



LTE Competitor Analysis: Patent Portfolios for Products

3Q. 2009

1. Patent Portfolios for LTE Mobile Phones



LTE patent portfolios are researched for global leader in mobile phone manufactures: LG, Motorola, Nokia, and Samsung. US designating essential patent candidates at the ETSI IPR Online website are analyzed.

LG declared total of 100 essential patent candidates (Issued: 4, Published: 34, Pending: 62) as of Aug. 31 2009. Motorola declared total of 48 essential patent candidates (Issued: 48) as of Aug. 31 2009. Nokia declared total of 134 essential patent candidates (Issued: 65, Published: 59, Pending: 10) as of Aug. 31 2009. Samsung declared total of 49 essential patent candidates (Issued: 2, Published: 32, Pending: 15) as of Aug. 31 2009. (Fig 1.1)

The most declared specification for the LG's LTE essential patent candidates was TS36.321 (MAC protocol specification). The most declared specification for the Motorola's, the Nokia's, and the Samsung's LTE essential patent candidates was TS36.211 (physical channels and modulation). (Fig 2.1.1 – Fig2.1.4).

In the analysis for the LTE commercial product (baseband modem and protocol stack) related patents, Nokia was the leader followed by LG both in modem and protocol product related innovations. (Fig 1.3)

Fig. 1.1 LTE Essential Patent Candidates: LG vs. Motorola vs. Nokia vs. Samsung

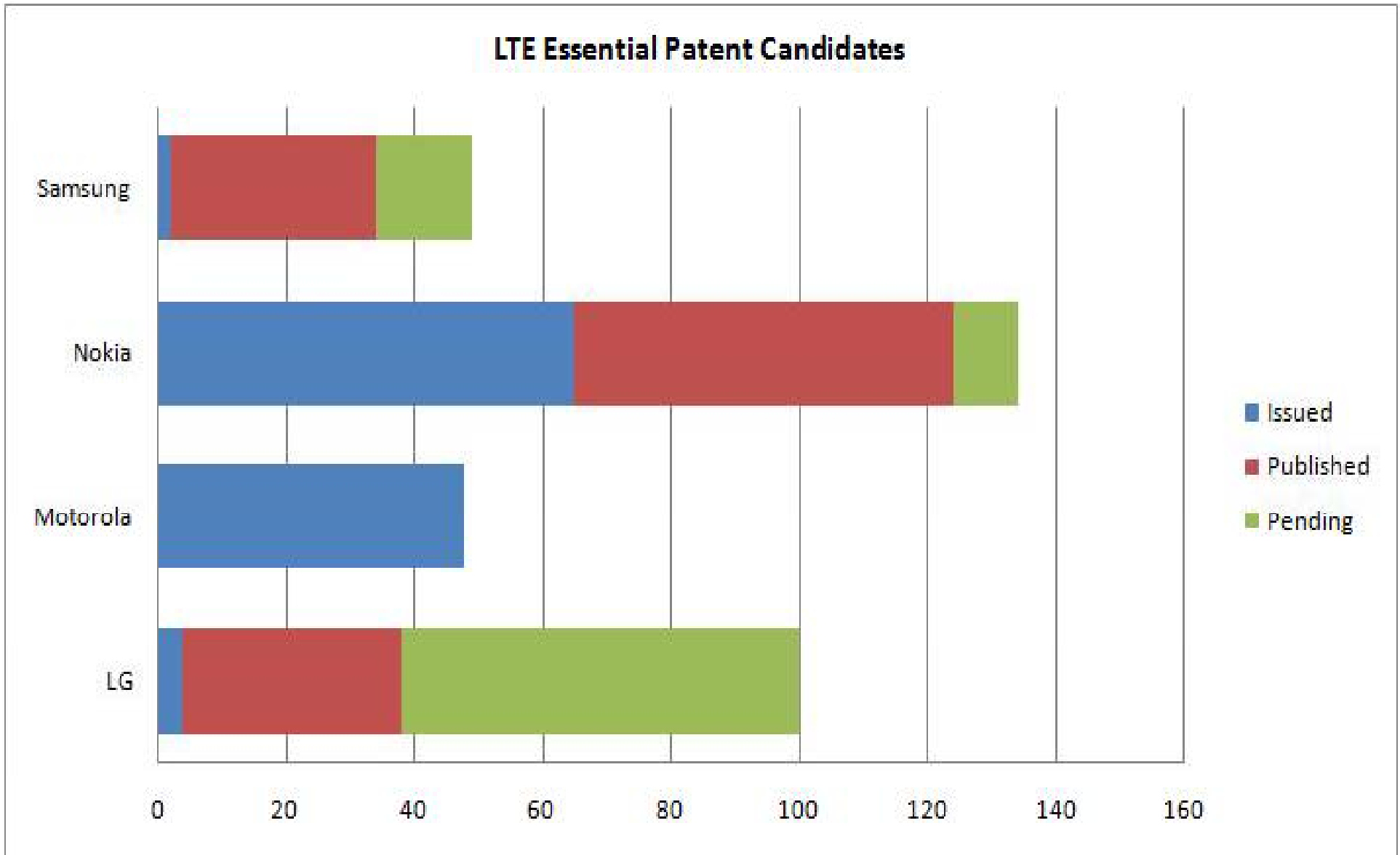


Fig. 1.1.1 Distribution of Specifications for the LG's LTE essential patent candidates

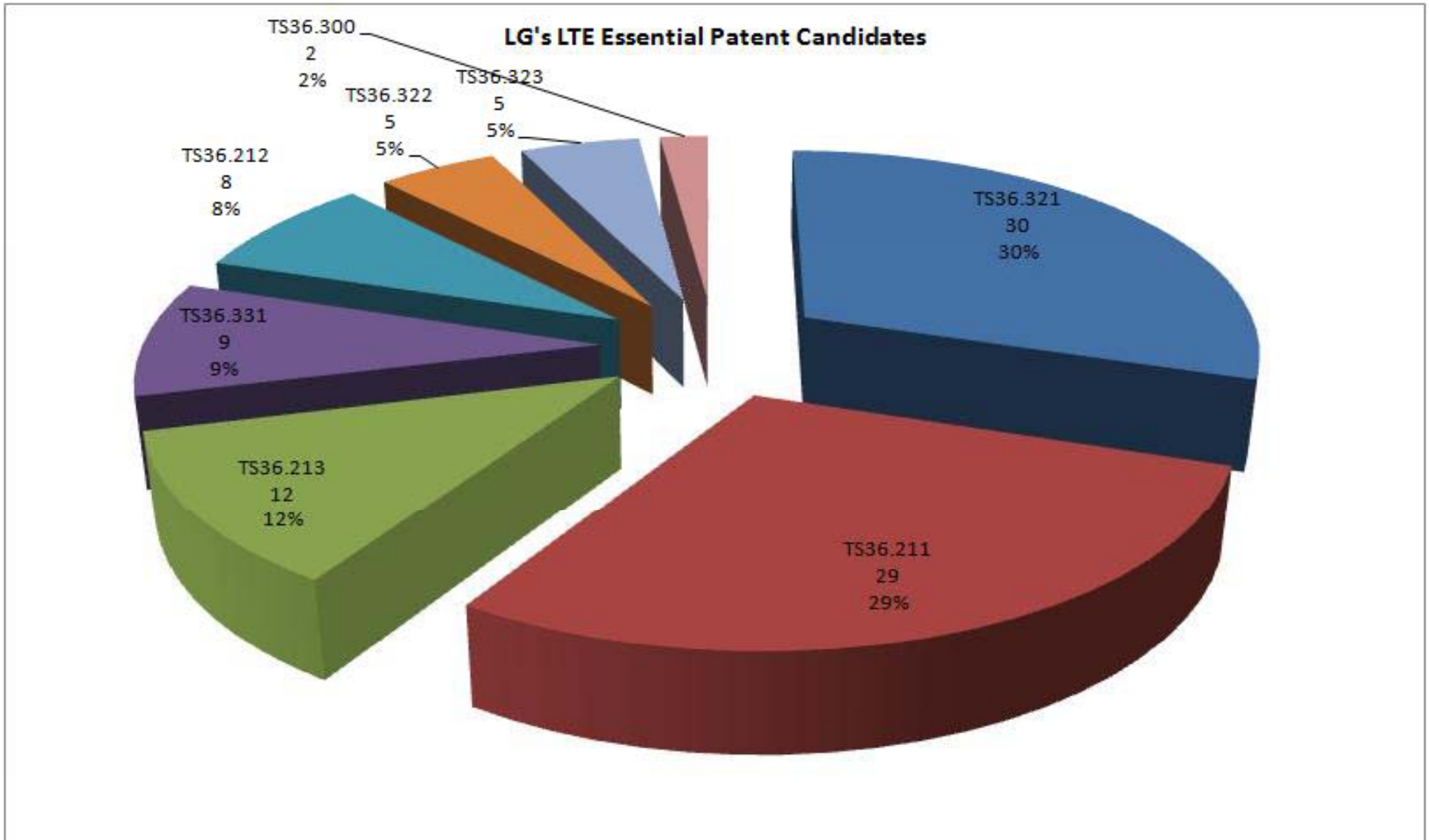


Fig. 1.1.2 Distribution of Specifications for the Motorola's LTE essential patent candidates

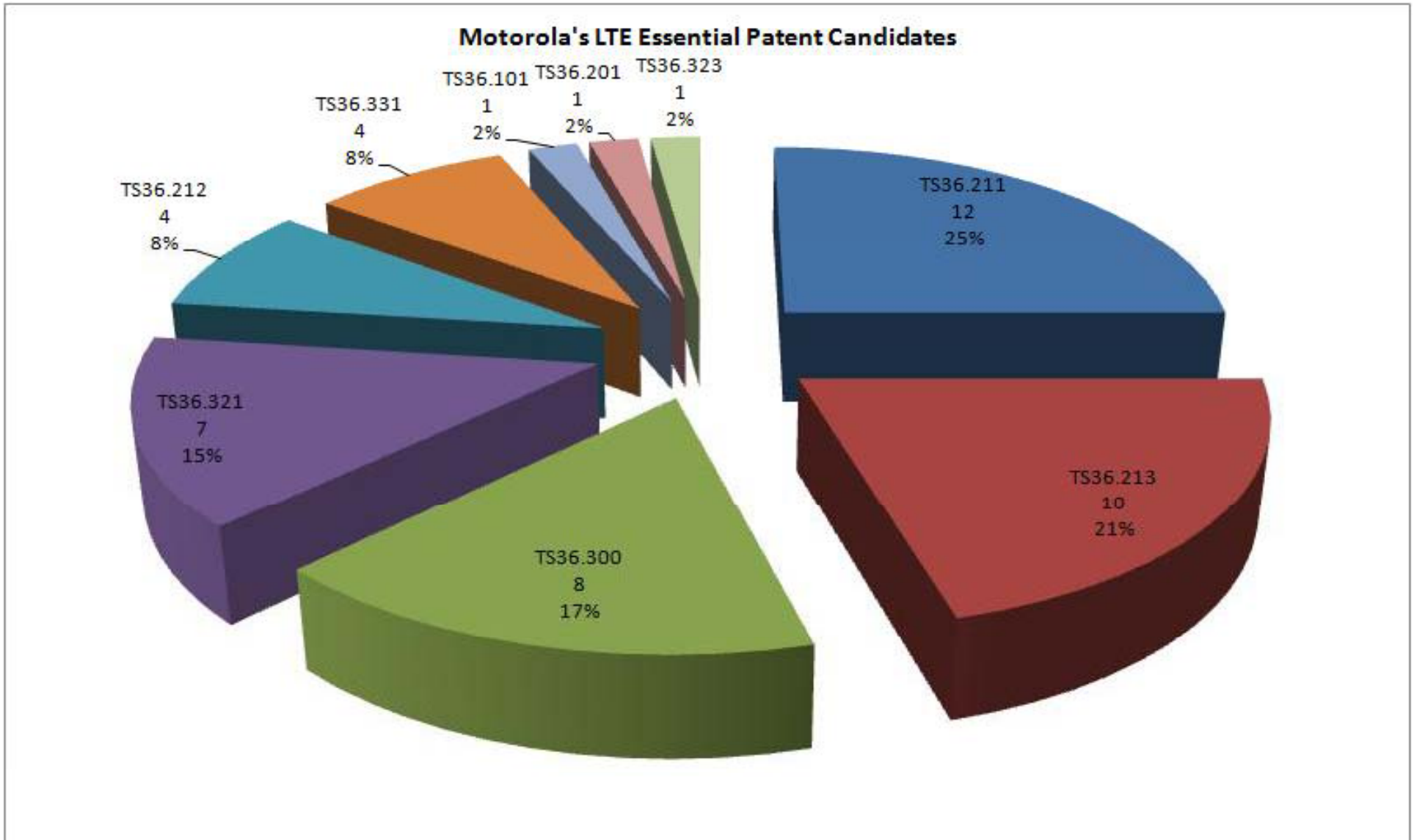


Fig. 1.1.3 Distribution of Specifications for the Nokia's LTE essential patent candidates

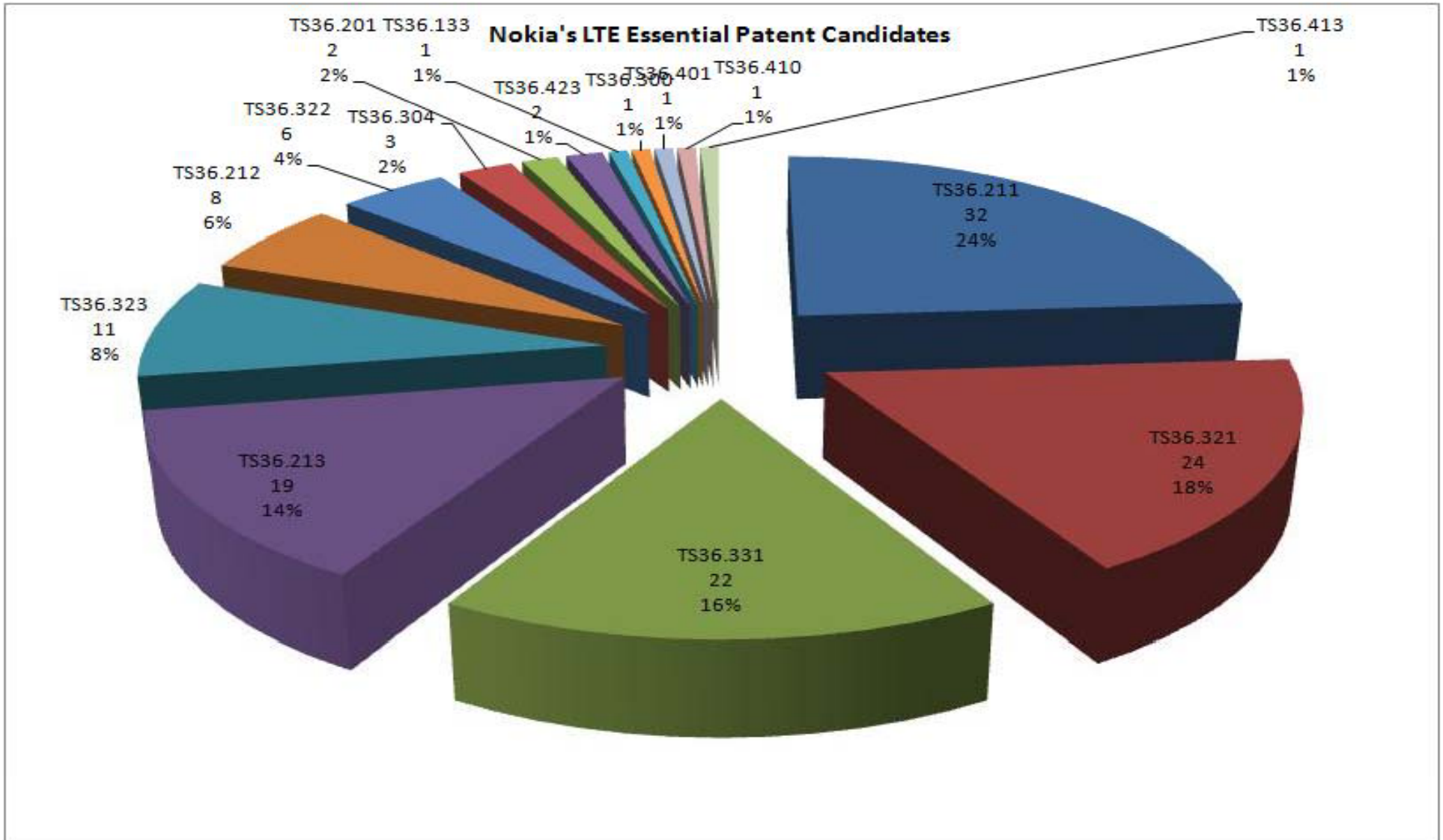


Fig. 1.1.4 Distribution of Specifications for the Samsung's LTE essential patent candidates

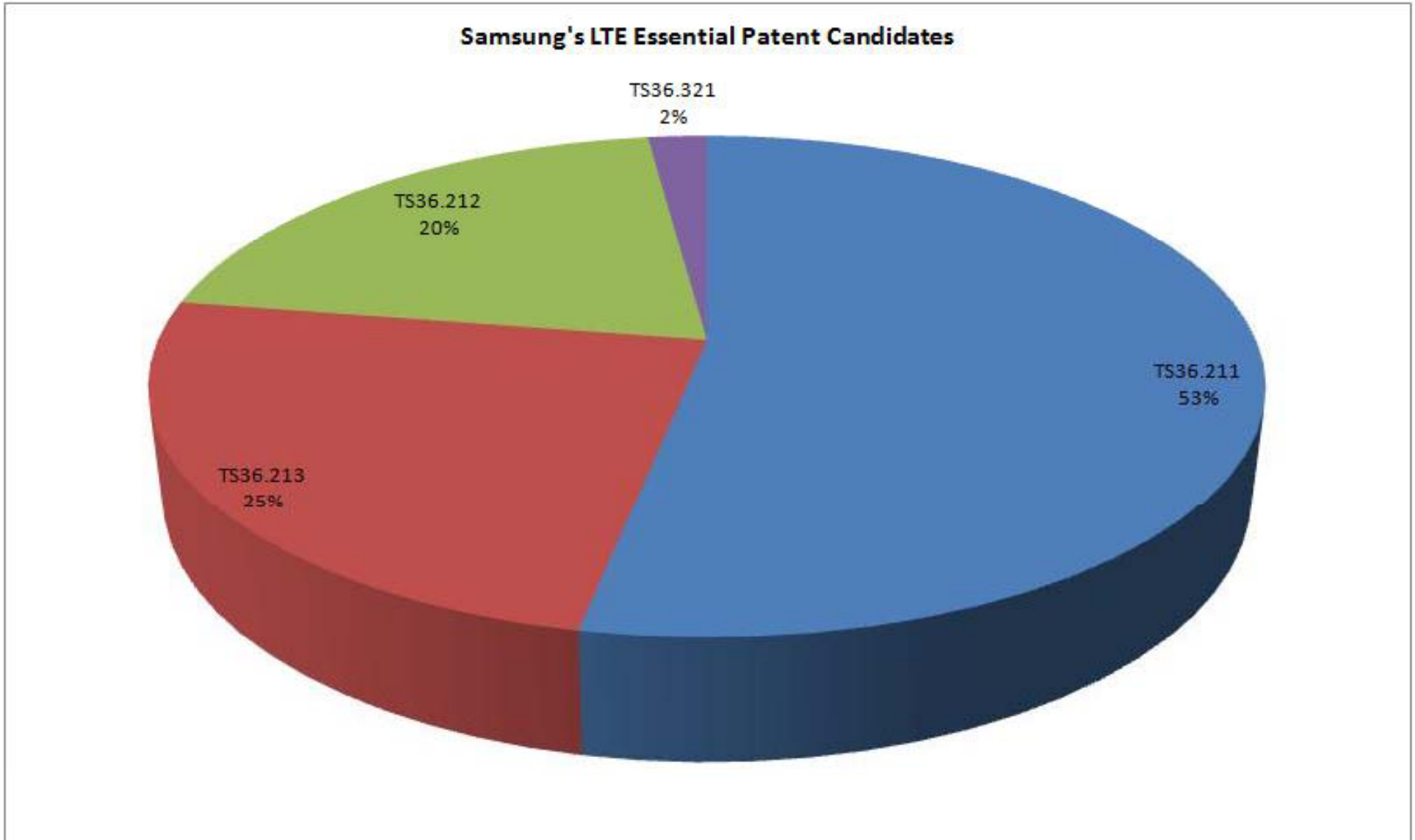
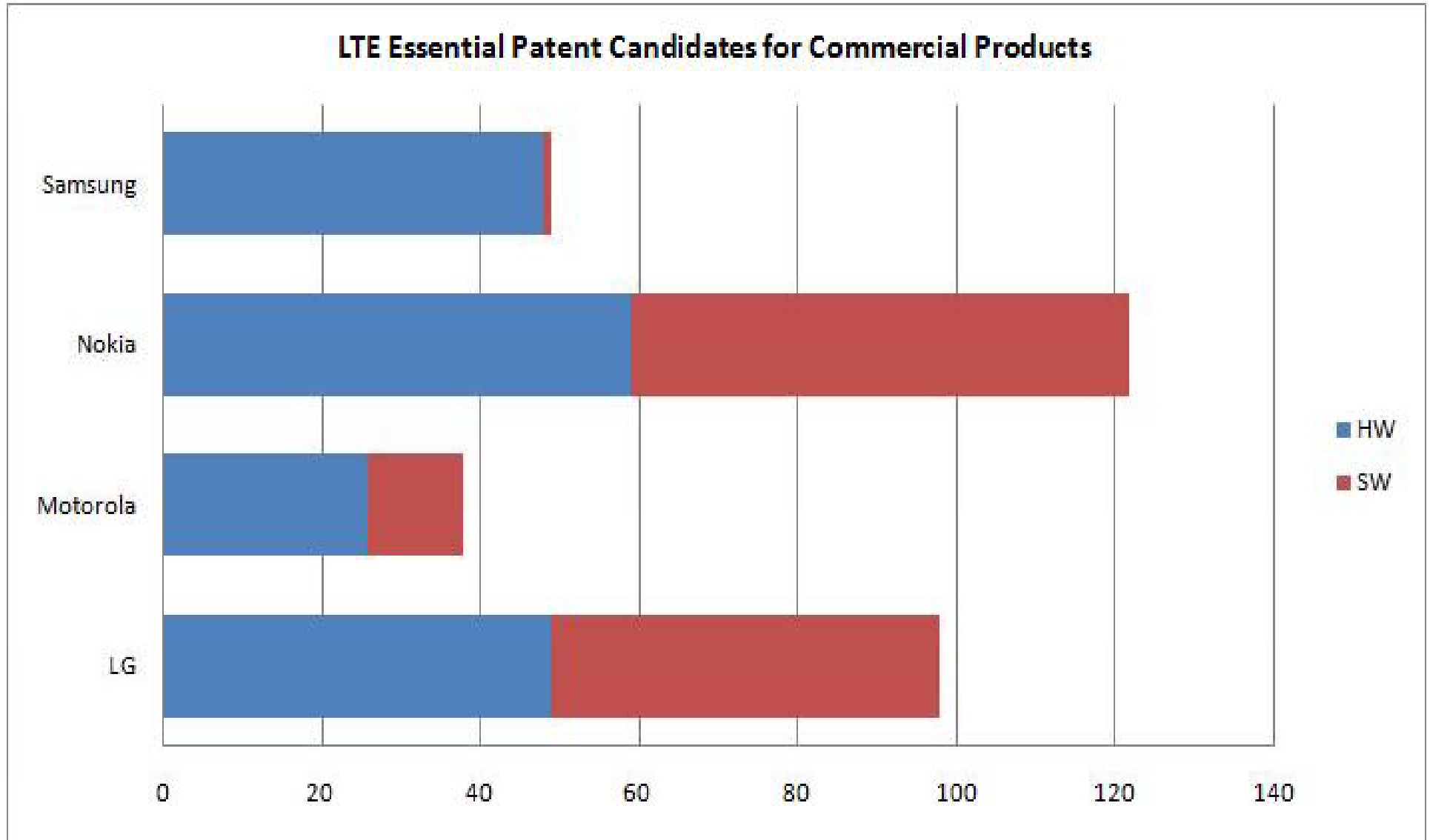


Fig. 1.3 LTE Essential Patent Candidates for Commercial Products



2. LTE Patent Portfolios for Baseband Products



LTE digital baseband for 3GPP standard specifications consists of two core parts: OFDM/MIMO Modem (TS36.211+TS36.213) and Channel Coder (TS36.212).

There are already several commercial products for LTE baseband in the market: Altair Semiconductor's FourGee-3100 LTE baseband processor (<http://www.altair-semi.com/>), Freescale Semiconductor's MSC8156 processor (<http://www.freescale.com/>), and Qualcomm's MDM9xxx-series LTE device chipsets.

IPR licensing candidate analysis for LTE baseband products in the lists of patents declared essential to LTE appear at the ETSI IPR Online shows that there are 94 issued patents and 231 published patent applications in the United States as of July 31, 2009.

As for the issued patents, Qualcomm is the leader in IPR share (27 %) followed by Nortel (26 %) and Nokia (22 %).

As for the published patent applications, Qualcomm is also the leader in IPR share (35 %) followed by Samsung (14 %), and Nokia (13 %).

3. LTE Patent Portfolios for Protocol Stack Products



LTE protocol stack for 3GPP standard specifications consists of four core parts: MAC (TS36.321), RLC (TS36.322), PDCP (TS36.323), and RRC (TS36.331). There are already several commercial products for LTE protocol stack in the market: 4M Wireless's PS100 Protocol Stack (<http://www.4mwireless.com/>), Nomor Research's LTE Radio Protocol Stack (<http://www.nomor.de/>), SySDSoft's LTE Protocol Stack (<http://www.sysdsoft.com/>), and Aricent's Protocol Stack Solution (<http://www.aricent.com/>).

IPR licensing candidate analysis for LTE protocol stack products in the lists of patents declared essential to LTE appear at the ETSI IPR Online shows that there are 79 issued patents and 85 published patent applications in the United States as of July 31, 2009.

As for the issued patents, Nokia is the leader in IPR share (41 %) followed by Ericsson (29 %) and Qualcomm (23 %).

As for the published patent applications, Nokia is the leader in IPR share (32 %) followed by Qualcomm (28 %), and InterDigital (24 %).

Thank you!



If you have any questions
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