

# **LTE for Critical Communications: 2016 – 2030 – Opportunities, Challenges, Strategies & Forecasts**

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## **Abstracts**

For years, the critical communications industry has relied on narrowband LMR (Land Mobile Radio) networks for mission-critical voice and basic data services. Due to the bandwidth limitations of these LMR networks, public safety agencies and other users within the critical communications industry are keen to leverage commercial cellular network technologies to support growing demands for mobile broadband services such as video transmission and bandwidth-intensive field applications.

Considering its thriving ecosystem, spectrum flexibility and performance metrics, LTE has emerged as the leading candidate for critical communications broadband networks. In addition, with the recent approval of the MCPTT (Mission Critical Push to Talk) voice standard as part of 3GPP Release 13, LTE has also become an attractive substitute for providing LMR-like voice services.

As a result, a growing number of critical communications organizations are deploying either private LTE networks or contracting commercial LTE mobile operator services via MVNO arrangements to complement their existing LMR systems with broadband capabilities.

Driven by early investments in the Middle East and Asia Pacific regions, the market for critical communications LTE networks is already worth \$600 Million in annual infrastructure spending. Fueled by large-scale rollouts in the public safety, energy and other sectors, the market is further expected to surpass \$2 Billion by the end of 2020. This includes spending on base stations (eNBs), mobile core and transport networking gear.

Spanning over 1,200 pages, the “LTE for Critical Communications: 2016 – 2030 –

“Opportunities, Challenges, Strategies & Forecasts” report package encompasses three comprehensive reports covering both commercial and dedicated LTE networks for critical communications.

The LTE, LTE-Advanced & 5G Ecosystem: 2016 – 2030 – Infrastructure, Devices, Operator Services, Verticals, Strategies & Forecasts

The Private LTE Network Ecosystem: 2016 – 2030 – Opportunities, Challenges, Strategies, Industry Verticals & Forecasts

The Public Safety LTE & Mobile Broadband Market: 2016 – 2030 – Opportunities, Challenges, Strategies & Forecasts

This report package provides an in-depth assessment of LTE for critical communications and also explores the wider market for commercial LTE services. Besides analyzing technologies, architectural components, operational models, key trends, market drivers, challenges, vertical market opportunities, applications, deployment case studies, spectrum allocation, standardization, regulatory landscape, future roadmap, value chain, ecosystem player profiles and strategies, the report package also provides infrastructure investment forecasts from 2016 till 2030.

The report package comes with an associated Excel datasheet suite covering quantitative data from all numeric forecasts presented in the report package.

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## **LIST OF COMPANIES MENTIONED**

3GPP (3rd Generation Partnership Project)

5G-PPP

Aaeon

Abu Dhabi Police

Accelerated Concepts

Accelleran

AceAxis

ACMA (Australian Communications and Media Authority)

Aculab

Adax

ADCOM911 (Adams County Communications Center)

Addis Ababa Light Rail

ADRF (Advanced RF Technologies)

Advantech

Advantech Wireless

Aeroflex

Affarii Technologies

Affirmed Networks

Agile Networks

Airbus Defence and Space  
Airbus Group  
Air-Lynx  
Airspan Networks  
Airvana  
Airwave Solutions  
Ajman Police  
Alcatel-Lucent  
Alstom  
Altiostar Networks  
Ambulance Victoria  
Amdocs  
Anite  
Anritsu Corporation  
Ansaldo STS  
APCO International (Association of Public-Safety Communications Officials)  
Apple  
ARASKOM  
Arcadyan Technology Corporation  
Argela  
Aricent  
ARItel  
Arqiva  
Artemis Networks  
Aselsan  
ASOCS  
ASTRI (Hong Kong Applied Science and Technology Research Institute)  
ASTRID  
ASTRO Solutions  
ASUS (ASUSTeK Computer)  
AT&T  
AT&T Mobility  
Athena Wireless Communications  
Athonet  
ATIS (Alliance for Telecommunications Industry Solutions)  
Atlas Telecom  
Avanti Communications Group  
Avaya  
AVI

Aviat Networks  
Avtec  
Axell Wireless  
Axis Communications  
Axis Teknologies  
Axxcelera Broadband Wireless  
BAE Systems  
BaiCells  
BandRich  
Barrett Communications  
BASE (Belgium)  
Baylin Technologies  
BayRICS (Bay Area Regional Interoperable Communications Systems Authority)  
BayWEB (Bay Area Wireless Enhanced Broadband System)  
BBK Electronics Corporation  
Beach Energy  
Belkin International  
BFDX  
Bilbao Metro  
Bird Technologies  
Bittium Corporation  
Black Box Corporation  
BlackBerry  
Blackhawk Imaging  
Blackned  
Bluebird  
Boise Police Department  
Bombardier Transportation  
Bosch Security Systems  
Brazilian Army  
Bridgewater  
Broadcom  
Brocade Communications Systems  
BT Group  
BTI Wireless  
Busan Transportation Corporation  
C4i  
CalAmp Corporation  
Calgary Police Service

Camden County Public Safety  
Canadian Advanced Technology Alliance  
Casa Systems  
Casio Computer Company  
Catalyst Communications  
Caterpillar  
Cavium  
CCI (Communication Components Inc.)  
CCI (Competitive Companies, Inc.)  
CCI (Crown Castle International)  
CCSA (China Communications Standards Association)  
CCTI (Catalyst Communications Technologies, Inc.)  
Cellvine  
Ceragon  
Challenge Networks  
China Mobile  
China Southern Power Grid  
Ciena Corporation  
Cisco Systems  
CITIG (Canadian Interoperability Technology Interest Group)  
City of Charlotte  
City of Fort Worth  
City of Irving  
City of New Orleans  
City of Oakland  
City of Pembroke Pine  
Cobham  
Cobham Wireless  
Codan Radio Communications  
Colorado Parks and Wildlife  
Comba Telecom Systems Holdings  
CommAgility  
CommandWear Systems  
CommScope  
Comtech Telecommunications Corporation  
CONET Technologies  
Connectem  
Contela  
Coolpad



Core Network Dynamics  
Coriant  
Corning  
County of Los Angeles  
Covia Labs  
CPqD (Center for Research and Development in Telecommunications, Brazil)  
Cradlepoint  
Crown Castle  
CSI (Cellular Specialties, Inc.)  
Cybertel Bridge  
Cygnus Satellite  
Dali Wireless  
DAMM Cellular Systems  
DAP Technologies  
DAPage Notifications  
DataNet Software  
Datang Group  
Datang Mobile  
Dell  
DeltaNode  
Dish Network  
D-Link Corporation  
DNK (Norwegian Directorate for Emergency Communication)  
Dongwon T&I  
Dovado  
DragonWave  
DSC (Digital Special Communication)  
DT (Deutsche Telekom)  
Dubai Police  
Durabook (Twinhead International Corporation)  
Dutch Police  
EA Networks (Electricity Ashburton)  
EADS  
Eastcom  
EchoStar Corporation  
Eden Rock Communications  
EE  
EENA (European Emergency Number Association)  
EF Johnson

Elbit Systems  
Elta Systems  
EMC Corporation  
Ericsson  
Ericsson LG  
Esharah Etisalat Security Solutions  
ETELM  
Etherstack  
Ethertronics  
Etisalat  
ETRI (Electronics and Telecommunications Research Institute, South Korea)  
ETSI (European Telecommunications Standards Institute)  
EUAR (European Union Agency for Railways)  
Eventide  
EXACOM  
Exalt Communications  
Exelis  
EXFO  
Expway  
ExteNet Systems  
Facebook  
Falu Municipality  
Federated Wireless  
FirstNet (First Responder Network Authority)  
Foxcom  
Fraunhofer Fokus  
French Army  
French MOI (Ministry of Interior)  
Frequentis  
Fujitsu  
Galtronics Corporation  
Gemtek Technology Company  
GENBAND  
General Dynamics Corporation  
General Dynamics Mission Systems  
Genesis Group  
German Armed Forces (Bundeswehr)  
Getac Technology Corporation  
Gionee

Goodman Networks  
Goodmill Systems  
Google  
Governor's OIT (Office of Information Technology), State of Colorado  
Grant County Sheriff's Office  
GrenTech (China GrenTech Corporation)  
GWT (Global Wireless Technologies)  
Harris Corporation  
Harris County  
HFRS (Hampshire Fire & Rescue Service)  
Hitachi  
Home Office, UK  
Honeywell  
Hong Kong Police Force  
HPE (Hewlett Packard Enterprise)  
HQT Radio  
HTC Corporation  
Huawei  
Hughes Communications  
Hughes Network Systems  
Hytera Communications Company  
IAI (Israel Aerospace Industries)  
iBwave Solutions  
iCOM  
IDF (Israel Defense Forces)  
IETF (Internet Engineering Task Force)  
Imtradex  
INET (Infrastructure Networks)  
InfoVista  
Inmarsat  
InnerWireless  
Intel Corporation  
Intel Security  
InterDigital  
Intersec  
Intrepid Networks  
ip.access  
IPWireless  
ITELAZPI

ITU (International Telecommunication Union)  
ITU-R (ITU Radiocommunication Sector)  
JDI (JING DENG INDUSTRIAL)  
JMA Wireless  
Jordanian Armed Forces  
JRC (Japan Radio Company)  
Juni Global  
Juniper Networks  
JVCKENWOOD Corporation  
Kapsch CarrierCom  
Kathrein-Werke KG  
KBR  
KDDI Corporation  
Kelrad Software  
Kenyan Police Service  
Keysight Technologies  
Kirisun Communications  
Kisan Telecom  
KMW  
Kodiak Networks  
Koning & Hartman  
Korail (Korea Railroad)  
Korea Rail Network Authority  
KPN  
KT Corporation  
Kudelski Group  
Kumu Networks  
Kyocera Corporation  
L-3 Communication Systems-West  
L-3 Communications Holdings  
Laos Police  
LA-RICS (Los Angeles Regional Interoperable Communications System)  
Las Vegas Metropolitan Police Department  
Lemko Corporation  
Lenovo  
Leonardo-Finmeccanica  
LG CNS  
LG Electronics  
LG Group

LG Uplus  
LGS Innovations  
Ligado Networks  
Lijiang Police  
Linksys  
LiveViewGPS  
Lockheed Martin Corporation  
Logic Instrument  
LTE-U Forum  
Luminate Wireless  
M1  
Marlink  
Mavenir Systems  
McWane  
MediaTek  
MegaFon  
Meizu  
Mentura Group  
MER-CelIO Wireless Solutions  
MetroPCS  
Miami Dade Police Department  
Miami-Dade County  
Microlab  
Microsoft Corporation  
Milestone Systems  
MIMOon  
Ministry of Industry and Information Technology, China  
Mitel Networks Corporation  
Mitsubishi Electric Corporation  
MobileDemand  
Mobilicom  
Mobistar  
MODUCOM (MODULAR COMMUNICATION SYSTEMS)  
MOF (Ministry of Oceans and Fisheries, South Korea)  
MOLIT (Ministry of Land, Infrastructure and Transport, South Korea)  
Moscow Police  
Moseley Associates  
Motorola Mobility  
Motorola Solutions

MPS (Ministry of Public Security, China)  
MPSS (Ministry of Public Safety and Security, South Korea)  
MSB (Swedish Civil Contingencies Agency)  
MTI Mobile  
MulteFire Alliance  
Mutualink  
Nanjing Municipal Government  
National Rail, UK  
NATO (North Atlantic Treaty Organization)  
NCRIC (Northern California Regional Information Center)  
NEC Corporation  
NEC Mobile Communications  
Nedaa  
Nemergent  
Neptune Mobile  
Net4Mobility  
Netas  
Netgear  
NetMotion Wireless  
Nevada Department of Transportation  
New Jersey ROIC (Regional Operations Intelligence Center)  
New Jersey State Police  
New Jersey Transit  
New Mexico DoIT (Department of Information Technology)  
New Postcom Equipment Company  
New Zealand Police  
NewCore Wireless  
Nexius  
NextG Networks  
NextNav  
NI (National Instruments) Corporation  
Nokia Corporation  
Nokia Networks  
Northrop Grumman Corporation  
Novatel Wireless  
nTerop Corporation  
NTT DoCoMo  
NuRAN Wireless  
Nutaq

O3b Networks  
Oceus Networks  
Octasic  
OMA (Open Mobile Alliance)  
Oman Royal Office  
Ontario Ministry of Transportation  
ONTHEGODEVICES  
OpenSignal  
OPPO  
Optiway  
Orange  
Panasonic Corporation  
Panda Electronics (Nanjing Panda Electronics Company)  
Panorama Antennas  
Pantech  
Parallel Wireless  
Pennsylvania State Police  
Pepro  
PetroChina  
Philadelphia Police Department  
Phluido  
Phonak  
Piciorgros (Funk-Electronic Piciorgros)  
Pikewerks Corporation  
PMN (Private Mobile Networks)  
Polaris Networks  
Police Federation of Australia  
Port of Tianjin  
Portalify  
Potevio (China Potevio Company)  
PowerTrunk  
Productivity Commission, Australia  
Proximus  
Pryme Radio Products  
Public Wireless  
PureWave Networks  
Puxing Radio  
Pyramid Communications  
Qatar Armed Forces



Qatar MOI (Ministry of Interior)  
Qigihar Municipal Public Security Bureau  
Qiqihar Police  
Qualcomm  
Quanta Computer  
Qucell  
Queensland Police Service  
Quortus  
RACOM  
Radio IP  
Radisys Corporation  
RADWIN  
RAVEN Electronics Corporation  
Raytheon Company  
RCMP (Royal Canadian Mounted Police)  
Reality Mobile  
Redline Communications  
RELM Wireless  
RF Window  
RFS (Radio Frequency Systems)  
Rio de Janeiro Fire Department  
Rio Tinto Group  
Rivada Networks  
Rohde & Schwarz  
Rohill  
Roper Industries  
Rosenberger  
Royal Dutch Shell  
Ruckus Wireless  
Safaricom  
SAIC (Science Applications International Corporation)  
Samji Electronics Company  
Samsung Electronics  
Samsung Group  
SANG (Saudi Arabian National Guard)  
Sao Paulo Military Police  
Sapura Secured Technologies  
Saudi MOI (Ministry of Interior)  
Savox Communications

Selex  
Sepura  
SerComm Corporation  
SES  
SETAR  
Sevis Systems  
SFR  
Shanghai Police Department  
Sharp Corporation  
Shuohuang Railway  
Siemens  
Siemens Convergence Creators  
Sierra Wireless  
Signalion  
Siklu  
Simoco  
Singtel  
SiRRAN  
SK Telecom  
SK Telesys  
SLA Corporation  
SLC (Secure Land Communications)  
Smith Micro Software  
SoftBank Group  
SOLiD (SOLiD Technologies)  
Sonic Communications  
Sonim Technologies  
Sony Corporation  
Sony Mobile Communications  
Southern Company  
SouthernLINC Wireless  
Space Data  
Spectra Group  
SpiderCloud Wireless  
Spirent Communications  
Spreadtrum  
Sprint Corporation  
Star Solutions  
State of Louisiana

State of Minnesota  
State of Mississippi  
State of New Jersey  
State of New Mexico  
State of Oklahoma  
State of Texas  
State Security Networks Group, Finland  
Statoil  
STC (Saudi Telecom Company)  
Stop Noise  
Sumitomo Electric Industries  
Sunnada (Fujian Sunnada Communication Company)  
Surrey Police  
Swedish National Police  
Symantec  
Tait Communications  
Tampnet  
Taqua  
TCCA (TETRA and Critical Communications Association)  
TCL Communication  
TCS (TeleCommunication Systems)  
TDIA (TD-Industry Alliance)  
TE Connectivity  
Techosonic Industries  
Tecom  
Tecore  
TEKTELIC Communications  
Telefonica  
Telenor Maritime  
Televate  
TELEX  
Telrad Networks  
Telstra  
Teltronic  
Telum  
Telus  
TEN (Texas Energy Network)  
TESSCO  
TETRAtab

Thales  
TI (Texas Instruments)  
TIA (Telecommunications Industry Association)  
TITAN Communication Systems  
T-Mobile USA  
Toshiba Corporation  
Tropico  
TrustComm  
TTA (Telecommunications Technology Association, South Korea)  
Turk Telekom  
Turkish National Police Force  
Twisted Pair Solutions  
TxDPS (Texas Department of Public Safety)  
U.S. Army  
U.S. CBP (Customs and Border Protection)  
U.S. Cellular  
U.S. Coast Guard  
U.S. Department of Commerce  
U.S. Department of Defense  
U.S. Department of Homeland Security  
U.S. Department of State  
U.S. FCC (Federal Communications Commission)  
U.S. FEMA (Federal Emergency Management Agency)  
U.S. Navy  
U.S. NIST (National Institute of Standards and Technology)  
U.S. NPSTC (National Public Safety Telecommunications Council)  
U.S. NTIA (National Telecommunications and Information Administration)  
UAE MOI (Ministry of Interior)  
UANGEL  
Ubidyne  
UIC (International Union of Railways)  
UNIMO Technology  
University of Ottawa  
Uppsala Ambulance Services  
UQ Communications  
URSYS  
US Digital Designs  
USPTO (U.S. Patent and Trademark Office)  
Utility Associates

Verizon Communications  
Verizon Wireless  
ViaSat  
Viavi Solutions  
Vidyo  
Vientiane Municipal Government  
Vientiane Municipal Police  
VIRVE  
Vision Technologies  
Vivo  
VMware  
Vodacom Group  
Vodafone Group  
Vodafone New Zealand  
Weijiamao Coal Mine  
West Corporation  
Westell Technologies  
Western Australia Police  
Wi-Fi Alliance  
Wildox  
Winmate  
WinMate Communication  
Wireless Telecom Group Company  
WNC (Wistron NeWeb Corporation)  
Wytec International  
xG Technology  
Xiaomi  
Xplore Technologies Corporation  
Z-com (ZDC Wireless)  
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