



# EMERGENCY RESPONDER RADIO COMMUNICATION SYSTEM AND DISTRIBUTED ANTENNA SYSTEM IN-BUILDING COVERAGE

Communication is extremely important for the safety of emergency responders. The International Fire Code requires buildings that do not meet the minimum radio coverage requirements inside a building be equipped with a public safety communications enhancement system such as an ERRCS (Emergency Responder Radio Communication System) or DAS (Distributed Antenna System).

CRESA manages the Clark County Public Safety Regional Radio System. All ERRCS/DAS agreements and associated test results are maintained by CRESA. CRESA's primary responsibility is to ensure ERRCS/DAS systems do not cause interference to the public safety radio system.

## Implementation Process

1. During the permitting process the jurisdictional fire code official will make the determination on whether an ERRCS/DAS system is required. This determination is made based on the size and design of the building, construction features, and location. If a system enhancement is needed the contractor and/or building owner will be referred to CRESA.
2. CRESA will work with the building owner and designee to execute the contract. The ERRCS/DAS Contract Application is available on CRESA's web page, <https://cresa.wa.gov/das>.
  - Complete the application and return to [Helpdesk@cresa.wa.gov](mailto:Helpdesk@cresa.wa.gov). CRESA Radio Staff will prepare the contract and work with the building owner on execution. CRESA will not schedule the initial ERRCS/DAS system testing until the contract has been executed.
3. Minimum qualifications of the system designer and lead acceptance test personnel shall include both of the following:
  - A valid FCC-issued general radio operators license (GROL) or professional engineer license (PE)
  - Certification of in-building system training issued by a nationally recognized organization, school or a certificate issued by the manufacturer of the equipment being installed
4. The ERRCS/DAS system should be in compliance with applicable federal, state and local laws, ordinances, rules and regulations, including but not limited to FCC 47 CFR Part 90.219 and the International Fire Code most recently adopted by the jurisdictional fire code official.
5. The ERRCS/DAS system cannot be activated prior to interference testing with CRESA. Contact CRESA Radio Staff at 360/737-1911 at least one week prior to initial system activation to schedule testing.
  - It is the responsibility of the contractor to perform all acceptance tests and provide the necessary equipment for the tests.
  - The final test report should be sent to the CRESA Help Desk, [Helpdesk@cresa.wa.gov](mailto:Helpdesk@cresa.wa.gov), within 14 days of the test date. The test should be in .pdf format and include at a minimum:
    - System certification letter stating the ERRCS/DAS system has been installed and tested per code and the system is complete and fully functional
    - Verify compliance with the International Fire Code currently adopted by the jurisdictional fire code official
    - Diagram showing device locations
    - Diagram for each floor where coverage is provided, divided into a grid of 20 approximately equal test areas and include post-test received signal strengths and frequencies for each test area
    - Copies of manufacturer specification sheets for all ERRCS/DAS system components including amplifiers, signal boosters, antennas, coax, couplers, splitters, combiners, filters, or any other passive components used. Include data sheets for the backup battery and charging system (if utilized), and include calculations to ensure the backup power requirements are met. (*Implementation phase only unless equipment has been replaced*)
    - Test equipment used and calibration date

### Annual Testing

Reminders for annual testing will be sent from CRESA to the contact listed on the ERRCS/DAS Contract Application via e-mail.

The annual report should be sent to the CRESA representative no later than 14 days past the due date.

All items listed in Section 5 of the Implementation Process should be included in the annual report unless noted.



## CONTRACT APPLICATION & COMMISSIONING

### EMERGENCY RESPONDER RADIO COMMUNICATION SYSTEM AND DISTRIBUTED ANTENNA SYSTEM IN-BUILDING COVERAGE

#### SECTION 1: Information to be provided by Building Owner

##### Building Information

1. Name of Building Owner:
2. Building Address:
3. Name of Business at Location, if applicable:

##### Building Contract Information

1. Contact for Contract Notices
  - a. Name:
  - b. Title:
  - c. Mailing Address:
  - d. E-Mail:
  - e. Phone:

##### Agreement Signatories

1. Individual Signing the Agreement
  - a. Name:
  - b. Title:
2. Individual Signing "Approved as to Form Only":
  - a. Name:
  - b. Title:

##### Emergency Contact (24 hour)

1. Name:
2. Title:
3. E-mail:
4. Phone:

##### Contact for Annual Testing

1. Name:
2. Title:
3. E-mail:
4. Phone:

#### SECTION 2: Information to be provided by Building Owner or Designee

##### ERRCS/DAS System Information

- |   |  |
|---|--|
| 1. ERRCS/DAS Designed By ( <i>Individual</i> ): | 3. ERRCS/DAS Lead Acceptance Test Personnel ( <i>Individual</i> ): |
| 2. PE or GROL Number ( <i>Required</i> ):       | 4. PE or GROL Number ( <i>Required</i> ):                          |
| 5. Donor Site Name:                             |  |

#### For CRESA Use Only

- |  |   |
|--|---|
| 1. Tested By:<br>a. Installer Representative: _____<br>b. CRESA Representative: _____<br>2. Test Date: _____ | Approved By: _____<br>Approval Date: _____<br>Commission Date: _____<br><input type="checkbox"/> Inspection Tag |
|--|---|

#### Notes:

Agreement:  
☐ KC ☐ MW ☐ S drive  
☐ Contract Notebook ☐ ME

Test Report:  
☐ Received ☐ KC ☐ ME

Fire Marshal:  
☐ Agreement ☐ Test Report

## LICENSED CHANNELS

The following table contains the CRESA frequencies that may be repeated via an Emergency Responder Radio Communication System (ERRCS) or Distributed Antenna System (DAS) to enhance in-building coverage.

The column labeled Repeater Output will be the input frequency or “downlink” from the radio site(s) to the ERRCS or DAS, and the column labeled Repeater Input will be the output frequency or “uplink” from the ERRCS or DAS to the radio site(s).

SITE ALIAS #	SIMULCAST SITES	REPEATER INPUT (MHz)	REPEATER OUTPUT (MHz)
1	BPA 7030 NW Skyline Blvd.; Portland, OR  Ft. Vancouver 605 E Evergreen; Vancouver, WA  Goose Hill 39607 NW 29th Ave.; Woodland, WA  Livingston 28719 NE Lookout Rd.; Camas, WA  Ludlum 1317 NE 68th St.; Vancouver, WA  Prune Hill 2822 NW 18th Ave.; Camas, WA  Ridgefield 2630 S Hillhurst; Ridgefield, WA  Yacolt 18601 NE Yacolt Mtn Rd.; Yacolt, WA  WSDOT 11018 NE 51st Cir.; Vancouver, WA	815.9375	860.9375
		815.7625	860.7625
		814.9375	859.9375
		814.7625	859.7625
		813.9375	858.9375
		813.7625	858.7625
		812.9375	857.9375
		812.7625	857.7625
		811.9375	856.9375
		811.7625	856.7625
		806.1875	851.1875
		806.9625	851.9625

SITE ALIAS #	WASHOUGAL ASR SITE	REPEATER INPUT (MHz)	REPEATER OUTPUT (MHz)
2	Washougal 33313 NE 13th Street; Washougal, WA	815.9875	860.9875
		814.9875	859.9875
		813.9875	858.9875
		812.9875	857.9875
		811.9875	856.9875

SITE ALIAS #	RAINIER ASR SITE	REPEATER INPUT (MHz)	REPEATER OUTPUT (MHz)
3	Rainier 73281 Neer City Road; Rainier, OR	808.9375	853.9375
		808.3750	853.3750
		807.8250	852.8250
		806.9250	851.9250
		806.2125	851.2125

SITE ALIAS #	CASCADE LOCKS ASR SITE	REPEATER INPUT (MHz)	REPEATER OUTPUT (MHz)
4	Cascade Locks 2.1 miles south of Cascade Locks, end of Dry Bed Road (Lat. 45-39-50.0 N, Long. 121-53-3.0 W) Hood River, OR	806.4125	851.4125
		806.1625	851.1625
		806.9625	851.9625
		807.4875	852.4875
		807.2375	852.2375

SITE ALIAS #	NICOLAI RIDGE ASR SITE	REPEATER INPUT (MHz)	REPEATER OUTPUT (MHz)
5	Nicolai Ridge 4 miles southwest of Westport (Lat. 46-5-54.9 N, Long. 123-26-36 W) Westport, OR	813.9875	858.9875
		812.9875	857.9875
		811.9875	856.9875
		814.9875	859.9875
		815.9875	860.9875

SITE ALIAS #	SPEELYAI ASR SITE	REPEATER INPUT (MHz)	REPEATER OUTPUT (MHz)
6	Speelyai Ham and Bayswater Road (Lat. 45-59-05.0 N, Long. 122-23-44.0 W) Amboy, WA	812.9625	857.9625
		811.9625	856.9625
		813.9625	858.9625
		814.9625	859.9625
		812.4875	857.4875

## EQUIPMENT REQUIREMENTS

The following list reflects the minimum specifications to be considered an acceptable system.

1. Must be FCC Certified and have the FCC certification clearly marked and affixed to the device.
2. Must comply with current FCC 47 CFR Part 90.219 rules, regulations, and guidelines regarding ERRCS/DAS systems in commercial service.
3. Must comply with the International Fire Code requirements for ERRCS/DAS systems currently adopted by the jurisdictional fire code official.
4. Must support the 764-860 MHz band.
5. Must be a channelized system and have tunable filters that support channel bandwidths of:
  - 12.5 kHz
  - 6.25 kHz
  - 25 kHz
  - 3 MHz
  - 9 MHz
6. Custom filters can be designed into the ERRCS/DAS system by the system designer to meet specific system requirements in support of providing a reliable Fire Safety ERRCS/DAS system.
7. Must have system monitoring alarms installed in accordance with the International Fire Code currently adopted by the jurisdictional fire code official as applicable.
8. Must meet minimum signal strength and coverage requirements as defined in the International Fire Code currently adopted by the jurisdictional fire code official as applicable.
9. Must have no less than 24 hours of battery back-up to ensure operations when the commercial or emergency power has failed or been shut down.
10. Must be enclosed or housed in a National Electrical Manufacturer's Association (NEMA) 4-type waterproof cabinet.

## **INSPECTION AND TESTING REQUIREMENTS FOR COMMISSIONING, ANNUAL TESTING, AND REPAIRS**

1. All inspection and testing shall comply with the International Fire Code currently adopted by the jurisdictional fire code official.
2. All final test reports shall be submitted to CRESA within 14 days of the test date. Tests should be submitted electronically in .pdf format to the CRESA Help Desk at [Helpdesk@cresa.wa.gov](mailto:Helpdesk@cresa.wa.gov).
3. Place or update a dated and signed standardized label on the amplifier that is easy to read allowing the Fire Official to confirm the device meets FCC, local, and state requirements and has been inspected, calibrated and/or repaired.
4. Should the equipment be found non-compliant, notification shall be made in writing to the Building Owner, Fire Official and CRESA with recommended corrective actions that are required to bring the amplifier/system into compliance and estimated time of repair.
5. Maintain a database of locations, equipment specifics, and inspection/calibration/repair information for each system and provide a list of locations to CRESA as may be requested.