

Navian Marketing Report

RF Devices/Modules For Cellular Terminal

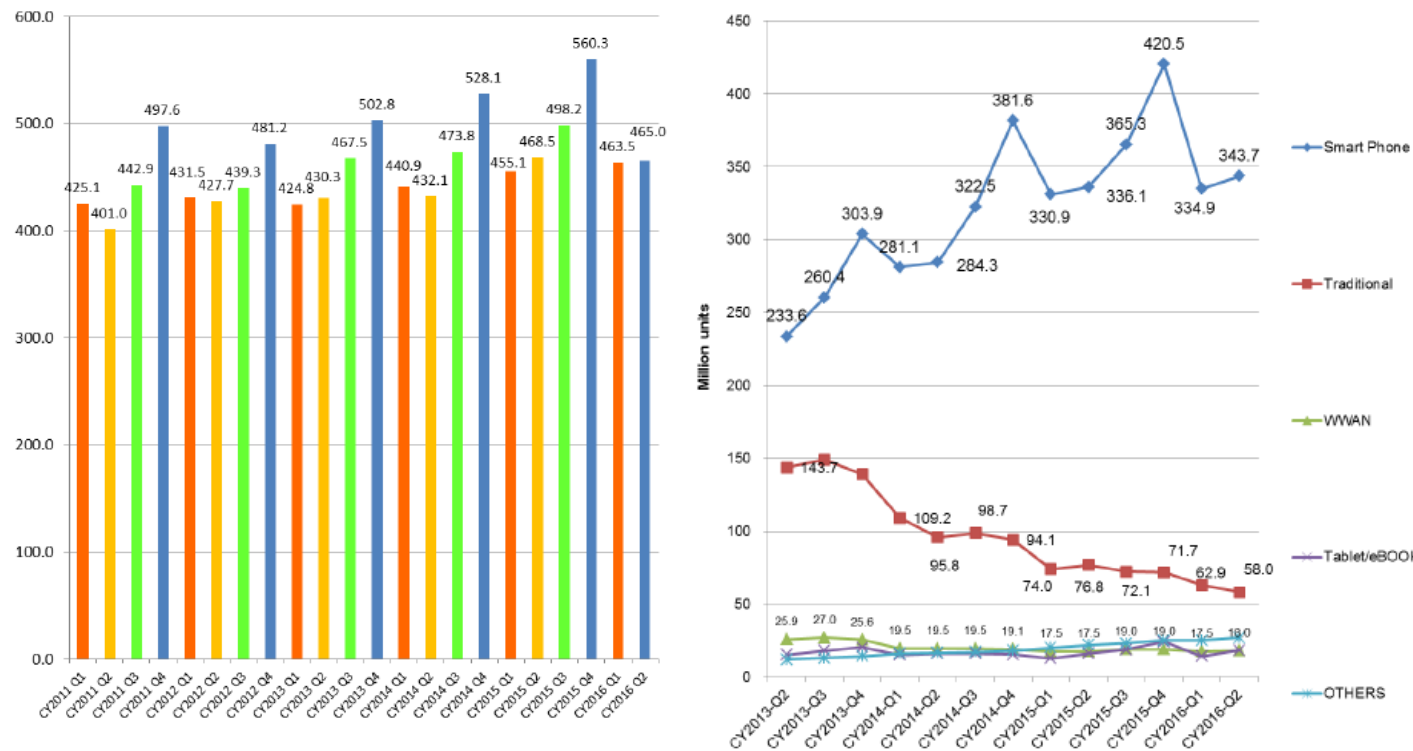
Quarterly Market Report Q2 2016

Released on October 28th 2016

RF Devices/Modules for Cellular Terminal in the report

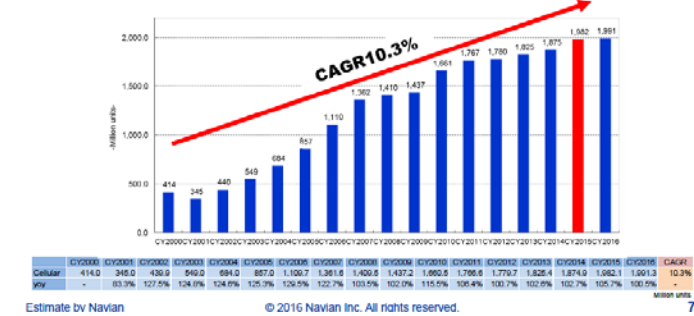
- ① Front end Module (ASM·RX Module·TX Module·PAiD·FEMiD·All-in-One FEM·PAMiD·FILTER BANK·Duplexer Bank·Multiplexer)
- ② Antenna Switch (Main RF/Diversity) Power Amplifier Module
- ④ Duplexer
- ⑤ Band Pass Filter
- ⑥ TCXO

Cellular Terminal Shipment History



Cellular Terminal Annual Shipment History CY2000-CY2016

- Shipment size of Cellular Terminal in 2016 is expected at 1,991.3 million units (YoY 100.5%).
- Downward adjustment of 78.4 million units was made to estimate of prev. report.
- Of major manufacturers, downward adjustment was made to shipment estimate by: SAMSUNG that decided to halt production and sales of Note7, Microsoft that decided to sell Feature Phone business, and TGL that is weakening due to strong emerging manufactures such as OPPO and BBK.
- Halting of production and sales of GALAXY NOTE7 that was said to be strong should somehow affect the whole market.
- NOTE series is product with functions that cannot be substituted by any others. Thus, smartphone shipment volume should be negatively affected since other products cannot fill the demands.



Outline of PAMiD

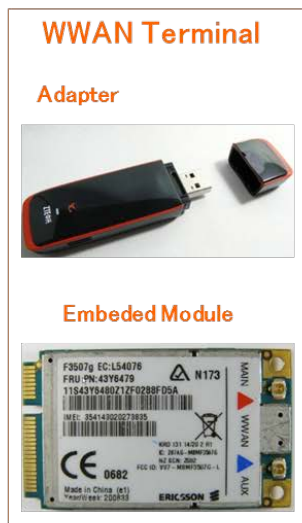
- PAMiD is a new Front End Module commercialized from 2015.
- SAMSUNG adopts it in their high-end smartphones like GALAXY S6 and GALAXY NOTE 5.
- Circuit Block on left is adoption case of PAMiD in "SM-G9208", Chinese model of GALAXY S6.
- As for component, it integrates all major RF components such as Antenna Switch, Duplexer, BPF, and Power Amplifier.
- PAMiD is basically an FEM for smartphones supporting multiple bands. It is categorized into 3 frequency groups: types for high-band, for middle-band, and for low-band.
- Main purpose of dividing by frequency group is to secure isolation while operating Carrier Aggregation.

Market Forecast of Power Amplifier Module by Product Type in CY2016

- Market size of Power Amplifier Module (PAM) in 2016 is expected to shrink both by quantity and amount, with 5,176.4million pos(YoY92.3%) based on quantity, 2,914.9million dollars(YoY89.1%) based on amount.
- PAM market had been growing thanks to multi-banding movement, but it is showing strong decelerating trend due to popularization of Multi-band/Multi-mode PA.
- However, even Multi-band/Multi-mode PA that had been constantly growing is expected to dip below YoY result (amount-based) in 2016. This is because cases are increasing where GSM PA are put to TX Module's side, accelerating the speed of drop in unit price.
- Also, Single band PA for 3G/4G is strongly showing rapid market shrinkage due to decreasing demands and passive attitude of major PA manufacturers for product supply, and worsened profitability from lowered unit price.

OPPO R9PlusM RF Circuit Estimation

- OPPO R9PlusM is larger display version of R9m.
- It uses Qualcomm platform, but some models looks like they use Media Tek platform.
- RF component is almost similar to R9m's, with Skyworks' TX Module and MMPAM that supports all bands except for GSM.
- These Skyworks TX Module and MMPAM have the same model number as what R9m uses, and thus the spec allows them to be used in different chipsets.
- Meanwhile, TDK Quadplexer is adopted in addition to R9m's Broadcom (Avago).
- Also with other manufacturers, most models that adopt Qualcomm chipset adopts TDK Quadplexer. With establishment of joint-venture with TDK as background factor, recommendation of TDK products by Qualcomm are thought to receive higher priority.
- Diversity side is COB just like R9m, but it uses XTAL unit with Thermistor as reference clock, and it is unique of Qualcomm platform.



Non-Voice

Voice

Report Sample

■ Outline of the report

RF Devices/Modules For Cellular Terminal Quarterly Market Report Q2 2016

-CD-ROM (PDF file)-

- The date of issue: October 28, 2016
- The Documents of the report: The PDF file of 220 SLIDES : MS PowerPoint based/Excel data/JPEG files of Teardown photos
- Report price: JP¥168,000
- Annual subscription for four quarterly issues: JP¥560,000 (JP¥140,000/report)

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