



COMMUNICATIONS GUIDELINE NUMBER 25-01

**Call-Handling Equipment Technical Guideline for
Public Safety Answering Points**

Effective: 5/21/2025

Valid: Until Modified

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Summary:

This document is intended to guide Public Safety Answering Points (PSAPs) in planning for, or procurement procedures of updating/refreshing the Call-Handling Equipment (CHE) their PSAP operates.

Guidelines:

The following information can be used as a checklist or “best practice” to assist in developing a plan to update/refresh CHE or transition to a new CHE solution provider in order to comply with the latest industry standards regarding NG911 (and beyond) techniques, technologies, and specifications.

- CHE should conform with the NENA i3 Standard for Next Generation 911 (NENA-STA-010.3f-2021) and all subsequent publications of the document. Any components that are implemented within the CHE should not compromise the ability to support NENA i3 and the ability for the service providers to deliver the call to the PSAP, or to support transfers from one PSAP to another, regardless of CHE solution provider.
- CHE is “i3” capable when it can:
 - Receive and process multimedia 911 calls and texts with associated callback and location information provided through SIP (Session Initiation Protocol) signaling and deliver those calls to the appropriate agent.
 - Support the transfer of 911 calls and texts with associated call-and incident-related data (i.e., Emergency Incident Data Objects (EIDO) in accordance with NENA i3 standards).
 - Share call and incident data (EIDO) with other systems involved in incident processing (e.g., CAD) and with responders in the field.
 - Interconnect with the designated Emergency Services IP Network (ESInet) and Next Generation Core Services (NGCS) (when applicable) to support the processing of PSAP-originated calls, including emergency callbacks and support calls between agencies.
- CHE supports the processing of location associated with a 911 call.



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- System must support location conveyed “by value” using the Presence Information Data Format Location Object (PIDF-LO), as well as location conveyed “by reference”, where only a “pointer” or “key” to the location information stored in an external system, such as a Location Information Server (LIS), is provided in SIP signaling.
- Where location is received “by reference”, the CHE must support the ability to use the location reference to interact with a LIS to obtain the associated location “by value”.
- CHE supports the processing of additional data associated with the 911 call.
 - The information may be conveyed “by value” in the SIP signaling associated with the call or “by reference”, where only a “pointer” or “key” to data stored in an external system (e.g., Additional Data Repository [ADR], is included in SIP Signaling).
 - CHE in the NG911 environment must be able to receive and process Additional Data provided with a 911 call and request Additional Data that is stored in an ADR.
 - Management Information System (MIS):
 - Collects, stores and correlates data from multiple systems (e.g., a logging recorder) and allows PSAP staff to readily access data/reports, including remotely, to support operational and strategic decision-making based on performance, trends, traffic, traffic capacities, calltaker, etc.
 - ACD (Automatic Call Distribution) configurable by the PSAP.
 - Configurable (on/off) automatic abandon call back and text back capability.
 - Video can be turned on/off depending on policies set forth by the PSAP
 - Should allow the call-taker to send video to any PSAP authorized first responder or recipient outside of dispatch with a device that can play the video.
 - Interface with the peripheral analog and digital equipment configurations already in place.
 - CHE should generate NENA i3 Call Detail Record automatically and store all available information pertaining to all 911 traffic, on a server that allows access by or connectivity for state-wide reporting purposes.
 - CHE should require users to manually log-on with a username/password combination.
 - Multifactor authentication should be provided as an option.
 - CHE should include audio, text, and video logging recording at the PSAP or remotely.
 - Should include active recording methodology of all circuits and positions via NENA i3-compliant SIPREC.



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- Should include short term video storage to be configurable by the PSAP. Video should be locked so that it can only be viewed by authorized users.
- Meta-data should be made readily available to the PSAP to see a list of all viewers of any video.
- CHE should integrate with existing PSAP IRR (Instant Recall Recorder) systems.
- CHE should provide short-term (e.g., 24 hours) recording of call audio, text, and multimedia for PSAP personnel to retrieve at will.
- Should deliver caller ID during a transfer from a 911 line to any non-911 line.
- Should allow for a visual display of the caller's telephone number and it should be viewable at the workstation. At minimum, the display needs to meet the NENA i3 compliant standards for ANI display and all future NENA i3 standards.
- Should provide two-way foreign language translation functionality for Message Session Relay Protocol (MSRP) text, RTT, and voice calls.
- Should provide transcription or document dialog of MSRP text, RTT, and voice calls when a foreign language is used.
- Should deliver location information to CAD and mapping applications via an IP connection and/or serial connection.
 - Should support Mapping Data Service (MDS) that can be used by PSAPs when answering out-of-area calls to allow them to display an appropriate map covering the area in which the caller is located, just as if the call was received from an in-area caller.
- Adjustable audio volume controls.
- Display abandoned call detail.
- Time synchronization.
- Should provide a means for the PSAPs to make test calls and direct them to a specific workstation to support training and testing.
- Should support test call functionality specified in the NENA i3 standard.
- One-button emergency callback.
- Configurable outbound caller-ID for audio and text calls initiated by the PSAP.
- One-button transfer capability to other PSAPs, configurable upon request. All transfers must be able to include location and callback information.
- Provide local conferencing of calls consisting of 6 or more internal and/or external parties (including originator). System should allow the conference call to continue when the originating calling party disconnects.
- Should have distinct audible ringing options.
- Speed dial functionality for both hold conference and no-hold conference for 911 calls as well as non-emergency calls.
- Muting capability.
- Must support TDD/TTY functionality until no longer required by the FCC or applicable State standards.



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- Should support real time text (RTT) for callers including individuals who are deaf, deafblind, hard of hearing or have a speech disability, and as a replacement for TDD/TTY by wireless carriers and handset providers that choose to do so.
- Vendor needs to provide on-line reference manual, user's manual, help guide, live chat, or similar features to PSAP. Material needs to be continually updated to reflect CHE system updates and new functionality.
- CHE should display at minimum the last 10 calls released at the answering workstation, configurable by the PSAP.
- CHE should provide the user with call holding as well as call parking (exclusive/non-exclusive hold) capability.
- Users with appropriate system permission should have the ability to silently listen to another user's telephone conversation from their workstation. Such action should not cause any audio or visual disturbance at the monitored answering station.
- CHE should have the ability for supervisors and authorized personnel to join into an existing call with one click functionality.
- Users with appropriate system permission would have the ability to temporarily remove themselves from a ring group (call queue) in order to conclude a previous call or perform another task such as radio dispatch, while remaining logged in.
- CHE should enable two-way communication with the 911 caller's device for push/pull notifications and text from 911.
- CHE should present historical details linked to the calling number. This feature should accommodate information that call-takers have saved from previous calls but should also include system generated (machine learned) information.
- CHE should provide role based/skillset-based profiling for call takers, and the ability to change roles without requiring logout and sign in.
- CHE should provide call taker the ability to flag, create, and send out mis-routed 911 call reports electronically.
- CHE should support maximum 10-second system operation start-up from the time user ID and password are entered.
- CHE should provide MIS functionality and should provide call taker details. CHE should provide remote access to PSAP defined MIS metrics.
- CHE should interface with a universal log in service at PSAP if available. Universal login should apply across CAD and other platforms as specified by the PSAP, and support where available.
- CHE should provide status indication (ready/not ready/wrap up) at the workstation level, number of status states to be configured by the PSAP.
- CHE should allow PSAP personnel to play back a pre-recorded PSAP message during the 911 call.
- CHE should provide an integrated mapping application.
- CHE should provide near real-time performance data.



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- Performance data should include documented Mean Time Between Failure (MTBF) or Mean Time to Repair (MTTR) that may impact the availability of the system to deliver traffic.
- A Technical Service Bulletin (TSB) should be provided to the PSAP for any update, patch, or bug fix.
- Vendor should establish a network operation center (NOC) that includes, but is not limited to, alarming, reporting, monitoring, managing and supporting CHE on a 24/7/365 basis, down to workstation level.
- Vendor should provide trouble ticket log that is visible to PSAP 24/7/365.
- CHE solution should provide a dashboard to display and report the health of the CHE solution. The dashboard should monitor the health of the CHE solution and any PSAP equipment to ensure that SLAs are being met. Monitoring should be real time or near real time.
- CHE hardware components installed at the PSAP should be nonproprietary, with the sole exception of audio control devices, and should support standard hardware interfaces.
- CHE should follow recommendations set forth in NENA "PSAP Site Characteristics Information Document" (NENA-INF-024.2-2018).
- CHE should not connect directly to the public internet at the PSAP. CHE should ensure that any public data source is connected via a secure, controlled interface. At minimum the connection should address application layer inspection, secure flows, intrusion prevention, and intrusion detection.
- CHE should ingest, handle, and display all incoming 911 traffic and supplemental information (i.e. location and/or caller information) in a manner that is compliant with NENA i3 standards and be able to adjust to any amendments to the NENA i3 standard.
- System availability should be 99.999% regardless of the level of response required. CHE should meet worst-case scenarios or dynamically expand without limitation of any physical onsite hardware, human intervention, or system resources (CPU, channels, etc.) during disasters of high demand events.
- CHE should ingest and display Z coordinates when available.
- CHE should ingest, display, and utilize any standards-based information that can enrich the 911 call (viewing CCTV, street-level cameras, or IoT sensor data, upon initiation by the call taker).
- CHE should be designed to industry standards and FCC requirements, including NENA i3 standards.
- CHE should have the ability to recognize multiple calls originating from the same geographic area and will provide the PSAP with a solution to process the calls based on operational needs.
- Any CHE installed at PSAP facilities should comply with all applicable national, state and local codes related to grounding.



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- Ingress and egress metallic connections installed at PSAP facilities should be equipped with primary and secondary Transient Voltage Surge Suppression (TVSS) devices to protect against transient power and lightning strikes per industry standards and best practices for telecommunications equipment.
- PSAPs are encouraged to follow TFOPA, NIST and NENA (NENA-STA-040.2-2024) standards and recommendations as a framework to build a successful cybersecurity management process.
- CHE Vendor should support a Change Management process that includes: a backout plan, a means to request changes and obtain progress updates, defined backup procedures, and the ability to rollback to a previous version if there is an issue with update/change procedures.
- CHE should have firewall(s) between its solution and all external systems it connects to.
- CHE should provide audio integration with PSAP radio headsets, allowing users to use a single headset for both 911 and dispatch.
- CHE map should be capable of displaying wireless caller location from two different sources on the same map, e.g., one from the NGCS (when available), one from an over-the-top service like RapidSOS or Rapid Deploy.
- Vendor should provide mobile laptops that can be used by PSAP staff to connect to the CHE over an internet Virtual Private Network (VPN) connection to answer calls when necessary.
- CHE should integrate both analog and SIP-based 10-digit administrative lines, allowing PSAPs to receive, and place, 10-digit calls.
- **Capabilities to assess after NG911 environment is available:**
 - CHE should be able to report its state to subscribing functional elements of the NGCS.
 - CHE should be able to subscribe to Emergency Services Routing Proxy notify events occurring within the ESInet/NGCS.
 - CHE should provide a visual indication to the call taker when 911 traffic is delivered via a policy-based route.

References:

NENA i3 Standard for Next Generation 9-1-1	https://cdn.ymaws.com/www.nena.org/resource/resmgr/standards/NENA-STA-010.3e-2021_i3_Stan.pdf
NENA PSAP Site Characteristics Information Document	https://cdn.ymaws.com/www.nena.org/resource/resmgr/standards/NENA-INF-024.2-2018_PSAPSite.pdf



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NENA Security for Next Generation 9-1-1 Standard (NG-SEC_	https://cdn.ymaws.com/www.nena.org/resource/resmgr/standards/STA-040.2-2024_SecurityforNG.pdf
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