

EXECUTIVE SUMMARY – ANNUAL ERRCS TESTING & INSPECTION

Owner: Montgomery County Public Schools (MCPS)

Purpose: This specification establishes uniform requirements for the **annual inspection, testing, and documentation** of existing Emergency Responder Radio Communication Systems (ERRCS) installed at MCPS-owned facilities. The intent is to ensure continued compliance with **Montgomery County DPS, FPCC, DTS, the Maryland State Fire Prevention Code, and applicable NFPA/IFC standards.**

Applicability: - All MCPS facilities equipped with ERRCS/ERCES systems - Systems installed proactively or as corrective action following failed inspections or Notices of Violation (NOVs)

Key Compliance Benchmarks: - Minimum **95% RF coverage per floor** - Minimum **Delivered Audio Quality (DAQ) 3.0** in required areas - **12-hour standby power** at 100% system load - Full **fire alarm supervision and annunciation** of ERRCS fault conditions

Deliverables: - AHJ-defensible annual test report using MCPS standard format - Deficiency classification and corrective action recommendations - Records suitable for DPS / FPCC / DTS review

Outcome: Provides MCPS with documented, repeatable, and enforceable compliance verification while reducing risk during inspections and emergency operations.

EMERGENCY RESPONDER RADIO COMMUNICATION SYSTEM (ERRCS) ANNUAL TESTING, INSPECTION, AND REPORTING

PART 1 – GENERAL

1.1 SUMMARY

Provide all labor, equipment, coordination, testing, inspection, documentation, reporting, and corrective action recommendations required for the **annual testing and inspection of existing Emergency Responder Radio Communication Systems (ERRCS / ERCES / BDA / DAS)** installed in **Montgomery County Public Schools (MCPS)–owned facilities.**

This scope applies to **fully operational systems**, including those previously installed due to proactive code compliance efforts or corrective actions resulting from failed inspections or code enforcement actions.

The intent of this specification is to verify continued compliance with **NFPA, State of Maryland, and Montgomery County** requirements and to provide MCPS with defensible documentation suitable for **DPS, FPCC, and DTS review.**

1.2 APPLICABLE CODES, STANDARDS, AND AUTHORITIES

Comply with the most current requirements enforced by the Authority Having Jurisdiction (AHJ), including:

- Maryland State Fire Prevention Code (as adopted)
- NFPA 1 – Fire Code
- NFPA 72 – National Fire Alarm and Signaling Code
- NFPA 1225 – Emergency Services Communications
- International Fire Code (IFC), Section 510
- Montgomery County Department of Permitting Services (DPS)
- Montgomery County Fire Prevention and Code Compliance (FPCC)
- Montgomery County Department of Technology Services (DTS)

Where conflicts occur, **Montgomery County written requirements shall govern.**

1.3 SYSTEMS INCLUDED

This specification applies to existing ERRCS systems including, but not limited to: - Signal boosters / BDAs - Donor and server antennas - Distributed Antenna System (DAS) components - Power supplies and batteries - Monitoring and fire alarm interfaces

1.4 CONTRACTOR QUALIFICATIONS

- Contractor shall have a minimum of **five (5) years of experience** performing ERRCS testing and inspection in Montgomery County or similar jurisdictions.
 - Contractor shall demonstrate experience with **MCPS or other occupied K-12 facilities.**
 - Testing and reporting shall be supervised by a **Maryland-licensed Professional Engineer** or qualified technician acceptable to the AHJ.
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1.5 COORDINATION AND ACCESS

- Coordinate all testing activities with **MCPS Facilities Management.**
 - Testing shall be scheduled to minimize disruption to school operations.
 - Contractor shall comply with all MCPS safety, access, and background check requirements.
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PART 2 – TESTING AND INSPECTION REQUIREMENTS

2.1 GENERAL REQUIREMENTS

Annual testing shall verify that the ERRCS continues to operate **as originally approved** and remains compliant with AHJ requirements. Testing shall not alter system gain, programming, or configuration without prior MCPS authorization.

2.2 VISUAL AND PHYSICAL INSPECTION

Inspect and document the condition of the following:

- Signal boosters / BDAs (enclosures, labels, ventilation)
 - Donor and server antennas (mounting, cabling, damage)
 - DAS cabling, splitters, and terminations
 - Grounding and bonding connections
 - Firestopping at penetrations
 - Equipment room environmental conditions
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2.3 POWER AND BATTERY TESTING

- Verify normal and emergency power operation
 - Inspect batteries for physical condition and date codes
 - Perform battery load testing or manufacturer-recommended testing
 - Verify battery capacity meets **12-hour operation at 100% system load**
 - Verify charger operation and supervision signals
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2.4 SYSTEM MONITORING AND FIRE ALARM INTERFACE

Verify proper annunciation of ERRCS supervisory and trouble conditions at the fire alarm system, including:

- Loss of normal AC power
- Battery or charger failure
- Signal booster failure
- Donor antenna malfunction
- Low battery condition (70% depletion)

Document signal transmission, annunciation location, and reset functionality.

2.5 RF PERFORMANCE TESTING

- Perform RF testing in accordance with IFC Section 510 methodologies or AHJ-directed procedures
- Utilize grid-based testing consistent with original acceptance testing requirements
- Verify minimum **95% coverage per floor**
- Verify minimum **DAQ 3.0** (or AHJ-approved equivalent)
- Use calibrated test equipment and AHJ-approved radios

Testing shall confirm **no degradation** from original acceptance levels.

PART 3 – REPORTING, DEFICIENCIES, AND CLOSEOUT

3.1 TESTING REPORT

Provide a comprehensive annual testing report for each facility, including:

1. Facility name and address
2. System description and equipment inventory
3. Summary of inspection findings
4. Battery test results and calculations
5. Monitoring and fire alarm interface verification results
6. RF test methodology and results
7. Coverage maps and DAQ documentation
8. Comparison to prior-year results (if available)
9. Statement of compliance or non-compliance
10. Professional Engineer or qualified technician certification

Reports shall be suitable for submission to **MCPS, DPS, FPCC, and DTS** upon request.

3.2 DEFICIENCIES AND CORRECTIVE ACTIONS

- Identify all deficiencies observed during inspection or testing
 - Classify deficiencies as critical, major, or minor
 - Provide written corrective action recommendations and budgetary cost estimates
 - Corrective work shall be performed only under a separate authorized scope unless otherwise directed by MCPS
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3.3 RECORDKEEPING

- Maintain copies of the most recent annual testing report on-site or in an AHJ-approved location
- Provide electronic copies to MCPS Facilities Management

3.4 WARRANTY AND LIABILITY

- Contractor shall be responsible for damage caused by testing activities
 - Contractor shall restore all systems to normal operation upon completion of testing
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MCPS STANDARD ANNUAL ERRCS TEST REPORT FORMAT

The annual testing report shall follow the standardized format below:

1. Cover page with MCPS facility name, address, and test date
 2. System summary and equipment inventory
 3. Visual inspection checklist (pass/fail/comments)
 4. Power and battery test results
 5. Fire alarm monitoring verification table
 6. RF coverage results by floor (grid maps)
 7. DAQ measurement documentation
 8. Comparison to previous year results
 9. Deficiency log with severity classification
 10. Certification statement signed by PE or qualified technician
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FAILURE THRESHOLDS AND REPORTING

REPORTABLE DEFICIENCIES

The following conditions shall be classified as **reportable deficiencies**:

- RF coverage below 95% on any floor
- DAQ below 3.0 in required areas
- Inoperable or failed signal booster components
- Battery capacity insufficient for 12-hour operation
- Loss of required fire alarm supervision points

ADVISORY ITEMS

Conditions not affecting immediate code compliance but requiring future attention shall be documented as advisory items.

DPS / DTS DEFICIENCY CODE REFERENCES

The following code references shall be used when documenting deficiencies:

- **RF Coverage Deficiency:** IFC 510; NFPA 1 (as adopted); DPS ERRCS Guidance
- **DAQ Deficiency:** IFC 510; DTS Acceptance Criteria
- **Power / Battery Deficiency:** IFC 510.4.2; NFPA 72 (Secondary Power)
- **Monitoring / Annunciation Deficiency:** IFC 510.4.4; NFPA 72 Supervisory Signals
- **Physical / Installation Deficiency:** IFC 510.5; NFPA 70; DPS Inspection Policy

Each deficiency logged shall reference at least one applicable code or policy above.

BID FORM AND PRICE SCHEDULE

BASE BID – ANNUAL TESTING

Bidder shall provide a **firm, fixed annual price per facility** for complete ERRCS annual testing and inspection in accordance with this specification.

- Annual ERRCS Testing & Inspection (per building): \$(insert on attached facility list)
 - Facility List Attached

ADDITIVE UNIT PRICING

Provide unit prices applicable when authorized by MCPS:

- Additional floor beyond base building (per floor): \$_____
- Retesting following corrective repairs (per visit): \$_____
- Battery load testing replacement cycle verification (per system): \$_____
- Emergency / off-hours testing (per hour): \$_____

END OF SECTION

EMERGENCY RESPONDER RADIO COMMUNICATION SYSTEM (ERRCS) INITIAL INSPECTION, TESTING, AND NEEDS DETERMINATION

PART 1 – GENERAL

1.1 PURPOSE AND INTENT

This specification establishes requirements for an **initial Emergency Responder Radio Communication System (ERRCS) inspection and testing** to determine and document whether an **MCPS-owned facility requires installation of an ERRCS** in accordance with **Montgomery County, State of Maryland**, and applicable **NFPA / IFC** requirements.

The intent is to provide MCPS and the Authority Having Jurisdiction (AHJ) with **objective, defensible documentation** demonstrating whether in-building public safety radio coverage is adequate or deficient, and whether an ERRCS is required.

1.2 APPLICABLE CODES, STANDARDS, AND AUTHORITIES

Comply with the most current requirements enforced by the AHJ, including:

- Maryland State Fire Prevention Code (as adopted)
- International Fire Code (IFC), Section 510 – Emergency Responder Radio Coverage
- NFPA 1 – Fire Code
- NFPA 1225 – Emergency Services Communications
- Montgomery County Department of Permitting Services (DPS)
- Fire Prevention and Code Compliance (FPCC)
- Department of Technology Services (DTS)

Where conflicts occur, **Montgomery County requirements shall govern.**

1.3 SCOPE OF SERVICES

The Contractor shall perform a **stand-alone inspection and radio coverage evaluation** of the facility to determine whether an ERRCS is required. This scope **does not include system design or installation.**

Services include: - Pre-test coordination - On-site radio signal strength and audio quality testing
- Coverage mapping and documentation - Written determination of ERRCS requirement -
Preparation of an AHJ-ready report

1.4 QUALIFICATIONS

- Contractor shall have a minimum of **five (5) years of experience** performing public safety radio coverage testing.
 - Contractor shall have demonstrated experience in **Montgomery County or similar jurisdictions**.
 - Testing shall be supervised by a **Maryland-licensed Professional Engineer** or other AHJ-accepted qualified professional.
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1.5 COORDINATION AND ACCESS

- Coordinate testing with **MCPS Facilities Management**.
 - Testing shall be conducted in a manner that minimizes disruption to school operations.
 - Contractor shall comply with MCPS access, safety, and background requirements.
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PART 2 – INSPECTION AND TESTING REQUIREMENTS

2.1 GENERAL

Testing shall evaluate the building's ability to support **two-way emergency responder radio communications** without enhancement.

The inspection shall determine whether the facility meets or fails the **minimum radio coverage and intelligibility thresholds** established by code.

2.2 TESTING METHODOLOGY

Testing shall be performed in accordance with IFC Section 510 methodologies or AHJ-directed procedures and shall include:

- Grid-based testing of each floor (minimum 20 grids per floor unless otherwise directed)
 - Use of AHJ-approved public safety radios
 - Testing of both **uplink and downlink** communications
 - Evaluation of **Delivered Audio Quality (DAQ)**
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2.3 PERFORMANCE CRITERIA

A building shall be considered **compliant without ERRCS** only if all of the following are met:

- Minimum **95% of each floor area** meets coverage requirements

- Minimum **DAQ 3.0** is achieved in required areas
- No critical areas (stairwells, fire command areas, etc.) exhibit persistent failures

Failure to meet any of the above criteria shall constitute a **determination that an ERRCS is required.**

2.4 AREAS TO BE TESTED

Testing shall include, at minimum: - Each occupied floor - Stairwells - Corridors - Mechanical and service spaces where responders may operate - Fire command or control locations (if present)

PART 3 – DOCUMENTATION AND DETERMINATION

3.1 INSPECTION REPORT

Provide a comprehensive written report including:

1. Facility name and address
 2. Date of inspection and personnel involved
 3. Applicable code references
 4. Testing methodology and equipment used
 5. Floor-by-floor coverage maps
 6. DAQ results by grid
 7. Summary of pass/fail results
 8. **Formal determination statement** indicating whether ERRCS is required
 9. Professional certification (PE or qualified professional)
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3.2 FORMAL DETERMINATION STATEMENT

The report shall include a clear statement such as:

“Based on testing performed in accordance with applicable codes and AHJ requirements, the facility **does / does not** require installation of an Emergency Responder Radio Communication System (ERRCS).”

3.3 RECORDKEEPING AND USE

- Reports shall be provided to **MCPS Facilities Management.**
- Documentation shall be suitable for submission to **DPS, FPCC, and DTS** upon request.

- Reports may be used to support capital planning, inspection responses, or future ERRCS design.
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PART 4 – LIMITATIONS AND EXCLUSIONS

- This inspection does not constitute ERRCS design or installation services.
 - No system modifications shall be performed as part of this scope.
 - Determination reflects conditions at the time of testing; future changes may affect results.
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ERRCS INITIAL INSPECTION DETERMINATION FORM

Facility Name: _____

Address: _____

Date of Inspection: _____

Inspector / Firm: _____

TESTING SUMMARY

- Total Floors Tested: _____
- Grid Method Used: 20-grid 40-grid
- Radios Used (Model / Agency): _____

PERFORMANCE RESULTS

- Minimum Coverage \geq 95% per floor: YES NO
- Minimum DAQ \geq 3.0 achieved: YES NO
- Critical Areas Pass: YES NO

FORMAL DETERMINATION

ERRCS NOT REQUIRED – Building meets minimum radio coverage and audio quality requirements without enhancement.

ERRCS REQUIRED – Building does not meet minimum requirements and requires installation of an Emergency Responder Radio Communication System.

Certified By: _____

Title / License: _____

Signature: _____ Date: _____

BID FORM AND UNIT PRICING (INITIAL INSPECTION)

Bidder shall provide firm pricing for ERRCS initial inspection services:

- Base Price – Initial ERRCS Inspection (per building): \$ _____
- Additional Floor (beyond first three): \$ _____ per floor
- Large Facility Adder (>150,000 SF): \$ _____
- Expedited Inspection / Reporting: \$ _____

Pricing shall include all labor, equipment, reporting, and coordination required by this specification.

DPS / AHJ PRE-COORDINATION

1. MCPS may, at its discretion, coordinate initial ERRCS inspection scope and methodology with **Montgomery County DPS / FPCC / DTS** prior to testing.
 2. Contractor shall support such coordination by providing testing methodology and sample reporting upon request.
 3. Pre-coordination does not constitute approval or acceptance but supports alignment with AHJ expectations.
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CONFLICT OF INTEREST AND PROCUREMENT FIREWALL

1. Firms performing **Initial ERRCS Inspection & Determination** services under this specification shall be **prohibited from bidding on the design or installation** of an ERRCS for the same facility for a minimum period of **12 months** following issuance of the determination report, unless expressly authorized in writing by MCPS.
 2. This provision is intended to preserve objectivity and public trust in the determination process.
 3. Contractors shall disclose any existing or prior business relationships related to ERRCS installation at MCPS facilities.
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APPEAL, RE-TEST, AND DISPUTE RESOLUTION

1. MCPS may request a re-test or secondary review if inspection results are contested or materially impacted by:
 - Temporary RF conditions
 - Construction activity
 - Equipment malfunction during testing
2. Re-testing shall follow the same methodology as the original inspection.
3. Re-test results shall supersede prior findings.

4. Costs for re-testing shall be based on unit pricing in Attachment B unless waived by MCPS.

ATTACHMENT – DPS / FPCC / DTS ALIGNMENT STATEMENT

1. Testing methodology, coverage thresholds, and DAQ criteria are aligned with **IFC Section 510, NFPA 1225**, and current **Montgomery County DPS / FPCC / DTS practices**.
2. This inspection is intended to support AHJ decision-making but does not replace formal permit review or inspection authority.
3. Reports produced under this specification shall be suitable for submission to DPS, FPCC, and DTS upon request.

END OF SECTION