

China Technology Sector

China Tech Corporate Day takeaways

We hosted a China Tech Corporate Day in Shenzhen on 17 Sep, and met with 5 A/H listed companies and 2 experts on telecom and 5G chipset. Overall, both industry and investors are positive on 5G and related opportunities, and we expect China 5G network and smartphones to ramp faster than expected given China govt. push, OEMs competition and consumers' video demand. Our top picks are Sunny Optical (2382 HK), Q-tech (1478 HK), Luxshare (002475 CH) and Tongda (698 HK). Below is our key takeaways.

- **Initial 5G BTS coverage set to accelerate with "Co-build, co-share".** Industry expert stated that China 5G BTS deployment has accelerated since 5G license issuance, and telco operators will initially focus on geographical coverage rather than capacity upgrade in next 2-3 years. Therefore, total number of 5G BTS required may only reach 70% of total 4G BTS at early stage. We believe "Co-build, co-share" could reduce capex burden, improve investment efficiency and boost 5G sub penetration in the near term, while in longer term, China telcos will explore opportunities in "ToB" enterprise segment, especially in industrial internet and IoT market.
- **5G smartphone ecosystem is ready; 5G SoC in 2Q20E to drive adoption.** All companies indicated that both smartphone brands and supply chain are well prepared for 5G flagship model launches since 2Q19. First wave of 5G phones in 3Q19E (e.g. NEX 3 5G, Mi 9 5G) will all adopt discrete 5G modem solution with retail pricing range of RMB5k-8k, while second wave will come with 5G SoC in late 2019 and early 2020 during CES and MWC. Major 5G SoC (ie. Qualcomm, Samsung) will be commercially available in 2Q19E, driving 5G phone cost to RMB3K in 2Q20E and RMB2k by 4Q20E.
- **Component: Huawei recovery on track; All eyes on 5G upgrade.** Mgmt. stated Huawei order has been recovering in past two months given China share gain and US 90-day license, but concerns remain for overseas shipment and pace of spec upgrade (esp. semi) after inventory depletion in FY20E. For casing/antenna/battery/structured components, major suppliers expect 5G-driven upgrade will boost ASP growth and volume ramp in FY20E.
- **Upcoming catalysts from Mate 30 and iPhone shipment; Focus on share gainers and 5G plays.** Following recent sector rally, we believe sector re-rating will continue ahead of 5G tariff launch. Upcoming catalysts include Huawei Mate 30 launch, iPhone shipment and 5G tariff launch in Oct. We continue to like Sunny Optical/Q-tech for share gains and multi-cam earnings visibility, Luxshare for TWS/5G upgrade and Tongda for leadership in glastic casing.

Valuation Table

Name	Ticker	Rating	Mkt Cap (USD mn)	Price (LC)	TP (LC)	Up/Down -side	P/E (x) FY19E FY20E	P/B (x) FY19E FY19E	ROE
BYDE	285 HK	Hold	3,483	11.52	10.4	-10%	15.9 11.1	1.4	8.6
Comba	2342 HK	NR	580	1.81	NA	NA	27.7 13.3	1.2	3.8
Hytera	002583 CH	NR	2,762	10.72	NA	NA	27.8 20.8	2.9	10.9
Sunwoda	300207 CH	NR	3,117	14.35	NA	NA	22.8 16.7	3.5	15.9
Everwin	300115 CH	NR	2,019	15.32	NA	NA	37.6 28.7	3.0	8.2
Tongda	698 HK	Buy	571	0.65	0.9	40%	5.0 4.3	0.6	11.7

Source: Bloomberg, CMBIS estimates

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Telecom expert meeting

- **5G BTS volume equivalent to 70% 4G BTS at initial stage.** As domestic 5G deployment would step up next year, expert addressed that the initial deployment would focus on geographical coverage, rather than capacity upgrades. In 4G era, there were about 70% BTS deployed with single frequency band to mainly cater to coverage demand, with the others for capacity expansion. The expert anticipated that 5G equipment would directly be deployed on existing 4G sites and the total number of 5G BTS under coverage requirement was estimated to be 70% of 4G BTS at initial stage, without consideration of “Co-build, co-share” impact.
- **Controversial on 5G universal coverage.** Expert expressed that whether to provide 5G universal coverage was still hanging in the air among the carriers. In view of 1) weak 5G demand in rural area, 2) domestic progress of FTTH, and 3) 4G extensive coverage, expert thought that instead of full 5G deployment, it was more likely to see 4G coexist with 5G as coverage support to fill the gap.
- **Inevitable increase of 5G BTS power consumption.** Expert believed that the power consumption per 5G BTS would inevitably surge to 3-4 times of consumption in 4G era, driven by 1) increased antenna numbers, and 2) broader bandwidth, and it exerts great Opex pressure on carriers. Since domestic equipment vendors were working closely with carriers to optimize power management (e.g. AI real-time workload surveillance), they seemed more competitive in terms of energy saving, compared with global peers, as expert addressed.
- **Enterprise customers weigh more in 5G era.** Against the backdrop of 5G’s advanced connectivity, reliability and efficiency, it would bring more opportunities for industrial internet and IoT. Expert expected the carriers to focus more on enterprise customers in 5G era to boost LT growth. Customized MM-wave signals might be deployed in specific area to meet diversified industrial demand.

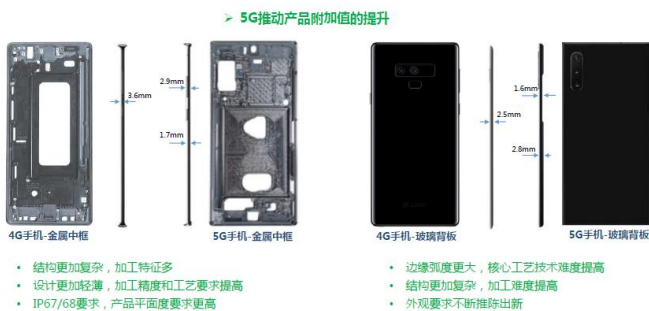
5G chipset expert meeting

- **Strong 5G smartphone pipeline ahead; Huawei/Vivo are most aggressive.** Expert expected that all major Chinese brands (HOVX) will launch at least two 5G flagship models in 2H19E, including Huawei with Mate 20 5G and Mate 30 5G, Oppo with Reno 5G and Find 2020; Vivo with iQoo 5G and NEX 3 5G, and Xiaomi with Mi 9 5G and Mix 4 5G. Given high cost and limited capacity, these flagship models (Rmb 5-8k) will not contribute meaningful shipment in 2019.
- **5G SoC in 2Q20E to drive 5G phone cost to RMB3k.** Second wave of 5G phone will come with 5G SoC in late 2019 and early 2020 during CES and MWC. Major 5G SoC (ie. Qualcomm, Samsung) will be commercially available in 2Q19E, driving 5G phone cost to RMB3K in 2Q20E and RMB2k by 4Q20E. We believe Qualcomm will launch at least two SoC solutions in 2Q20E and 4Q20E, and Samsung will start to ship its 5G SoC in 2Q20E.
- **China 5G shipment mix to reach 50% by 4Q20E.** Expert believed 5G smartphone to ramp rapidly in 1H20E, and expected 5G phone to reach 50% shipment mix in China by 4Q20E-1Q21E. With 5G SoC adoption (esp Mediatek in 4Q20E), we believe all RMB2k phone will be 5G-compatible in China by end of 2020, and 5G SoC will reach RMB1.5-2k segment in 1H21E.

BYD Electronics (285 HK, HOLD, TP HK\$10.4)

- **Expecting casing GPM recovery in 2H19E.** BYDE secured 40%/50+% share of Samsung/Huawei's metal casing as Samsung's self-supplied CNC went down from 17kk to 7kk in Vietnam. Plastic is estimated to double to RMB 3bn in FY19E. As for glass casing, BYDE progressed well with Huawei and Vivo at 600k/day. Despite Samsung's slower-than-expected demand, mgmt. expected recovery with S11 order in 4Q19E. Overall, mgmt. believed that casing GPM in 2H19E will go back to normal level (metal/plastic/3D glass's GPM of 20%/10%/20%)
- **Stronger partnership with Huawei on smartphone and 5G BTS assembly.** We believe BYDE's assembly will continue to maintain healthy growth, mainly driven by: 1) 30% share allocation target from Huawei smartphone OEM in FY19E (vs ~10% in FY18, mainly for Nova/Honor-series), and 2) AAU on 5G BTS with higher GPM (peers' 5%) to commence shipment in FY20E.
- **Emerging growth pillars from Apple and 5G smartphone.** BYDE believed Apple business will be further enhanced by offering both component and assembly services (incl. plastic casing for power adaptor/Airpods/TV box and ceramic backcover for iWatch, etc) and expected new content — iPad casing/iPad assembly in FY19/20E. As for 5G, BYDE stated 15 projects-on-hand with all adopting 3D glass back cover and metal mid-frame solution. Mgmt. believed this design will become mainstream for high-end segment in 2H19E (RMB3,000+).

Figure 1: Opportunities for 5G smartphone



Source: Company data, CMBIS estimates

Figure 2: Diversified corporation with Huawei

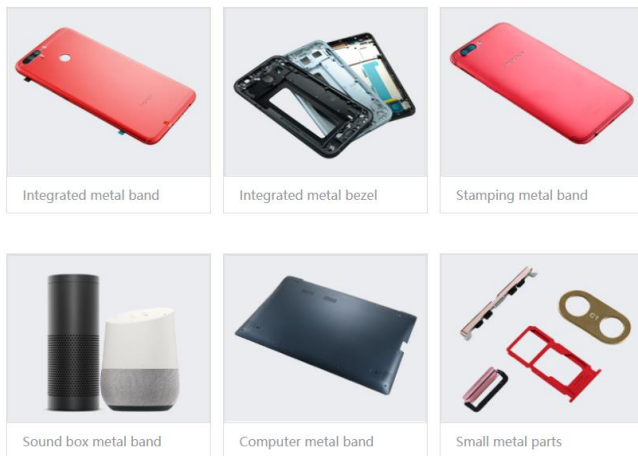


Source: Company data, CMBIS estimates

Everwin (300115 CH, NR)

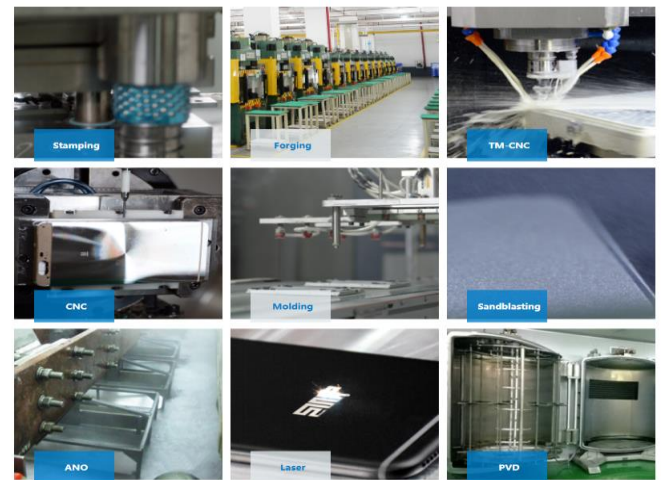
- Expecting higher ASP for 5G smartphone casing.** Everwin mainly supplies metal casing for Oppo/vivo flagships and Samsung's S/Note/A-series (approx. 30% of share). While the metal casing volume continues to decrease, mgmt. expected ASP of metal mid-frame for 5G smartphone will increase by 20-30%, given that more complex antenna design will require more delicate process and more CNC time.
- Shifting to non-mobile/international market.** Everwin has actively diversified client base and its overseas sales rose to 35% in 1H19 (vs 10% in FY17). Mgmt. expected Apple to contribute 8% of total sales in FY19E from 1) metal casing for Macbook's A /D face (ASP RMB300/100) and potential D face (ASP 400) in FY20E, and 2) casing for Pencil by grabbing 50% of share at the cost of Taiwan peers. As for Amazon/Google, mgmt. indicated the combined sales accounted for 8.5% of 1H19E sales, driven by Amazon's smart speaker/e-book and Google's tablet/phone/smart speaker.
- New content to drive FY20E growth.** Looking into FY20E, mgmt. remains positive on new growth drivers from 1) metal casing for Apple Macbook, 2) shields on 5G smartphone antenna to double in 5G era (vs RMB 830mn sales in 1H19), and 3) RF connectors for Huawei to contribute RMB 200mn in FY19E.

Figure 3: Everwin's metal band



Source: Company data, CMBIS estimates

Figure 4: Process for metal parts

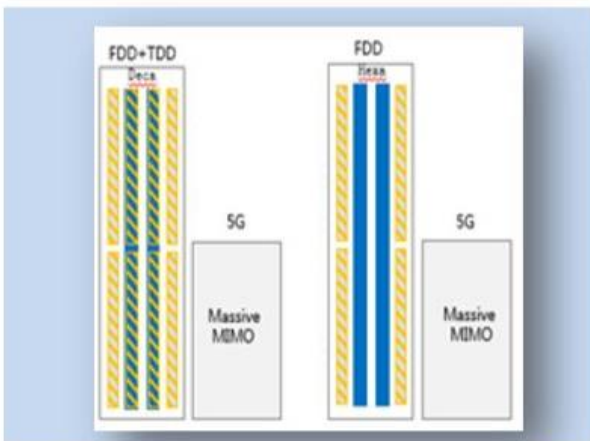


Source: Company data, CMBIS estimates

Comba Telecom (2342 HK, NR)

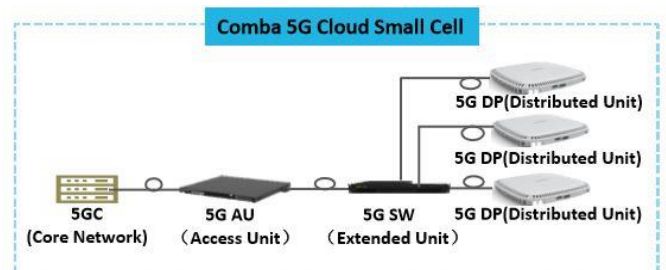
- **Top 2 base station antenna provider globally, and Top 1 in China wireless solutions.** By business, 1) base station antennas (55% of sales) for OEMs and carriers, 2) network systems (14% of sales) for last-mile indoor coverage, and 3) services and others (31% of sales) constituted Comba’s revenue in 1H19. China carriers (+31% YoY) and intl. customers & OEMs (-18% YoY) accounted for 69% and 28% of sales, respectively. Mgmt expected post-4G optimization and 5G deployment to drive growth ahead.
- **“1+1 Binary Star” as 5G antenna major trend.** Comba believed 4G would coexist with 5G to remain as fundamental bearing network in the next decade. Meanwhile, due to limited site space, mgmt expected antennas in 5G era to be simplified into “1+1 Binary Star” structure in most cases, with one antenna solely for 5G requirements and another one for others.
- **Strong domestic demand for 64TR MIMO.** Even though sub-6G bands do not necessarily require 64TR antennas to enhance signals and Europe deployed 16TR/8TR antennas for its mid-frequency 5G network, mgmt viewed that propelled by domestic equipment vendors, 64TR MIMO would still become mainstream choices in China. 5G antennas accounted for 1% of total sales in 1H19, while mgmt expected the sales contribution to ratchet up to 4% in FY19E.
- **Small cells to boom in 2021E.** With “Co-build, co-share” initiatives to ease carriers’ Capex pressure, mgmt expected small cells to benefit from carriers’ focus shift onto capacity enhancement. Comba believed that CU/CT had to deploy numerous small cells to ensure indoor coverage out of weak building penetrability of 3.5GHz band, and small cells would enter mass production in 2021E.

Figure 5: “1+1 Binary Star” antenna layout



Source: Company data, CMBIS

Figure 6: Comba 5G cloud small cell



Source: Company data, CMBIS

Sunwoda (300207 CH, NR)

- **Global leading handset battery maker.** Sunwoda had dominant (40-50%) shares from almost all handset OEMs. In 1H19, its revenue from handsets (+22% YoY), IOT (+101% YoY), PC (+100% YoY) and EV (+192% YoY) accounted for 57%, 14%, 12% and 9%, respectively. Due to robust Huawei domestic shipments offset by increased R&D efforts, revenue/net profit increased 44%/4%. Mgmt expected 5G handset shipments to drive growth going forward, despite continued EV loss.
- **Upgrades on 5G/foldable handset batteries in sight.** Sunwoda expected 5G handset batteries to upgrade in 1) capacitance (from 4000mAh to 4500-500mAh), 2) voltage (from 4.45V to 4.5V), and 3) charge rate (from 1.5C to 3C). Meanwhile, foldable handsets required two batteries for each. Mgmt believed the upgrades would secure handset batteries to maintain strong growth in FY20E.
- **Battery cells self-supply to expand margins.** Sunwoda planned to further raise its self-supply rate of battery cells to expand margins. The self-supply rate was 13% (vs. 10% in FY18) in 1H19, and mgmt expected it to rise to 20% in FY19E. If the rate hits 100%, gross profit will be lifted by 20%, in mgmt estimates. Meanwhile, as Sunwoda entered domestic OEMs' supply chains with its cells, mgmt anticipated cells to fuel Sunwoda's LT growth.

Figure 7: Handset battery portfolio



Source: Company data, CMBIS

Figure 8: Global business landscape



Source: Company data, CMBIS

Hytera Communications (002583 CH, NR)

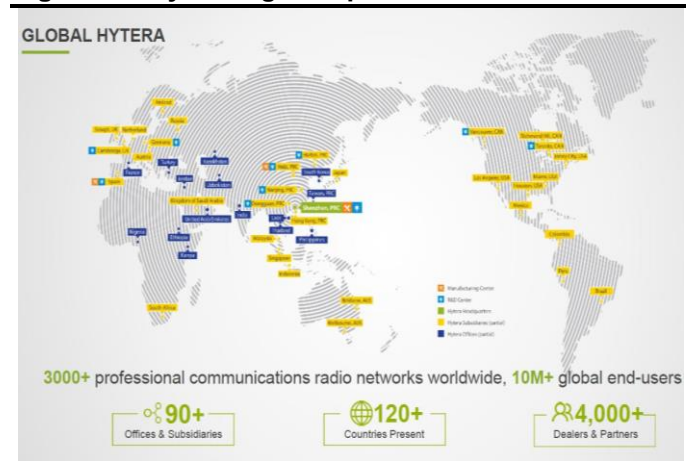
- **Global No.2 in Professional Mobile Radio (“PMR”) communication solutions.** Hytera is ranked No.2 in global PMR market, in terms of radio shipments, only after Motorola. Its revenue consisted of 1) radio terminals (42% of sales), 2) cluster systems (29% of sales), and 3) OEM for miners (29% of sales). It mainly serves government public safety and emergency departments. In 1H19, revenue dropped 11%, due to 1) declined government investment on domestic public safety, 2) high base in 1Q18, and 3) sluggish miner sales dragged by Bitcoin dive. However, net profit rocketed by 176% on the back of solid cost control.
- **LTE-PMR convergence to spur domestic demand.** Mgmt expected broadband business to ramp up from FY20E as broadband business made up 9% revenue in 1H19. Albeit Huawei and ZTE launched their PMR broadband solutions, mgmt were confident about its leading position in view of Hytera’s end-to-end solutions catering to public safety departments’ demand for stability as well as cost-effectiveness.
- **Bullish on overseas markets.** Despite the ban on US government to use Hytera’s products by NDAA, mgmt were still upbeat about overseas markets, taking account into 1) limited exposure in US market (<3% sales from US in FY18), 2) share gains in Europe as Motorola shifted focus back to US market, and 3) robust demand for analog-to-digital conversion in emerging markets. Mgmt expected revenue from BRI countries/ South America to grow 30%/ 100% in FY19E.
- **Extension into public network.** Mgmt guided that Hytera would further expand business presence into public network to serve more extensive enforcement forces (i.e. auxiliary police, urban management officers, and etc.) with public network resources. With over 10 million potential users and more diversified application scenarios, the business was expected to fuel Hytera’s growth in LT.

Figure 9: LTE-PMR Convergence portfolio



Source: Company data, CMBIS

Figure 10: Hytera’s global presence



Source: Company data, CMBIS

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