Global and China Mobile Phone Radio Frequency (RF) Industry Report, 2010-2011

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This report

- **Analyzes the status quo and development of mobile phone RF industry .**
- **Focuses on design of smart phone and tablet computer.**
- **Highlights the operation and development of major enterprises both home and abroad in Mobile Phone RF Industry .**

Related Products

Related Products
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Market share data of top vendors of semiconductor related components
Global and China Mobile Phone Baseband Industry Report, 2010
China Smart Phone Industry and Consumer Survey Report, 2010
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Abstract

Mobile phone RF system consists mainly of transceiver, power amplifier (PA) and front-end module (FEM). The RF system of a general mobile phone is simply inclusive of a transceiver and a PA. FEM can be assembled in the form of integrated circuit or by discrete components.

By contraries, the RF system of multi-band mobile phone which includes all 3G, quasi-4G and smart phone is exceedingly complicated now that the RF system needs several bands of transceibers and PAs.

Generally, the transceivers of mobile phone excluding Nokia are provided by baseband vendors. Most of Nokia's baseband are jointly developed with Texas Instruments, and its transceivers are jointly developed with ST-Ericsson.

Since the multi-band mobile phone in need of several PAs, the RF system of multi-band mobile phone costs as high as $9 while that of ordinary cell phone only costs $1 to $2.

Take iPhone 2G for example, it renders Infineon PMB6952 as transceiver, Skyworks SKY77340 as power amplifier for GSM/GPRS/EDGE, and three PA chips of Triquint—TQM616035, 666032, 676031 for the three bands of WCDMA.

The latest Samsung Galaxy S 4G is a quasi-4G mobile phone with the comparably sophisticated RF system including four key components. The sole transceiver is ST ERICSSON RF5000, and Skyworks SKY77544 comprising PA for GSM/GPRS/EDGE is used as FEM.

The mushrooming of smart phone, 3G phone and quasi 4G phone greatly enlarges the market size of mobile phone RF system. However, mobile phone RF is as usual GaAs component which pertains to compound semiconductor instead of traditional silicon semiconductor.

Only a small number of OEMs around the world are experts in this field. The fabrication flows of GaAs component start from the making of GaAs substrate followed by epitaxy, wafer fabrication to capsulation and test. In epitaxy sector, the three leaders VPEC, KOPIN, IQE, enjoy over 80% of the world's market share.

In GaAs wafer foundry, the leading OEMs include Taiwan-based WIN Semiconductors and AWSC as well as USA-based TRIQUINT, the three of which enjoy over 85% of the market share. The RF IC design companies cover RFMD, Skyworks, TRIQUNIT, Anadigics, and Avago.

Operating Income of Mobile Phone RF Related Companies, 2010

	Operating Income (US$ mln)
SKYWORKS	980
RFMD	920
TRIQUINT	580
ANADIGICS	160
AVAGO	318
RENESAS	88
WIN Semiconductors	217
KOPIN	117
AWSC	61
VPEC	56
IQE	55

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