

Report to 3GPP PCG #34

ETSI HQ, Sophia Antipolis – April 28, 2015

GSA - Global mobile Suppliers Association
www.gsacom.com

LTE and LTE-Advanced

LTE Market Status
GSA's Evolution to LTE report – APRIL 9, 2015

646 operators investing in LTE in 181 countries

- 607 operator commitments in 176 countries
- 39 pre-commitment trials in 5 more countries

393 commercially launched LTE networks in 138 countries
incl. 54 LTE TDD (TD-LTE) launched in 34 countries

GSA forecasts 460 commercially launched LTE networks by end 2015

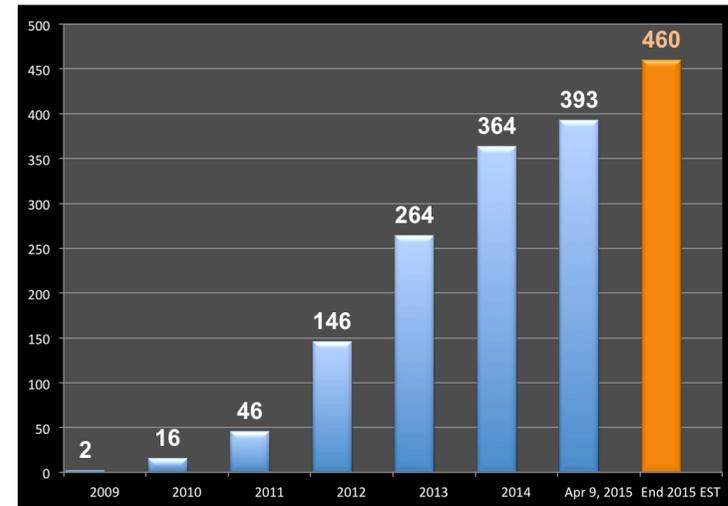
2,646 LTE user devices announced
(February 2015)

497 million LTE subscriptions globally: Q4 2014

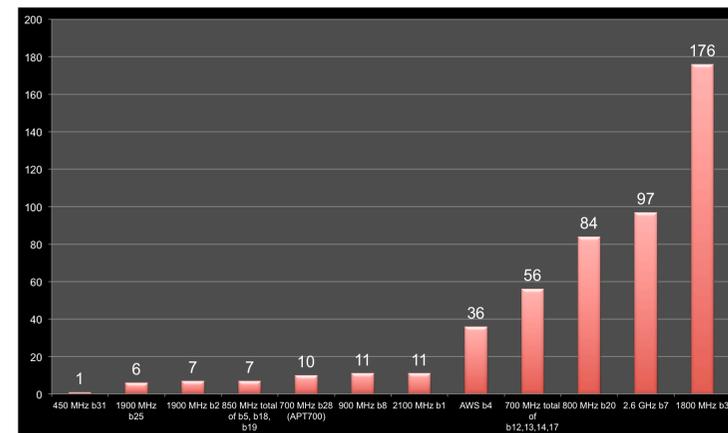
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LTE subscriptions growth globally exceeded 3G in both Q3 and Q4 2014

Source GSA: Evolution to LTE report – 9 April 2015

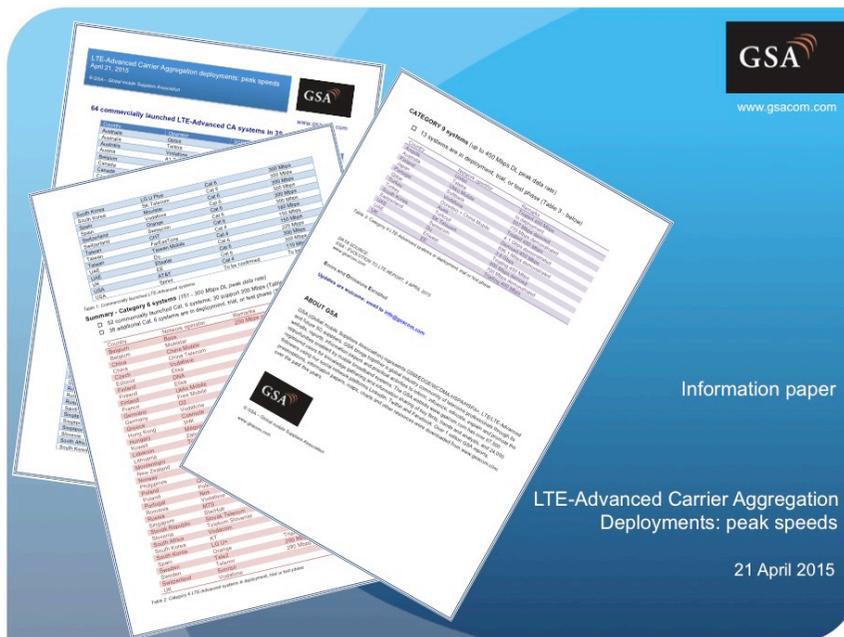


Cumulative commercially launched LTE networks growth



Frequency bands in commercial use for LTE service

LTE-Advanced deployment is the major trend



116 operators (30%) of LTE operators are investing in carrier aggregation technology worldwide at various stages of deployment

64 LTE-Advanced systems commercially launched in 39 countries

52 (over 80%) commercially launched Category 6 systems; 30 systems support the max. 300 Mbps theoretical peak DL speed, in 20 countries

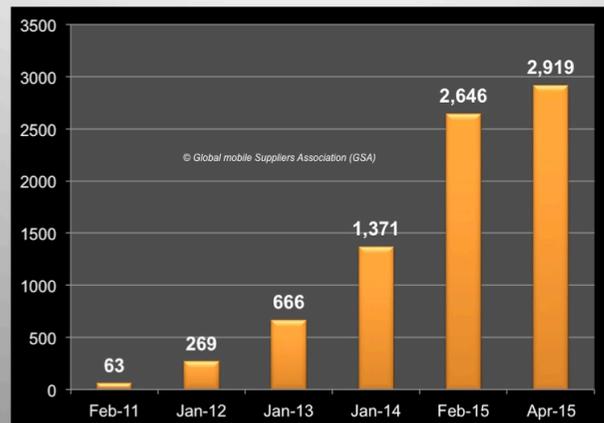
A further 38 Category 6 LTE-Advanced systems are in deployment, trial or test phase which means 90 Category 6 systems are commercially launched, in deployment, trial phase or being tested, representing almost a quarter of all commercially launched LTE networks

Source GSA: *Evolution to LTE report (9 April 2015)* and *LTE-Advanced Carrier Aggregation Deployments: peak speeds (21 April 2015)*

Source GSA: Status of the LTE Ecosystem report –20 April 2015

LTE user devices

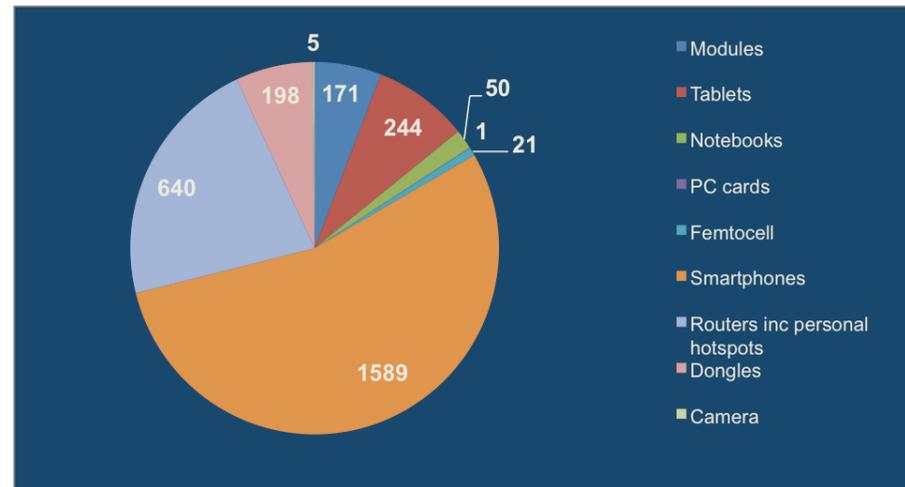
LTE user devices growth



LTE terminals announcements as confirmed in GSA reports up to 20 April 2015

Source: Status of the LTE Ecosystem reports 2011 – 2015
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1085 LTE TDD devices, support is greatest for Band 40



LTE FDD	
1800 MHz band 3	1,322 devices
2600 MHz band 7	1,200 devices
2100 MHz band 1	998 devices
800 MHz band 20	709 devices
AWS band 4	613 devices
800/1800/2600 tri-band	641 devices
700 MHz bands 12 or 17	563 devices
850 MHz band 5	551 devices
900 MHz band 8	548 devices
700 MHz band 13	405 devices
1900 MHz band 2	420 devices
1900 MHz band 25	171 devices
APT700 band 28	92 devices

Band 3 has the largest overall user devices ecosystem

858 devices support Cat 4

69 devices support Cat 6

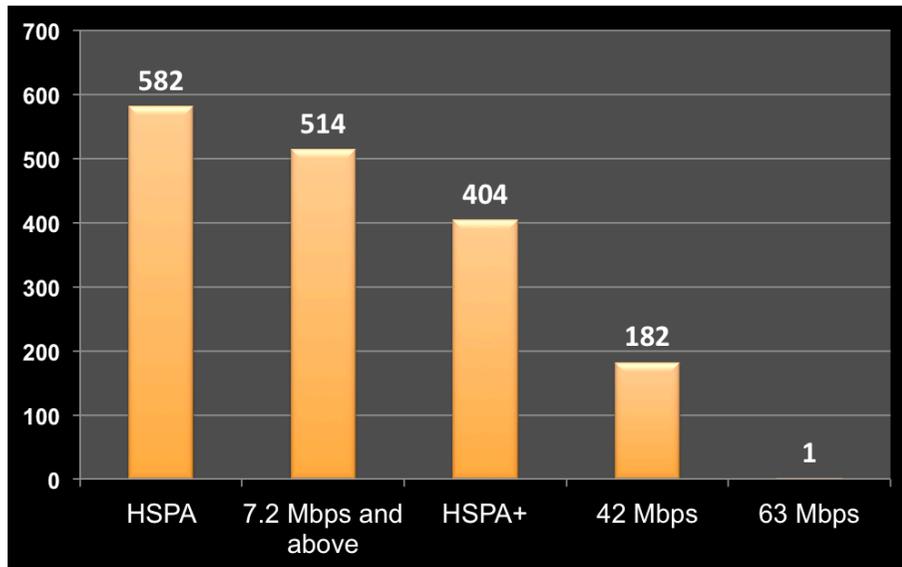
89% of all LTE devices can operate on a 3G technology (2,035 on HSPA systems)

196 VoLTE capable devices including 177 smartphones have been announced

LTE TDD	
2300 MHz band 40	788 devices
2600 MHz band 38	685 devices
1900 MHz band 39	570 devices
2600 MHz band 41	539 devices
3500 MHz band 42,43	26 devices

HSPA, HSPA+, DC-HSPA+, 3C-HSPA

Source GSA research



600 operators committed to deploy HSPA systems in 217 countries

582 (i.e. 69%) launched HSPA systems in 216 countries

- includes 404 operators using HSPA+, DC-HSPA+, or 3C-HSPA+
- Over 1.83 billion subscriptions (Q4 2014)

3GPP band 1 used widely for 3G deployments

3GPP band 8 used in 96 3G networks (UMTS900) in 60 countries

Relevance of 3G in a 4G world

- ❑ Total 3G connections globally are expected to exceed LTE up until 2020
- ❑ Growing voice traffic relies on 3G as VoLTE solutions are still maturing
- ❑ More than 80% of operators continue 3G investments
 - ❑ Top feature upgrades are DC-HSPA (downlink & uplink) smartphone features (CPC & E-FACH)

132 mobile operators have commercially launched HD voice service in 81 countries

16 use VoLTE to enable HD voice calling on LTE networks

Breakdown by network type

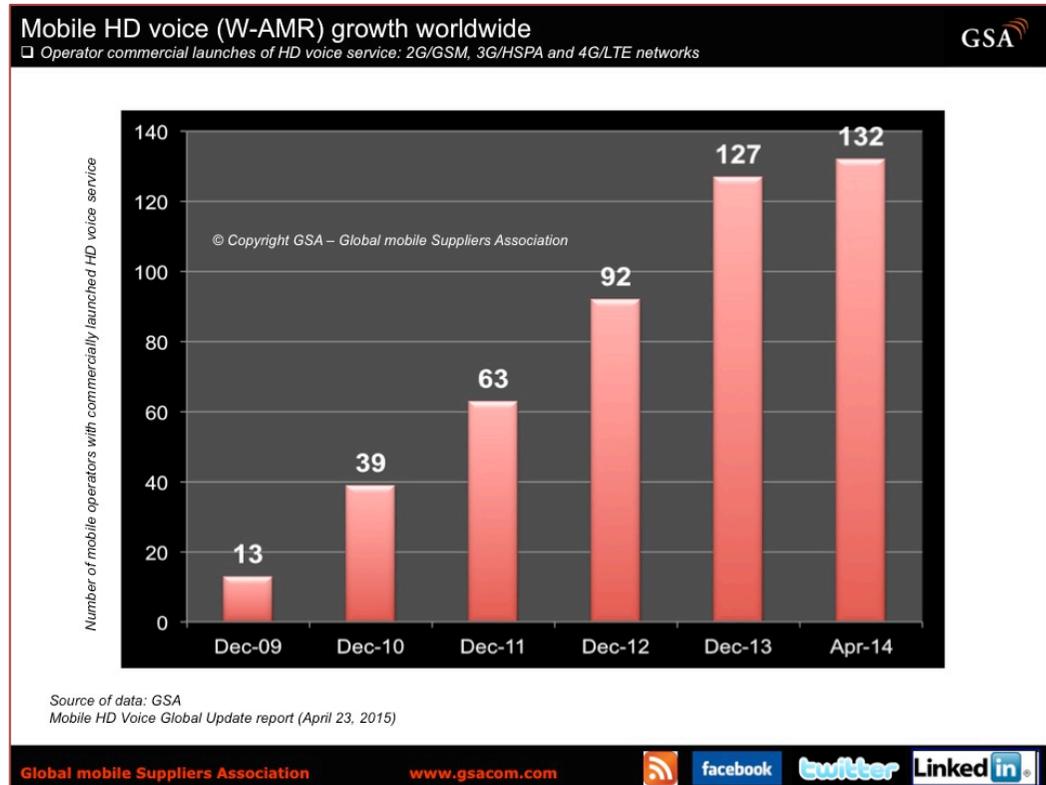
HD voice is commercially launched on:

120 HSPA networks

14 GSM networks

16 LTE networks

(Note: some operators offer HD voice service using more than one RAN. MVNOs excluded)



New President

Joe Barrett – elected and in post from February 1, 2015



Alan Hadden – in new role as VP, Research

GSA site metrics/audiences

- ❑ 68,000 registered site users from the telecoms industry and adjacent markets
- ❑ Over 1 million GSA reports, information papers, graphics, Members and guest contributions were downloaded from the site in under 5 years
- ❑ 24,000 connections/followers on social media platforms (LinkedIn, Twitter, Facebook)

New SNAPSHOT series of information papers launched

Complement GSA's Evolution to LTE reports

- very popular, short, fact based papers, focusing on:
 - LTE-Advanced
 - VoLTE
 - LTE TDD
 - LTE1800
 - APT700

Other high-demand reports:

- LTE-Advanced Carrier Aggregation deployments: peak speeds
- Mobile HD voice
- LTE Broadcast (eMBMS) Global Update

New areas of GSA work in the next 12 months

- LTE for Public Safety and Critical Communications systems
- Cellular IoT
- Spectrum aspects: LTE in unlicensed bands, Licensed Shared Access, etc.
- The road to 5G