Navian Marketing Report

RF Devices / Modules For 5G & 5G/NB-IOT

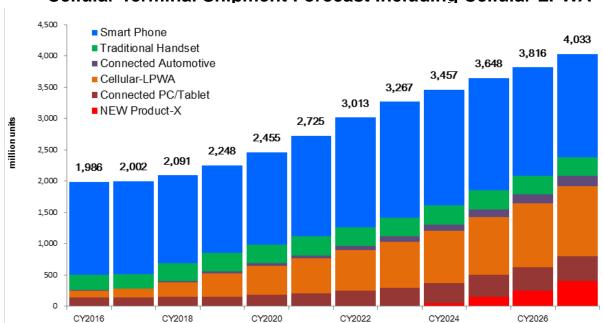
2018-2027

February 18 2019

RF Devices / Modules in this report

①Front end Module(ASM·TX Module·PAMiD·FEMiD·PAMiF·FEM for IOT) ②Sub FEM(Diversity FEM·A-Multiplexer) ③Power Amplifier Module ④Duplexer(SAW/BAW/IHP) ⑤Filter(SAW/BAW/IHP/LTCC/IPD)

Cellular Terminal Shipment Forecast Including Cellular LPWA

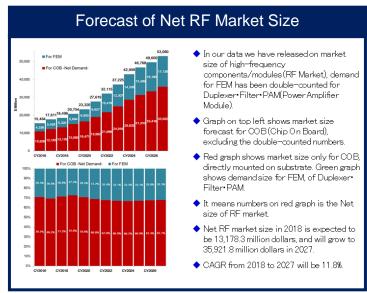


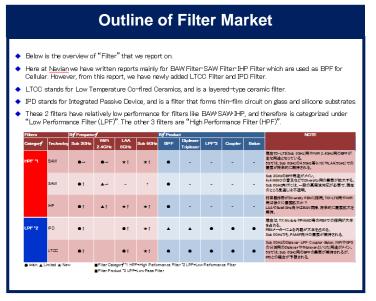
Classification of 5G Products in this Report

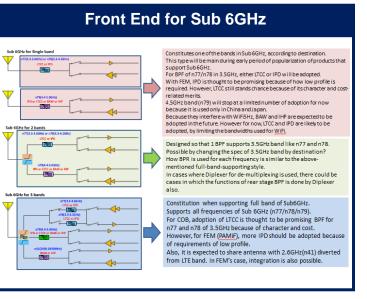


Report Sample

"5G=NR(New Radio)" is the 5th generation cellular standard expected to be put to practical use from late 2018 to 2019. Compared to 4th generation standard, "LTE", it realizes significant improvement in performance such as high-speed and high-capacity (eMBB), multi-connectivity (mMTC), and ultra-low latency (URLLC). Its ultra-low latency of 1 ms, which is one-tenths of compared to LTE, and super high throughput of 20Gbps (max) is especially gaining attention as it will further expand utilization of mobile communication. Peak Data Rate 20Gbps X20 LTE-A Network Energy Efficiency X3 LTE-A Network Energy Efficiency X100 LTE-A Nobility Spectrum Efficiency X3 LTE-A Mobility S00km/h X1.4 LTE-A LTE-Advanced LTE-Advanced







RF Devices / Modules For 5G & 5G/NB-IOT 2018-2027 English version -CD-ROM (PDF file & Excel file)-

ORelease Schedule February 18 2019
OReport format 139 SLIDES (PDF file)
PDF file of report/Excel data

e ① 320,000JPN for Year's subscrib

2 220,000JPN Customers of Navian quarterly report Year's subscription or RF Devices / Modules For Cellular 2017-2018

3 170,000JPN Customers of Navian quarterly report Year's subscription and RF Devices / Modules For Cellular 2017–2018

* Additional notes for companies with more than 10,000 employees on a consolidated basis.

* Additional notes for companies with more than 10,000 employees on a consolidated basis.

If you will share our reports between different departments or subsidiaries and affiliated companies, you need to purchase the corporate

license. Please contact us.

■Method of order

OBY Attached FAX ORDER FORM Fax.+81-3-5303-1304

OBY Email order@navian.co.jp with your information as same as FAX ORDER FORM

■PAYMENT

Please Bank Transfer in Japanese Yen to the bank account of the Navian, Inc.

The report's bill will be sent with the report.

Payment term is within 1 month after you receive the report.

■PUBLISHER

Navian Inc. http://www.navian.co.jp

mailto:info@navian.co.jp

2-18-2,Zenpukuji, Suginami-ku, Tokyo 167-0041 JAPAN

Tel.+81-3-5303-1303/Fax. +81-3-5303-1304

—CONTENTS—

Phase 1. 5G & 5G/NB-IOT Overview & Standardization

- 1. 5G Specifications Comparison to LTE
- 2. Detailed 5G Specifications
- 3. 5G standardization by 3GPP Release.12-16
- 4. Market Opportunities in 5G Era
- 5. Cellular IOT vs Non Cellular IOT
- 6. Cellular IOT vs Non Cellular IOT
- 7. 5G Frequency Band Plan by 3GPP
- 8. 5G Frequency Band Situation by Band
- 9. Detailed 5G Introduction Situation
- 10. 5G Frequency Band Situation -TOTAL-
- 11. Wireless Frequency Band Standard Organization

Phase 2. Forecast of 5G & 5G/NB-IOT products by RF Technology

- 1. Classification of 5G Products in this Report
- 2.5G Road Map
- 3. Cellular Terminal Forecast by Product
- 4. Cellular Terminal Forecast by Standard
- 5. 5G Cellular Terminal Forecast by Band Group
- 6. Forecast of Sub 6GHz Band Combination
- 7. Cellular Terminal Forecast by Product & Standard
- 8. Cellular Terminal Forecast by Standard & Frequency
- 9. Cellular Terminal Forecast in Detail

Phase 3. NEW RF TechnologIES & RF Market Potential in 5G & 5G/NB-IOT

- 1. RF Market Potential in 4.5G-5G
- 2. Diversity Forecast
- 3. Basic Block Diagrams for 2x2 MIMO/4x4 MIMO
- 4. Multi-band GNSS Forecast
- 5. GNSS(GPS) Trend Related to 5G
- 6. Uplink CA Forecast
- 7. Data Tables of Diversity & Uplink CA
- 8. Data Tables of GPS to 5G

Phase 4. RF Circuit Trend in 4.5G-5G

- 1. Road Map of Front-end for 5G NR
- 2. Initial Front-end for 5G NR
- 3. RF Devices / Modules For 5G NR
- 4. FEM & Sub FEM For 5G NR in This Report
- 5. OTHER LEGACY FEMs
- 6. Front End for Sub 6GHz
- 7. Forecast of Sub 6GHz Band Combination
- 8. Antenna Module for Millimeter Wave
- 9. Substrate for Antenna Module
- 10. Example of NB-IOT Module

11. RF Front end for NB-IOT

Phase 5. RF Market Forecast CY2018-CY2027

- 1. Outline of RF Devices / Modules in This Report
- 2. RF Market Forecast by Cellular Generation
- 3. Data Table of RF Market by Standard
- 4. RF Market Forecast by Frequency
- 5. Data Table of RF Market Forecast by Frequency
- 6. RF Market Forecast by Product Category
- 7. CAGR by Product Category
- 8. Data Table of RF Market by Category Gross -
- 9. Forecast of Net RF Market Size
- 10. Data Table of Net RF Market Size
- 11. Forecast of Net RF Market Size by Product Category
- 12. Data Table of RF Market by Category Net -
- 13. Detailed Data of RF Market Forecast Quantity Basis -
- 14. Quantity Basis -
- 15. Detailed Data of RF Market Forecast Amount Basis -
- 16. FEM & Sub FEM Market Forecast
- 17. FEM Market Forecast by Standard
- 18. FEM Market Forecast by Product
- 19. Data Table of FEM Market Forecast
- 20. ASM Market Forecast
- 21. TXM Market Forecast
- 22. FEMiD Market Forecast
- 23. PAMiD Market Forecast
- 24. FEM for NB-IOT/5G-IOT Market Forecast
- 25. PAMiD Market Forecast DATA
- 26. PAMiF Market Forecast DATA
- 27. Antenna Module Market Forecast
- 28. A-Multiplexer Market Forecast
- 29. Diversity FEM Market Forecast
- 30. Outline of Filter Market
- 31. Filter Total Market Forecast
- 32. Filter Market Forecast by Product
- 33. DATA of Filter Market Forecast by Product
- 34. Filter Market Forecast by Frequency
- 35. DATA of Filter Market Forecast by Product & Frequency
- 36. Filter Market Forecast by Application
- 37. DATA of Filter Market Forecast by Application Quantity Basis -
- 38. DATA of Filter Market Forecast by Application Amount Basis -
- 39. Filter Market Forecast for Sub 6GHz
- 40. Duplexer Market Forecast by Main RF/COB
- 41. Duplexer Market Forecast by Product

- 42. DATA of Duplexer Market Forecast by Product & Main RF/COB
- 43. Duplexer Market Forecast by FEM/COB
- 44. Outline of PAM Market
- 45. TOTAL Market Forecast Power Amplifier Module
- 46. PAM Market Forecast by Product Type
- 47. PAM Market Forecast by FEM/COB
- 48. Market Forecast of Single band PAM
- 49. Market Forecast of MMPAM for Main FDD band
- 50. Market Forecast of MMPAM by Band Group
- 51. DATA of PAM Market -QTY-
- 52. DATA of PAM Market -AMOUNT-
- 53. DATA of PAM Market -Chip count--

Phase 6. Trend & Marketshare of Main Manufacturers

- 1. Main Manufacturers for 5G & 5G/NB-IOT
- 2. RF Market Share Breakdown -CY2016-CY2018
- 3. ASM Market Share Trend
- 4. FEM Market Share Breakdown
- 5. TX Module Market Share Trend
- 6. FEMiD Market Share Trend
- 7. PAMiD Market Share Trend
- 8. PAMiD Supply chain
- 9. PAMiD Market Share Breakdown by Product Type
- 10. All-in-One Market Share Trend
- 11. Diversity FEM Market Share Trend
- 12. Diversity FEM Supply chain
- 13. Antenna-Multiplexer Market Share Trend
- 14. PAM Market Share Trend
- 15. 3G/4G PAM Market Share Trend
- 16. 3G/4G PAM Supply chain
- 17. M/M PAM Type & Outline
- 18. M/M PAM Market Share Trend
- 19. PAM for NB-IOT Market Share Trend
- 20. M/M PAM Type & Supply Chain
- 21. PAM Market Share Breakdown by Product Type
- 22. MM PA Shipment Breakdown per Manufacturer
- 23. Duplexer Market Share Trend
- 24. Duplexer Supply chain
- 25. Filter TOTAL Market Share Trend

29. LTCC Filter Market Share Trend

- 26. HPF(High Performance Filter) Market Share Trend
- 27. High Performance Filter(Duplexer/BPF) manufacturers
- 28. Filter Market Share Breakdown by Product Type
- 30. Low Performance Filter(IPD/LTCC) manufacturers

www.navian.co.jp

ORDER FORM

ATTN: NAVIAN INC. Fax: +81-3-5303-1304

RF Devices / Modules For 5G & 5G/NB-IOT 2018-2027 English Version

Report Title	Price	Initial
RF Devices / Modules For 5G & 5G/NB-IOT 2018-2027 English Version	JPY320,000	

Special price for Navain's customers **Depending on your purchase history	Price	Initial			
ustomers of Navian quarterly report Year's subscription JPY220,000					
or RF Devices / Modules For Cellular 2017–2018	31 1220,000				
Customers of Navian quarterly report Year's subscription JPY170,000					
and RF Devices / Modules For Cellular 2017-2018	3				

If you will share our reports between different departments or subsidiaries and affiliated companies, you need to purchase the corporate license. Please contact us.

YOUR P.O. NUMBER	For our invoice referencing purpose.
	To our invoice rejerence to print pose.

Date of order	(YYYY)	/	(MM)	/ (DD)	
First name			Last name		
Company					
Job title			Department		
Address					
State/Province			Zip code	Country	
Contact Phone			FAX		
E-mail	@)			

Authorizing Signature

Signature Date

CONTACT

ATTN: Yoshiyasu Andoh

E-mail: andoh@navian.co.jp

Navian Inc.

2-18-2, Zenpukuji, Suginami-ku, Tokyo 167-0041, Japan

Phone: +81-3-5303-1303 Fax: +81-3-5303-1304