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Market Analysis

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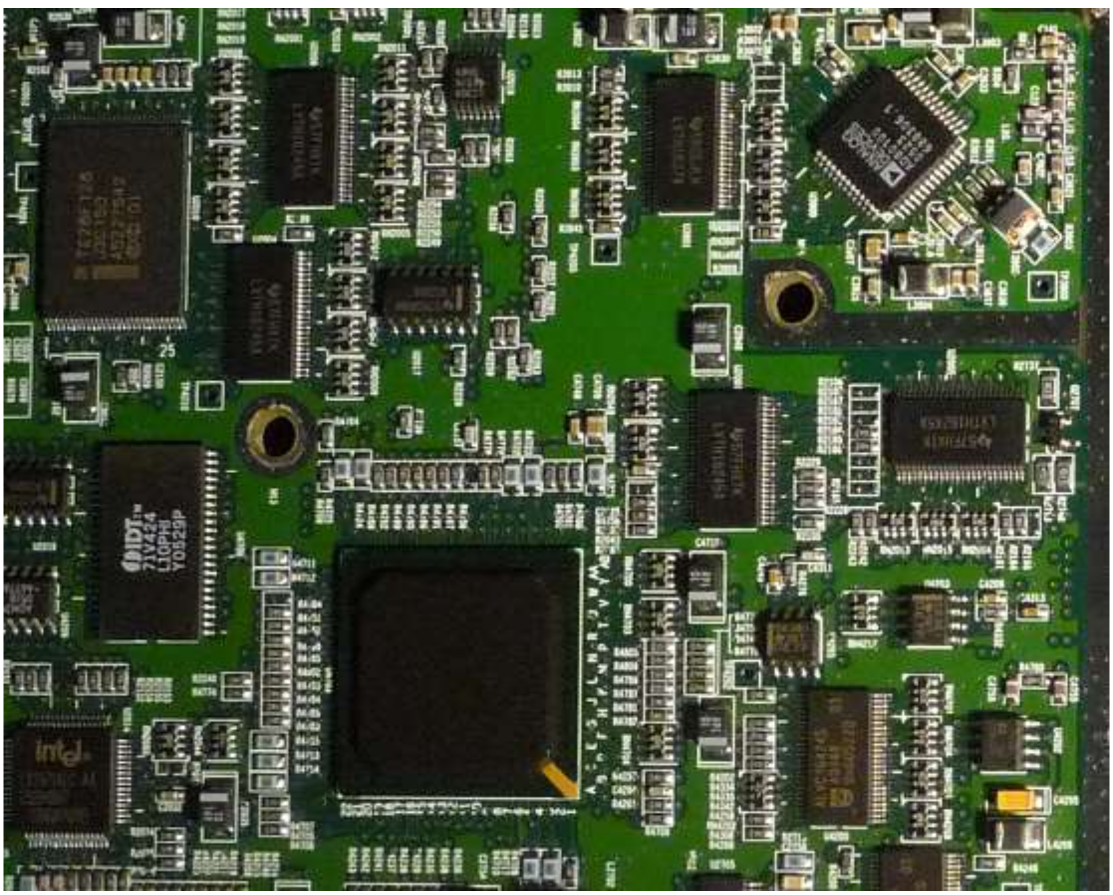
9th Edition

Global BTS Transceiver Market Analysis and Forecast, 2013-2017

March 2013



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EXECUTIVE SUMMARY

The global base station transceiver (TRx) market in 2012 declined compared to our forecast of a flat market. Total unit shipments across all air interfaces and frequency bands were 8.9 million for 2012, down 9.5% year over year. The migration from single carrier to multi-carrier GSM accounted for a majority of the unit decline.

How well did we do in our forecast from a year ago? Our goal is to be within +/-10% of our forecasts.

The good:

- We were correct in our overall forecast by being within +9.5%
- We were correct in predicting a market growth for CDMA and were off by -7.4%

The not so good:

- We did not account for any TD-SCDMA shipments in our prior forecast
- We were well off our GSM forecast by +46% because of how fast the transition from single carrier to multi-carrier GSM occurred
- We were off by -16% for the WCDMA market however if we include the LTE2100 shipments back into the WCDMA category, our predictions would have been absolutely correct and within 0.5%!
- We were off by +18% for LTE volumes but again, if we reallocated the LTE2100 units back to WCDMA, our forecast was within -4.4%!

A negative % variance means our forecast was higher than actual shipments while a positive % variance means our forecast was lower than actual shipments.

Overall, if we had to give ourselves an assessment, we believe we did a pretty good job in our overall forecast if the mix in WCDMA2100 and LTE2100 was re-allocated.

We continue to believe that many research reports attempt to quantify the overall wireless infrastructure base station equipment market in terms of monetary value. Analyzing the total economic impact of the global base station transceiver market is important but we continue to base the thesis of this report on the estimated unit shipments by each OEM. We believe that this approach continues to lead the market place in offering a deeper and more compelling understanding of the underlying currents of market share gains and losses across frequency bands and air interface standards within the industry.

In this ninth edition of the report, we continue to analyze both the combined and pro forma performance of Alcatel-Lucent and Nokia Siemens Networks+Motorola and have expanded our analysis for LTE.

2012 Review

After a terrible second half of 2011, the wireless infrastructure market was hopeful to see a bottom during the first half of 2012 and show signs of recovery by the second half. By the second quarter of 2012, it was quite clear that the Greek debt crisis was going to overshadow everything. Spending again was frozen as global economic markets braced for the potential sovereign debt default of Greece and uncertainty of the long term viability of the Euro.

Global wireless BTS TRx shipments ended down 9.5% year over year and posted negative growth for the second time in eleven years. The decline in 2011 was followed by a second year of negative growth.

For the past several years, we have been predicting a meltdown of the overall market in shipments due to GSM/EDGE technology transitioning to W-CDMA/HSPA+ and the emergence of LTE. The overall market decline was due to a larger decline in single carrier GSM/EDGE transceiver shipments that were not offset by W-CDMA/HSPA+ shipments and the ramping beginnings of LTE technology.

We can summarize 2012 as the year single mode air interface RF transceiver technology rapidly transitioned to multi-mode air interface RF transceiver technology and LTE technology firmly establishing itself. Multi-mode RF transceivers supporting a combination of GSM/EDGE/W-CDMA/HSPA+ and W-CDMA/HSPA+/LTE technologies rapidly replaced RF transceivers that only support a single air interface.

This conversion has made it more difficult to track actual usage of transceivers by technology. Historically, specific frequency bands have been correlated to air interfaces and mobile services such as GSM900 or GSM1800. We are able to continue to allocate certain air interface technologies by specific frequency bands by as time moves forward, the inclusion of different services on the same frequency band will make it nearly impossible to ensure that the unit shipments correlate to actual air interface usage.

In addition to the migration to multi-mode RF transceivers, GSM/EDGE technology fully transitioned away from single carrier technology to multi-carrier technology, giving way to a 2-3x negative conversion ratio of unit shipments. Mobile operators rapidly swapped out legacy GSM base stations utilizing dual single carrier RF transceiver modules. A legacy GSM base station required six dual carrier RF transceiver modules (12 total TRx) to support a 4+4+4 three sector configuration. This required an entire RF shelf within the base station. With multicarrier GSM/EDGE transceiver modules, the same 4+4+4 capacity could be supported with three RF transceiver modules, creating room in the existing GSM cabinet for three additional RF transceiver modules for extra capacity, another frequency band of operation or support of another air interface technology within the base station cabinet.

Expectations for LTE outside of North America was high in 2012 as auctions in Brazil, the UK, Romania, Denmark, the Netherlands, Croatia, Switzerland, Hong Kong and Malaysia continued the transition to 4G globally. We do note that a few auctions such as Columbia and Morocco were initially scheduled for 2012 but never made it.

We also note that the re-auction of 1800MHz spectrum in India was a complete failure in terms of revenues that were raised relative to Indian government expectations.

Total units shipped for 2012 were 8.9 million, down 9.5% from 2011. Shipments missed our forecast by 9.3%.

Our goal remains to stay within +/-10% of actual results relative to our forecast within the near term (12 months), however it is impossible to predict what the financial markets or political unrest may do to impact global cap ex spending or scheduled spectrum auctions.

The top suppliers by overall base station transceiver shipments as well as by air interface standards for 2012 were:

- **Overall #1 TRx Supplier:** **Huawei Technologies**
- **Overall #1 GSM TRx Supplier:** **Huawei Technologies**
- **Overall #1 W-CDMA TRx Supplier:** **Huawei Technologies**
- **Overall #1 CDMA TRx Supplier:** **ZTE**
- **Overall #1 LTE TRx Supplier:** **Ericsson**

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