#### **Navian Marketing Report**

## RF Devices/Modules For Cellular Terminal Quarterly Market Report Q4 2021

#### Released on June 28th .2022

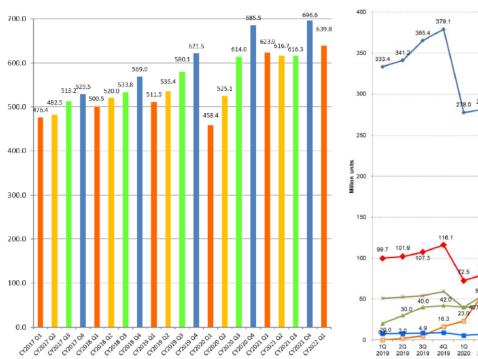
#### **RF Components & Modules in this report**

- 1 Front end Module (ASM-TX Module PAiD-FEMiD-All-in-One FEM-PAMiD-**5G TX Module/PAMiF-NEW** • Multiplexer • A-Multiplexer • **5G RX Module-NEW**)
- 2 Antenna Switch (Main RF/Diversity) Power Amplifier Module 4 Duplexer
- **⑤** Band Pass Filter **⑥**TCXO

e-Book Reader

**Tablet PC** 

#### **Cellular Terminal Shipment History**





Non-Voice

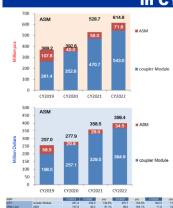




#### Voice

### Report Sample

#### **Market Forecast of Antenna Switch Module** in CY2022



- ◆ This report covers the "Coupler Module" used in iPhones in addition to the conventional ASM (Antenna Switch Module)
- ◆ The number of Coupler Modules used in 2019 model iPhone11 increased from 1 in 2018 model to 2, and the ASM market in 2019 resulted in significant increase.
- Since 2021 model iPhone13 and iPhoneSE3 released in 2022 also adopt 2 Coupler Modules, it means the iPhones currently being sold mount 2 Coupler Modules, and this is the major factor for ASM market
- ASM other than Coupler Module are adopted only in some IOT Module that support CAT M1/NB-IoT.
- ◆ Market size of ASM in 2022 resulted with 614.8 million pcs (YoY 116.3%, quantity) and 399.4 million dollars (YoY 111.4%, amount).

#### **PAM Market Share** for CY2021 & CY2022

- Also, while they monopolistically supply low-band PAMiD with built-in GSM PAM and MMPAM for Apple, most low-band PAMiD for 5G smartphones that mainly use Media Tek chipset are by Skyworks.
- Qorvo has a second vendor-like position of Skyworks in Chinese market
- Also, how they do not have PA-related share for Apple is another major factor for the gap in share with Skyworks.
- Because Broadcom is heightening their focus on PAMiD and BAW related products and lessening focus on on-board PAM with low profitability, their share is shrinking.
- nainly for SAMSUNG, and <u>Vanchip</u>, RADROCK, <u>OnMicro</u>, Smarter Mic stc., which develop for Chinese market, and their shares will probably



#### **5G Smartphone Shipment CY2019-CY2022**



- orting products are mainly iPhone Shipment size of 5G-enabled devices in 2021, mainly smartphones, reached 540.2 million units (YoY 199.5%).
- Forecast for 2022 is 729.7 million units (YoY 135.1%).
- By corresponding frequency, products that only support Sub 6GHz will still account for majority, with 641.7 million Demand would mainly be for Chinese market which is
- actively promoting 5G, but as 5G service is spreading in Europe and Asia, the weight for Chinese market is on a slow decline.
- Of these, iPhone and iPad's USA models would account for around 67.5 million units, making Apple products account for majority of share, with 79.4%.
- Other smartphone manufacturers do not have much shar in the U.S. and are reluctant about mmW support. Apple was also expected to increase mmW-supporting
- models for iPhone13, including those for Japan, but only the USA version is available for now. In addition, iPhone SE3, released on Mar. 18, does no
- support mmW, even for the North American mo for mmW-compatible products is likely to be lin @ 2022 Navian Inc. All rights reserved 143

## **CHUWI HiPad X RF Section**



#### ■Outline of the report

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#### AND UPDATE

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- ⑤PAMiD

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Market Size of Antenna Switch

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RX Module Market Share for CY2022 Forecast

RX Module Market Share Breakdown per Product Type

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TX Module Market Share Breakdown per Product Type

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1 RF Circuit Block Diagram

2 Teardown pictures & RF Modules/Components



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