

Earl J. Lum
+1-650-430-2221
elum@ejlwireless.com

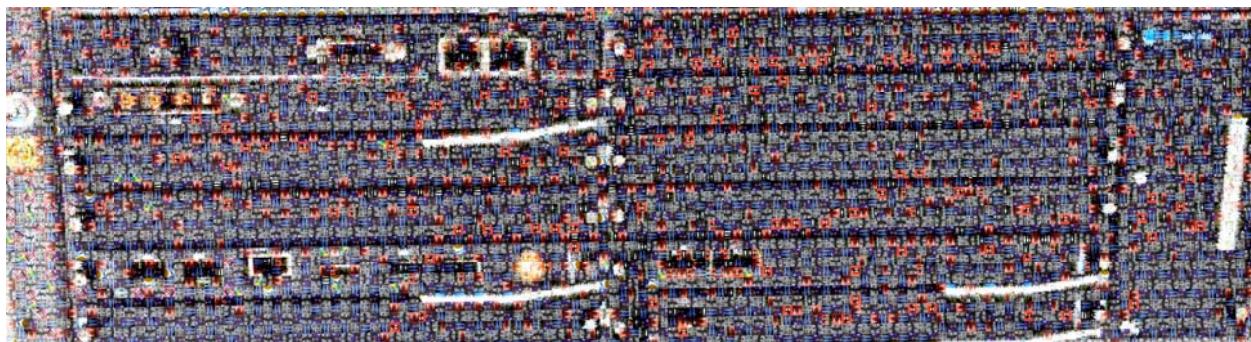


14th Edition

**Global Macrocell Baseband Unit
Market Analysis and Forecast, 2018-2022**

March 2018

5G gNB



Entire contents © 2018 EJL Wireless Research LLC. All Rights Reserved. Reproduction of this publication in any form without prior written permission is strictly forbidden and will be prosecuted to the full extent of US and International laws. The transfer of this publication in either paper or electronic form to unlicensed third parties is strictly forbidden. The information contained herein has been obtained from sources EJL Wireless Research LLC deems reliable. EJL Wireless Research disclaims all warranties as to the accuracy, completeness, or adequacy of such information. EJL Wireless Research LLC shall bear no liability for errors, omissions, or inadequacies in the information contained herein or for the interpretation thereof. The reader assumes sole responsibility for the selection of these materials to achieve their intended results. The opinions expressed herein are subject to change without notice.

TABLE OF CONTENTS

EXECUTIVE SUMMARY4
2017 Review: Preparing for 4.5G and NB-IoT	4
BBU Forecast 2018-2022.....	6
Demand Drivers for Our Forecast	8
Summary.....	9
RESEARCH METHODOLOGY	10
CHAPTER 1: OVERALL MARKET PERFORMANCE.....	13
1.1 2017: Another Record Year Overall and for LTE (Barely).....	13
1.2 OEM Analysis –Huawei Still the One	16
1.3 The Chinese Factor	17
1.4 BBU Forecast 2018-2022	18
1.5 Demand Drivers for Our Forecast	20
CHAPTER 2: 5G NR gNODEBs.....	23
2.1 5G NR gNodeB Vendor Market Share	25
2.2 5G NR gNodeB Forecast 2018-2022.....	26
CHAPTER 3: 4.9G eNODEBs w/MASSIVE MIMO.....	29
CHAPTER 4: 4G/4.5G eNODEBs	31
4.1 eNodeB Vendor Market Share.....	34
4.2 Mid-Band FDD remains the focus for the industry	37
4.3 The Chinese Factor	38
CHAPTER 5: 2G BTS/3G NODEB	41
CHAPTER 6: GEOGRAPHICAL MARKET SHARE	43
China: Still the Market to be in.....	43
6.1 North America.....	46
6.2 Latin America/Caribbean.....	52
6.3 Europe	56
6.4 Africa.....	60
6.5 The Middle East.....	62
6.6 Asia Pacific	64
6.7 Japan.....	66
6.8 South Korea	68
6.9 China	70
6.10 India.....	74
CHAPTER 7: BBU OEM COMPANY PROFILES	77
7.1 Ericsson	78
7.2 Huawei Technologies.....	80
7.3 Nokia Networks	82
7.4 Samsung Electronics	84
7.5 ZTE	86

TABLES

Table 1: Global BBU Market Share by OEM, 2016-2017 (Units)	6
Table 2: Global BBU Non-Massive MIMO Market Share by Air Interface/Frequency Cluster, 2016-2017 (Units).....	14
Table 3: Global BBU Massive MIMO Market Share by Air Interface/Frequency Cluster, 2016-2017 (Units)	14
Table 4: Global BBU Market Share by OEM, 2016-2017 (Units)	16
Table 5: Global BBU Market Share, Chinese vs. ROW, 2016-2017 (Units).....	17
Table 6: Global BBU Forecast by Air Interface, 2018-2022 (Units)	22
Table 7: Global BBU Forecast by Air Interface, 2018-2022 (% Market Share)	22
Table 8: Global BBU Forecast by Air Interface, 2018-2022 (% YoY Growth).....	22
Table 9: Global 5G NR gNodeB Market Share, 2016-2017 (Units).....	25
Table 10: Global 5G NR gNodeB Forecast by Frequency Cluster, 2018-2022 (Units)	28
Table 11: Global 5G NR gNodeB Forecast by Frequency Cluster, 2018-2022 (% Market Share)	28
Table 12: Global 5G NR gNodeB Forecast by Frequency Cluster, 2018-2022 (% Growth YoY)	28
Table 13: Global 4.9G MM eNodeB Shipments by Frequency Cluster, 2016-2017 (Units)	29
Table 14: Global 4.9G MM eNodeB Forecast, 2018-2022 (Units)	30
Table 15: Global 4.9G MM eNodeB Forecast, 2018-2022 (% Market Share)	30
Table 16: Global 4.9G MM eNodeB Forecast, 2018-2022 (% Growth YoY)	30
Table 17: Global 4G/4.5G eNodeB Shipments by Duplex Mode, 2016-2017 (Units).....	31
Table 18: Global 4G/4.5G eNodeB Market Share, 2016-2017 (Units)	34
Table 19: Global 4G/4.5G FDD eNodeB Market Share, 2016-2017 (Units)	35
Table 20: Global 4G/4.5G TDD eNodeB Market Share, 2016-2017 (Units)	36
Table 21: Global 4G/4.5G eNodeB Shipments by Frequency Cluster, 2016-2017 (Units)	37
Table 22: Global 4G/4.5G eNodeB Market Share, Chinese vs. ROW, 2016-2017 (Units)	38
Table 23: Global 4G/4.5G eNodeB Forecast by Frequency Cluster, 2018-2022 (Units)	40
Table 24: Global 4G/4.5G eNodeB Forecast by Frequency Cluster, 2018-2022 (% Market Share)	40
Table 25: Global 4G/4.5G eNodeB Forecast by Frequency Cluster, 2018-2022 (% Growth YoY)	40
Table 26: Global 2G/3G BTS/NodeB Shipments, 2016-2017 (Units).....	41
Table 27: Global BBU Shipments by Region, Forecast vs. Actual, 2017	43
Table 28: Global BBU Shipment Forecast by Region, 2018-2022 (Units)	44
Table 29: Global BBU Shipment Forecast by Region, 2018-2022 (% Market Share)	44
Table 30: Global BBU Shipment Forecast by Region, 2018-2022 (% YoY Growth)	44
Table 31: Ericsson BBU Shipments Non-Massive MIMO, 2016-2017 (Units)	79
Table 32: Ericsson BBU Shipments Massive MIMO, 2016-2017 (Units)	79
Table 33: Huawei BBU Shipments Non-Massive MIMO, 2016-2017 (Units)	81
Table 34: Huawei BBU Shipments Massive MIMO, 2016-2017 (Units)	81
Table 35: Nokia Networks BBU Shipments Non-Massive MIMO, 2016-2017 (Units)	83
Table 36: Nokia Networks BBU Shipments Massive MIMO, 2016-2017 (Units).....	83
Table 37: Samsung BBU Shipments by Frequency Bands/Air Interface, 2016-2017 (Units).....	85
Table 38: Samsung BBU Shipments Massive MIMO, 2016-2017 (Units)	85
Table 39: ZTE BBU Shipments Non-Massive MIMO, 2016-2017 (Units)	87
Table 40: ZTE BBU Shipments Massive MIMO, 2016-2017 (Units)	87

EXHIBITS

Exhibit 1: Global BBU Market Share by OEM, 2017 (% Market Share).....	6
Exhibit 2: Global BBU Forecast 2018-2022, (% YoY Growth)	7
Exhibit 3: Comparison of 2017 Global BBU Forecast vs. Actual Shipments.....	13
Exhibit 4: Global BBU Shipments, 2016-2017 (Units)	14
Exhibit 5: Global BBU Market Share by Technology Generation, 2017 (% Market Share).....	15
Exhibit 6: Global BBU Market Share by Air Interface, 2016-2017 (Units).....	15
Exhibit 7: Global BBU Market Share by OEM, 2017 (% Market Share).....	16
Exhibit 8: Global BBU Market Share, Chinese vs. ROW, 2016-2017 (Units).....	17
Exhibit 9: Global BBU Forecast 2018-2022, (% YoY Growth)	18
Exhibit 10: Global BBU Forecast, Prior vs. Current, 2018-2022 (Units).....	19
Exhibit 11: Global Historical BBU Shipments, 2001-2017, (Units).....	19
Exhibit 12: Global BBU Forecast by Air Interface, 2018-2022 (Units)	21
Exhibit 13: Global BBU Forecast by Air Interface, 2018-2022 (% Market Share)	21
Exhibit 14: Timing of 5G NR SA/NSA Specifications and 3GPP Timeline	23
Exhibit 15: 4G/4.5G/4.9G/5G Performance Comparison	24
Exhibit 16: Global 5G NR gNodeB Market Share, 2017 (Units)	25
Exhibit 17: Global 5G NR gNodeB Forecast by Frequency Cluster, 2018-2022 (Units)	27
Exhibit 18: Global 5G NR gNodeB Forecast by Major Regions, 2018-2022 (Units).....	28
Exhibit 19: Global 4.9G MM eNodeB Forecast, 2018-2022 (Units).....	30
Exhibit 20: Global 4G/4.5G eNodeB Shipments by Duplex Mode, 2016-2017 (Units).....	31
Exhibit 21: Global 4G/4.5G eNodeB Shipment Forecast, 2018-2022 (Units).....	32
Exhibit 22: Comparison of 2017 Global 4G/4.5G eNodeB Forecast vs. Actual Shipments	33
Exhibit 23: Global 4G/4.5G eNodeB Shipments, 2016-2017 (Units)	33
Exhibit 24: Global 4G/4.5G eNodeB Market Share by OEM, 2017 (% Market Share)	34
Exhibit 25: Global 4G/4.5G FDD eNodeB Market Share by OEM, 2017 (% Market Share)	35
Exhibit 26: Global 4G/4.5G TDD eNodeB Market Share by OEM, 2017 (% Market Share)	36
Exhibit 27: Global 4G/4.5G eNodeB Shipments by Frequency Cluster, 2017 (Units).....	37
Exhibit 28: Global 4G/4.5G eNodeB Market Share, Chinese vs. ROW, 2016-2017 (Units)	38
Exhibit 29: Global 4G/4.5G eNodeB Forecast by Frequency Cluster, 2018-2022 (Units)	39
Exhibit 30: Global 4G/4.5G eNodeB Forecast by Duplex Mode, 2018-2022 (Units).....	40
Exhibit 31: Global 2G/3G BTS/NodeB Shipments, 2016-2017 (Units).....	41
Exhibit 32: Global 2G/3G BTS/NodeB Shipment Forecast, 2018-2022 (Units)	42
Exhibit 33: Global BBU Market Share by Region, 2017 (% Market Share)	45
Exhibit 34: North America BBU Forecast by Type, 2018-2022 (Units)	46
Exhibit 35: Latin America BBU Forecast by Type, 2018-2022 (Units)	52
Exhibit 36: Europe BBU Forecast by Type, 2018-2022 (Units)	56
Exhibit 37: Africa BBU Forecast by Type, 2018-2022 (Units)	61
Exhibit 38: The Middle East BBU Forecast by Type, 2018-2022 (Units)	62
Exhibit 39: Rest of Asia Pacific BBU Forecast, 2018-2022 (Units)	64
Exhibit 40: Japanese Mobile Operator CAPEX, FY15-9MFY17.....	67
Exhibit 41: Korean Mobile Operator CAPEX, FY14-FY18	68
Exhibit 42: China Mobile CAPEX 2017-2018	70
Exhibit 43: China Mobile 5G Deployment Timeline	71
Exhibit 44: China BBU Shipment Forecast 2018-2022 (Units)	73
Exhibit 45: India BBU Shipment Forecast 2018-2022 (Units)	76
Exhibit 46: Ericsson BBU Shipments by Mobile Generation, 2017 (% Market Share)	79
Exhibit 47: Huawei BBU Shipments by Mobile Generation, 2017 (% Market Share)	81
Exhibit 48: Nokia Networks BBU Shipments by Mobile Generation, 2017 (% Market Share)	83
Exhibit 49: Samsung BBU Shipments by Mobile Generation, 2017 (% Market Share)	85
Exhibit 50: ZTE BBU Shipments by Mobile Generation, 2017 (% Market Share)	87