CDMA2000 and LTE Device Availability and Trends

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ALU Device Strategy
How is Alcatel-Lucent helping build the CDMA2000 and LTE device ecosystem

• Enable a comprehensive and open ecosystem with multiple device & application partners to secure timely and coordinated launch of CDMA2000 and LTE devices for global carriers

• Partner with Tier1 and Tier 2 chipset and device vendors:
  • Work closely with ASIC vendors to understand chipset roadmaps
  • Perform IOT with multiple ODM to facilitate ecosystem development and widest possible choice of platforms
  • Build a close collaboration with ASIC vendors covering testing, standards and ecosystem development

• Work closely with NA Tier 2/3 carriers and their respective device vendors to ensure the targeted device form factors and features are tested prior to network trial or deployment
CDMA2000 and LTE Global Device Availability

Device selection, performance and affordability drives demand

**CDMA2000 1X and EV-DO Rev. A Devices**
Up to 3,000 devices from 162 suppliers

**EV-DO Rev. B Devices**
30 devices from 12 suppliers

**LTE Devices**
32 devices (including BC 13, 17 & 4) from 10 suppliers

Source: CDG, February 2012
LTE Devices Trends
How many of these devices are commercially available?

269 LTE User Devices Targeted in 2012

- Modules: 56
- Tablets: 31
- Notebooks: 18
- PC Cards: 12
- Femtocell: 2
- Smartphones: 101
- Routers: 48
- Dongles: 1

Source of Data: Status of the LTE Ecosystem - GSA January 20, 2012

- Operating frequencies
  LTE networks are deployed globally in many bands. GSA’s analysis of how the main LTE bands are supported by the devices ecosystem is as follows:

<table>
<thead>
<tr>
<th>Band</th>
<th>Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTE FDD</td>
<td></td>
</tr>
<tr>
<td>700 MHz</td>
<td>142</td>
</tr>
<tr>
<td>800 MHz</td>
<td>52</td>
</tr>
<tr>
<td>1800 MHz</td>
<td>50</td>
</tr>
<tr>
<td>2600 MHz</td>
<td>65</td>
</tr>
<tr>
<td>800/1800/2600 MHz</td>
<td>43</td>
</tr>
<tr>
<td>AWS</td>
<td>51</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LTE TDD</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2300 MHz Band 40</td>
<td>36</td>
</tr>
<tr>
<td>2600 MHz Band 38</td>
<td>36</td>
</tr>
<tr>
<td>2600 MHz Band 41</td>
<td>5</td>
</tr>
</tbody>
</table>

Note 1: manufacturers have not yet declared operating frequencies or fallback modes for some products

- Current LTE Device Ecosystem in NA include B13, B17 and B4
- Devices for BC12, BC2 and BC25 are targeted in the Q3 2012 timeframe
- Form Factors include USB Dongles, Smartphone, Hotspot and Tablets
LTE Device Fragmentation
Each region has a different set of device requirements

**Americas**
New 700Mhz band combined with GSM/WCDMA & CDMA bands refarming

**Europe, Africa & Middle East**
GSM/UMTS refarming of 1800, 900, digital divide 800 & 2600 BWA bands

**China & APAC**
CDMA & GSM / WCDMA refarming and TDD BWA new bands

**North America**
- Band 2
- Band 4
- Band 12
- Band 13
- Band 14
- Band 17
- Band 25
- Band 5

**Europe**
- Band 3
- Band 7
- Band 20
- Band 40
- Band 7
- Band 13
- Band 9

**Middle East & India**
- Band 7
- Band 40
- Band 7
- Band 3
- Band 40
- Band 7

**Africa**
- Band 7

**CALA**
- Band 2
- Band 3
- Band 4
- Band 7
- Band 12
- Band 38

Typically devices will support a maximum of 3 LTE bands (e.g. roaming)

Source: ALU Device Alliance Team
Tier 1 Operator Device Selection

VZW CDMA2000 and LTE device portfolio

CDMA2000
Selection of 40 devices from 11 suppliers
$49 to $179

LTE Band 13
Selection of 20 devices from 11 suppliers
$199 to $299

- 11 Smartphone from Motorola, LG, Samsung, Pantech and HTC
- 2 Mobile Hotspots
- 3 Tablets
- 2 Netbooks
- 2 USB Dongles

Pre-owned certified devices are also sold (with no subsidy)
Tier 2 Operator Device Selection
US Cellular and MetroPCS CDMA2000 and LTE device portfolios

**CDMA2000**
Selection of 20 devices from 8 suppliers
Free to $129

**LTE**
Band 25
Selection of 2 devices from 1 supplier
Up to $399

**CDMA2000**
Selection of 12 devices from 6 suppliers
$9 to $149

**LTE**
Band 25
Selection of 3 devices from 2 suppliers
$199 to $299
LTE Devices Trends

Pricing for LTE device types expected for Tier 2 carriers in June 2012

Tablets
- LTE+ 3G + 2G Multimode Devices
  - 50K units: $368
  - 25K units: $380

Smartphones
- LTE+ 3G + 2G Multimode Devices
  - 50K units: $358
  - 25K units: $370

CPEs
- LTE+ 3G + 2G Multimode Devices
  - 50K units: $370
  - 25K units: $358
  - 10K units: $210

USB Modems
- LTE+ 3G + 2G Multimode Devices
  - 50K units: $160
  - 25K units: $180

Estimated Price Range

Price competition has begun, especially with USBs