



Orange County Fire Authority Fire Prevention Division INFORMATIONAL BULLETIN 01-17

Subject: Emergency Responder Radio System Installation and Testing Procedure

If an emergency responder radio system is required in a structure per CFC 510.1, follow steps 1 through 12 below:

PRIOR TO CONSTRUCTION:

1. Read "Information for Digital Antenna System (DAS)/Bi-directional Amplification (BDA) Systems," available at ocfa.org, for specific technical and documentation requirements.

PRIOR TO OR DURING INITIAL STAGES OF CONSTRUCTION:*

* *If the Building Department does not allow deferred submittal of plans, Steps 2 through 4 shall be completed prior to approval of architectural plans.*

2. Design the DAS/BDA system. Level 2 or better survivability shall be provided in high-rise buildings and other structures where partial or phased evacuation is proposed, such as structures with horizontal exits and/or voice-evacuation systems. A two inch conduit or other means to facilitate installation, maintenance, and modification of the system's central riser shall be provided in buildings with two or more floors, including basements and other subterranean levels.
3. Submit plans and other required documentation to OC Sheriff Communications and Technology Division (OCC) for review and approval.
4. Complete the DESIGN section of the OCFA "DAS/BDA Certification" form (page 3 of this bulletin) and submit the form and OCC-approved plans to OCFA. An OCFA Service Request is required—see ocfa.org to determine whether plans need to be submitted at the building department or directly to OCFA.

DURING BUILDING CONSTRUCTION:

5. Install the DAS/BDA system.

AFTER COMPLETION OF WALLS, DOORS, AND WINDOWS, AND PRIOR TO OCCUPANCY:

6. Conduct field testing of radio coverage. If coverage is insufficient, modify the system and retest.*
* *If as-built conditions differ from approved design, contact the building department to see if revised architectural/electrical plans are required to be submitted for approval.*
7. Prepare testing reports and as-built plans.
8. Using a photocopy or the original of the OCFA certification form that was submitted in step 4 above, complete the TESTING section.
9. Submit testing reports, as-built radio system plans, and the OCFA certification form to OCC for sign-off.
10. Submit testing reports, as-built radio system plans, and the completed OCFA certification form to OCFA. Documentation shall be provided to OCFA as a resubmittal under the same Service Request number used in step 4 above—see ocfa.org to determine whether plans need to be dropped off at the building department or given directly to OCFA.
11. Show the stamped OCFA certification form to the OCFA inspector prior to building sign-off.
12. Provide a copy of all documentation to the property owner.

AFTER RECEIVING CERTIFICATE OF OCCUPANCY:

- Conduct annual testing/maintenance to ensure continued operation of the system. Modify the system as necessary if testing shows insufficient coverage; coordinate modifications with OCC and OCFA Prevention Field Services.
- Document and retain all test results. Provide a copy of the documentation to the property owner.
- Provide testing documentation to OCFA and OCC upon request.

REQUESTING A DEFERRAL

If a building is not otherwise exempt from the requirement for a DAS/BDA system by CFC 510.1 but is intrinsically designed by virtue of materials, size, shape, orientation, or other similar considerations to minimize the interference with emergency radio system signals, a request may be made to defer submittal of the DAS/BDA system design documentation until testing has confirmed that such a system is necessary. As effective radio testing cannot occur until the building is nearly complete, this may lead to substantial delays in occupancy or use of the structure should a DAS/BDA system ultimately be found to be necessary. The building owner assumes all risk associated with deferral of the design and installation of the DAS/BDA system.

The approval of deferral requests is at the discretion of OCFA. The systems for high-rise and subterranean structures shall follow the instructions in steps 1 through 12 above and cannot be deferred.

If a deferral will be requested, follow steps A through L below:

PRIOR TO SUBMITTAL OF ARCHITECTURAL PLANS:

- A. Confirm with the local building department whether deferred submittals are permitted for your project.
 - a. If they are, continue with the steps below.
 - b. If they are not, follow the process indicated in steps 2 through 12 on the previous page.
- B. Read "Information for Digital Antenna System (DAS)/Bi-directional Amplification (BDA) Systems," available at ocfa.org, for specific technical and documentation requirements.
- C. The architect and an FCC certified technician knowledgeable in the impacts of building construction on radio reception shall review the building plans and determine whether acceptable radio levels can reasonably be expected to be maintained without a DAS/BDA system and whether a deferral should be requested.
 - a. If a deferral is feasible, continue with the steps below.
 - b. If a deferral is not feasible, follow the process indicated in steps 2 through 12 on the previous page.

DURING PLAN REVIEW AND PRIOR TO ISSUANCE OF BUILDING PERMITS:

- D. The building owner or authorized representative shall complete the DEFERRAL REQUEST section of the OCFA "Request for Deferral of DAS/BDA Design" form (see page 4 of this bulletin). Submittal under an OCFA Service Request is required—see ocfa.org to determine whether the request needs to be submitted at the building department or directly to OCFA.
 - a. If the request is approved by OCFA, continue with the steps below.
 - b. If the request is not approved, follow the process indicated in steps 2 through 12 on the previous page.

DURING BUILDING CONSTRUCTION:

- E. Provide a two inch conduit to facilitate the potential installation of the system's central riser in buildings with two or more floors, including basements and other subterranean levels. Installation of this conduit is required regardless of whether the DAS/BDA system is later found to be unnecessary.

AFTER COMPLETION OF WALLS, DOORS, AND WINDOWS, AND PRIOR TO OCCUPANCY:

- F. Conduct field testing of radio coverage.
 - a. If coverage is insufficient, follow the process indicated in steps 2 through 12 on the previous page.
 - b. If coverage is sufficient without a DAS/BDA, complete the steps below.
- G. Prepare testing reports.
- H. Using a photocopy or the original of the request form that was submitted in step D above, complete the TESTING RESULTS section.
- I. Submit testing reports and the OCFA request form to OCC for sign-off.
- J. Submit testing reports and the completed OCFA request form to OCFA. Documentation shall be provided to OCFA as a resubmittal under the same Service Request number used in step D above—see ocfa.org to determine whether documentation needs to be dropped off at the building department or given directly to OCFA.
- K. Show the completed, stamped OCFA deferral request form to the OCFA inspector prior to building sign-off.
- L. Provide a copy of all documentation to the property owner.



ORANGE COUNTY FIRE AUTHORITY
DAS/BDA CERTIFICATION
 for Emergency Responder Radio Systems



Project Name: _____ Address: _____ OCFA SR #: _____

| DESIGN |
|--|
| COMPLETE THIS SECTION AND SUBMIT TO OCFA BEFORE SYSTEM INSTALLATION |
| <p>Provide a minimum of one <i>hardcopy</i> and an <i>electronic (PDF)</i> copy of each of the following to OCFA:</p> <p><input type="checkbox"/> This form with the 'DESIGN' column completed</p> <p><input type="checkbox"/> Amplification system plans approved by OC Sheriff Communications and Technology Division (OCC).</p> <p>The FCC-Certified Technician shall indicate the survivability level to be provided in the second paragraph below and certify the following statement by signing below:</p> <p>The amplification system, its associated components, and the two inch conduit from lowest floor to roof have been designed in accordance with CFC 510, OCC and OCFA DAS/BDA guidelines, NFPA 72, and other applicable codes, standards, and requirements.</p> <p>Primary system components [main processing equipment and, in multi-story buildings, the vertical riser(s) and any lines interconnecting the main processing equipment and riser(s)] will be provided with Level _____ (<i>indicate 0, 1, 2, or 3</i>) survivability in accordance NFPA 72 Section 12.4 and OCFA requirements.</p> <p>The main processing equipment will be located in the building's fire command center/fire monitoring room (if present) or, in buildings where Level 2 or 3 survivability is necessary, in another approved fire-rated room in accordance with OCFA requirements. In buildings without a command center/ monitoring room or where Level 0 or 1 survivability is sufficient, protection in a rated space is not required.</p> <p>Amplification system components and active devices are provided with independent auxiliary battery power or generators. Note: UPS systems with >50 gal. of electrolyte and diesel generators with >60 gal. of fuel require separate review by OCFA.</p> <p>Complete the following:</p> <p>Technician name (print): _____</p> <p>Technician signature: _____</p> <p>FCC License #: _____</p> <p>Company name: _____</p> <p>Company phone #: _____</p> <p>Date: _____</p> |

| TESTING | | |
|---|-----------------------------------|--|
| COMPLETE THIS SECTION AND SUBMIT TO OCFA AFTER TESTING AND BEFORE OCCUPANCY | | |
| <p>Provide a minimum of two <i>hardcopies</i> and an <i>electronic (PDF)</i> copy of each of the following to OCFA:</p> <p><input type="checkbox"/> This form with both the 'DESIGN' and 'TESTING' columns completed and the OCC Clearance section signed off</p> <p><input type="checkbox"/> Final test report. Report shall be 8 ½ x 11 sheets bound or stapled (8 ½ x 17 fold out sheets may be used for floor plan diagrams). Contents shall include:</p> <ul style="list-style-type: none"> • Summary signed by the party responsible for testing, including testing procedures followed, testing dates, names of parties involved in testing and their companies, and the results, i.e. passing or failing of the performance requirements (DAQ), and signal strength requirements. • Floor plans of the building with testing grids and measurements for performance (DAQ) and signal strength. <p><input type="checkbox"/> As-built system plans, including line drawings showing circuits, equipment specifications and locations.</p> <p>The FCC-Certified Technician shall certify the following statement by signing below:</p> <p>The installation of the amplification system, its associated components, and the two inch conduit from lowest floor to roof have been installed per approved plans and specifications, CFC 510, NFPA 72, and other applicable requirements. System meets minimum requirements of CFC Section 510 for both DAQ and Signal Strength. System survivability and location of main processing equipment are in accordance with OCFA requirements, where applicable.</p> <p>Complete the following:</p> <p>Technician name (print): _____</p> <p>Technician signature: _____</p> <p>FCC License #: _____</p> <p>Company name: _____</p> <p>Company phone #: _____</p> <p>Date: _____</p> <tr> <td style="background-color: #e0e0e0; text-align: center;">- OCC Clearance Use Only -</td> </tr> <tr> <td> <p><input type="checkbox"/> Non-interference check and alarm programming verification</p> <p><input type="checkbox"/> One copy of as-built plans received</p> <p>_____</p> <p>OCCOMM Representative's Name (Print and Sign)</p> <p style="text-align: right;">_____</p> <p style="text-align: right;">Date</p> </td> </tr> | - OCC Clearance Use Only - | <p><input type="checkbox"/> Non-interference check and alarm programming verification</p> <p><input type="checkbox"/> One copy of as-built plans received</p> <p>_____</p> <p>OCCOMM Representative's Name (Print and Sign)</p> <p style="text-align: right;">_____</p> <p style="text-align: right;">Date</p> |
| - OCC Clearance Use Only - | | |
| <p><input type="checkbox"/> Non-interference check and alarm programming verification</p> <p><input type="checkbox"/> One copy of as-built plans received</p> <p>_____</p> <p>OCCOMM Representative's Name (Print and Sign)</p> <p style="text-align: right;">_____</p> <p style="text-align: right;">Date</p> | | |



ORANGE COUNTY FIRE AUTHORITY
REQUEST FOR DEFERRAL OF DAS/BDA DESIGN
for Emergency Responder Radio Systems



Project Name: _____ Address: _____ OCFA SR #: _____

DEFERRAL REQUEST

COMPLETE THIS SECTION AND SUBMIT TO OCFA BEFORE START OF BUILDING CONSTRUCTION

The building owner or authorized representative shall complete this section and acknowledge the following statement with a signature:

An emergency responder radio system is required in this structure per CFC 510.1; however, due to the specific building design considerations indicated below, I believe radio coverage will meet the minimum requirements of CFC Section 510 for both DAQ and signal strength without installation of a DAS/BDA and am requesting that submittal of design documents be deferred until testing of the completed building confirms that a DAS/BDA is needed. Should testing find that a DAS/BDA is needed, plans and other required documentation shall be submitted as required by OCFA Informational Bulletin 01-17, and I understand that no occupancy or use of the building will be permitted until system design, installation, testing, and documentation are completed to the satisfaction of OC Sheriff Communications and Technology Division (OCC) and OCFA.

| | |
|---|----------------------|
| Indicate building design considerations in the space below: | Signature: _____ |
| | Name (print): _____ |
| | Title: _____ |
| | Phone #/email: _____ |
| | Date: _____ |

TESTING RESULTS

COMPLETE THIS SECTION AND SUBMIT TO OCFA AFTER TESTING ON SUBSTANTIALLY COMPLETED BUILDING AND BEFORE OCCUPANCY

Provide a minimum of *two hardcopies* and an *electronic (PDF) copy* of the following to OCFA:

- Final test report. Report shall be 8 ½ x 11 sheets bound or stapled (8 ½ x 17 fold out sheets may be used for floor plan diagrams). Content shall include:
 - Summary signed by the party responsible for testing, including testing procedures followed, testing dates, names of parties involved in testing and their companies, and the results, i.e. passing or failing of the performance requirements (DAQ), and signal strength requirements.
 - Floor plans of the building with testing grids and measurements for performance (DAQ) and signal strength.

The FCC-Certified Technician shall certify the following statement by signing below:

I certify that radio coverage testing has been conducted and radio coverage has been found to meet the minimum requirements of CFC Section 510 for both DAQ and signal strength. (NOTE: Test report requires OC Sheriff Communications and Technology Division (OCC) clearance below prior to submittal to OCFA.)

Complete the following:

| | |
|--------------------------------|------------------------|
| Technician signature: _____ | FCC License #: _____ |
| Technician name (print): _____ | Company name: _____ |
| Date: _____ | Company phone #: _____ |

- OCC Clearance Use Only -

Non-interference check verification

OCCOMM Representative's Name (Print and Sign) _____ Date _____