

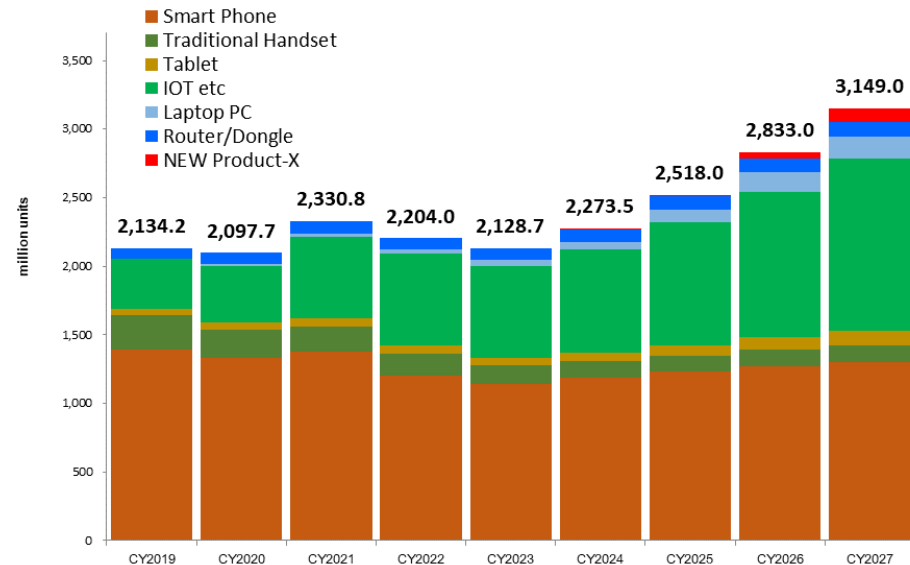
RF Devices/Modules for Cellular 2023-2024

2024年5月1日発行

本レポートで対象とする RF Devices / Modules

- ①Front end Module (ASM・RX Module・TX Module・PAiD・PAMiD・FEMiD・Multiplexer・Antenna Multiplexer・5G TX Module/PAMiF・AIP・mmW Module) ②Antenna Switch (For Main RF・For RX Diversity) ③Power Amplifier Module ④Duplexer (SAW/BAW/TF-SAW) ⑤Band Pass Filter (SAW/BAW/TF-SAW/LTCC for Sub 6GHz/IPD for Sub 6GHz) ⑥TCXO

Cellular Terminal Shipment Forecast by Product Type



New Product X

表示や入出力がSmart phone等の既存のMobile機器とは一線を画す5G時代を牽引する新型機器の登場を予想。



Cellular PC/Tablet

5Gの実用化に伴って、Tablet・Notebook PCのCellular搭載が本格化、Notebook PC・Tablet市場を刺激するカンフル剤としても期待。



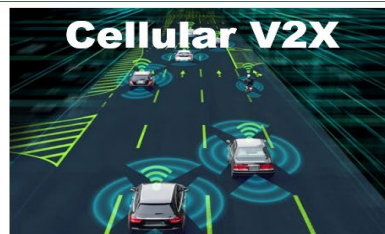
Cellular IOT

Cellular Terminalの次代を担う成長分野。今後5G(含む5G Redcap)化の進展も期待されRF部品需要を押し上げる。



Smart phone

Cellular市場の主役も成熟化によって、成長は鈍化。5G化やWiFi、NTN(衛星通信)等の採用によってRFFEは複雑化が進む。



Cellular V2X

Cellular V2Xの搭載率は50%程度だが、今後100%に。5G化は2-3年後より本格化。CategoryとしてはIOTに分類される。

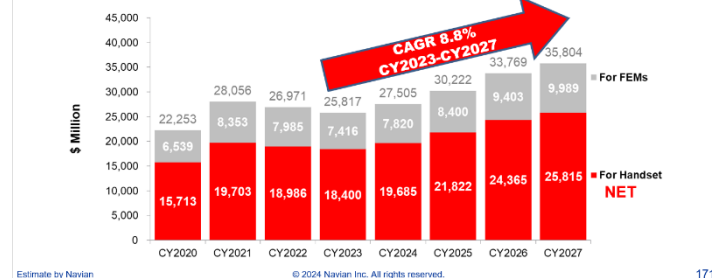


Cellular Wearable Devices

スマートウオッチ等でCellular機能付きの製品。5G化例は未だなく、RFFEのコンテンツ増加は形状的に期待しにくい。

RF Devices / Modules Market Forecast - For FEMs / For COB -

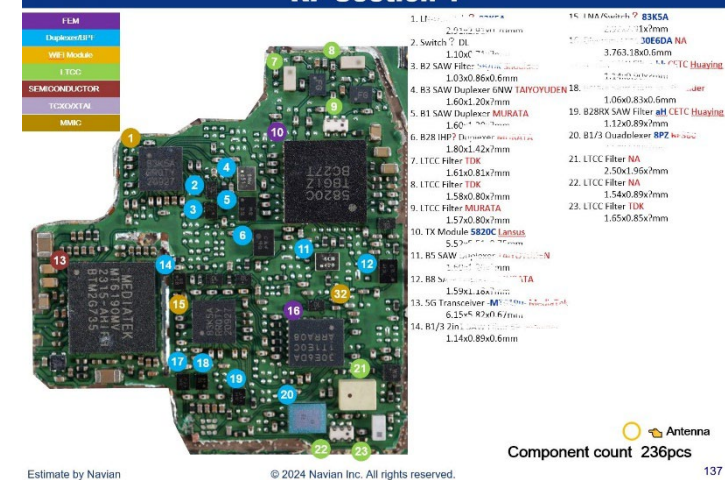
- ◆ 先の市場規模予測のデータは、Antenna Switch・Duplexer・BPF・PAMのFEM向け需要分、及びFEM向けMultiplexerをダブルカウントしたもの。
- ◆ これらRFFE向けの需要を除いた2023年における市場規模(For Handset)は、前年比96.9%の18,400.2million dollarsとなった。
- ◆ 2027年の市場規模は25,815.2million dollarsに拡大すると予測した。
- ◆ 2023年からの年平均成長率は8.8%となる。
- ◆ 一方、FEM向けの市場規模は、2023年で前年比92.9%の7,416.4million dollarsと大きく減少した。
- ◆ 2024年以降も、Handset向け(COB)の成長率を下回る傾向が継続し、2027年のFEM向けの市場規模は9,989.5million dollarsとなる。
- ◆ FEM向けの2023年からの年平均成長率は7.7%と、handset向けの年平均成長率8.8%を下回ることになる。



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NTN for Mobile service Outline-1/2

- ◆ Smartphone等のMobile機器向けのNTN(Non Terrestrial Networks) サービスが注目されている。
- ◆ 代表的なネットワークとしては、衛星通信サービスとなる。
- ◆ 現在、AppleのiPhoneやHUAWEIの一部のSmartphoneで、NTN専用の周波数を使用した衛星通信サービスが実用化されている。
- ◆ この他、既存のCellular周波数を使用した衛星通信サービスも近々に実用化される見通し。

Cellular Operator/Satellite		Smartphone OEM/Satellite	
Cellular事業者と衛星通信事業者が既存のCellular周波数を使用して行う衛星通信サービス。		AppleやHUAWEI等のSmartphoneメーカーと衛星通信事業者がNTN専用の周波数を使用して行う衛星通信サービス。	
Band1	Space X/KDDI	n254	Globalstar/Apple
Band2	Space X/T-Mobile	n255	Tiantong/HUAWEI
Band3	AST/Rakuten	L-Band	Beidu/HUAWEI

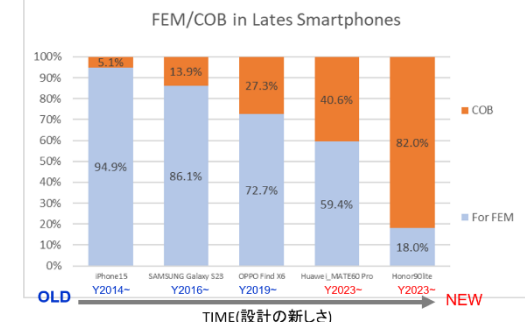
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Filter demand by FEM/COB in Latest 5G Smartphones

- ◆ iPhoneを筆頭に従来型の5G SmartphoneはPAMiDを中心としたFEM採用がメイン。
- ◆ この為、5G普及に伴ってFilter需要はFEM向けが拡大。
- ◆ ところが、HUAWEIやHonorの最新機種ではCOBでの採用が増加傾向に。
- ◆ HONOR90liteでは、PAMiDの採用を止め、全面的にCOB採用のRF設計を採用。



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