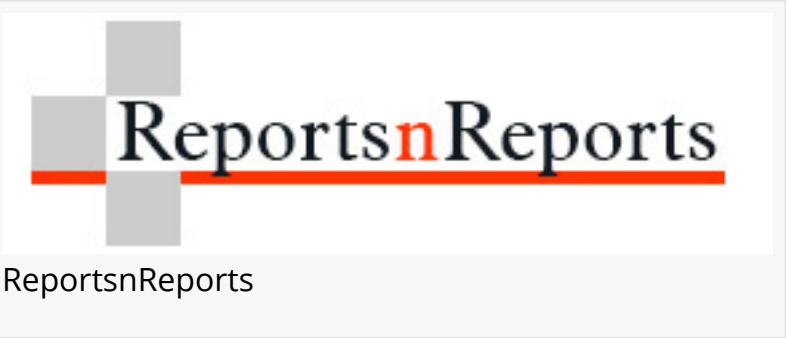
Global Public Safety LTE & 5G Market 2030 - Key Players, Size, Opportunities, Challenges, Strategies and Forecasts



PUNE, INDIA, February 9, 2023 /EINPresswire.com/ -- The Public Safety LTE & 5G Market refers to the use of Long-Term Evolution (LTE) and fifth-generation (5G) cellular networks for emergency services, such as law enforcement, firefighting, and emergency medical services. These networks are designed to provide high-speed, secure, and reliable communication for public safety agencies and personnel in the field.

The market for Public Safety LTE & 5G has been growing rapidly in recent years due to the increasing demand for advanced communication technologies in emergency services. The advent of 5G technology has brought several new capabilities, such as ultra-fast data speeds, low latency, and increased capacity, which are crucial for mission-critical public safety applications.

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Key players in the Public Safety LTE & 5G market include major telecom operators such as AT&T, Verizon, and T-Mobile, as well as technology providers such as Motorola Solutions, Ericsson, and Huawei.

Overall, the Public Safety LTE & 5G market is expected to continue growing in the coming years, as public safety agencies increasingly adopt these technologies to improve their communication and response capabilities in emergency situations.

Topics Covered

The report covers the following topics:

Introduction to public safety LTE and 5G
Value chain and ecosystem structure

Market drivers and challenges
System architecture and key elements of public safety LTE and 5G networks
Operational models for public safety LTE and 5G networks, including fully dedicated, shared core, hybrid government-commercial, secure MVNO/MOCN, commercial and sliced private networks
PPPs (Public-Private Partnerships) and other common approaches to financing and delivering dedicated nationwide public safety broadband networks
Enabling technologies and concepts, including 3GPP-defined MCX, HPUE, IOPS, 5G MBS, ProSe and sidelink for D2D communications, rapidly deployable LTE/5G systems, QPP (QoS, Priority & Preemption), network slicing, end-to-end security, high-precision positioning, ATG/A2G (Air-to-Ground), and satellite-based NTN (Non-Terrestrial Network) integration
Analysis of public safety broadband application scenarios and use cases, ranging from mission-critical group communications and real-time video transmission to 5G era applications centered upon MCX services in high-density environments, massive-scale UHD video surveillance and analytics, AR/VR/MR (Augmented, Virtual & Mixed Reality), drones and robotics
Key trends such as the growing prevalence of nationwide hybrid government-commercial broadband networks, production-grade deployments of 3GPP standards-compliant MCX services, LMR-based interim solutions for off-network communications, deployable LTE network assets for wildfire fighting and other disaster relief operations, and 5G NR-equipped portable networks supporting high-bandwidth, low-latency emergency communications.
Future roadmap for the public safety LTE and 5G market
Review of public safety LTE/5G engagements worldwide, including a detailed assessment of 15 nationwide public safety broadband projects and additional case studies of 50 dedicated, hybrid, secure MVNO/MOCN and commercial operator-supplied systems
Spectrum availability, allocation and usage across the global, regional and national domains
Standardization, regulatory and collaborative initiatives
Profiles and strategies of 1,700 ecosystem players, including LTE/5G equipment suppliers and public safety-domain specialists
Strategic recommendations for public safety and government agencies, LTE/5G infrastructure, device and chipset suppliers, LMR vendors, system integrators, and mobile operators
Market analysis and forecasts from 2022 till 2030

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Forecast Segmentation

Market forecasts are provided for each of the following submarkets and their subcategories:

Public Safety LTE & 5G Network Infrastructure

Submarkets

RAN (Radio Access Network)
Mobile Core
Backhaul & Transport
Technology Generations

LTE
5G NR
Mobility Categories

Fixed Base Stations & Infrastructure
Deployable Network Assets
Deployable Network Asset Form Factors

NIB (Network-in-a-Box)
Vehicular COWs (Cells-on-Wheels)
Aerial Cell Sites
Maritime Platforms
RAN Base Station (eNB/gNB) Cell Sizes

Macrocells
Small Cells
Backhaul & Transport Network Transmission Mediums

Fiber & Wireline
Microwave
Satellite
Public Safety LTE & 5G Terminal Equipment

Technology Generations

LTE
5G NR
Form Factors

Smartphones & Handportable Terminals
Mobile & Vehicular Routers
Fixed CPEs (Customer Premises Equipment)
Tablets & Notebook PCs
Smart Wearables
IoT Modules, Dongles & Others
Public Safety LTE & 5G Subscriptions/Service Revenue

Technology Generations

LTE
5G NR
Network Types

Dedicated & Hybrid Government-Commercial Networks
Secure MVNO & MOCN Networks
Sliced & Commercial Mobile Networks
Public Safety LTE & 5G Systems Integration & Management Solutions Submarkets

Network Integration & Testing
Device Management & User Services
Managed Services, Operations & Maintenance
Cybersecurity
Public Safety Broadband Applications

Submarkets

Mission-Critical Voice & Group Communications
Real-Time Video Transmission
Messaging, File Transfer & Presence Services
Mobile Office & Field Applications
Location Services & Mapping
Situational Awareness
Command & Control
AR/VR/MR (Augmented, Virtual & Mixed Reality)
Regional Markets

North America
Asia Pacific
Europe
Middle East & Africa
Latin & Central America
Key Questions Answered

The report provides answers to the following key questions:

How big is the public safety LTE and 5G opportunity?
What trends, drivers and challenges are influencing its growth?
What will the market size be in 2025, and at what rate will it grow?

Which submarkets and regions will see the highest percentage of growth?
What are the operational models and application scenarios of LTE and 5G for first responders?
What are the existing and candidate frequency bands for the operation of PPDR broadband systems?
How can public safety stakeholders leverage excess spectrum capacity to ensure the economic viability of purpose-built LTE and 5G NR infrastructure?
When will MCX, HPUE, IOPS, 5G MBS, 5G NR sidelink, NTN connectivity and other 3GPP-defined critical communications features be widely employed?
What is the status of fully dedicated, hybrid government-commercial and secure MVNO/MOCN-based public safety broadband networks worldwide?
When will FirstNet, Safe-Net, ESN, RRF, SIRDEE, VIRVE 2.0 and other nationwide public safety broadband networks replace existing digital LMR systems?
What opportunities exist for commercial mobile operators and critical communications service providers?
What are the future prospects of NIB (Network-in-a-Box), COW (Cell-on-Wheels), aerial cell sites and other rapidly deployable LTE and 5G NR-equipped network systems for incident command and emergency response needs?
How will 5G enable advanced features such as MCX services in high-density environments, UE-to-network and UE-to-UE relaying for coverage expansion, satellite-assisted NR access, high-precision positioning, and network slicing-based dynamic QoS guarantees and isolation?
Who are the key ecosystem players, and what are their strategies?
What strategies should LTE/5G infrastructure suppliers, LMR vendors, system integrators and mobile operators adopt to remain competitive?
Key Findings

The report has the following key findings:

SNS Telecom & IT estimates that annual investments in public safety LTE and 5G infrastructure will reach nearly $1.6 Billion by the end of 2022, driven by both new build-outs and the expansion of existing dedicated, hybrid government-commercial and secure MVNO/MOCN networks. Complemented by a rapidly expanding ecosystem of public safety-grade LTE/5G devices, the market will further grow at a CAGR of approximately 13% between 2022 and 2025, eventually accounting for more than $2.3 Billion by the end of 2025.

In addition to the high-profile FirstNet, South Korea’s Safe-Net and Britain’s ESN nationwide public safety broadband projects, many additional national-level programs are making considerable headway in moving from field trials to wider scale deployments – most notably, France's RRF, Spain's SIRDEE mission-critical broadband network, Finland's VIRVE 2.0 broadband service, Sweden's Rakel G2 secure broadband system and Hungary's EDR 2.0/3.0 broadband network.

Other operational and planned deployments include but are not limited to the Halton-Peel region PSBN in Canada's Ontario province, China's city and district-wide Band 45 (1.4 GHz) LTE

networks for police forces, Royal Thai Police's Band 26 (800 MHz) LTE network, Qatar MOI (Ministry of Interior), ROP (Royal Oman Police) and Nedaa's mission-critical LTE networks in the oil-rich GCC region, Brazil's state-wide Band 28 (700 MHz) networks for both civil and military police agencies, Barbados' Band 14 (700 MHz) LTE-based connectivity service platform, and Zambia's 400 MHz broadband trunking system.

Production-grade deployments of 3GPP standards-compliant MCX services – beginning with MCPTT – are continuing to accelerate over both commercial and public safety broadband networks. Early adopters range from Safe-Net, FirstNet and ESN to mobile operators such as Verizon, Southern Linc, Telus, SFR, KPN, Swisscom, Telia, Føroya Tele and STC (Saudi Telecom Company).

Even though critical public safety-related 5G NR capabilities defined in the 3GPP's Release 17 specifications are yet to be commercialized, public safety agencies have already begun experimenting with 5G for applications that can benefit from the technology's high-bandwidth and low-latency characteristics. For example, the Lishui Municipal Emergency Management Bureau is using a 5G-enabled closed-loop system for integrated emergency visualization and natural disaster management.

As 5G implementations become well-established in the 2020s, MCX services in high-density environments, real-time UHD video transmission through coordinated fleets of drones, 5G-connected autonomous police robots, smart ambulances, AR (Augmented Reality) firefighting helmets and other sophisticated public safety broadband applications will become a common sight.

Over the last two years, COWs (Cells-on-Wheels), COLTs (Cells-on-Light Trucks) and other deployable LTE network assets have played a pivotal role in facilitating mission-critical communications, real-time transmission of video footage, and improved situational awareness for incident command and emergency response needs – for instance, the mobilization of FirstNet deployables during the wildfire seasons of 2021 and 2022 in the United States.

5G NR-equipped portable network systems are also beginning to emerge. For example, Taiwan's Hsinchu City Fire Department is using an emergency response vehicle – which features a satellite-backhauled private 5G network based on Open RAN standards – to establish high-bandwidth, low-latency emergency communications in disaster zones. Between 2022 and 2025, SNS Telecom & IT expects cumulative spending on deployable assets for public safety broadband to exceed $700 Million.

Although much of the public safety spectrum debate is centered around low-band frequencies in the sub-1 GHz range, a number of PPDR stakeholders have started eyeing up mmWave spectrum reservation to be able to support advanced use cases in the coming years. For example, the Hungarian Ministry of Interior has specifically requested access to a 200 MHz block of Band n258 (26 GHz) spectrum for future 5G applications.

In addition, first responder agencies in Germany, Japan and several other markets are beginning to utilize mid-band and mmWave spectrum available for local area licensing to deploy portable and small-scale 5G NPNs (Non-Public Networks) to support applications such as UHD video surveillance and control of unmanned firefighting vehicles, reconnaissance robots and drones.

In the near future, we also expect to see rollouts of localized 5G NR systems for incident scene management and related use cases, potentially using up to 50 MHz of Band n79 spectrum in the 4.9 GHz frequency range (4,940-4,990 MHz), which has been designated for public safety use in multiple countries including but not limited to the United States, Canada, Australia, Malaysia and Qatar.

The ProSe chipset ecosystem has failed to materialize in the LTE era due to limited support from chipmakers and terminal OEMs. However, the 5G NR sidelink interface offers a clean slate opportunity to introduce direct mode, D2D communications for public safety broadband users, as well as coverage expansion in both on-network and off-network scenarios using UE-to-network and UE-to-UE relays respectively.

Another barrier impeding the market is the non-availability of cost-optimized COTS RAN equipment and terminals that support operation in certain frequency bands such as Band 68 (698-703 MHz / 753-758 MHz), which has been allocated for PPDR broadband systems in multiple European countries.

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List of Companies Mentioned

10T Tech
1NCE
1oT
3GPP (Third Generation Partnership Project)
450 MHz Alliance
4K Solutions
4RF
5GCT (5G Catalyst Technologies)
6Harmonics/6WiLInk
6WIND
7Layers
7P (Seven Principles)
A Beep/Diga-Talk+
A1 Telekom Austria Group
A10 Networks

A5G Networks
AAEON Technology
Aarna Networks
ABEL Mobilfunk
ABiT Corporation
ABS
Abside Networks
Abu Dhabi Police
Accedian
AccelerComm
Accelink Technologies
Accelleran
Accenture
ACCESS CO.
ACCF (Australasian Critical Communications Forum)
Accton Technology Corporation
Accuver
ACE Technologies
AceAxis
AceTel (Ace Solutions)
Achronix Semiconductor Corporation
ACMA (Australian Communications and Media Authority)
ACOME
Actelis Networks
Action Technologies (Shenzhen Action Technologies)
Actiontec Electronics
Active911
Actus Networks
Adax
ADCOM911 (Adams County Communications Center)
Adcor Magnet Systems
ADF (Australian Defence Force)
ADI (Analog Devices, Inc.)
ADLINK Technology
ADRF (Advanced RF Technologies)
ADT
ADTRAN
ADVA
Advanced Energy Industries
AdvanceTec Industries
Advantech
Advantech Wireless Technologies
Aegex Technologies

Aerial Applications
Aeris
Aero Wireless Group
Aerostar International
AeroVironment
AERTEC
Aethertek
Affarii Technologies
Affirmed Networks
AFL Global
AFRY
AGCOM (Communications Regulatory Authority, Italy)
Agile (Agile Interoperable Solutions)
AGIS (Advanced Ground Information Systems)
AGM Mobile
AH NET (MVM NET)
AI-LINK
AINA Wireless
Airbus
Airfide Networks
Airgain
AirHop Communications
Airlinq
Air-Lynx (Atos)
Airspan Networks
Airtower Networks
Airwave Solutions
Airwavz Solutions
AIS (Advanced Info Service)
Aisan Technology
AiVader
Ajman Police
Akamai Technologies
AKOS (Agency for Communication Networks and Services of the Republic of Slovenia)
Akoustis Technologies
Akquinet
Alaxala Networks Corporation
ALBEDO Telecom
albis-elcon
Alcadis
Alcobendas City Council
Alea
Alef (Alef Edge)

Alepo
Alestra
Alestra (Axtel)
Alibaba Group
Aliniant
Allbesmart
Allen Vanguard Wireless
Allerio
Allied Telesis
Allot
Alpha Networks
Alpha Wireless
Alphabet
Alsatis Réseaux
ALSOK (Sohgo Security Services)
Altaeros
Altair Semiconductor (Sony Semiconductor Israel)
ALTÁN Redes
Altice Group
Altice Labs
Altice Portugal
Altiostar
ALVIS (Argentina)
AM Telecom
Amantya Technologies
Amarisoft
Amazon
Ambra Solutions
Ambulance Victoria
Ambulancezorg Groningen
AMD (Advanced Micro Devices)
Amdocs
América Móvil
American Tower Corporation
AMI (American Megatrends International)
AMIT Wireless
AMN (Africa Mobile Networks)
Ampere Computing
Amphenol Corporation
Ampleon
Amtele Communication
An Garda Síochána (Irish National Police Service)
ANACOM (National Communications Authority, Portugal)

Ananki
Anatel (National Telecommunications Agency, Brazil)
ANCOM (National Authority for Management and Regulation in Communications, Romania)
Andesat
ANDEX (Sendai)
ANDRO Computational Solutions
Angola Telecom
Angolan Ministry of Interior
Anktion (Fujian) Technology
Anokiwave
Anritsu
ANS (Advanced Network Services)
Antenna Company
Antna Antenna Technology
Antwerp Police
Aorotech
APCO (Association of Public-Safety Communications Officials) International
Apple
APRESIA Systems
APSTAR (APT Satellite Company)
APT (Asia Pacific Telecom)
APT (Asia-Pacific Telecommunity)
Aptica
aql
Aquila (Suzhou Aquila Solutions)
Aqura Technologies
Arabsat
Arcadyan Technology Corporation
ARCEP (Regulatory Authority for Electronic Communications and Posts, France)
Archos
ARCIA (Australian Radio and Communications Industry Association)
Arete M
AREU (Lombardy Regional Emergency Service Agency)
Argela
Argentine Federal Police
ArgoNET
Aria Networks
ARIB (Association of Radio Industries and Businesses, Japan)
Arico Technologies
Arista Networks
Arkessa
Arm
Armasuisse (Federal Office for Defense Procurement, Switzerland)

Armour Communications
Arqit Quantum
ArrayComm (Chengdu ArrayComm Wireless Technologies)
Arrcus
Artemis Networks
Artiza Networks
Aruba
Arubaito World
Arukona
Asagao TV
Asahikawa Cable Television
Asavie
ASELSAN
AsiaInfo Technologies
AsiaSat (Asia Satellite Telecommunications Company)
Askey Computer Corporation
ASMG (Arab Spectrum Management Group)
ASOCS
Aspire Technology
ASR Microelectronics
Assured Wireless Corporation
AST SpaceMobile
ASTELLA (Astella Technologies)
ASTRI (Hong Kong Applied Science and Technology Research Institute)
ASTRID
ASUS (ASUSTeK Computer)
Asylon
AT (Auckland Transport)
AT&T
AT&T Mexico
ATDI
ATEL (Asiatelco Technologies)
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