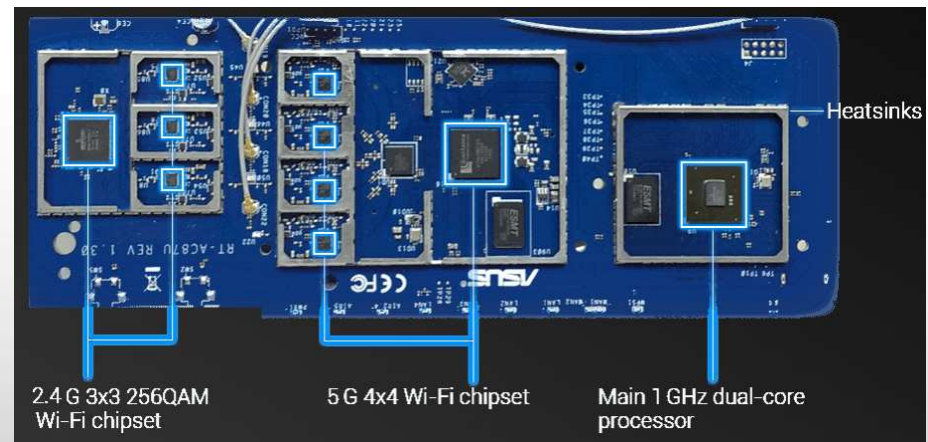
- Higher performance requirement in 802.11ac is a great opportunity for GaAs devices.
- Dual band (2GHz&5GHz) and MIMO requirements represent volume opportunity for GaAs components.
- Same trend is happening in high-end smartphones.
- Low/mid-end smartphones will be the next to adopt 11ac dual bands and MIMO.

## 802.11ac access points expected to dominate the global WLAN market by 2018



Source: Infonetics Research, *Wireless LAN Equipment and WiFi Phones, Quarterly Market Share, Size, and Forecasts, May 2014*

## 802.11ac Dual-Band Wi-Fi Router with MIMO



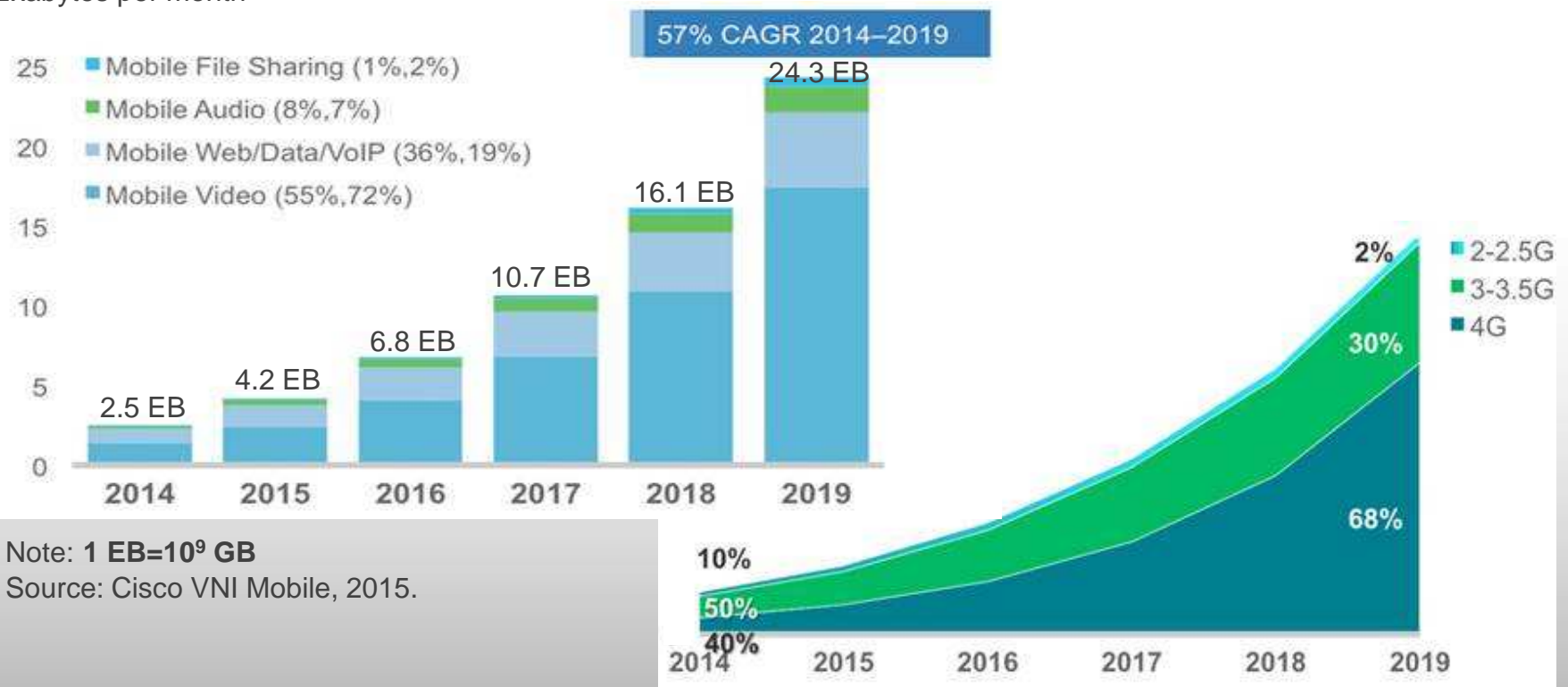
Source: ASUS's Company Website

# Rising Demand for Mobile Data



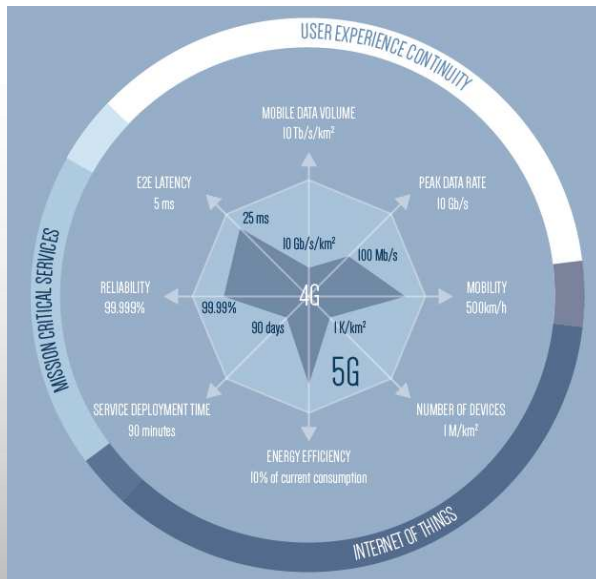
- Thanks to the constant bandwidth upgrades driven by mobile devices and 4G/LTE, demand for mobile data is rising rapidly where mobile video consumes the most bandwidth and grows the fastest for mobile data (the Big Data trend).
- Cisco forecasts 24.3 Exabytes per month of mobile data traffic by 2019.

Exabytes per month

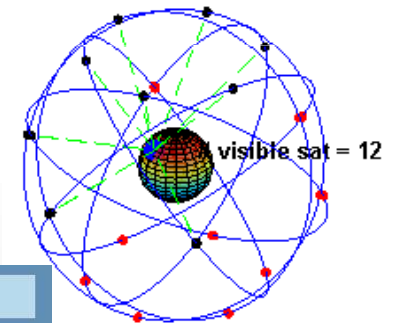
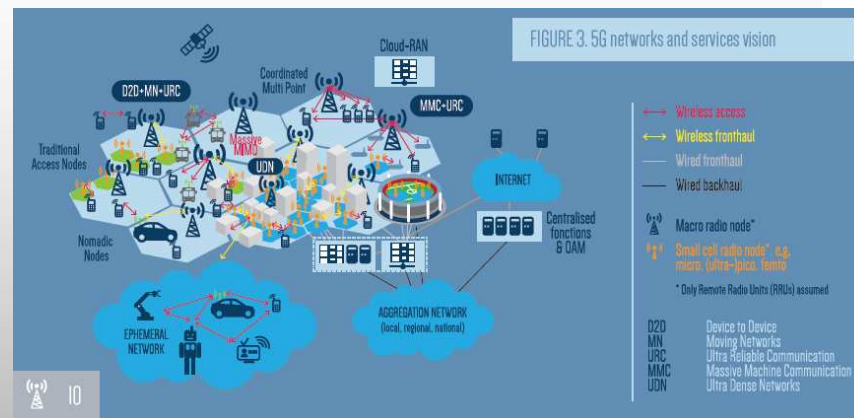


# Long Term Momentum (2018~)

- Pre-5G launch: Broadband internet service through satellite communication (>10GHz) as an example.
- 5G launch using significant higher frequency bands.
- 6GHz ~ 80GHz, small cells, massive MIMO, phase array, ... etc.



Source: 5G PPP: 5G Vision 2015



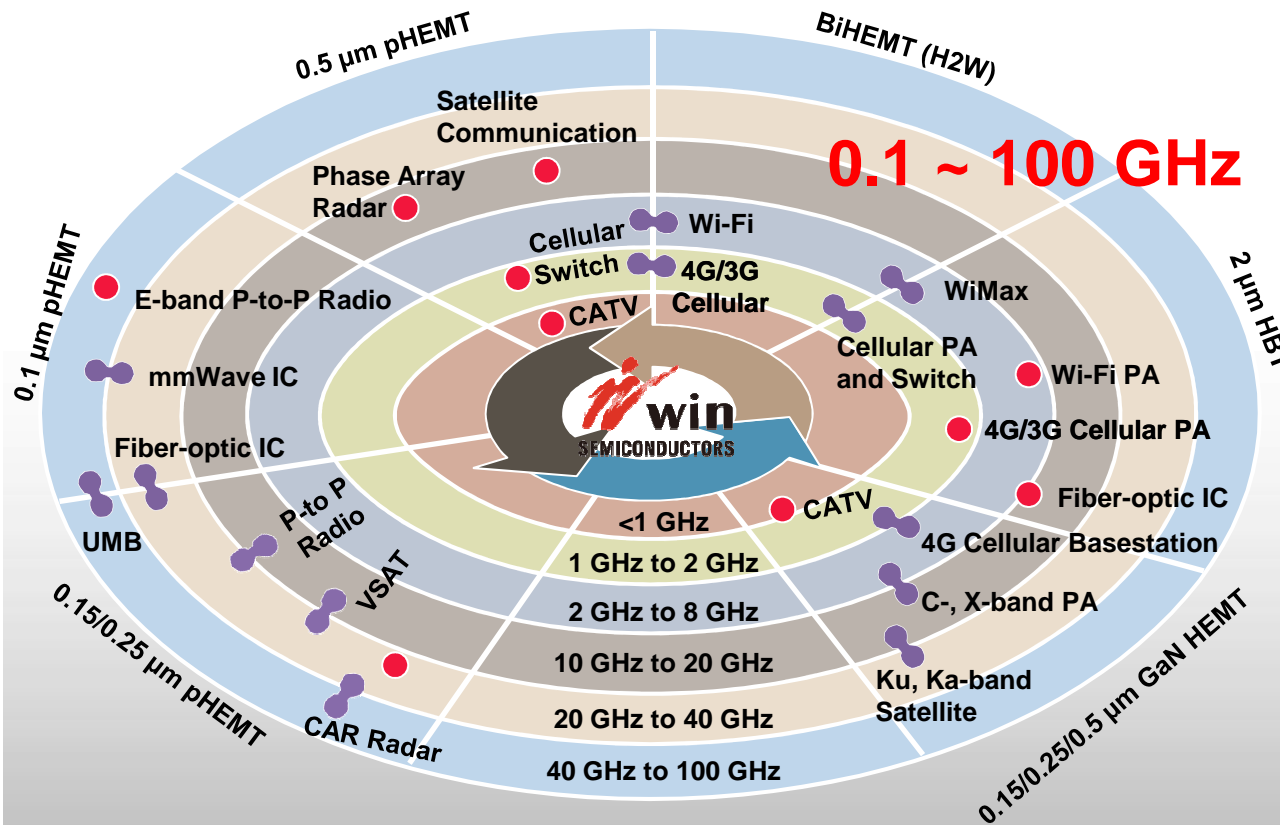
# Technology



# Broad Portfolio of Advanced Technologies

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The most comprehensive technology portfolio in industry enables customers to develop optimized products for a wide range of applications



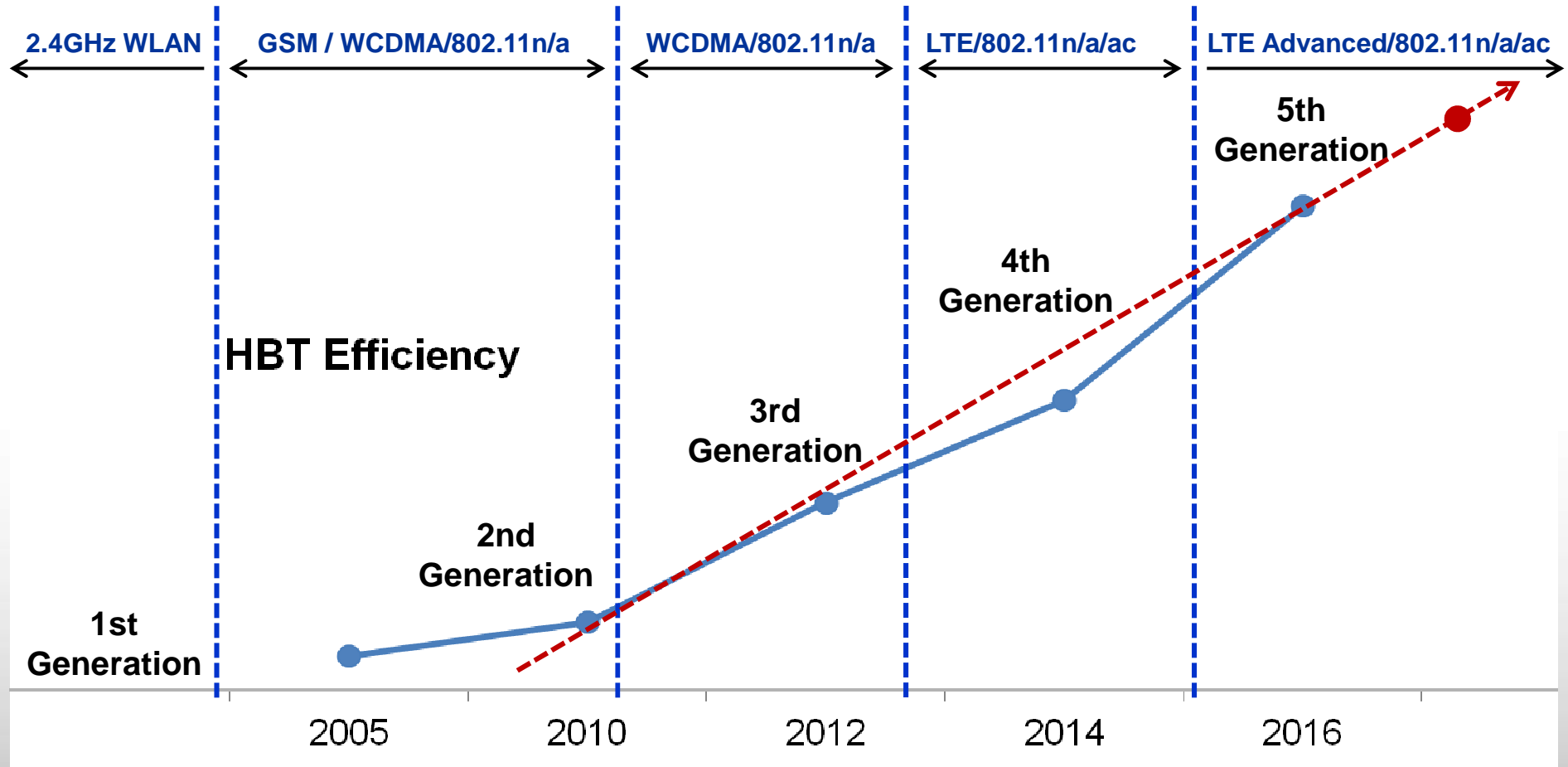
0.1 ~ 100 GHz

- ✓ Dominant market share for high-performance HBT used in LTE PAs
- ✓ Leading BiHEMT technology for advanced integrated FEM
- ✓ First and only foundry worldwide to commercially develop 0.1μm pHEMT on 6" GaAs wafer
- ✓ Industry leading 0.15–0.25μm pHEMT technology
- ✓ Supports broad range of products such as PAs (from 50MHz–100GHz), switches, and fiber optic IC
- ✓ Developing GaN for high power devices (4G base station)

# WIN's HBT PA Generation



## For Cellular & WiFi



WIN's HBT efficiency shows significant improved every generation.

Unlike Si semiconductor technology in the digital world focuses on gate/line dimension shrinkage, the RF technology roadmap focuses on the following perspectives:

- Better Performance

- ✓ Higher power efficiency → Longer battery power
- ✓ Better linearity → Faster speed
- ✓ Lower noise → Better quality of signal

GaAs vs CMOS



- Higher Functionality Integration

**WIN provides all of the GaAs solution for the above!**

WiFi FEM : PA + LNA + Switch + Logic

BiHEMT = HBT + E/D pHEMT

PA + LNA/Switch/Logic

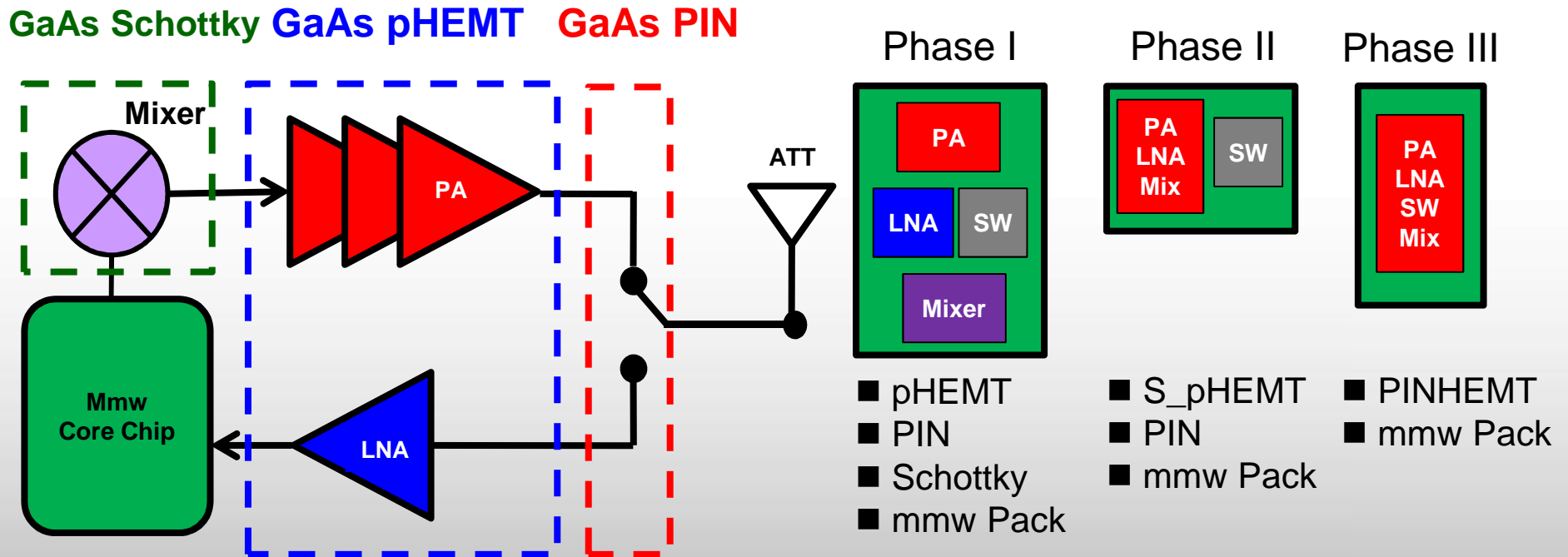
PA/LNA/Switch/Logic

+

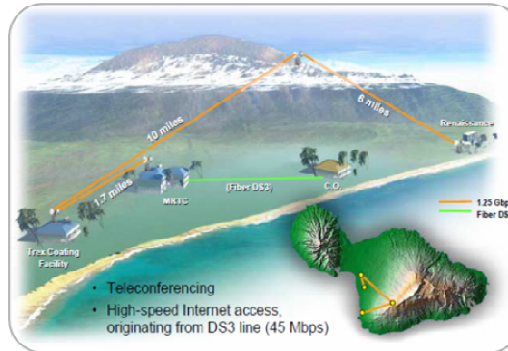
Cu Pillar Bump Flip Chip

## For High Frequency Products

### GaAs Key Components vs. Solution of Integrated GaAs Chips.

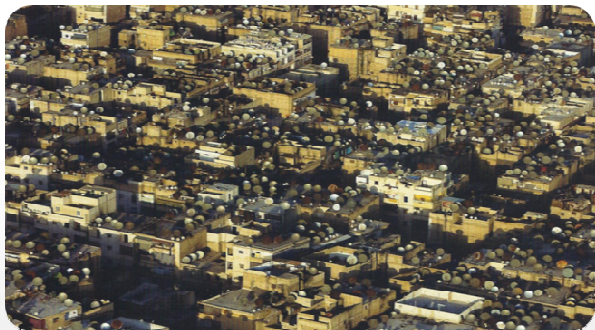


# WIN 0.25/0.15/0.10 $\mu$ m pHEMT Inside!



Ultra high frequency semiconductor technology provider!

Satellite Communications, Fiber optic Communication, Wireless infrastructure ...



# The WIN Strategy



Invest in capacity to capture demand growth and improve margins through product remix

**Scale & Remix**

**Technology Leadership**

Invest in technologies to maintain competitive edge and sustain leadership

**Cost & Efficiency**

**Customer Diversification**

Leverage on technology and manufacture expertise to lift efficiency and drive cost down

Grow and acquire new customers in existing and new markets to diversify customer base

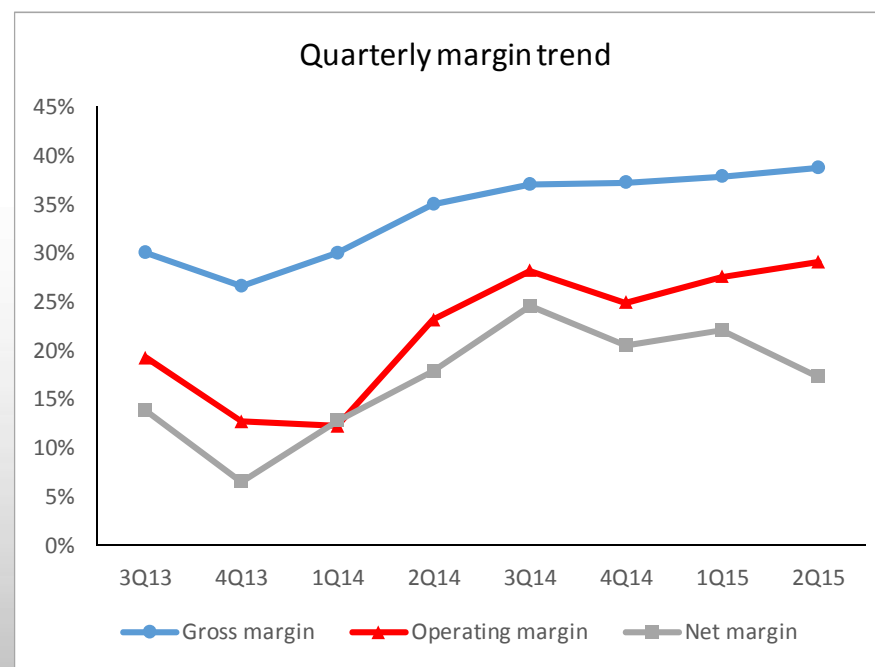
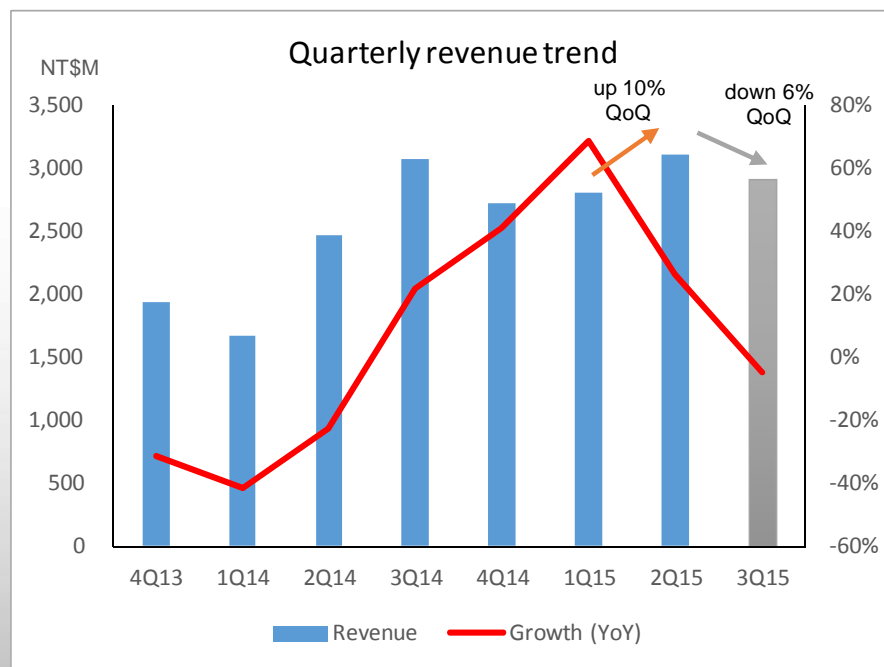
# Financial Review



# Revenue & Margin Trend



- 2Q15 revenues up 10% QoQ and 26% YoY off a high first quarter base, mainly reflecting robust demand from customers.
- 2Q15 GM improved 0.9pp sequentially to a record high of 38.8%, driven by increasing utilization and the improvement in cost structure. OPM increased 1.5pp to 29.1%, which was also a record high.

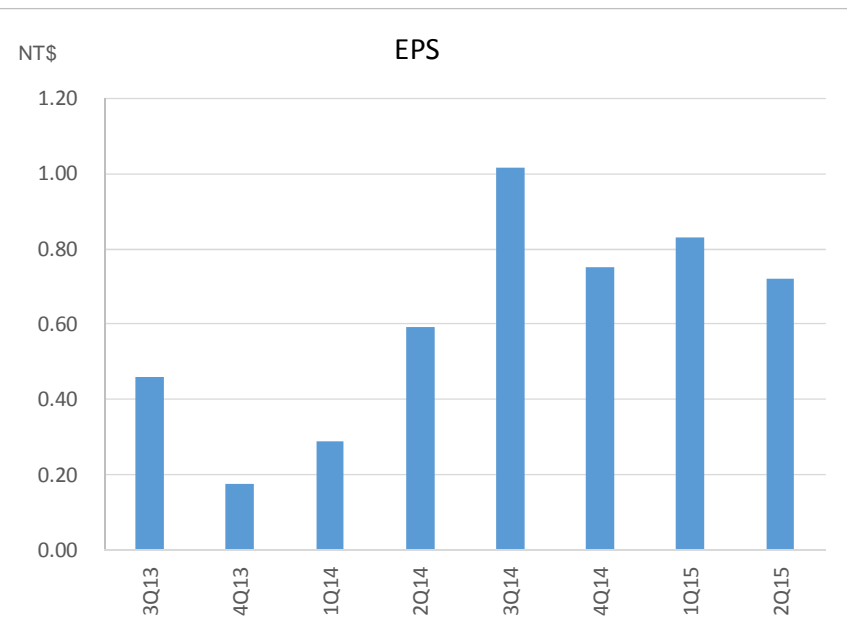
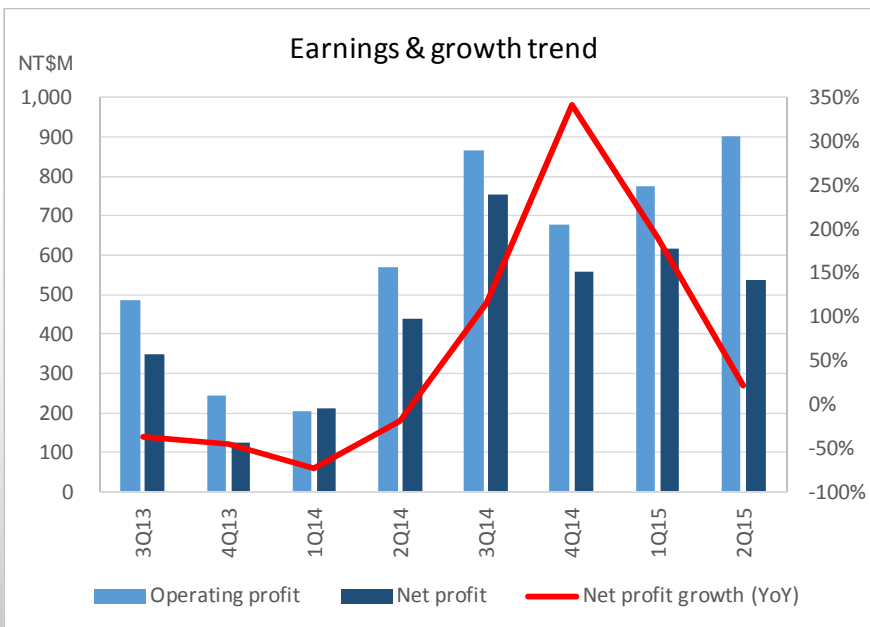


Source: company.

# Earnings Trend



- 2Q15 net profit decreased 13% QoQ to NT\$537mn, and increased 22% YoY. The QoQ decline in net profit was due to higher tax expenses.
- 2Q15 EPS came in at NT\$0.72, compared to NT\$0.83 in 1Q15.

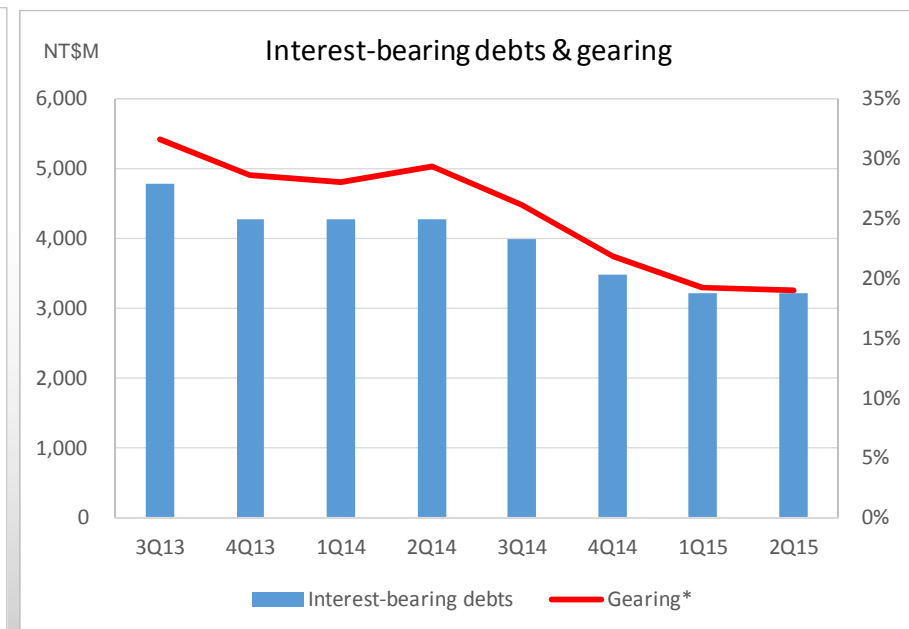
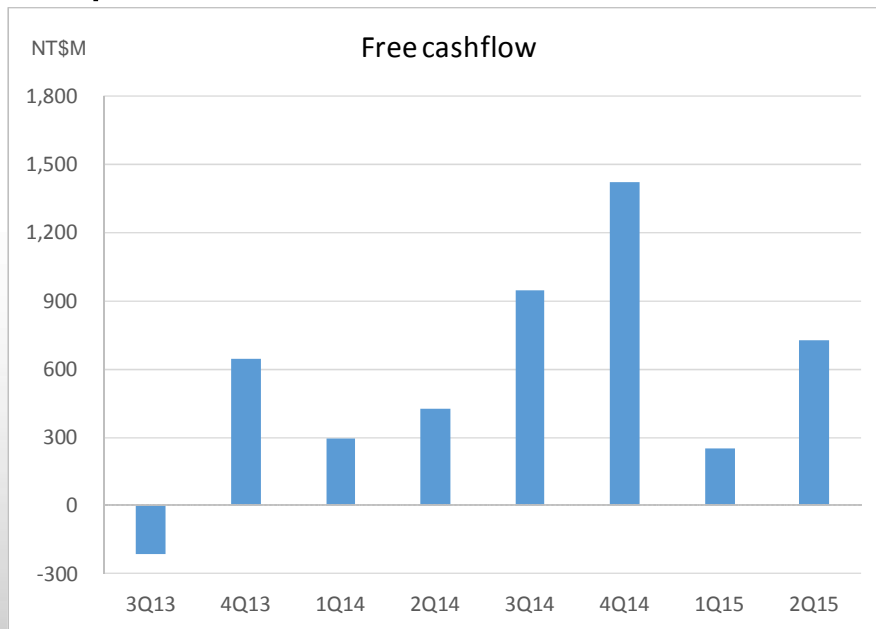


Source: company.

# FCF & Gearing Trend

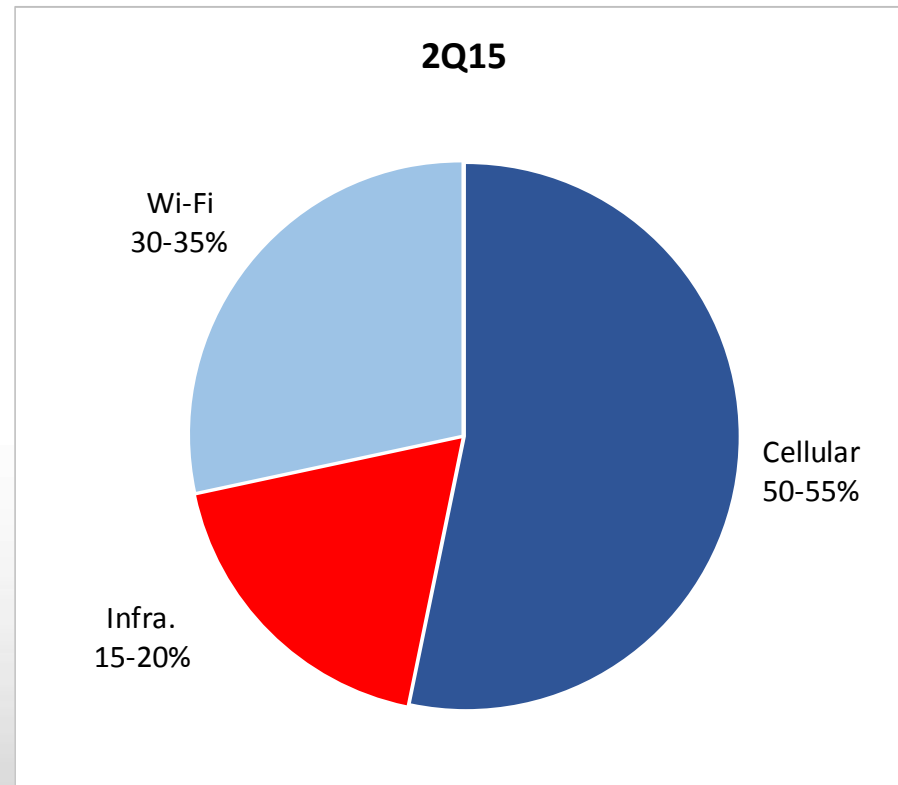
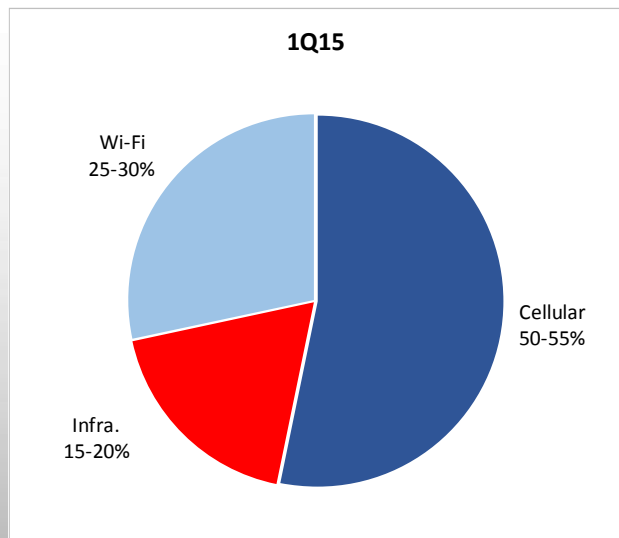
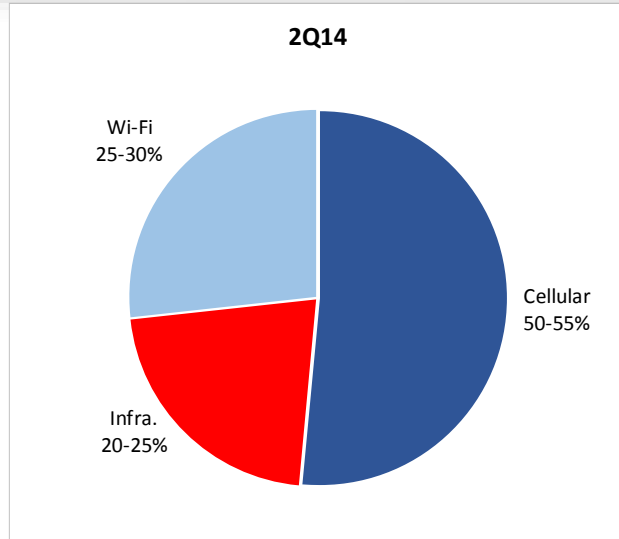


- Free cash flow (FCF) continued to be positive for the past 7 quarters as a result of our rigid control on capex and improvements in efficiency.
- Interest-bearing debts fell to below NT\$3.3bn and gearings declined to a historical low since listing, reinforcing our solid balance sheet position.



\* Gearing = interest-bearing debts / equity  
Source: company.

# Product Mix



Source: company.

# Q & A

For more information regarding WIN  
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For all inquiries, suggestions, and comments  
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