

RichWave Technology Corp.

Taiwan The Rising AI & Cloud
Application Tech Tour

March 13, 2018

Vision



**World RFIC Leader
by Technology and Innovation**



2017 P&L

| Unit: NT\$ million | 2017 | | 2016 | | YoY | Remark |
|-----------------------|--------|-------|--------|-------|------|----------------------------|
| | Amount | % | Amount | % | % | |
| Net Sales | 2,666 | 100 | 2,162 | 100 | 23.4 | |
| COGS | 1,757 | 65.9 | 1,430 | 66.1 | 23 | |
| Gross Margin | 909 | 34.1 | 732 | 33.9 | 24 | Product mix |
| R&D | 340 | 12.7 | 274 | 12.7 | 24 | |
| SG&A | 298 | 11.2 | 275 | 12.7 | 9 | |
| Operating Expenses | 638 | 23.9 | 549 | 25.4 | 16 | |
| Operating Profits | 271 | 10.2 | 184 | 8.5 | 48 | |
| Non-Op. Profits(Loss) | (109) | (4.1) | (12) | (0.5) | 821 | Exchange-rate & settlement |
| Net Income before Tax | 162 | 6.1 | 172 | 7.9 | (6) | |
| Tax Expense | 20 | 0.7 | 21 | 1.0 | (7) | |
| Net Income after Tax | 142 | 5.3 | 150 | 6.9 | (5) | |

EPS in NT\$

2.59

2.74

Q4'17 P&L

| Unit: NT\$ million | 4Q 2017 | | 4Q 2016 | | YoY | 3Q 2017 | | QoQ |
|-----------------------|---------|-------|---------|------|-------|---------|------|-----|
| | Amount | % | Amount | % | % | Amount | % | % |
| Net Sales | 713 | 100 | 605 | 100 | 18 | 707 | 100 | 1 |
| COGS | 484 | 67.8 | 404 | 66.8 | 20 | 484 | 68.5 | (0) |
| Gross Margin | 229 | 32.2 | 201 | 33.2 | 14 | 223 | 31.5 | 3 |
| R&D | 87 | 12.3 | 70 | 11.6 | 24 | 88 | 12.4 | (0) |
| SG&A | 70 | 9.9 | 89 | 14.7 | (21) | 70 | 9.8 | 1 |
| Operating Expenses | 158 | 22.1 | 159 | 26.4 | (1) | 157 | 22.3 | 0 |
| Operating Profits | 72 | 10.0 | 41 | 6.8 | 73 | 66 | 9.3 | 9 |
| Non-Op. Profits(Loss) | (5) | (0.7) | 17 | 2.8 | (130) | (0) | | |
| Net Income before Tax | 66 | 9.3 | 58 | 9.7 | 14 | 65 | 9.2 | 2 |
| Tax Expense | 8 | 1.1 | 8 | 1.4 | (7) | 7 | 0.9 | 20 |
| Net Income after Tax | 59 | 8.2 | 50 | 8.3 | 17 | 59 | 8.3 | |

EPS in NT\$

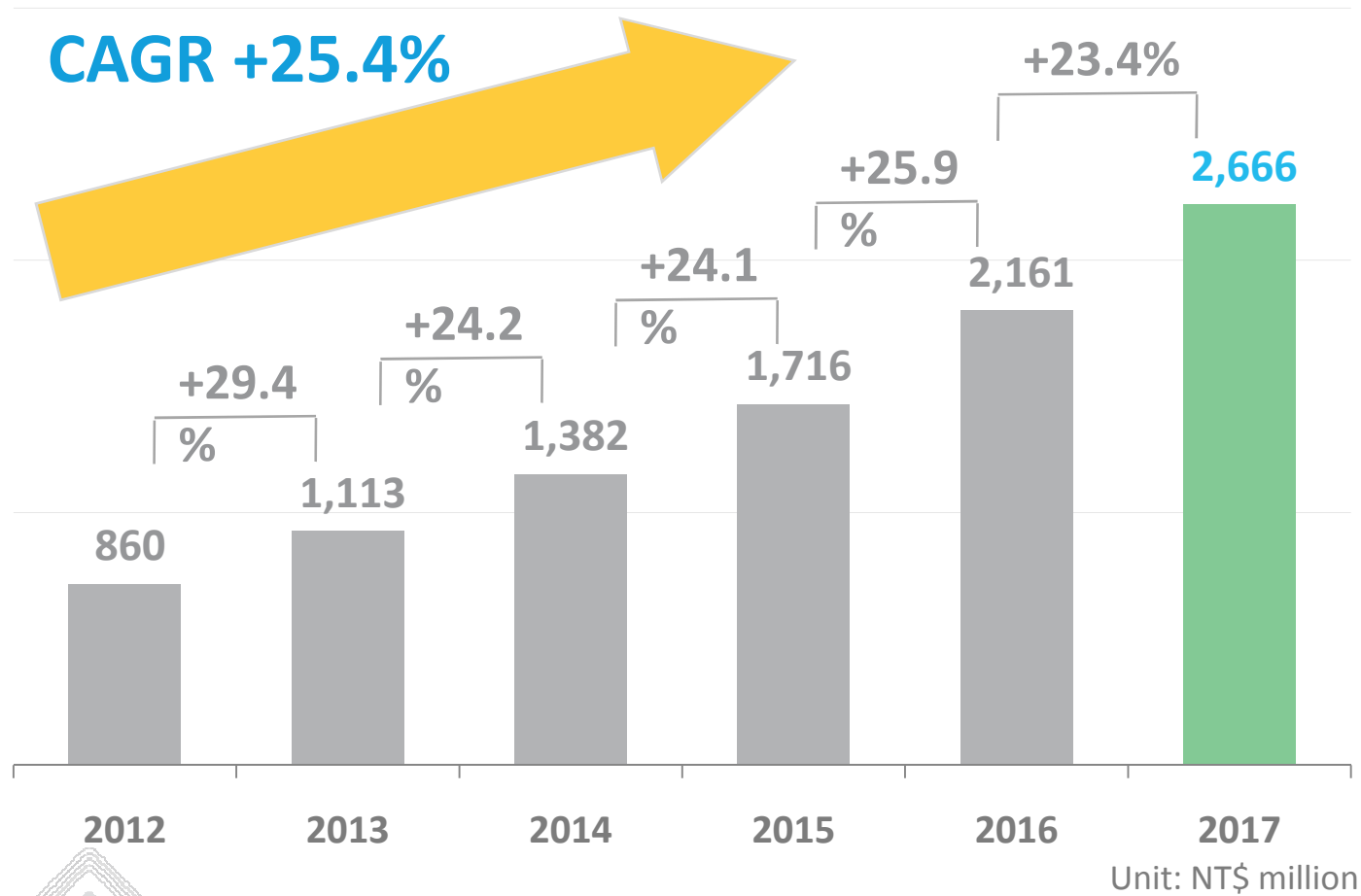
1.07

0.91

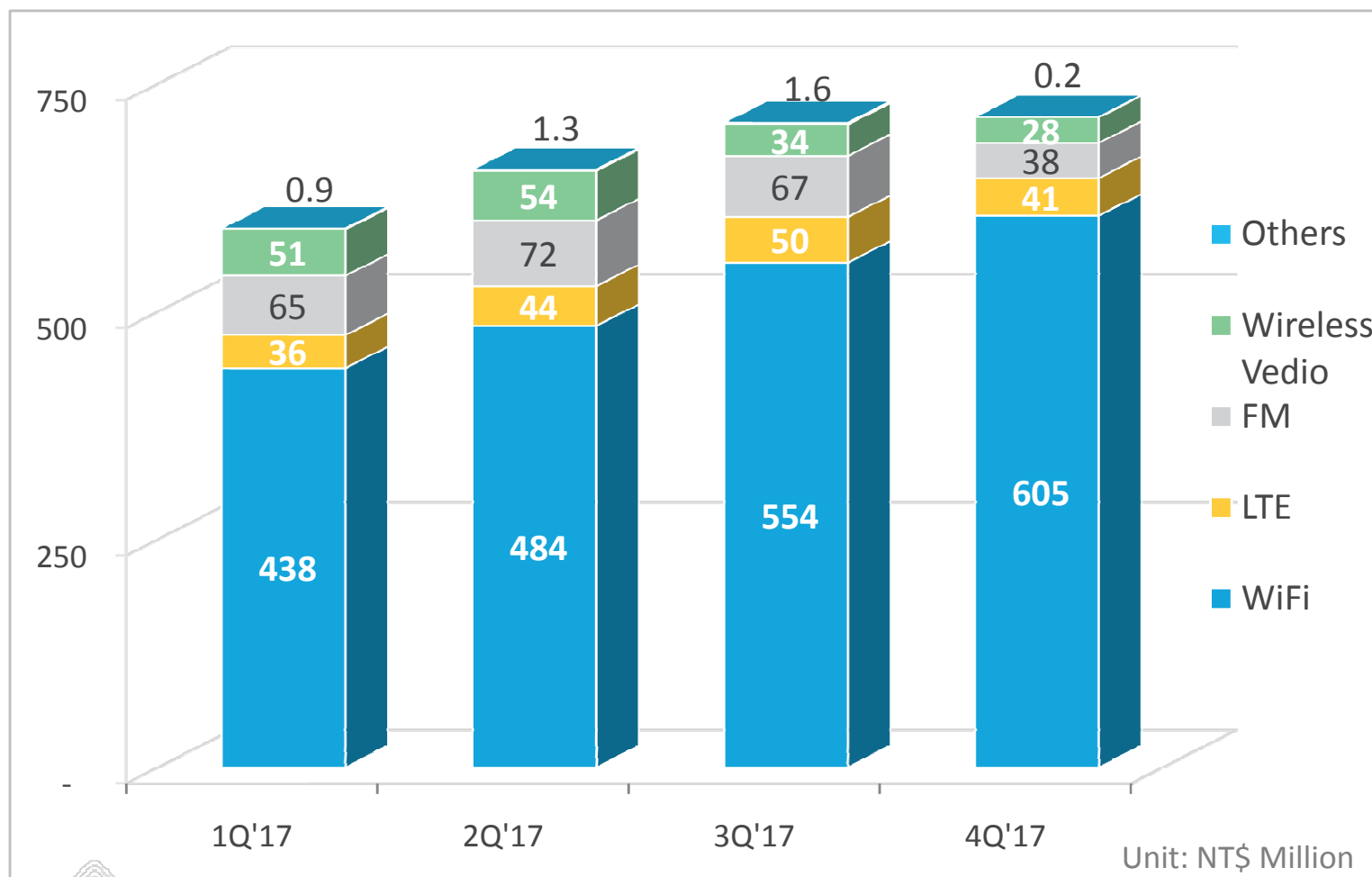
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Net Sales 2012~2017

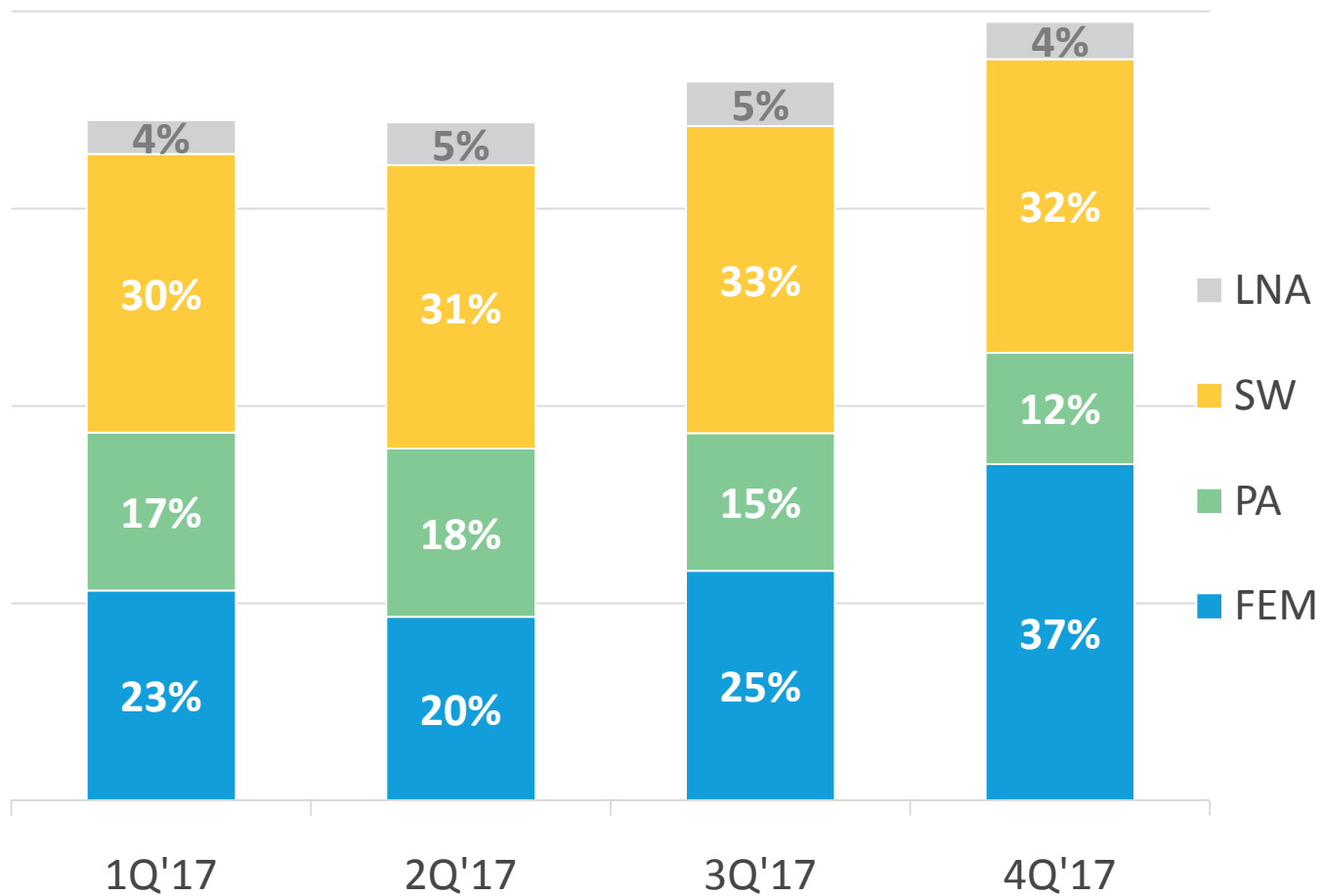
Steady and Continuous Growth



Revenue by Products 2017



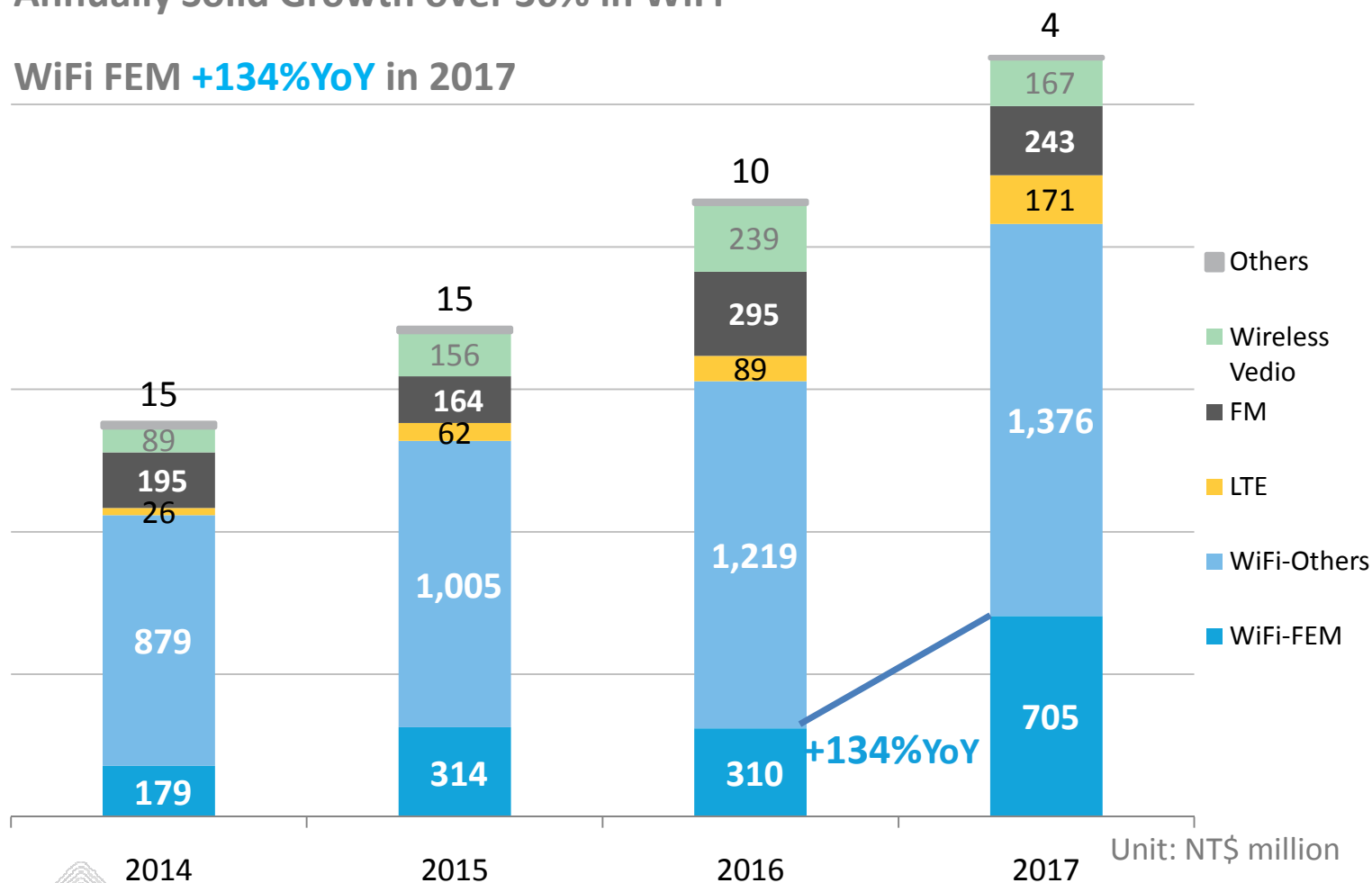
Sales Contribution by WiFi



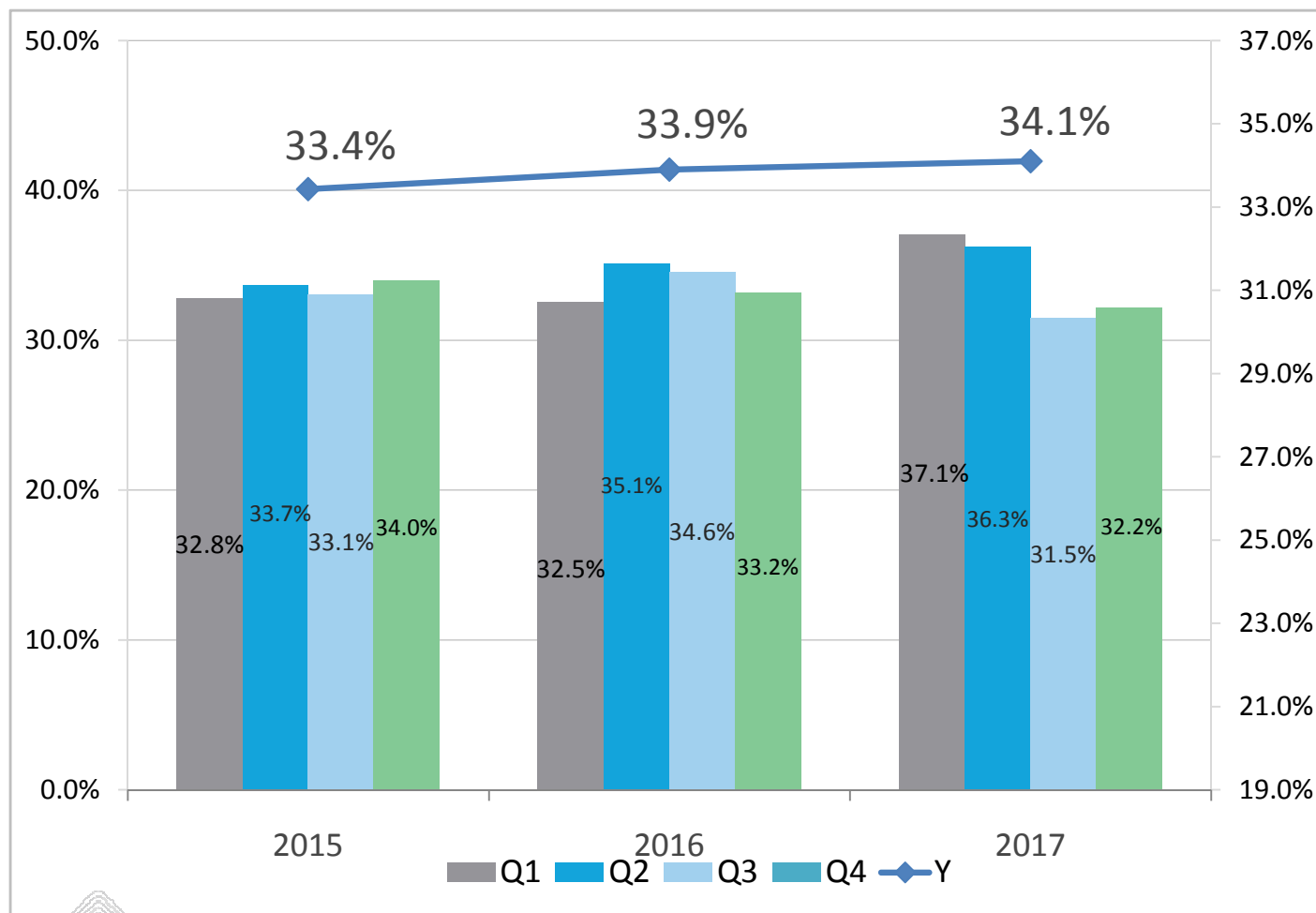
High Growth from WiFi

Annually Solid Growth over 36% in WiFi

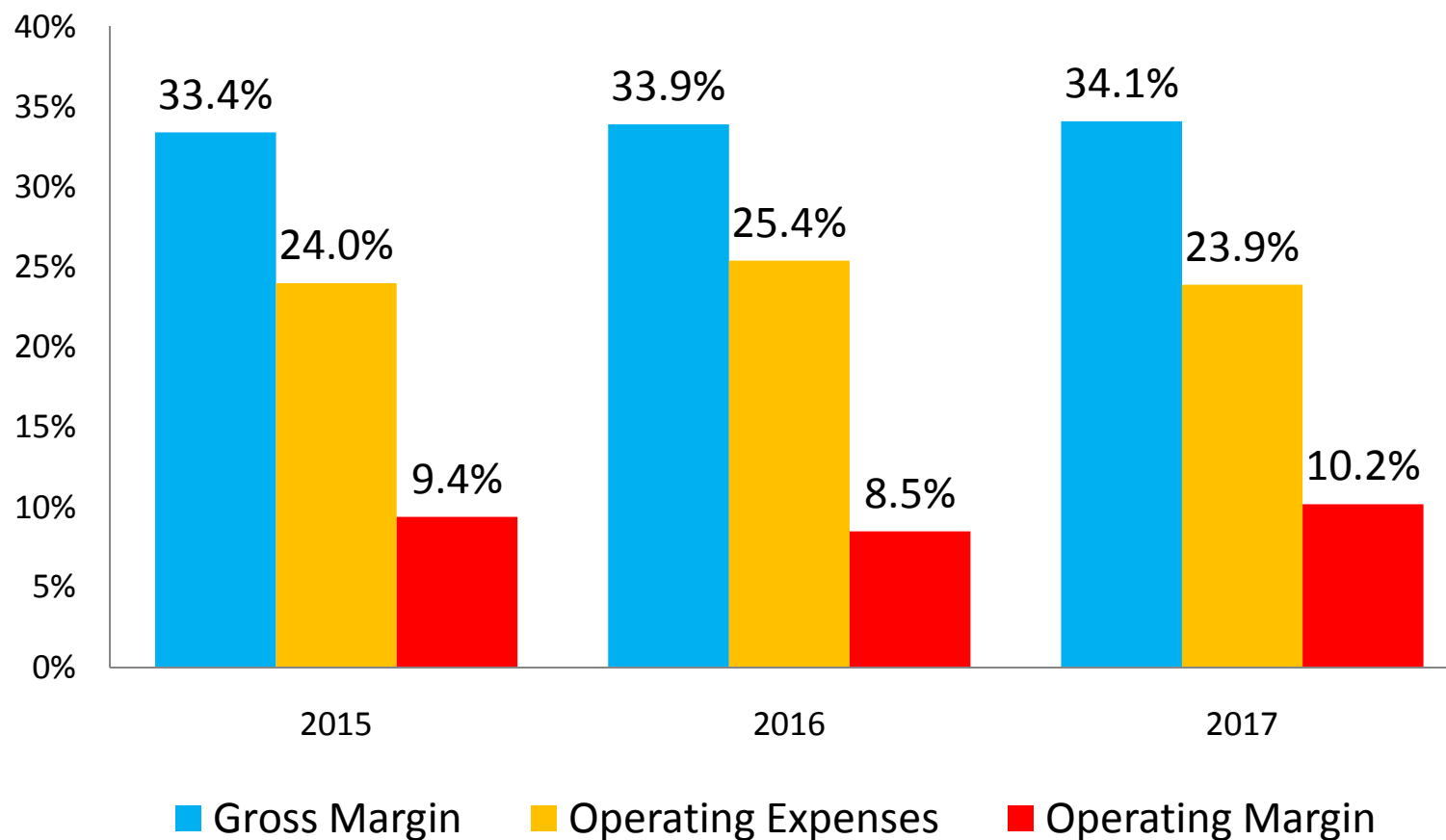
WiFi FEM **+134%YoY** in 2017



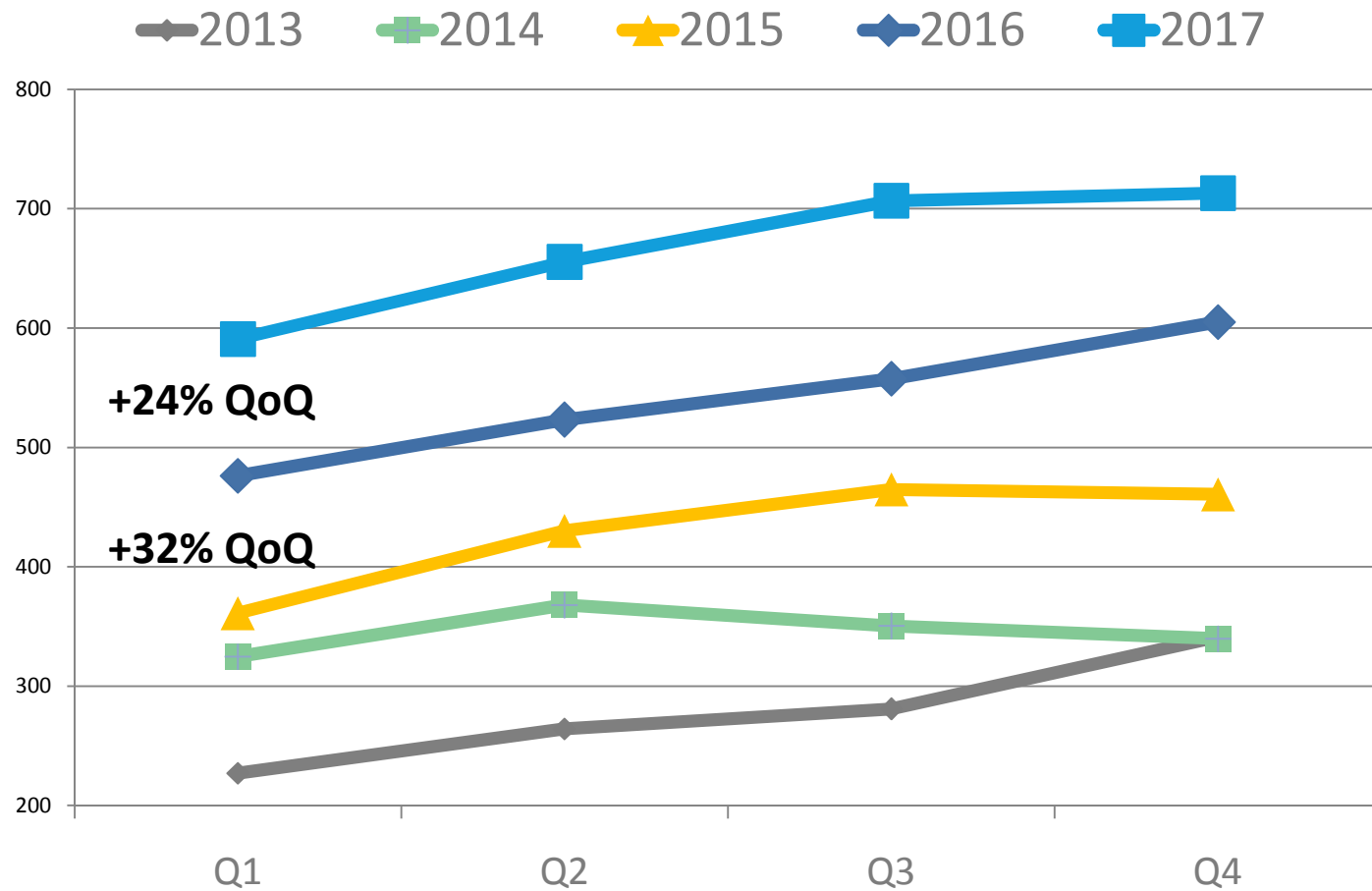
Gross Margin Trend 2015~2017



Performance 2015~2017

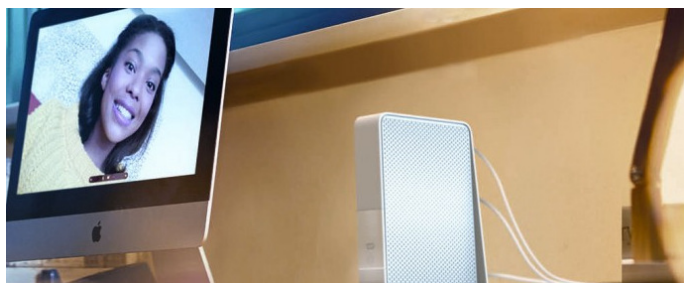


Seasonality



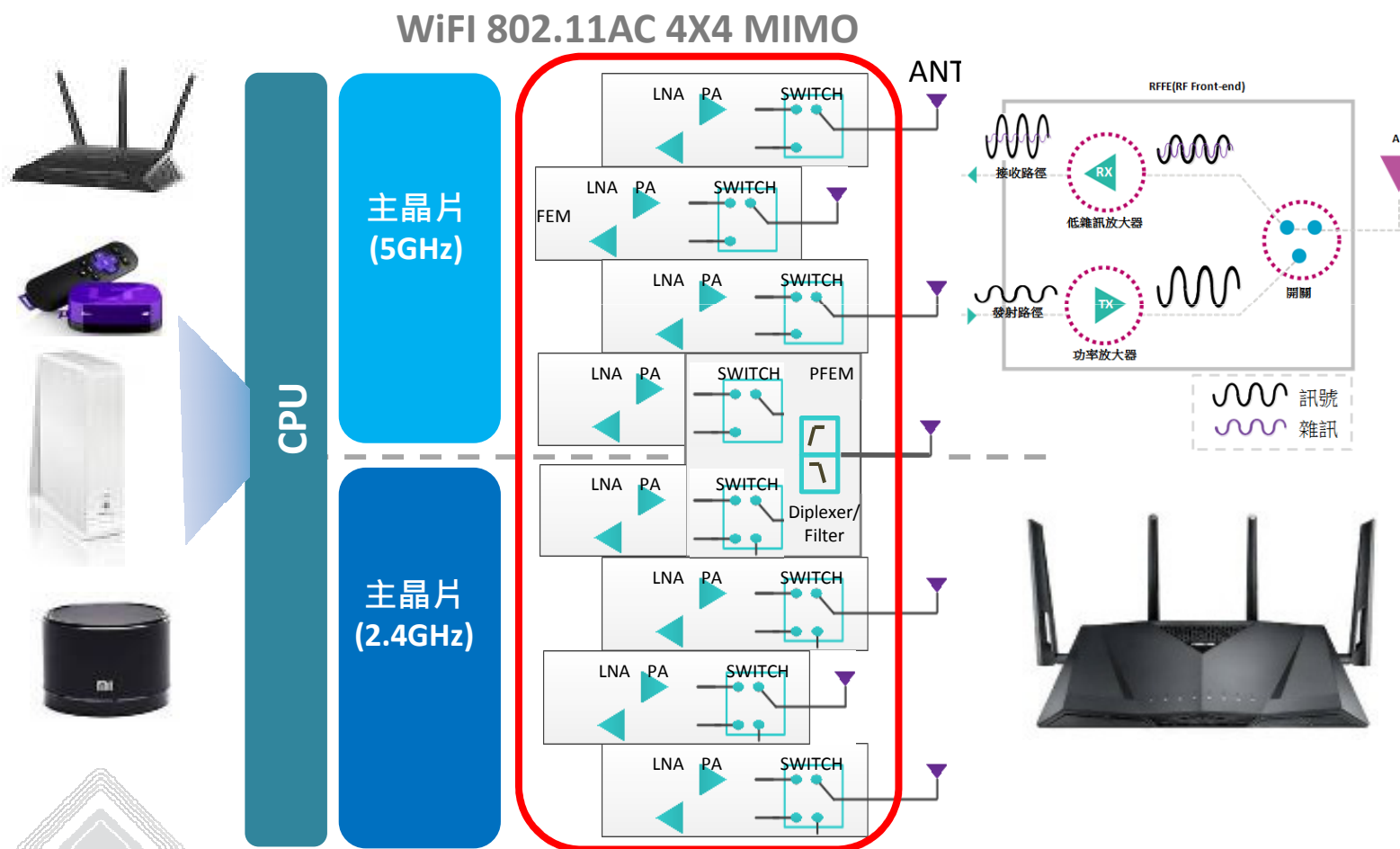
Business Driven by

- Diversified WiFi Connected Applications
- Technology Migration(11n to 11ac in volume, and increasing MIMO)
- Demanding RF FEM in Mobile Market
- IOT/Consumer Market adopt RF FE
- Broadcasting tuner and Smart home



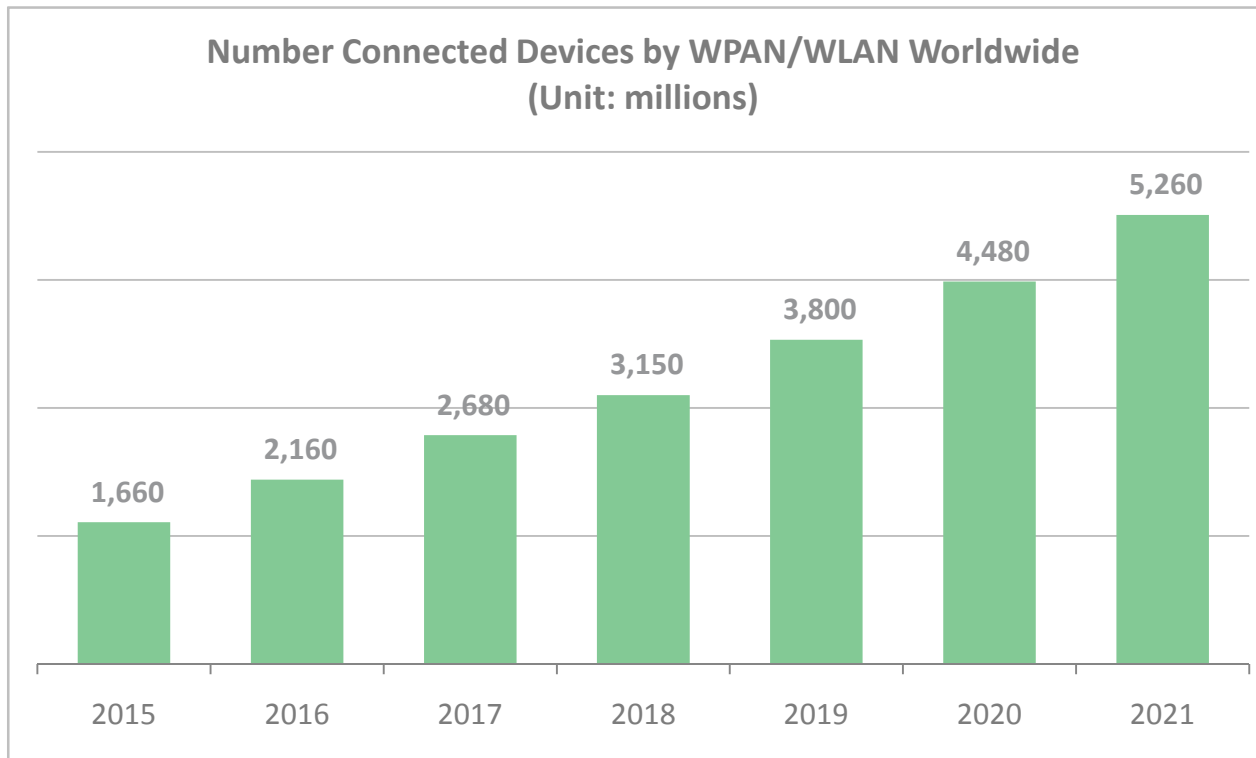
Blooming RF Demand w/MU-MIMO

- The Front-End enhances coverage-range (PA/LNA) and receiving sensitivity (LNA) – FE performance is Key.



Growing Demand for WiFi Connected

Connected Devices increases 600~800mn devices/year from 2018 to 2021
WiFi RF-Front-End demand increase multiply by MIMO-number



Source: Berg Insight Statista

Applications for WiFi Connected

| Segments | 2017 (f) | 2020 (f) | Growth | Remarks |
|-----------------------------|----------|----------|--------|------------------|
| Smart Speaker | 8.3 | 94 | 1075% | M units, US,2016 |
| Automotive | 1,062 | 7,914 | 645% | US\$M, 2016 |
| Smart Home | 65 | 320 | 392% | M units |
| IoT | 20,000 | 30,000 | 50% | M units |
| Game Consoles | 33,800 | 46,000 | 36% | US\$M |
| STB/OTT | 380 | 460 | 21% | M units, 2020 |
| AP Router (DSL, Cable, PON) | 350 | 400 | 14% | M units |
| Smart Phone | 1,517 | 1,697 | 12% | M units |
| Smart TV | 104 | 114 | 10% | M units, 2018 |
| PC/Laptop/ Tablet | 435 | 433 | -0.5% | M units, 2016 |

Source: IDC, IHS, Accelerating Biz analysis, frost & Sullivan, Ovum, Statista, IDATE, Gartner, Voicebot.ai, Edison Research, Digital Market Outlook, ABI Research

11ac/ax Speed & Capacity Growth Multiply

| | 802.11g | 802.11n | 802.11ac | 802.11ax |
|-----------------|----------|---|--|-----------------------------|
| 使用頻段 | 2.4 GHz | 2.4/5 GHz | 5 GHz | 2.4/5 GHz |
| 使用頻寬 | 20MHz | 20MHz 40MHz | 20MHz 80MHz 40MHz 160MHz | 20MHz 80MHz 40MHz 160MHz |
| 最高天線數 | 1X1 SISO | 4X4 MIMO | 8 MIMO(MU-MIMU) | 12x12 MIMO |
| 現有標準速度 (理論值) | 54 Mbps | 150 Mbps 300 Mbps 450 Mbps (頻寬40MHz) | 433 Mbps 867 Mbps 1300 Mbps (頻寬80MHz) | 600.4 Mbps 9607.8 Mbps |
| 最高速率(理論值) | 54 Mbps | 600 M bps | 6.93 Gbps | 9.6 Gbps |

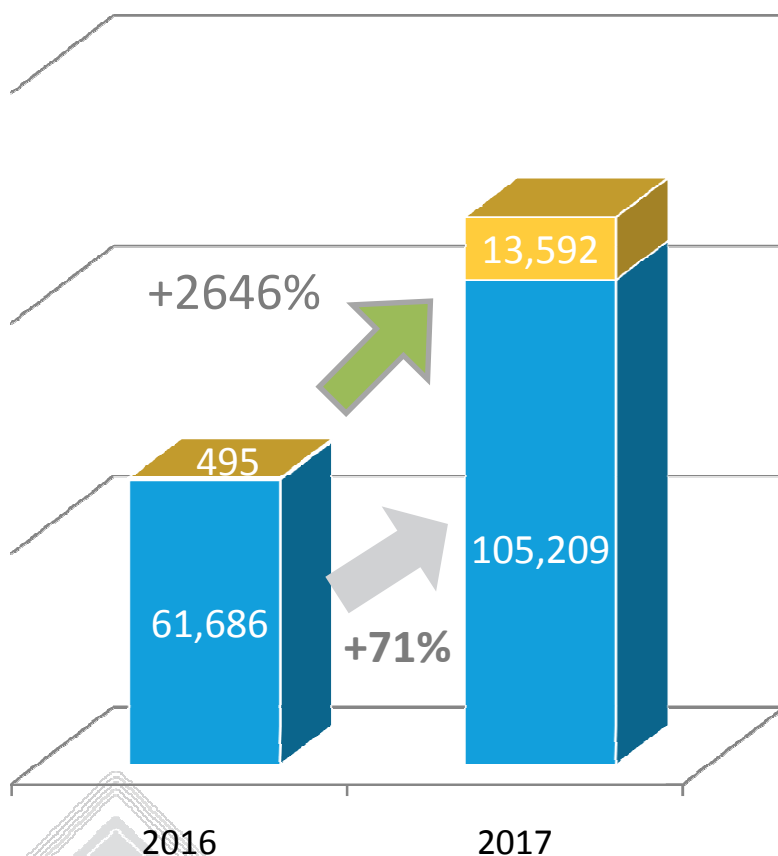
Source: adrenaline.uol.com.br

Richwave LTE LNA/SW for Mobile

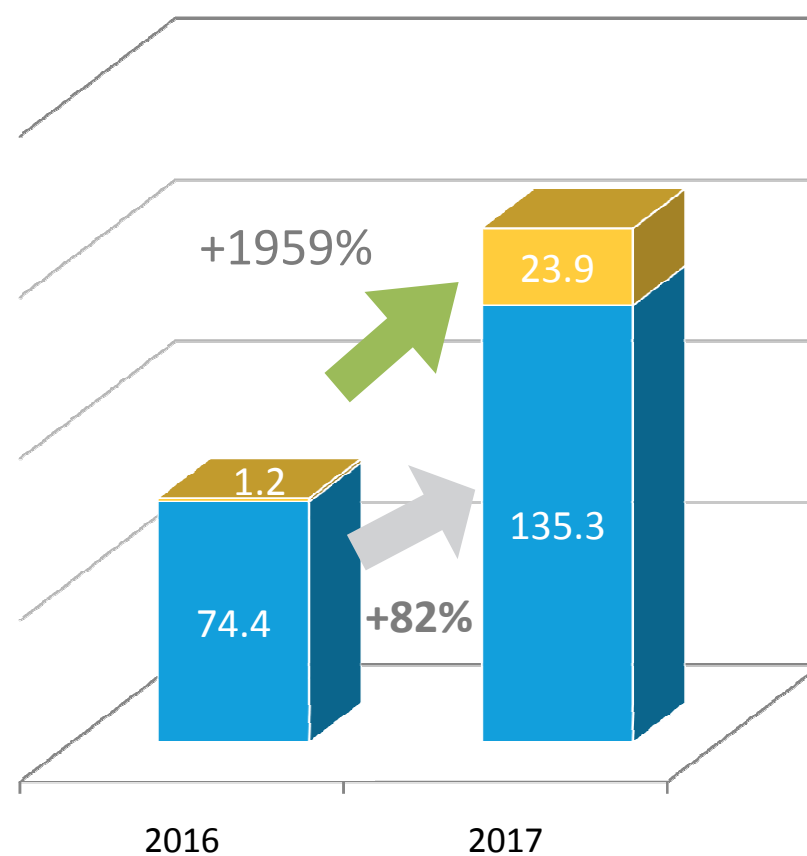
LTE SW/LNA growth from China top brand, with 110% growth
Continue penetrating into global brands.

■ LTE SW ■ LTE LNA

(A) Shipment Unit: K



(B) Revenue Unit: NT\$ million

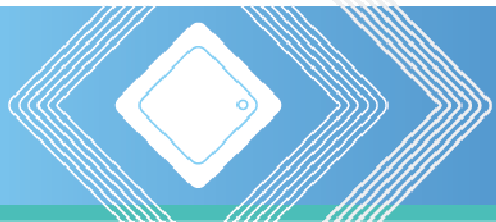


FM Broadcasting & Wireless Video

- Keep expanding in broadcast and wireless video.
- FM continue win in Korea flagship phone.
- Wireless long-distance HD video ship to smart home, car backup, drone... with our proprietary transceiver.



Source; Web. News Feb. 25, 2018



RichWave