

PUBLIC SAFETY RADIO SYSTEM COMPLIANCE TESTING (New Construction)

XXX.XX

LAST UPDATE: 01/22

APPROVED--XX/XX

REFERENCES International Building Code 2018 Edition, Section 510; NFPA 1221 2019 Edition.

PURPOSE To maintain a uniform approach evaluating new construction buildings for adequate First Responder Radio Systems coverage.

SCOPE All builders, contractors, and owners (Except for 1 and 2 family dwellings)

GUIDELINE AND INFORMATION

INFORMATION

The Northern Kentucky Regional Radio System is a 700/800mhz digital trunked P25 Phase 2 system. The system is operated by the NKY Regional Radio System board and is managed by a radio system manager. The system is also comprised of an analog VHF system for the purpose of alerting agencies via legacy VHF systems such as pagers and "House Alarm Systems".

Frequency and Tower Information

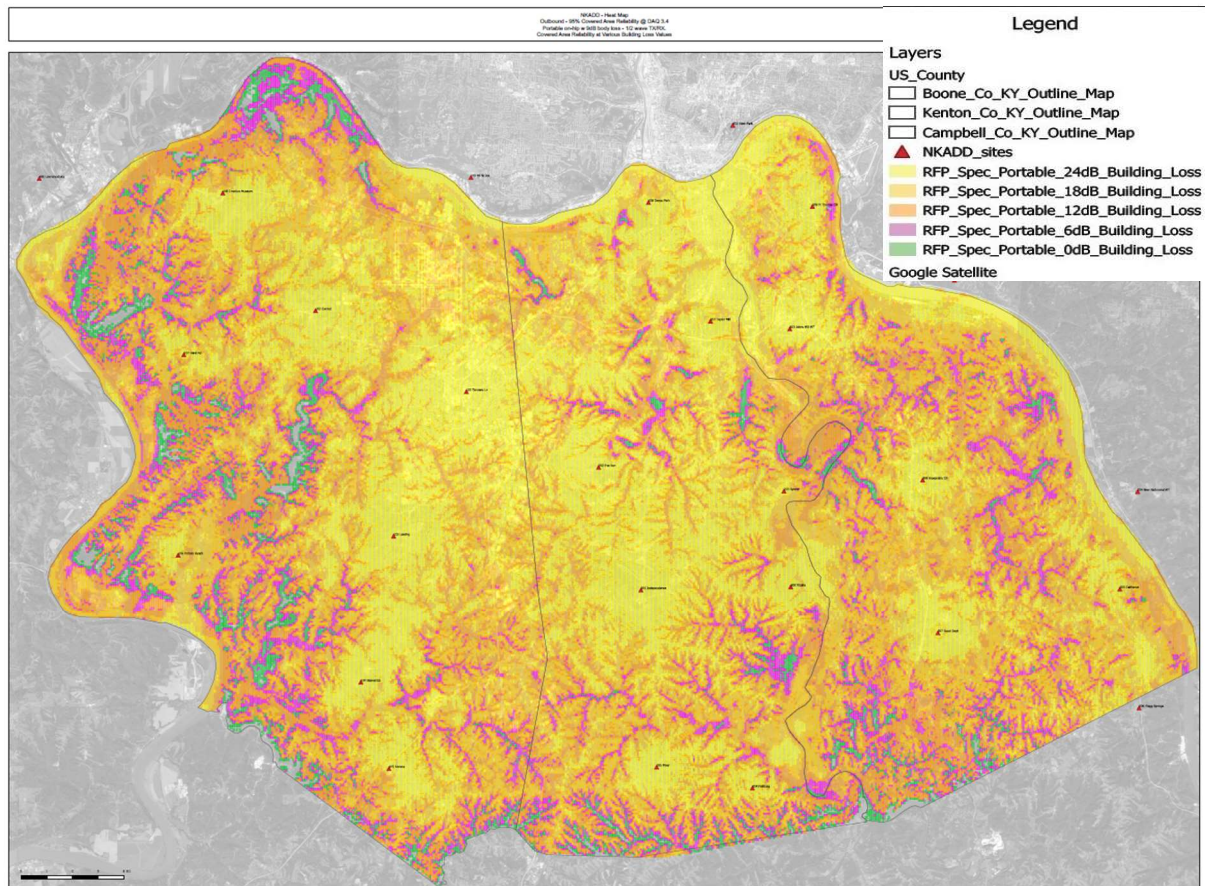
Boone County	
Transmit	Receive
773.63125	803.63125
772.93125	802.93125
772.15625	802.15625
771.90625	801.90625
771.15625	801.15625
770.00625	800.00625

Kenton County	
Transmit	Receive
774.63125	804.63125
774.15625	804.15625
773.40625	803.40625
771.26875	801.26875
771.61875	800.61875
769.30625	799.30625

Campbell County	
Transmit	Receive
774.68125	804.68125
774.43125	804.43125
772.81875	802.81875
772.55625	802.55625
771.58125	801.58125
770.78125	800.78125

Site #	Site Name	Address	Lat.	Long.
Boone County				
101	Tanners Lane	7850 Tanners Ln Florence, KY 41042	38-59-55.0 N	084-38-37.0 W
102	Conrad (Burlington)	3035 Conrad Ln Burlington, KY 41005	39-02-05.0 N	084-43-42.7 W
103	Lassing	2268 Double Eagle Dr Union, KY 41091	38-56-02.9 N	084-41-04.5 W
104	Beaverlick	12562 Andrews Road, Walton KY 41094	38-52-06.3 N	084-42-10.9 W
105	Verona	2885 Verona-Mud Lick Pike, Verona KY 41092	38-49-47.3 N	084-41-13.9 W
106	Potters Ranch	5200 Beaver Rd, Union, KY	38-55-32.1 N	084-48-21.6 W
107	Hand Rd	4951 Hand Road Petersburg, KY 41080	39-00-54.3 N	084-48-09.9 W
108	Lawrenceburg ASR	20 Wolf Run Road, Lawrenceburg IN	39-05-37.0 N	084-53-03.0 W
109	Creation Museum	2764 Bullittsville Church Road	39-05-13.6 N	084-46-51.0 W
110	Mt. St. Joseph	5701 Delhi Rd Delhi OH 45233	39-05-38.7 N	084-38-27.80 W
Campbell County				
301	Eden Park	2080 Sinton Ave Cincinnati, OH 45206	39-07-2.2 N	084-29-36.7 W
302	Sweetwine	7500 Five Mile Rd, Cincinnati, OH 45230	39-02-53.9 N	084-22-07.2 W
303	Johns Hill WT	98 Knollwood Dr Highland Heights, KY 41076	39-01-35.9 N	084-27-41.2 W
304	New Richmond WT	1141 Bethel-New Richmond Rd., New Richmond, OH 45157	38-57-14.5 N	084-15-55.9 W
305	California	10593 Washington Trace Road California, KY 41007	38-54-38.0 N	084-16-32.0 W
306	Flagg Springs	486 Bayless Road California, KY 41007	38-51-25.0 N	084-15-52.7 W
307	Road Department (formerly known as Jolly Park)	1175 Race Track Road Alexandria, KY 41001	38-53-26.0 N	084-22-40.7 W
308	Alexandria Courthouse	17 E Main St Alexandria, KY 41001	38-57-33.2 N	084-23-11.8 W
309	Fort Thomas	130 N. Fort Thomas Ave	39-04-52.0 N	084-26-55.0 W
Kenton County				
201	11777 Madison	11777 Madison Pk., Independence, KY 41051	38-54-36.5 N	084-32-42.9W
202	Fox Run Golf Course	600 Independence Station Rd., Independence, KY 41051	38-57-53.6 N	084-34-08.9 W
203	Ryland (Existing antennas at RAD of 218')	10043 Decoursey Pk., Ryland Heights, KY 41015	38-57-15.4N	084-27-53.0 W
204	Fiskburg	2817 Fiskburg Rd, Demossville, KY 41033	38-49-08.7 N	084-29.02.3 W
205	Piner	1973 Bracht Piner Rd., Morning View, KY 41063	38-49-49.6 N	084-32-11.2 W
206	Visalia	11931 Mann Rd., Covington, KY 41015	38-54-41.2 N	084-27-39.4 W
207	Taylor Mill	599 Lookaway Dr., Taylor Mill, KY 41015	39-01-47.1 N	084-30-21.3 W
208	Devou Park Hole #6 (Children's Home)	1680 Montague Rd., Covington, KY 41011	39-04-58.8 N	084-32-27.9 W

NKY Radio System Coverage Map



Required Signal Strength

Section 510.1 of the 2018 International Building Code states that all new buildings SHALL have approved radio coverage for emergency responders within the building based on existing coverage levels of the public safety communications systems utilized by the jurisdiction, measured at the exterior of the building.

To be considered acceptable, the emergency responder radio system coverage must meet minimum signal strength measurement of -95dBm in 95% of all areas of each floor including any levels below grade.

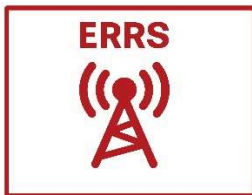
Critical Area Coverage

NFPA 1221 9.6.7.3 defines "Critical Areas" as Fire Command Centers, Fire Pump Rooms, Exit Stairs, Exit Passageways, Elevator Lobbies, Standpipe Cabinets, Sprinkler Sectional Valve Locations, and other areas deemed "Critical Areas" by the AHJ SHALL be provided with 99 percent floor area radio coverage.

Local AHJ's have also deemed the following areas as "Critical Areas": Any Room with Fire Alarm Panels, Sprinkler Control Equipment and Elevator Control Rooms.

Local AHJ's SHALL be contacted to ensure that no other areas are deemed "Critical Areas" based on the design and use of the proposed building.

Local AHJ's have deemed that a sign indicating that the building has a BDA/DAS be placed on the exterior of the building in the location of the fire department key box or other approved location by local AHJ. The SHALL be 18" x 12" with white reflective background and red lettering as noted in the image below:



Local AHJ's have deemed that a sign indicating that a room that has no radio coverage in a building that otherwise has coverage be placed on the exterior of the room in the location approved location by local AHJ. An example of this would be an MRI room. The SHALL be 8" x 5" with white reflective background and red lettering as noted in the image below:



GUIDELINE

All new construction buildings SHALL be compliance tested for NKY Public Safety Radio System signal level except 1 and 2 family dwellings. Testing SHALL occur on all levels above

and below grade level.

The compliance testing SHALL not occur until the structure is under roof, drywall installed, and doors/windows installed.

Testing SHALL occur onsite with a portable radio of the latest brand and model of the local AHJ (Local Fire Department Will Need to Be Contacted for This Information).

Testing SHALL be performed by vendors approved by the Radio System Manger; a list is included at the end of the guideline. The list is not all inclusive, vendors can be added. Vendors not on the list need to contact the NKY Radio System Manger at nkyrcs.sysadmin@ccccky.org prior to conducting any testing.

Test Procedure

- Each floor of the building SHALL be divided into a grid of 20 approximately equal test areas
- The test SHALL be conducted using a calibrated portable radio of the latest brand and model used by the AHJ of equipment approved by the fire code official
- Failure of more than one test area or a "Critical Area" SHALL result in failure of the test.
- In the event two of the test areas fail the test, in order to be more statistically accurate, the floor SHALL be permitted to be divided into 40 equal test areas. Failure of not more than two nonadjacent areas SHALL result in failure of the test area. If the system fails the 40-area test, the building SHALL be treated.
- A test location approximately in the center of each test area SHALL be selected for the test. Once the area is selected it SHALL represent the entire test area.
- The -dBm number SHALL be recorded for use in the report

Compliance Testing Report

- The report Shall include the Name, contact info, and credentials of the person conducting the test.
- The report SHALL include the date, time, and weather conditions at the time of the test.
- A report including floor plan for each floor and how it was divided for the grid testing, with recorded dBm level noted in the grid quadrant, failing grids dBm SHALL be listed in red passing grid dBm SHALL be listed in green.
- The report SHALL indicate what floor levels pass and fail.
- The report SHALL indicate that treatment/enhancement is needed.
- If an area was not tested it should be noted as to reason for not testing.
- Reports SHALL be supplied to the local AHJ (Fire Department) for review.

Testing Results

If the Compliance Testing Report indicated that the building be enhanced/treated the local AHJ will require that it be enhanced/treated.

If a building is enhanced/treated a copy of the final testing report SHALL be supplied to the AHJ (fire department). The Fire Department SHALL forward a copy of the report

to the NKY Radio System Manager at nkyrcs.planreview@cccdck.org

The NKY Radio System Manager SHALL be notified before powering up any system, a system with incorrect power settings can cause undesirable system operations.

If enhancement/treatment is required installation, testing, etc. SHALL be done in accordance with International Fire Code Section 510 2018 edition.

Variances

Although a variance is unlikely only the AHJ (fire department) could approve any variance.

A temporary variance maybe issued due to equipment shortages or extended lead time for equipment. Any temporary variances will be approved the AHJ (fire department). A temporary Certificate of Occupancy maybe permitted with the issuance of a temporary variance.

Approved Testing/Installation Vendors

The Northern Kentucky Regional Communications System (NKY RCS) has developed the following list of vendors that have worked with the Northern Kentucky Regional Communications System on In-Building Emergency Responder Radio Coverage systems. This list is in alphabetical order and there is no endorsement or recommendation for any company listed.

This list is not intended to limit the building owner's choice on contractors. If a building owner has a contractor that is not on this list, the contractors name and contact information must be submitted to the NKY RCS System Administrator prior to testing. This submission is required to ensure that the contractor's installation is coordinated with the system administrator and that proper settings are used to prevent detrimental impact to the regional communications system.

Name	Address	Contact Name	Number	Email
Advanced Radio Technology	6170 Interstate Circle, Cincinnati, OH 45242	Dave Rorer	513-489-5575	drorer@aradiotech.com
AMK Services	109 Triport Road, Georgetown, KY 40324	Robert Swanigan	859-621-1512	swaniganr@amk-services.com
CommDEX	2400 Herodian Way, Suite 360, Smyrna, GA 30080	Bill Scapin	847-878-2911	bscapin@commdex.com
Mobilcomm	1211 W Sharon Road, Cincinnati, OH 45240	Jim Stamper	513-595-5800	jstamper@mobilcomm.com