

Comba

京信通信系統控股有限公司
Comba Telecom Systems Holdings Limited
股份編號 Stock Code : 2342

2019 Interim Results Corporate Presentation



Persistent • **Focus**
繼往開來 • 凝心聚力

Innovation • **Brilliant**
創新發展 • 再創輝煌

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Agenda

Part I

Financial Highlights

Part II

Financial Review

Part III

Industry Development

Part IV

Company Outlook

Financial Highlights

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Financial Results

A blue rounded rectangular button with the text "Expenses Structure" in white. To its right is a white rectangular box with a blue border, connected to the button by a thin blue line.

Expenses Structure

A blue rounded rectangular button with the text "Financial Position" in white. To its right is a white rectangular box with a blue border, connected to the button by a thin blue line.

Financial Position

A blue rounded rectangular button with the text "Key Financial Indicators" in white. To its right is a white rectangular box with a blue border, connected to the button by a thin blue line.

Key Financial Indicators

A blue rounded rectangular button with the text "Gross Gearing Ratio Analysis" in white. To its right is a white rectangular box with a blue border, connected to the button by a thin blue line.

Gross Gearing Ratio Analysis

Financial Results



HK\$'000	For the six months ended 30 June			For the year ended 31 December 2018
	2019	2018	Change	
Revenue	2,751,224	2,493,733	10.3%	5,663,310
Gross profit	840,253	753,992	11.4%	1,458,601
Gross profit margin	30.5%	30.2%	0.3pp	25.8%
Operating profit/(loss)	117,252	53,271	120.1%	(77,277)
Tax	24,535	16,417	49.4%	48,402
Profit/(loss) attributable to shareholders	82,214	21,028	291.0%	(171,384)
Net profit margin	3.0%	0.8%	2.2pp	(3.0%)
Basic earnings/(loss) per share (HK cents)	3.35	0.86	2.49	(7.07)
Proposed interim dividends per share (HK cents)	1.0	Nil	N/A	Nil

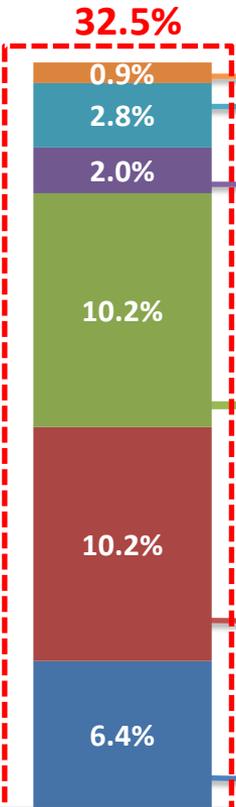
Expenses Structure



HK\$'000

▼/▲ = YoY Change

As % of Total Revenue



Category	1H18 (HK\$'000)	1H19 (HK\$'000)	YoY Change
Income Tax	HK \$24,535	HK \$8,118	▲ 49.4%
<ul style="list-style-type: none"> increase in operating profit and deferred tax expense 			
Other Expenses	HK \$77,579	HK \$11,714	▲ 17.8%
<ul style="list-style-type: none"> Depreciation & amortization expense of ETL Some impairment of account receivables 			
Finance Costs	HK \$53,679	HK \$24,380	▲ 83.2%
<ul style="list-style-type: none"> Increase in the interest rates of bank borrowings due to arrangements of switch from short term loan to 3-year syndicated bank loan 			
Admin. Expenses	HK \$280,968	HK \$24,597	▼ 8.0%
<ul style="list-style-type: none"> Organization restructuring & employees optimization 			
Selling Expenses	HK \$279,763	HK \$25,732	▲ 10.1%
<ul style="list-style-type: none"> Increase of sales revenue 			
R & D Costs	HK \$176,718	HK \$34,898	▲ 24.6%
<ul style="list-style-type: none"> New product offerings Keep abreast of latest 5G technology development 			

Financial Position

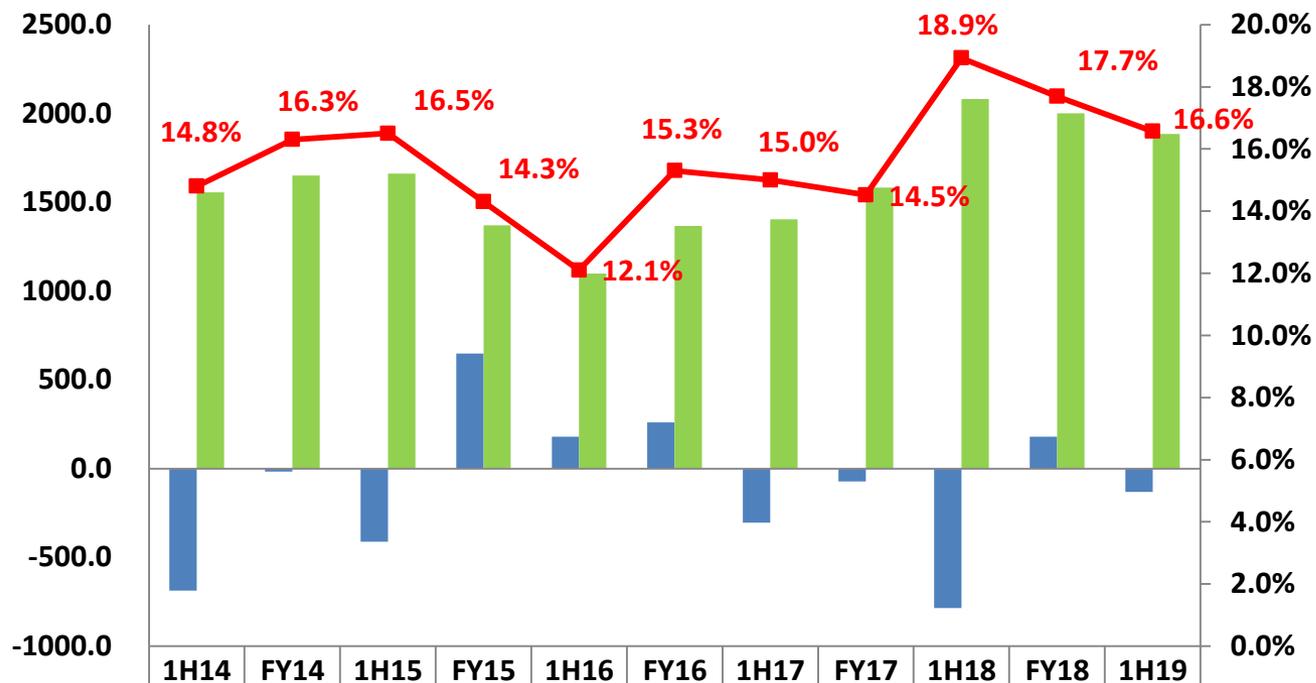
	As at 30 June			As at
HK\$'000	2019	2018	Change	31 Dec 2018
Net (debt)/cash	(131,610)	(786,320)	▼83.3%	179,310
Total assets	11,372,743	10,999,355	▲3.4%	11,302,641
Total liabilities	7,490,629	6,825,171	▲9.8%	7,497,027
Net assets	3,402,539	3,626,655	▼6.2%	3,278,153
NAV per share (HK\$)	1.37	1.50	▼8.7%	1.35

Key Financial Indicators

	For the six months ended 30 June			For the year ended 31 Dec 2018
	2019	2018	Change	
Inventory turnover days	126	156	▼30 days	116
A/R turnover days	285	331	▼46 days	280
A/P turnover days	412	386	▲26 days	347
Gross gearing ratio	16.6%	18.9%	▼2.3pp	17.7%
Return on average equity	4.9%	1.1%	▲3.8pp	(4.9%)
Dividend payout ratio	29.9%	Nil	N/A	Nil

Gross Gearing Ratio Analysis

HK\$'Mn (Except %)



Net Cash/(Debt)	-687.5	-17.1	-411.5	647.8	179.8	260.8	-304.8	-72.3	-786.3	179.3	-131.6
Interest-bearing Bank Borrowings	1555.5	1651.0	1661.1	1370.8	1097.4	1366.8	1403.2	1582.4	2082.1	2000.1	1884.4
Gross Gearing Ratio	14.8%	16.3%	16.5%	14.3%	12.1%	15.3%	15.0%	14.5%	18.9%	17.7%	16.6%

Financial Review

Revenue Breakdown by Customers

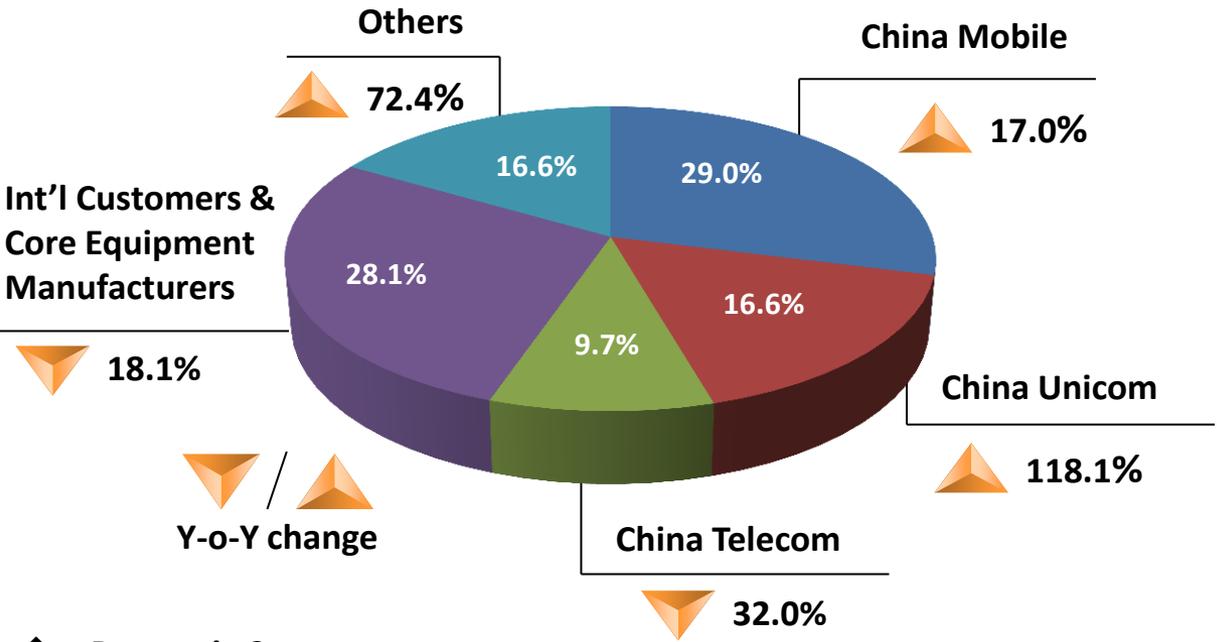
Revenue Breakdown by Businesses

2010 - 2019 Financial Performance Analysis

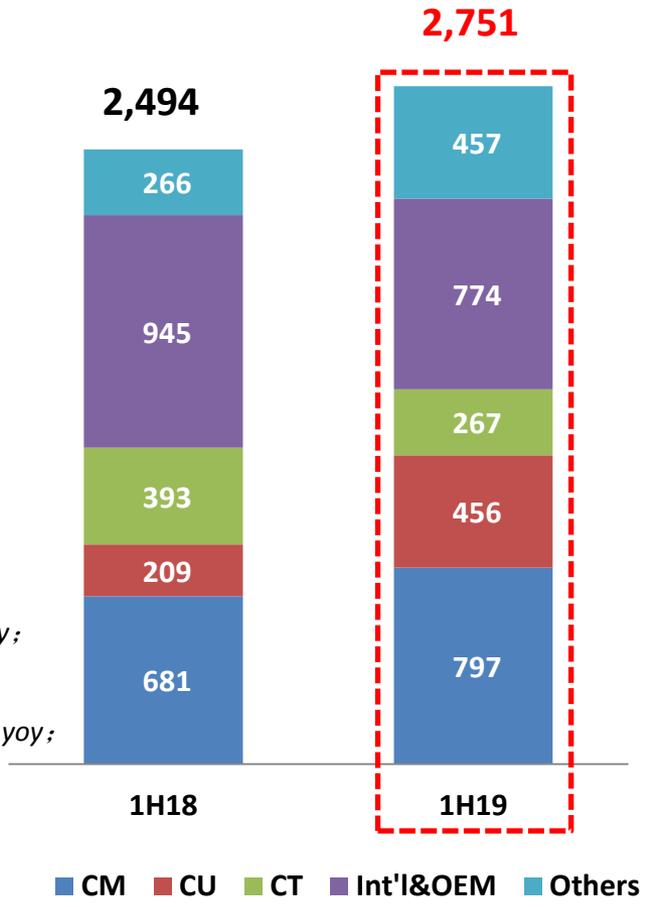
Revenue Breakdown by Customers



For the six months ended 30 June 2019



Revenue (HK\$'Mn)



◆ **Domestic Customers**

3 domestic operators and other domestic customers accounted for 68.9% of total revenue, up 31.0% yoy;

◆ **Int'l Customers & Core Equipment Manufacturers**

Excluding India market, Other Int'l and OEM customers accounted for 27.3% of total revenue, up 9.6% yoy;

◆ **Others (Mainly including China Tower, Rail Transit Communications Customers(RTC), Telecom Operator(ETL))**

China Tower accounted for 3.9% of total revenue, up 33.4% yoy;

RTC accounted for 3.5% of total revenue, up 384.5% yoy;

Telecom Operator (ETL) accounted for 2.9% of total revenue, down 20.1% yoy;

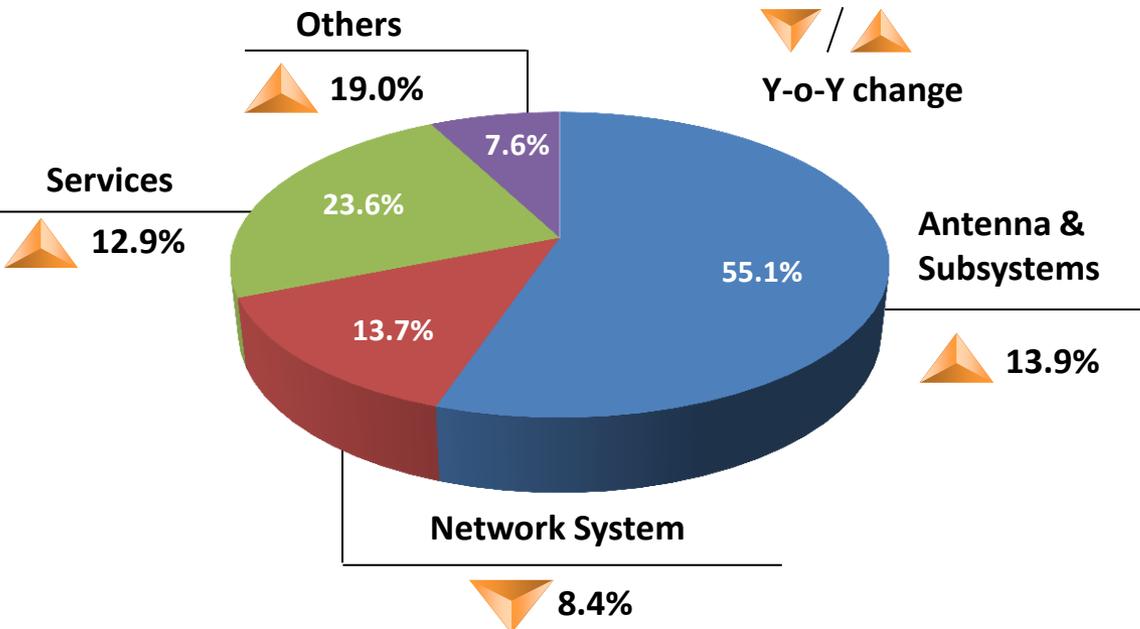
Other enterprise customers accounted for 6.3% of total revenue, up 167.5% yoy.

■ CM ■ CU ■ CT ■ Int'l&OEM ■ Others

Revenue Breakdown by Businesses



For the six months ended 30 June 2019



◆ **Network System Business(Wireless Access & Wireless Enhancement)**

Wireless access accounted for 2.8% of total revenue, up 11.9% yoy;
 Wireless enhancement accounted for 10.9% of total revenue, down 12.4% yoy.

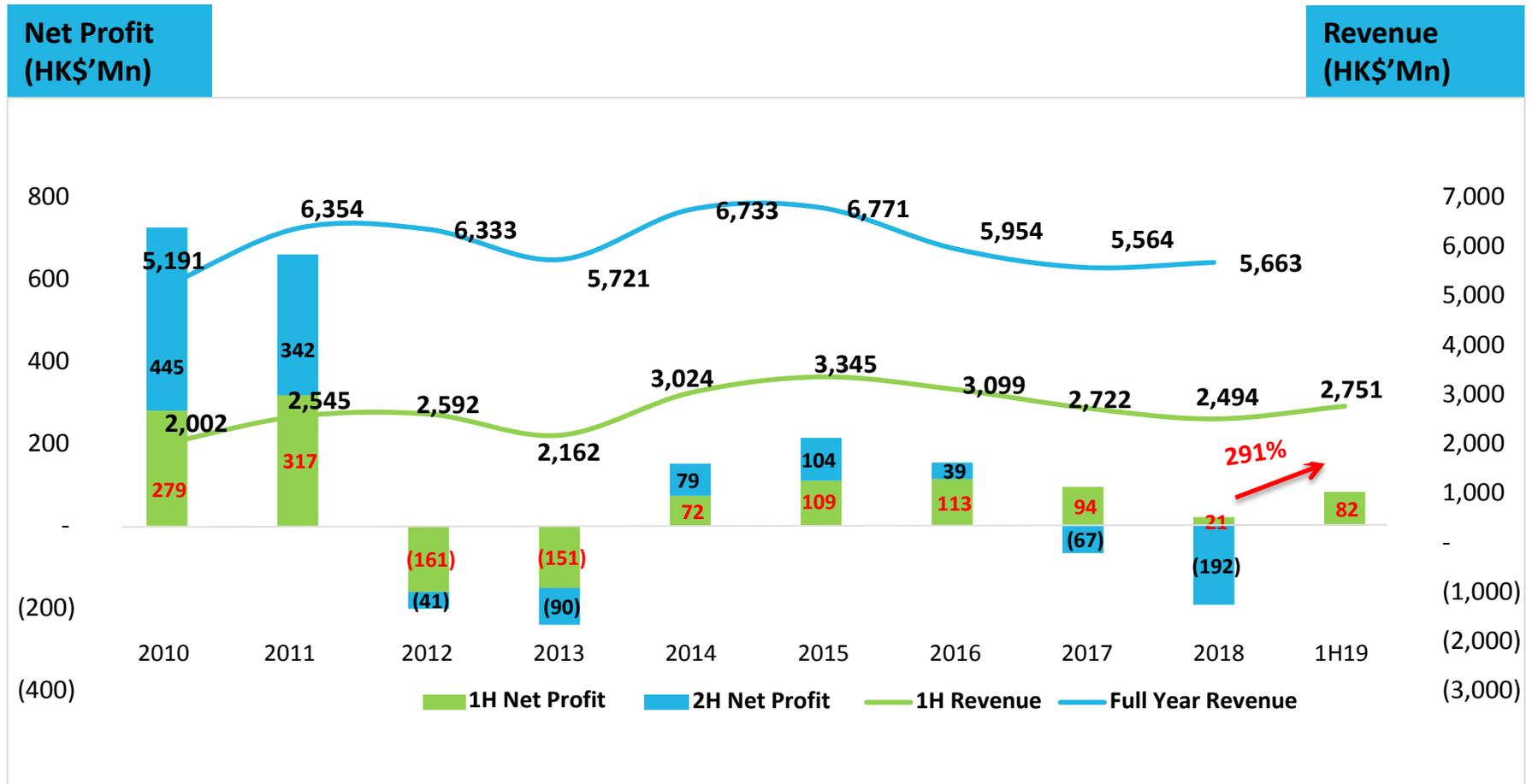
◆ **Others (Telecom Operator (ETL) & Wireless Transmission & Rail Transit Communications))**

Telecom Operator (ETL) accounted for 2.9% of total revenue, down 20.1% yoy;
 Wireless Transmission accounted for 1.2% of total revenue, down 39.0 % yoy;
 RTC accounted for 3.5% of total revenue, up 384.5% yoy.

Revenue(HK\$'Mn)



2010 – 2019 Financial Performance Analysis



Industry Development

On the left side of the slide, there are several 3D isometric cubes in various shades of blue and purple, some overlapping each other. The background is a light blue gradient.

Post-4G — Driven by Data Traffic

5G Planning & Update for Telecom Operators

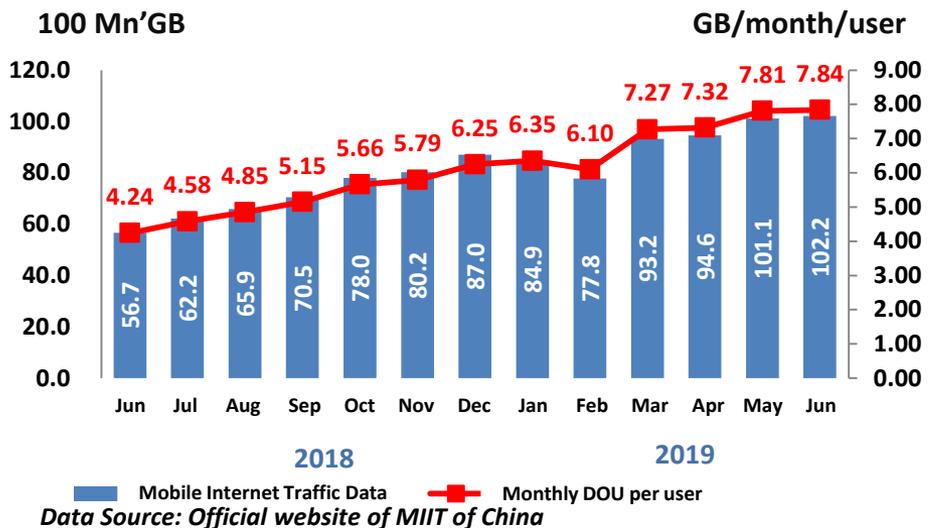
Opportunities in 5G

Challenges Faced by 5G

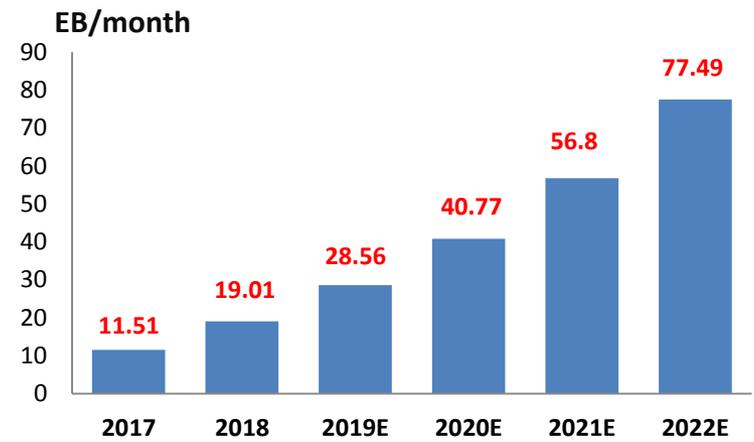
Post-4G — Driven by Data Traffic



China Mobile Internet Data Traffic and Monthly DOU



Global Mobile Data Traffic



The increase in traffic consumption continues to drive telecom operators to continuously improve the 4G networks coverage and prepare for the commercial deployment of 5G networks.

Key Projects in 1H2019

- China Mobile:** Bulk centralised procurements including urban area base station antenna, high-speed train antenna, specific scenario antenna and customized high-end multi-frequency and multi-mode antenna “4488” and etc. to expand capacity and cover blind area for LTE network, as well as prepare for 5G deployment; Meanwhile, continuous enhancing of the implementation of indoor coverage products in terms of the indoor blind spots and weak coverage area.
- China Unicom:** Bulk centralised procurements of L900 and L1800 antenna and “4+6” antenna to proceed low spectrum re-farming or LTE networks capacity expansion, strengthening VoLTE and IoT; Meanwhile, partial provinces launched the procurement of small cell products via “online shopping mall”.
- China Telecom:** Procurement of L800 antenna to proceed low spectrum re-farming based on the network coverage situation to improve the network quality; Meanwhile, actively in the preparation of the centralised procurement of 4G small cells to strengthen indoor coverage.

Global 5G Development Update

China, US, Europe, Japan and Korea are actively seizing 5G commercial deployment

Country	5G Frequency Spectrum			Time of Commercial Use		
	Low Frequency	Middle Frequency	High Frequency	2019	2020	2021 --
		✓	✓	5G trial commercial use	5G commercial use	
	✓	✓	✓		5G commercial use	
	✓	✓	✓		5G commercial use	
		✓	✓		5G commercial use	
		✓	✓		5G commercial use	

South Korea

- **Feb., 2018:** showcased 5G service at the Olympic Winter Games in Pyeong Chang;
- **Apr., 2019:** launched the world's first nationwide 5G mobile;
- Plan to have 5% of the country's mobile users on a 5G network **by 2020.**

US

- **Dec., 2018:** AT&T rolled out mobile 5G service in 12 US cities
- **Apr., 2019:** Verizon began rolling out its 5G services in Chicago and Minneapolis.

Europe

- **Apr., 2019:** Switzerland launched 5G network in 54 cities and communities;
- **May, 2019:** UK launched 5G network in 6 cities;
- **Jun., 2019:** Spain launched 5G network in 15 cities.

Japan

- NTT DoCoMo is planning to launch 5G service at venues of the **2020 Tokyo Olympic and Paralympic Games.**

5G Development in Mainland China

On June 6, 2019, the MIIT officially granted 5G commercial licenses to China Mobile, China Telecom, China Unicom and SARFT

China Mobile

- **5G+ plan**
- **2019:** Builds more than 50,000 5G base stations nationwide, realizes 5G commercial use in more than 50 cities;
- **2020:** Provides 5G commercial service in cities at prefecture level or above nationwide.

China Telecom

- Directs at “SA” mode networking;
- **2019:** Builds 5G network with “NSA/SA” mixed networking mode in more than 40 cities;
- **2020:** take first to initiate the upgrade to SA network.

China Unicom

- **Announced “7+33+N” 5G network deployment plan, to enable 5G trial network in more than 40 cities in 2019,** customize enterprise network in 5G in “n” cities and build all kinds of industry application scenarios.

2019 marked the first year of China’s 5G commercial use, 5G network will be launched globally for large-scale commercial use in 2020, and 2020-2023 will be the peak period for 5G construction.

2018-2019

- Low spectrum re-farming
- NB-IoT
- 5G networking standard establishment
- 5G spectrum allocation
- 5G testing & pre-commercial use
- 5G commercial use license issuance

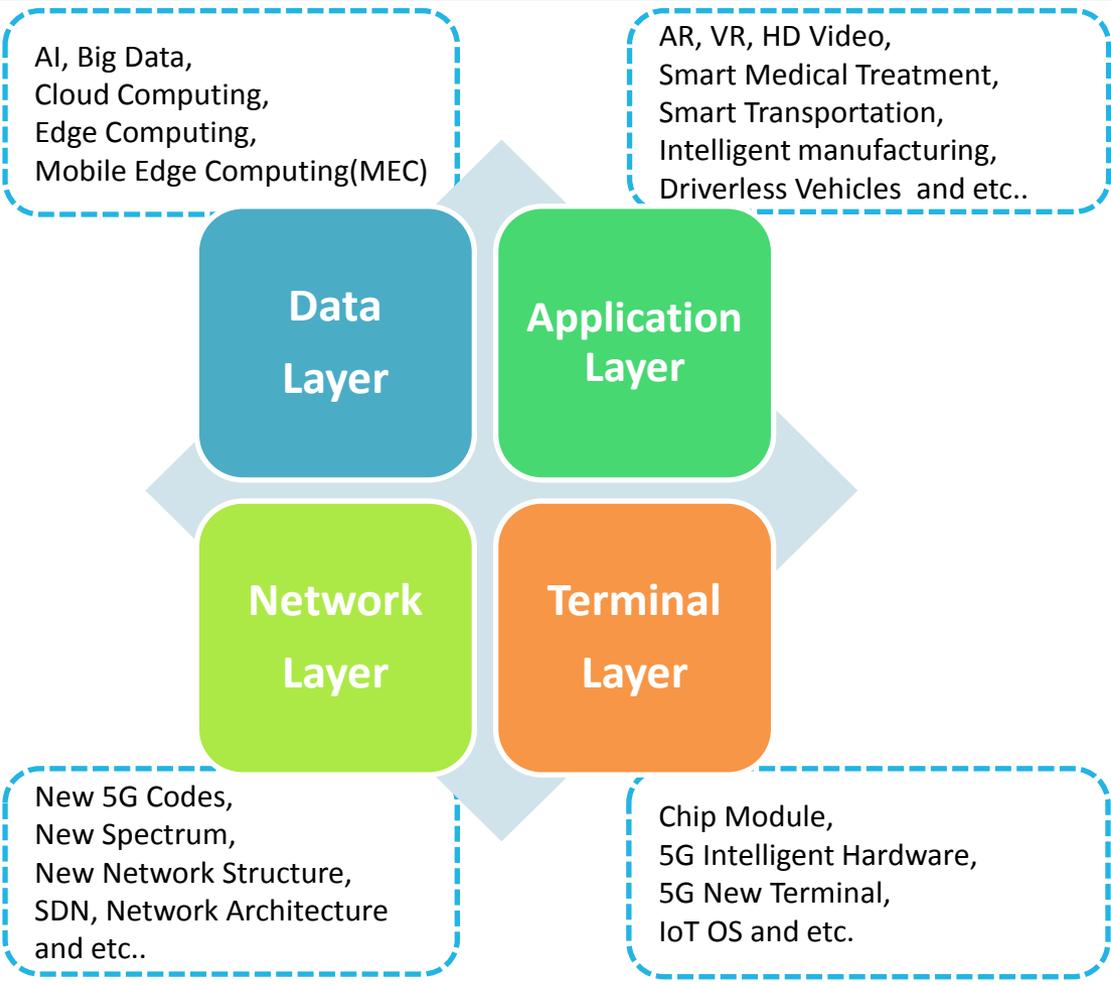
2020-2022

- 5G large-scale commercial use
- Sub 6G -nationwide network coverage for most cities
- Low frequency in-depth coverage
- LTE base layer for nationwide network coverage

2023 -

- High frequency millimetre wave for ultra-high capacity coverage
- Millimetre-wave for ultra-density networking
- millimetre-wave for hot spots coverage in small areas
- Large scale coverage in industry application scenarios (eMBB, uRLLC, mMTC)

Opportunities in 5G



- 1 5G is not only the evolution of telecommunication technology, **but also the revolution of cross industries from terminal layer, network layer, data layer to application layer.**
- 2 5G not only satisfies “human needs”, but also “the connection of things”, **5G will be applied in each industry and will empower each industry.**
- 3 5G will **bring us broad bandwidth and high speed, and meanwhile, will propel the construction of IoT network,** bringing in disruptive innovation for production and service sectors.
- 4 5G business model revolution will bring in **deep cooperation among parties in the industry chain and explore new application scenarios and business models,** bringing multiplicative effect to the economy boom.

5G will bring overall structural reform and upgrade of industry and the innovation of business model will become key to 5G sustainable development.



Coverage Cost

Base Station Sites Resources

"5G+" Business Models

- It is estimated that the number of **5G macro base stations** will be **20-50%** higher than the number of 4G stations.
 - With the evolution of new technology and new components brought by 5G high spectrum, it is estimated the cost of single 5G base station will be increased **by 1.5-2.0 times** compared to the cost of a 4G base station.
 - **New Digital Indoor Coverage Solution** will be the key solution to solve 5G indoor coverage problem, and 5G small cell will further increase the cost of 5G network construction.
-
- **Antenna Location Space Resources:** Currently 50% of the base stations' antenna location space **cannot hold** the newly added 5G antenna;
 - **Power:** Current **power cabinet's remaining capacity** is not sufficient to support 5G equipments;
 - **Load-bearing:** **Increasing the number of Massive MIMO antenna** poses challenges to the weight-bearing of existing base stations.
-
- Affected by the policy of "speed upgrade and tariff reduction" and the fact that operators' 4G investment has not been fully paid back, operators are under great financial pressure on building 5G networks ;
 - Development in 5G applications is less mature than that of 5G technology;
 - 5G large scale commercial use still needs deeply integration with **vertical industry applications and AI technology.**
-

Wireless network environment with low-cost, intelligentization, high-flexibility will bring tremendous opportunity to the Company.

Company Outlook

Antenna Products

Network System Products & Solutions

Market Expansion

Business Operation Strategy

5G Era: Technology Evolution for Antenna Deployment Trend

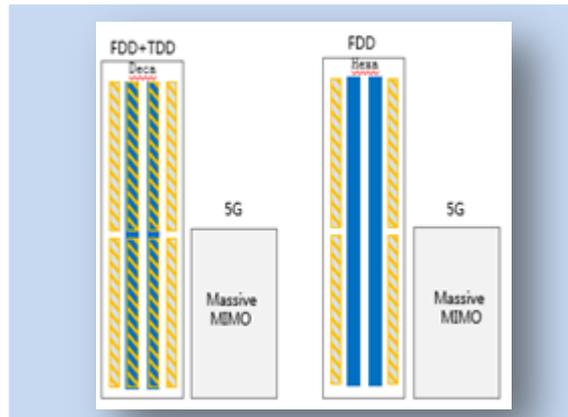
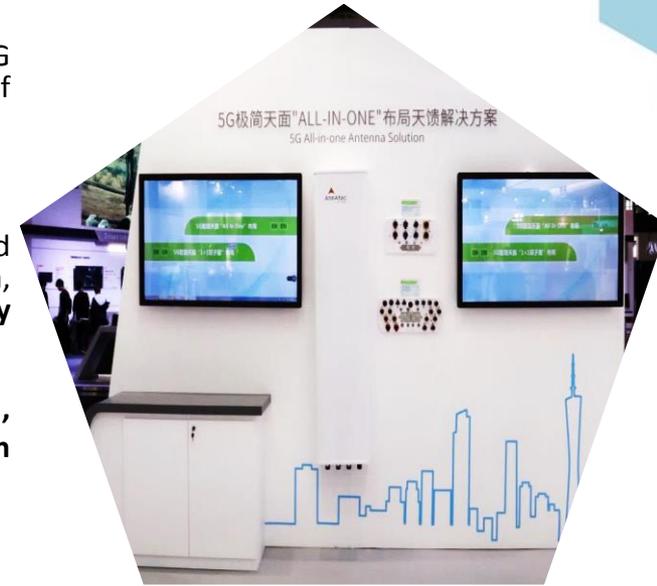
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4G and 5G networks will continue to coexist for a long time. In the next 10 years, 4G will still be an important fundamental bearing network, and 5G is the superposition of 4G network;

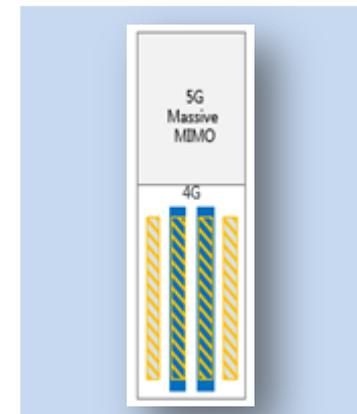
02

To solve problems in limited resources of base station sites:

- **Under the mainstream scenarios, all non-5G requirements will be highly integrated into one antenna, and all 5G requirements will be highly integrated into one antenna, forming to simplified and intelligent antenna location space structure as “1+1 Binary Star” layout in the 5G era ;**
- **Under special scenarios, all requirements are highly integrated into one antenna, forming extremely simplified antenna location space structure as “all-in-one” layout in the 5G era.**



Mainstream Scenarios
“1+1 Binary Star” Layout



Special Scenarios
“ALL-IN-ONE” Layout

5G Era: Antenna Product Forms



Antenna will exist in forms of both Active Antenna and Passive Antenna in 5G Era, Comba's Massive MIMO Antenna has realized scale commercial use globally.



Wide Coverage & Continuous Coverage

Urban Area: 16TR Antenna
Rural Area: ≤8TR Passive Antenna



Depth Coverage

≤16TR Targeted Beam Antenna

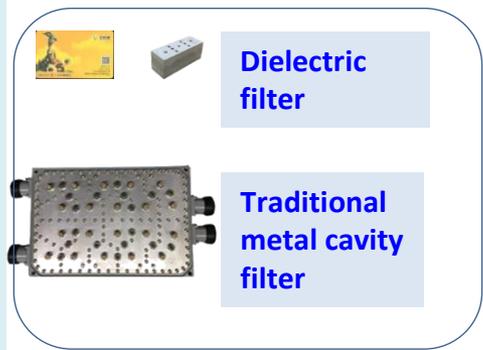


Hot spot Coverage

64TR/32TR AAU
Multiple Beams or Mixed Beams Antenna /Luneburg lens Antenna

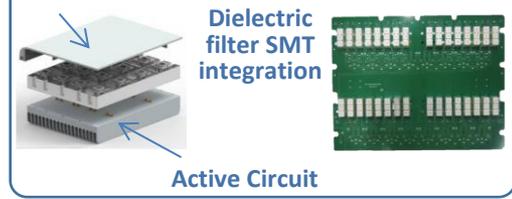
5G Dielectric Filter

- **5G Dielectric Filter maybe the mainstream:**
In order to fulfil the design requirement of increasing numbers of 5G antenna channels and the active antenna form, miniaturization and light-weight is the basic technology.
- **Dielectric Filter**
Small in size, light in weight, good performance, easy to integrate
- **Comba officially launched the medium and high frequency base station dielectric filter for 5G at the end of last year.**



Form of Application: AFU Integration

The integration of dielectric filter and antenna is the critical key to realize AAU technology



Looking ahead, Comba will rely on the dual advantages in the fields of antenna and dielectric filter to build a higher moat for 5G era!

5G Era: Technology Evolution for Indoor Coverage

70-80% of voice and data traffic is consumed indoors



5G higher frequency spectrum causes weak coverage or coverage blind area of macro base station

Intensive deployment of macro station will be difficult and with high cost

Hot Spots are short of capacity

■ **Digital indoor coverage will become standard for indoor network construction:**

- 2G/3G Coverage: Outdoor macro base station + Indoor DAS;
- 4G Coverage: Outdoor macro base station + Indoor DAS + Small cell;
- 5G Coverage: Outdoor macro base station + Small cell;

■ **Co-deploying and sharing the indoor network:**

- Help operators save capital expenditure
- Improve the network deployment density

Types of Base Station in 5G Era

Type	Transmission Power for single carrier	Coverage (theoretical radius)	Scenarios
Macro Base Station	>12.6w	>200m	Outdoor
Micro Base Station	500mw-12.6w	50-200m	Outdoor
PiCo Cell	100mw-500mw	20-50m	Indoor
Femto Cell	<100mw	10-20m	Indoor

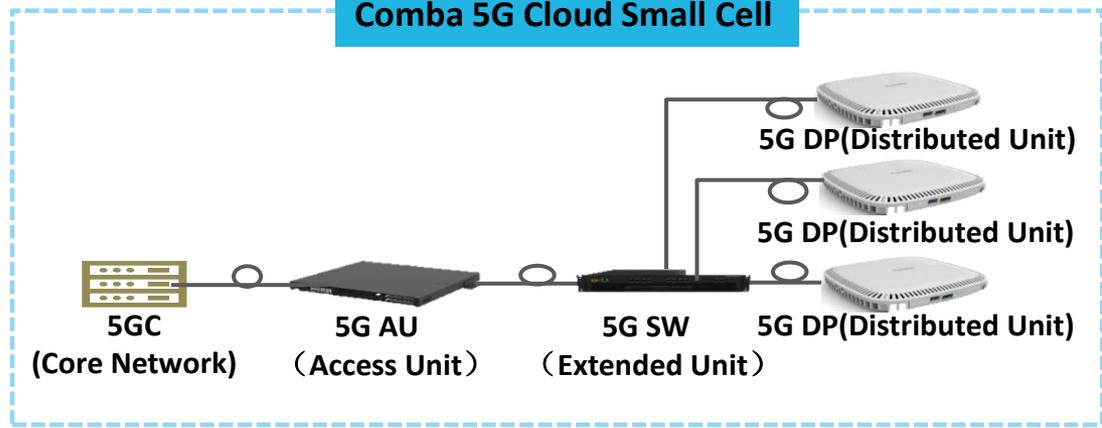


Comba has been committed to the R&D of small cells for many years, which will usher in the opportunities brought by the surging demand for indoor capacity coverage.

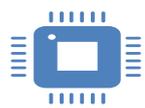
Innovative Digital Indoor Coverage — 5G Cloud Small Cell

On 26 June 2019, the Group demonstrated 5G Cloud Small Cell, the world's first 5G open small cell for commercial use in the industry ever, at the Mobile World Congress Shanghai (MWCS).

Comba 5G Cloud Small Cell



Time Leading
First global commercial use 5G Cloud Small Cell



Cross Platform
Digital indoor coverage solution based on X86 structure



Cost Effective
Decrease **more than 50%** cost of 5G indoor network construction and Intelligent power saving technology **decrease more than 32%** electricity demand



Strong scalability
Combinable with mobile edge computing, smart indoor coverage, and ubiquitous network for interconnected equipments to release more powerful network capacity

- Take the lead in completing commercial core network and terminal IoT test, China Mobile Lab test, and outdoor test, and fulfil the commercial use conditions. Launch the world's first commercial use 5G cloud small cell in MWCS with China Mobile Research Institute and Intel.
- Complete the first 5G extended micro cell commercial terminal test in association with China Unicom in July, 2019.

1H2019

2H2019

- **Plans with telecom operators:**
 - 1) **China Mobile:** Demonstrative outfield pilot work for 5G cloud small cell (incl. indoor coverage and vertical industry application pilot projects);
 - 2) **China Unicom:** 5G small cell outfield pilot work;
 - 3) **China Telecom:** Lab test and outfield pilot work for 5G small cell.

5G Open RAN Solutions

Industry Alliance

A GLOBAL INITIATIVE

TELECOM INFRA PROJECT

ORAN ALLIANCE



1H2019

Cooperation with world leading network solutions supplier **Parallel Wireless, Inc.** and launched 4G and 5G Open vRAN solution to help global mobile network operators realize lowest overall network cost.

2H2019

- Increase effort in R&D based on customer's Open RAN RRU product needs;
- Complete the delivery of the Open RAN commercial orders obtained in 1H2019;
- Participate in Open RAN pilot projects and pre-commercial trials of Telefonica, Vodafone and other global large operators.

- In the first half of 2019, revenue from the three mainland Chinese operators and other domestic customers **increased by 31.0%** yoy, which mainly benefited from the increase of the CAPEX on 4G network construction driven by 4G network expansion and optimization.

Strategy for
2H2019



Antenna Business

- ✓ Continue to strengthen **the leading position and keep the market share** in mainland China, proactively propel demands of high-end antenna such as FDD/TDD mixed system antenna, FDD super multi-port antenna, 5G new type high-speed rail antenna and so on;
- ✓ **Increase R&D investment and continuously launch various 5G Massive MIMO antenna, 4G/5G integrated antenna, 5G dielectric filter, and AFU integrated antenna and so on**, to fulfil different 4G/5G network scenarios requirements and seize the opportunities in advance.

Network System Business

- ✓ Proactively promote the execution of **the 4G extended Pico cells of China Mobile's centralized procurement project**;
- ✓ Proactively promote **China Telecom and China Unicom's centralized and provincial procurement of 4G small cell**;
- ✓ Proactively strengthen the cooperation with **China Tower projects of indoor coverage**;
- ✓ Continuously promote the **DAS optimization products** in various medium and small scenario applications (such as basements, parking lots and etc.) ;
- ✓ Build demonstrative cases, propel **5G small cell customer value recognition** and integration in vertical industry applications, and explore government and enterprise applications in association with customers.

- In the first half of 2019, revenue from international customers and OEM business *decreased by 18.1% YoY*, however, excluding the impact of India market, international customers and OEM business *increased by 9.6% YoY*; Although 4G network construction slowed down in some regions, the Group made great breakthroughs in cooperation with main telecom operators, and sales was improved in key regions such as Europe, Asia-Pacific, Middle East and so on.

Strategy for
2H2019



Antenna Business

- ✓ **Continue to strengthen cooperation with international operators** and improve current product upgrade to further increase the market share (Super multi-port antenna, FDD+TDD antenna, Hybrid beam antenna and so on);
- ✓ **Focus on target customers in key area, develop new customers proactively**, deeply dig into market opportunities and plan 5G products in advance to guide the customers and take the leading opportunities;
- ✓ **Strengthen the strategic cooperation with core equipment suppliers**, provide the products and solutions with the highest cost performance, and enhance the market layout and expansion for 5G antenna and dielectric filter.

Network System Business

- ✓ Target at key regional markets to continue on **exploring the co-constructing and sharing indoor coverage business** in targeted key regional markets and the public safety business in developed markets;
- ✓ Continue to propel **the cooperation with global leading OpenRAN BBU manufacturers** and gain more commercial orders;
- ✓ **Planning for the launch of overseas 5G small cell products and etc.**

Rail Transit Communication



- Committed to effectively provide professional rail transit communication system solution for customers including one-stop service such as technical solution design, equipment supply, project installation and integration service and so on.
- In the first half of 2019, revenue from Rail Transit Communication increased **by 384.5% YoY**, and successfully won the bid of various rail transit projects in Kunming, Hangzhou, Beijing and Nanning City, **and the sales scale continuously increase in a fast speed.**

Telecom Operator ETL



- At the end of 2017, the Group announced to invest in the construction of ETL's 4G network;
- In 2018, ETL has completed the construction of backbone optical fiber bearer network, core network, and integrated billing system;
- In the first half of 2019, the Group continued the deployment and construction 4G network in Vientiane and major cities in the north and south;
- **In Q32019, ETL will start officially commercial use for its 4G network, and it is expected that the results will gradually start to reverse.**

Intelligent Manufacturing



- Committed to providing flexible intelligent manufacturing, digital factory and industrial internet solutions;
- In 2018, the Group launched intelligent products such as AGV mobile robots and smart cameras;
- **The Group will increase market development and actively explore industrial customers.**

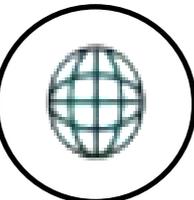
Business Operation Strategy



Focus on Core Businesses

- Network System 
- Antenna & Subsystems 
- Services 

Innovative Development

- Rail Transit Communication 
- Telecom Operator ETL 
- Intelligent Manufacturing and Others 

Rapid Growth of Financial Performance



Sound Operation

On the left side of the slide, there are several 3D cubes of varying sizes and shades of blue and purple, arranged in a staggered pattern.

THANKS!

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