Notice of Code Compliance: ***Public Safety Radio Amplification System***

To: Plan Submitter
From: City of Tempe Information Technology Department
Re: SPR No. _____

The preliminary plan that you have submitted for development in the City of Tempe meets the criteria for compliance to city code article 9.21-9.32 - *Public Safety Radio Amplification System* (ord. No. 2007.54, 9-16-07). Attached to this notice you will find a copy of the code outlining the criteria and requirements for compliance.

Due to the public safety nature of this requirement and the strict need for consistency of operation as it relates to Public Safety radio communications, standards and procedures have been put in place for you to follow during the construction and operational phase of development. These standards and procedures are spelled out in the city code.

Per city ordinance No. 2007.54, 9-16-07, the owner/developer of the referenced property is require to use a "city-approved RF engineer" to perform the initial testing, system design and installation, and post testing of any in-building treatment required to comply with the ordinance.

Below is a list of city-approved integrators that shall be used. It is the responsibility of the owner/developer to contact one, or all, of the integrators to get bids for an amplification system (including on-going testing and maintenance) prior to application for a building permit. The integrator you select will be the liaison between the owner/developer and the city's Public Safety Communications Division. Failure to comply with the article will result in the withholding, or suspension, of a certificate of occupancy from the city. (Ord. No. 2007.54, 9-16-07)

City-approved Radio System Integrators

(To be used for Public Safety radio system amplification systems)

Durham Communications Inc.
4611 E. Virginia St.
Mesa, AZ 85215
Contact, Les Longshore
480-981-8875 Office
480-993-0926 Direct
les@dcicomm.com

Creative Communications, Inc.
3332 E. Broadway
Phoenix, AZ 85040
Contact, Tom Baribeau
800-767-8405 Office
602-757-0263 Direct
tomb@creativecom.com

Clear Blue Services, LLC
2105 S. 48th St., Suite 103
Tempe, AZ 85282
Contact, Andrew Livingston
602-426-9500 Office
602-616-7202 Direct
andylivingston@clearblueservices.com

Dekolink America's *
127 Rodeo Dr.
Azle, Texas 76020
Contact, Patrick Swan
817-296-4512 Direct
pswan@dekolinkusa.com

U.S. Mobile Communications
2765 N. Scottsdale Rd #104
Scottsdale, AZ 85257
Contact, Rick Finnegan
480-949-0875 Office
602-228-7176 Direct
usmobrf@aol.com

- Dekolink system hardware is the City standard; all listed integrators are authorized Dekolink integrators

CHAPTER 9 OF THE TEMPE CITY CODE, RELATING TO CIVIL DEFENSE AND EMERGENCY SERVICES, SECTIONS 9-22, 9-24, 9-28, 9-29, 9-30, 9-31, 9-32 AND 9-33. ord. No. 2007.54, 9-16-07

Sec. 9-22. Applicability.

This article applies to new construction permits issued after October 13, 2001.

Sec. 9-24. Radio coverage.

(a) Except as otherwise provided in this article, no person shall erect, construct or modify any building or structure or any part thereof, or cause the same to be done which fails to support adequate radio coverage for firefighters and police officers. Inadequate radio coverage shall be deemed to render such buildings or structures or any parts thereof unsafe and subject to the provisions of section 8-108.1 and 8-108.1.2.

(b) The city's telecommunications unit with consideration of the appropriate police, fire and emergency medical department services shall determine the frequency range or ranges that must be supported.

(c) For the purpose of this section, adequate radio coverage shall constitute a successful communications test between the equipment in the building and the communications centers for all appropriate emergency service providers for the building.

Sec. 9-28. Enhanced amplifications systems.

(a) Where buildings and structures are required to provide amenities to achieve adequate signal strength, they shall be equipped with any of the following to achieve the required adequate radio coverage; radiating cable systems(s), internal multiple antenna system(s) with a frequency range as established in § 9-24(b) with amplification system(s) as needed, voting receiver system(s) as needed, or any other city approved system(s).

(b) If any part of the installed system or systems contains an electrically powered component, the system shall be capable of operation of an independent battery or generator system for a period of at least eight (8) hours without external power input or maintenance. The battery system shall automatically charge in the presence of external power.

(c) Amplification equipment must have adequate environmental controls to meet the heating, ventilation, cooling and humidity requirements of the equipment that will be utilized to meet the requirements of this code. The area where the amplification equipment is located also must be free of hazardous materials such as fuels, asbestos, etc. The location of the amplification equipment must be in an area that has twenty-four (24)

hour, seven (7) day a week access for the city's telecommunications personnel. All communications equipment including amplification systems, cable and antenna systems shall be grounded with a single point ground system of five (5) ohms or less. The ground system must include an internal tie point within three (3) feet of the amplification equipment. System transient suppression for the telephone circuits, ac power, radio frequency (RF) cabling and grounding protection are required as needed.

(d) The following information shall be provided to city telecommunications division by the builder:

(1) A blueprint showing the location of the amplification equipment and associated antenna systems which includes a view showing building access to the equipment; and

(2) Schematic drawings of the electrical, backup power, antenna system and any other associated equipment relative to the amplification equipment including panel locations and labeling.

Sec. 9-29. Testing procedures – Method to conduct tests.

(a) Testing shall be performed by a city-approved RF engineer. The city will provide a list of qualified RF engineers. It is the responsibility of the building owner to contact the RF engineer and make arrangements for testing.

(b) Tests shall be made using frequencies close to the frequencies used by the police and appropriate emergency services. If testing is performed on the actual frequencies, then this testing must be coordinated within the city's telecommunications unit. All testing must be performed on frequencies authorized by the FCC. A valid FCC license will be required if testing is performed on frequencies different from the police, fire or emergency medical frequencies.

(c) Measurements shall be made using the following guidelines:

(1) With a service monitor using a unity gain antenna on a small ground plane;

(2) Measurements shall be made with the antenna held in a vertical position at three (3) to four (4) feet above the floor;

(3) Signal strength, both inbound and outbound as defined above, shall be measured on each and every floor above and below ground including stairwells, basements, penthouse facilities, and parking areas of the structure. The structure shall be divided into fifty (50) foot grids and the measurements shall be taken at the center of each grid. In critical areas (police substations and fire command posts), the grids shall be subdivided into four (4) twenty-five (25) foot grids in place of each fifty (50) foot

grid.

(4) A calibrated service monitor (with a factory calibration dated within twenty-four (24) months) may be used to do the test;

(5) The telecommunications unit representative for the city may also make simultaneous measurements to verify that the equipment is making accurate measurements. A variance of 3db between the instruments will be allowed; and

(6) If measurements in one location are varying, then average measurements shall be used.

Sec. 9-30. Initial tests and evaluation.

(a) Signal strength, both inbound and outbound as defined above, shall be measured on each and every floor above and below ground including stairwells, basements, penthouse facilities, and parking areas of the structure. The structure shall be divided into fifty (50) foot grids and the measurements shall be taken at the center of each grid. In critical areas (police substations and fire command posts), the grids shall be subdivided into four (4) twenty-five (25) foot grids in place of each fifty (50) foot grid.

(b) All test results shall be provided to the city telecommunications division in the following format:

An 11”x17” floor plan view for each building level showing the location and signal strength for every measurement taken. Signal strength readings will be projected in a twenty-five (25) foot radius around each measurement point and color shaded according to signal strength. Any areas not meeting minimum average in-building field strength as set forth in sections 9-25 and 9-26 will be shaded red. Areas meeting or exceeding minimum strength will be shaded green.

(c) Initial testing shall be performed at no expense to the city or appropriate emergency services department.

Sec. 9-31 Building treatment.

(a) Where buildings and structures are required to provide amenities to achieve adequate signal strength, a city-approved RF engineer shall design a treatment system to resolve building penetration issues. The city will provide a list of qualified RF engineers to the building owner.

(b) It is the responsibility of the building owner to contact the RF engineer and make arrangements for treatment. A signal amplification system design and bill of

materials, including implementation costs, shall be provided to the building owner, and the city, by the RF engineer.

(c) Building treatment shall be performed by a city-approved RF engineer and may be monitored by a city telecommunications staff member. System design and implementation shall be performed at no cost to the city or the appropriate emergency services department.

Sec. 9-32. Annual tests of system performance.

Annual tests will be conducted by ~~a~~ city approved RF engineer. The city will provide a list of qualified RF engineers to the building owners. If communications appear to have degraded or if the tests fail to demonstrate adequate system performance, the owner of the building or structure is required to remedy the problem and restore the system in a manner consistent with the original approval criteria. Failure to remedy any problems shall render the building and/or any appendages unsafe under sections 8-108.1 and 108.1.2. Test results, as set forth in section 9-30, shall be provided to city telecommunications staff annually, on or before, the anniversary date of initial acceptance. The re-testing will be performed at no expense to the city or the appropriate emergency services departments as required in the original testing procedures.

Sec. 9-33. Compliance.

The required RF compliance shall be a condition and/or stipulation in any building permits issued for buildings referenced in section 9-23 and the testing referenced in section 9-32 shall be completed prior to final approvals issued under section 8-107 for the occupancy of these buildings. Failure to comply with this article shall result in the withholding, or suspension, of a certificate of occupancy from the city.

Ord. No. 2007.54, 9-16-07