

Taiwan handsets

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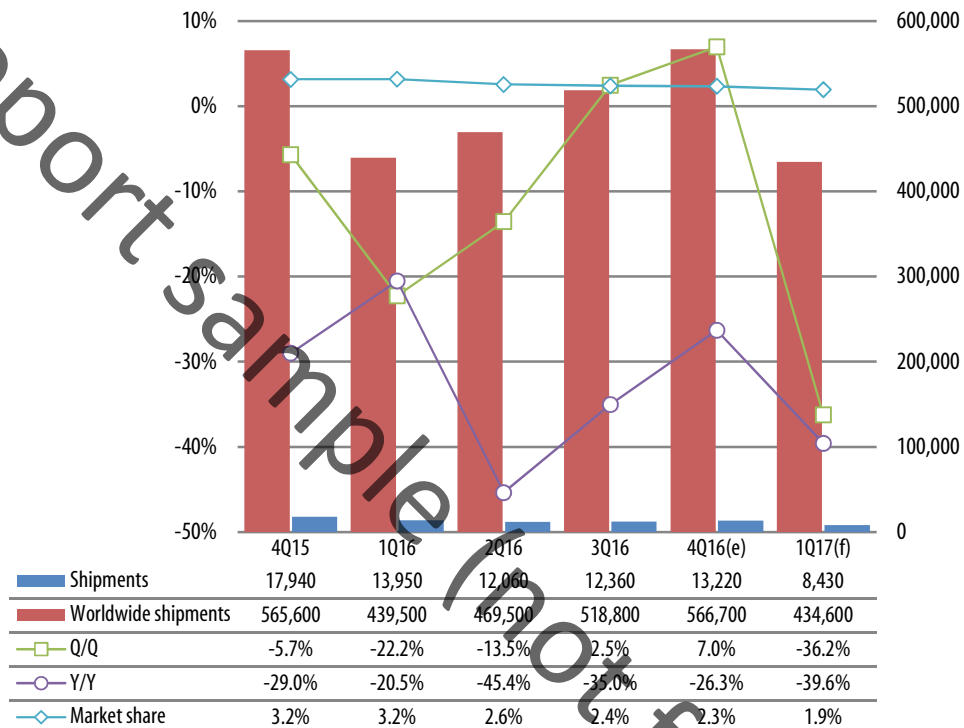
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Introduction

- ✓ Taiwan's handset shipments reached 13.22 million units in the fourth quarter of 2016, rising 7% sequentially but dropping 26.3% on year.
- ✓ Taiwan's handset shipments will reach 8.4 million units in the first quarter of 2017, down 36.2% sequentially and 39.6% on year.

NOTE: Unless otherwise indicated, all figures and tables in this report refer to output from Taiwan makers.

Chart 1: Taiwan's handset shipments, 4Q15-1Q17 (k units)



Note: Taiwan ODM/JDM shipments to Taiwan brand vendors are excluded to avoid double counting.

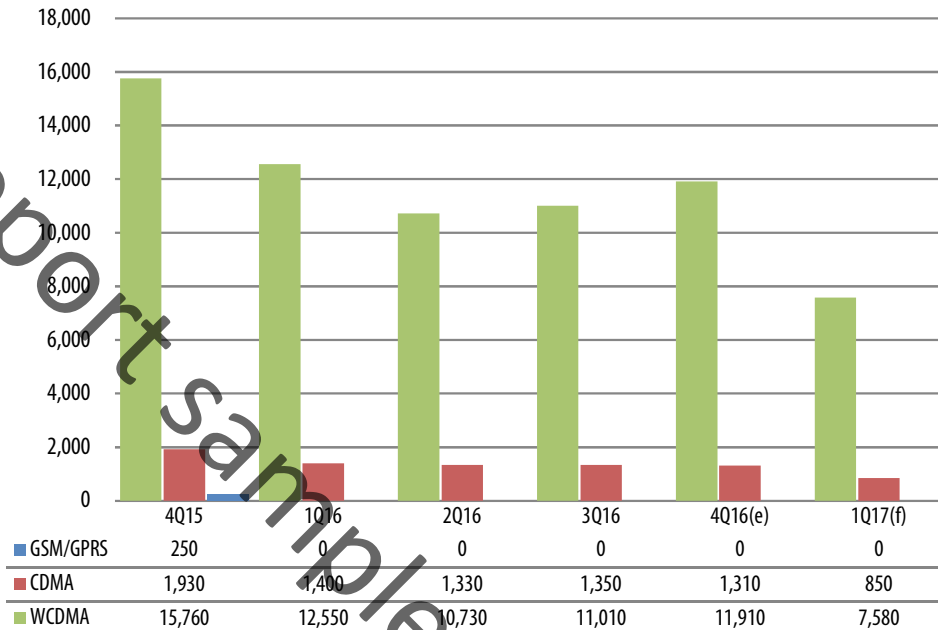
Source: Digitimes Research, March 2017

- ✓ Taiwan's handset shipments achieved 7% on-quarter growth to reach 13.22 million units in the fourth quarter of 2016, but their on-year performance still declined sharply, as orders from key clients and shipments by Taiwan-based vendors were both weaker than expected.
- ✓ The shipments are expected to slump to only 8.43 million units in the first quarter of 2017, dropping 36.2% sequentially and 39.6% on year because of seasonality and the fact that key clients are mostly in the phase of preparing new handsets.
- ✓ Taiwan's share of worldwide handset shipments will also shrink from 2.3% in the fourth quarter of 2016 to less than 2% in the first quarter of 2017.
- ✓ The shipment numbers in this report include OBM, ODM and JDM shipments, but not EMS ones.

Shipments breakdown

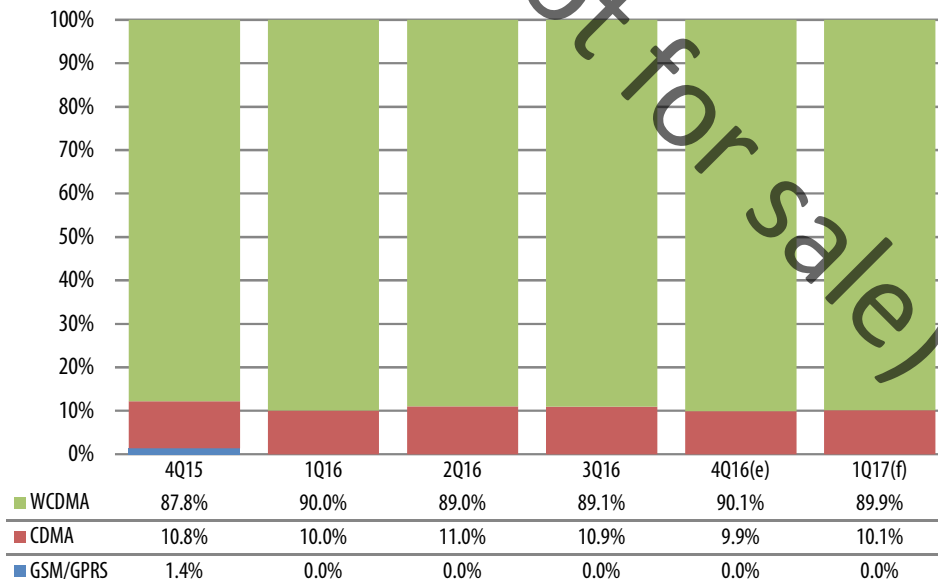
Transmission technology: GSM, CDMA, and WCDMA

Chart 2: Shipments by transmission technology, 4Q15-1Q17 (k units)



Source: Digitimes Research, March 2017

Chart 3: Shipment share by transmission technology, 4Q15-1Q17

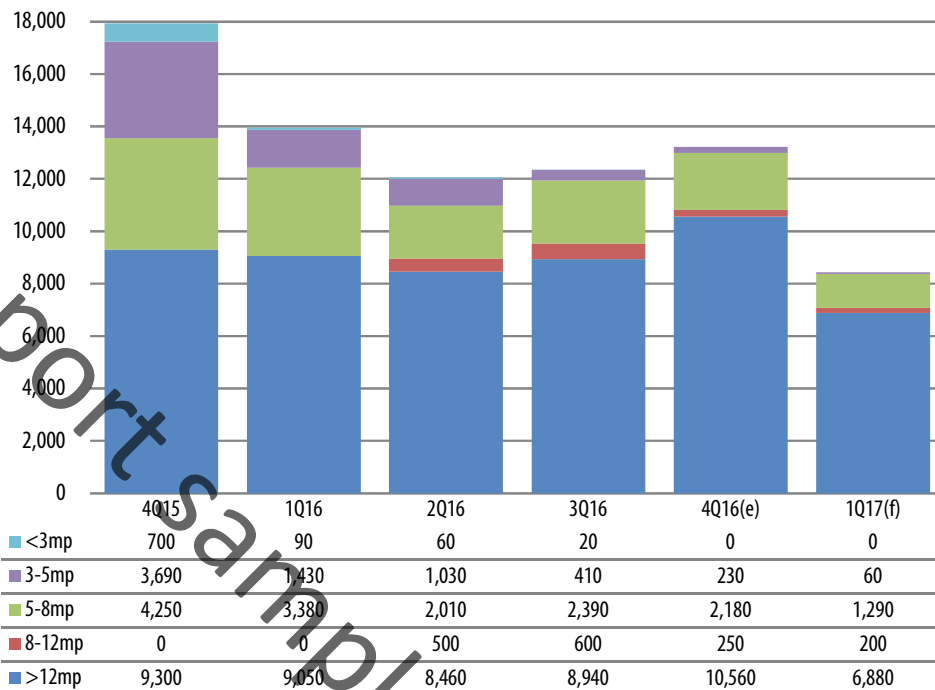


Source: Digitimes Research, March 2017

- ✓ Taiwan makers have stopped shipping GSM/GRPS-based handsets since the start of 2016, while the shipment proportion for CDMA products remained at around 10% through the year.

Built-in cameras

Chart 4: Shipments by camera pixels, 4Q15-1Q17 (k units)



Source: Digitimes Research, March 2017

Chart 5: Shipment share by camera pixels, 4Q15-1Q17



Source: Digitimes Research, March 2017

- ✓ Because of decreasing shipments of HTC 10 series smartphones, which adopt a 12-megapixel camera, Taiwan's shipments of handsets with 8- to 12-megapixel cameras dropped by over 58% sequentially in the fourth quarter.
- ✓ Shipment share of handsets with over 12-megapixel cameras will continue rising to surpass 80% in the first quarter since Asustek's shipments and orders that Taiwan-based handset makers have received are mainly for models using 13-megapixel and 21-megapixel cameras.

Makers and vendors

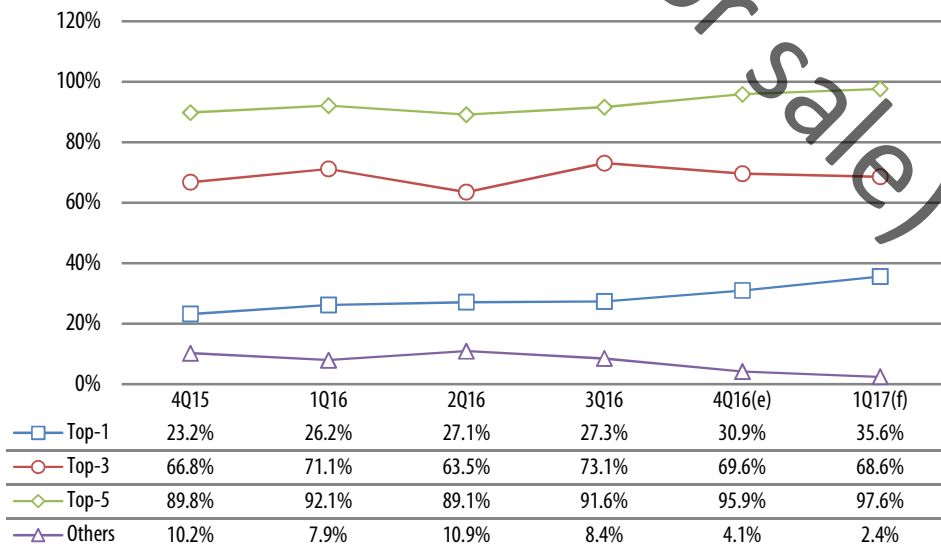
Chart 6: Shipments by maker/vendor tier, 4Q15-1Q17 (k units)



Note: Taiwan ODM/JDM shipments to Taiwan brand vendors are excluded to avoid double counting.

Source: Digitimes Research, March 2017

Chart 7: Shipment share by maker/vendor tier, 4Q15-1Q17



Note: Taiwan ODM/JDM shipments to Taiwan brand vendors are excluded to avoid double counting.

Source: Digitimes Research, March 2017

- ✓ Non-top-5 players have seen their combined share shrinking quickly since the third quarter of 2016 mainly because of decreases in shipments from Acer and Wistron. Wistron's volume will even drop to zero in the first quarter of 2017.
- ✓ Asustek's shipment share has been expanding and will account for more than one third of Taiwan's overall volume in the first quarter.

Chart 8: Shipments by maker/vendor, 4Q1-1Q17 (k units)



Note: Taiwan ODM/JDM shipments to Taiwan brand vendors are excluded to avoid double counting.

Source: Digitimes Research, March 2017

- ✓ Asustek's shipments were weaker than Digitimes Research's previous forecast of 4.7 million units and arrived at only 4.1 million units in the fourth quarter of 2016 due to shortages of components including display panels and camera modules. However, Asustek was still the largest handset player in Taiwan.
- ✓ Seasonality, the Lunar New Year holidays (which resulted in fewer working hours in January) and issues such as labor shortages, will impact Asustek's first-quarter 2017 shipment performance with the volume to reach only three million units, but the vendor will still retain its number-one title.
- ✓ Asustek outsourced about 710,000 units of smartphones to Arima Communications for production in the fourth quarter of 2016, while Acer outsourced about 40,000 units to Compal Electronics in the same quarter. In the first quarter, Asustek is expected to outsource around 700,000 units to Arima with Acer no longer placing orders with Compal.
- ✓ HTC's shipments grew only slightly to 3.5 million units in the fourth quarter of 2016 since the company was only able to deliver a limited volume of orders for Google's Pixel smartphone due to AMOLED panel shortages.

- ✓ The AMOLED panel shortages continue to stall HTC's Google Pixel smartphone shipments in the first quarter and without new products, HTC's shipments are expected to drop to 2.3 million units in the quarter. However, HTC will stay as the second-largest player in Taiwan.
- ✓ Arima enjoyed a 17% sequential shipment growth in the fourth quarter of 2016 thanks to increased orders from Asustek, LG Electronics and Sony Mobile. However, Arima's shipments will drop 41% sequentially in the first quarter since Sony Mobile is preparing to release new smartphones and has only placed limited orders for its existing models.
- ✓ Foxconn's shipment growth in the fourth quarter of 2016 was mainly contributed by increased orders from Sharp and its Korea-based clients. Sharp's new smartphones and HMD's Nokia handset orders are expected to help support Foxconn's shipments, which will drop only 7.7% sequentially in the first quarter. Foxconn's shipments include those from FIH and Chi Mei Communication.
- ✓ Compal's handset shipments slid 9.2% sequentially to reach 2.18 million units in the fourth quarter of 2016, but the volume will drop sharply to only 1.05 million units in the first quarter also due to weak orders from Sony Mobile.

Table: Maker-client relationships, 1Q17

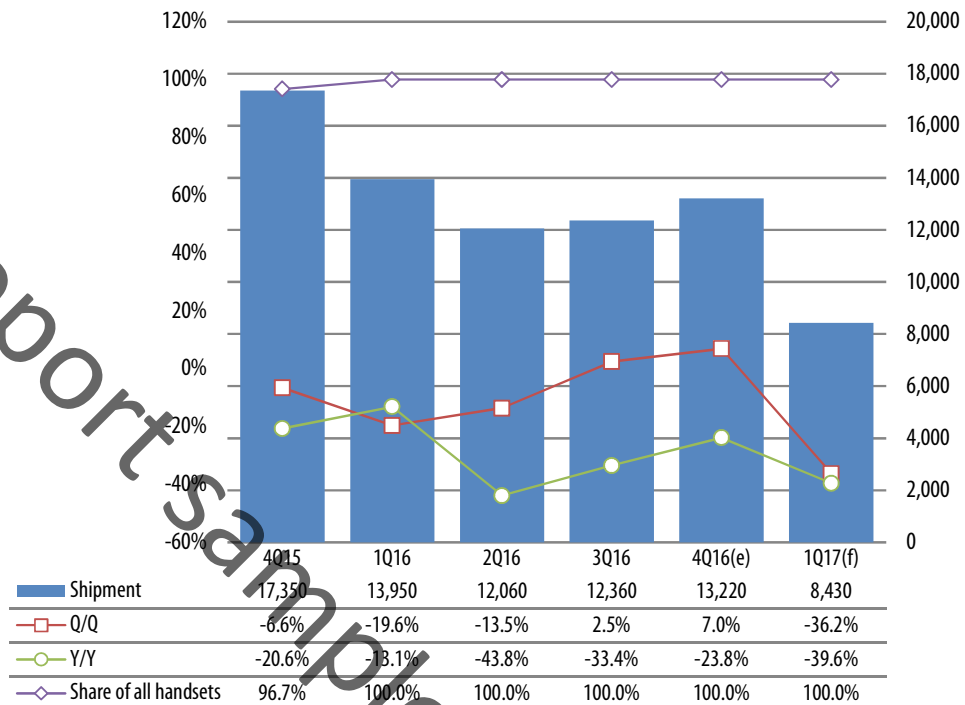
ODM	International clients	Taiwan vendors
Foxconn	HMD (Nokia), Sharp, SK Telecom Luna	InFocus
Compal	Sony Mobile	
Arima	Sony Mobile, LG Electronics	Asustek

Source: Digitimes Research, March 2017

- ✓ Sony Mobile's ODM orders are shared between Compal and Arima.
- ✓ LG Electronics' ODM orders are given to Arima.
- ✓ HMD's Nokia-branded handset orders are handled by FIH, but related shipments are unlikely to grow strongly until the second quarter.
- ✓ Asustek is outsourcing a few ZenFone models' production to Arima.
- ✓ Foxconn also has orders from Japan-based Sharp and Korea-based SK Telecom for its Luna brand smartphones.
- ✓ BlackBerry quit the handset hardware market and its partnership with Wistron also ended in the fourth quarter of 2016.
- ✓ Beginning from third-quarter 2016, China-based LeEco's orders to Compal are considered EMS orders and are not included in this report's figures. Other EMS orders excluded from this report are: Wistron's orders from HTC that are handled at its India plants; Foxconn's orders from Xiaomi and Asustek that are made at its Brazil and India plants; Compal's orders from Asustek that are processed at its China and Brazil plants.

Smartphone

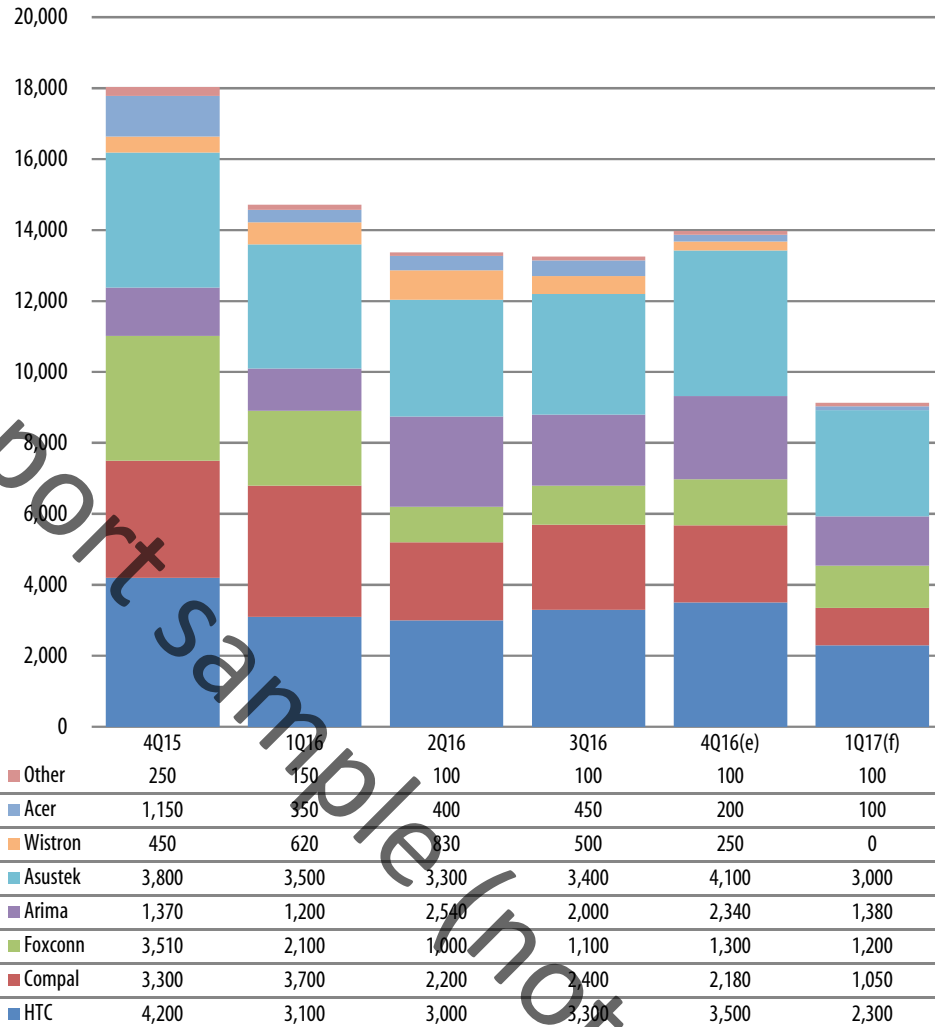
Chart 9: Smartphone shipments, 4Q15-1Q17 (k units)



Source: Digitimes Research, March 2017

- ✓ Taiwan's handset shipments have been all smartphones starting the first quarter of 2016.
- ✓ However, HMD's Nokia-branded handsets are expected to be feature phones and start contributing shipments in the second quarter of 2017.

Chart 10: Smartphone shipments by maker/vendor, 4Q15-1Q17 (k units)

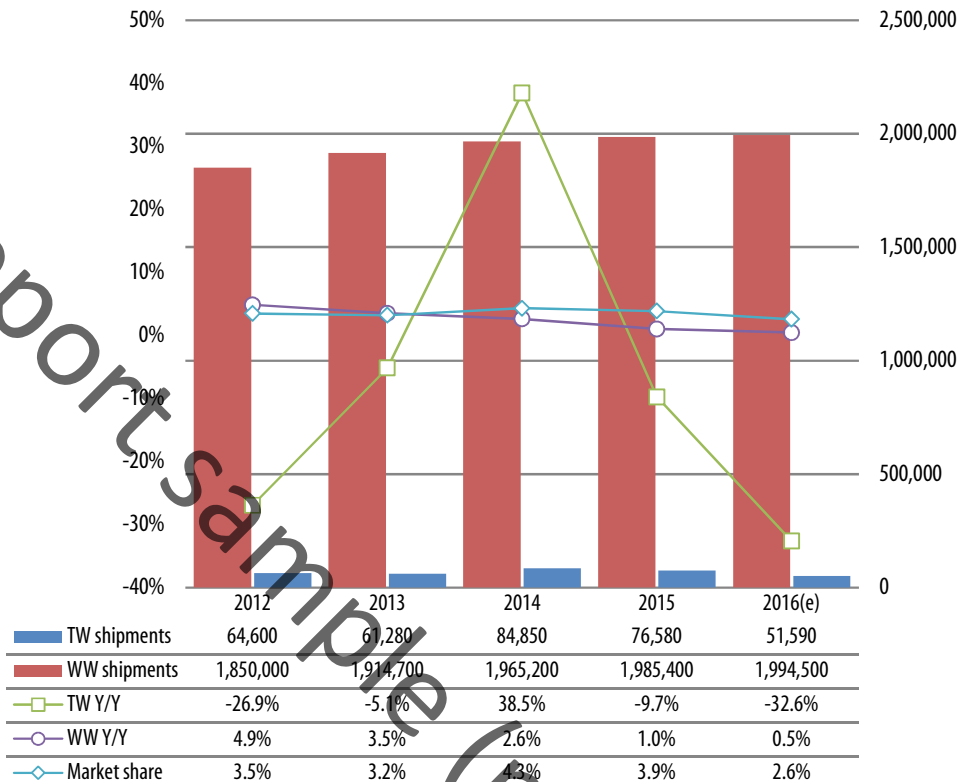


Note: Taiwan ODM/JDM shipments to Taiwan brand vendors are excluded to avoid double counting.

Source: Digitimes Research, March 2017

Annual shipments

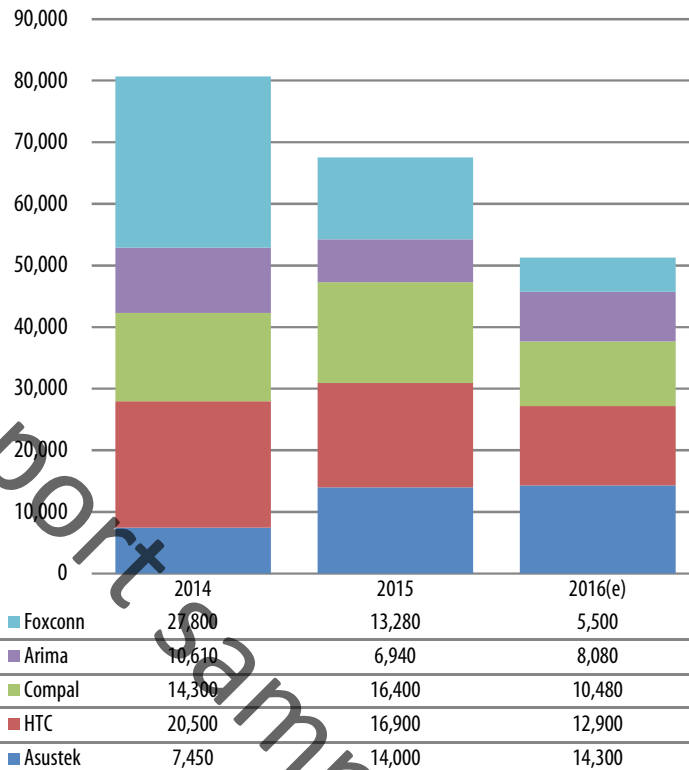
Chart 11: Taiwan's handset shipments and global market share, 2012-2016 (k units)



Source: Digitimes Research, March 2017

- ✓ The worldwide handset industry continued enjoying on-year shipment growth in 2016, but Taiwan's shipments dropped sharply by over 30% because of HTC's poor performance and the fact that vendors have been cutting their orders to Taiwan partners.
- ✓ Taiwan's market share also dropped below 3% in 2016, the lowest since Digitimes Research began tracking Taiwan makers' handset shipments.

Chart 12: Shipments by player, 2014-2016 (k units)



Source: Digitimes Research, March 2017

- ✓ In 2016, only Asustek, HTC and Compal shipped more than 10 million handsets.
- ✓ Asustek's ZenFone shipments grew slightly by 2% on year in 2016 and the vendor also became the largest handset player in Taiwan.
- ✓ HTC's shipments reached their peak in 2011 and since then have been dropping every year. They reached only 12.9 million units in 2016.
- ✓ Compal's shipments dropped 36.1% on year to reach only 10.48 million units in 2016 due to decreased orders from Sony Mobile and Microsoft.
- ✓ Arima achieved on-year growth of 16.4% in 2016. Despite reduced orders from Sony Mobile, Arima saw new orders from Asustek and LG.
- ✓ Foxconn's shipments slumped from 13.28 million units in 2015 to only 5.5 million units in 2016, as orders from Sony Mobile dropped sharply.