



## **Engineering Statement**

### **Displacement of K47GQ-D Proposed Channel 20 at Parks, Arizona November 11, 2017**

This Engineering Statement has been prepared on behalf of the Arizona Board of Regents of Arizona State University (ASU), licensee of Digital TV Translator Station K47GQ-D at Parks, Arizona. The statement was prepared in support of a Displacement Channel Window Filing as well as a Legal STA seeking interim operations as herein proposed.

The translator currently operates on channel 47, which is outside of the new post-incentive auction core television spectrum. The licensee has received a 120-day Commencement of Operation letter from T-Mobile, a winning bidder in the FCC incentive auction. T-Mobile has advised the licensee that it must cease its operations on channel 47 in order to clear the spectrum in the area to enable the commencement of wireless operations in the band prior to the opening of the FCC TV Translator Displacement Channel Filing Window.

Following the FCC prescribed procedures, ASU respectfully requests a waiver of the Displacement Filing Freeze in accordance with the procedures released by the FCC in a Public Notice dated June 14, 2017 regarding filing procedures for such situations.

Granting the waiver and the STA would enable the station to continue its operations providing vital television service as well as other information to the viewers in the area, while minimizing any disruption in service.

Therefore, ASU is filing both a displacement application and a request for Special Temporary Authority (STA) seeking authorization to move its operations to channel 20 on the existing tower site.



The parameters of the proposed facility are as follows:

**Proposed Parameters:**

Transmitter Location:	35-12-01.0 N 112-12-19.6 W (NAD 83)
Channel:	20
ERP:	0.575 KW
Emission Mask:	Full Service
Antenna Pattern:	Directional
Antenna Manufacturer:	ERI
Antenna Model:	ETU-1U0-HSC2-20
Antenna RCAGL:	7.0 Meters
Overall Structure AGL:	17.0 Meters
RCAMSL	2824.0 Meters

**Interference Study:**

An interference study was undertaken utilizing the FCC's TVStudy program to analyze the co-channel and adjacent channel interference scenarios for the new proposed channel of operation.

The results of the study indicated that no impermissible interference would result from the proposed operations.

Based upon the forgoing interference study, it is believed that the proposed facility can operate without any impermissible interference to other stations.

**RF Exposure Study:**

Furthermore, a study was conducted to determine compliance with the RF Radiation Maximum Permissible Exposure (MPE) limits of the proposed operation. The study was conducted using the methodology outlined in the FCC's OET Bulletin 65 regarding RF Radiation Compliance.

The study utilized the proposed antenna height of 7 meters AGL and a reference height of 2 meters AGL for the reference location. This yields a distance from the antenna of 5 meters.

The proposed antenna elevation pattern indicates that the downward radiation from the antenna from 25° to 90° below horizontal has a maximum relative field value of 0.29 (at approximately 43° below horizontal). This value was used in conjunction with the



distance from the antenna and the prescribed formula from OET Bulletin 65 to determine a maximum predicted power density of  $222.8\mu\text{W}/\text{cm}^2$  at 2 meters above ground level near the base of the tower. The Maximum Permissible Exposure Level (MPE) for the Uncontrolled/General Population environment for Channel 35 is approximately  $339.3\mu\text{W}/\text{cm}^2$ . Thus, the proposal is approximately 65.7% of the General Population MPE level and within the allowable limit.

Based upon the forgoing it is believed that the proposed facility is in compliance with the required RF Exposure limits.

The licensee and all station personnel and contractors are required to follow appropriate safety procedures before the commencement of any work on the tower or in close proximity to the antenna. These procedures including reducing power or turning off the transmitter before any work is undertaken at the site. The licensee in coordination with any other users of the site must reduce power or cease operations as necessary to ensure workers having access to the site, tower, and antenna locations are not exposed to RF Radiation levels in excess of those prescribed by FCC Guidelines.

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Dennis W. Wallace C.B.T.E.  
Meintel, Sgrignoli, & Wallace, LLC  
1282 Smallwood Drive  
Suite 372  
Waldorf, MD 20603  
(202) 251-7589  
[dennis.wallace@mswDTV.com](mailto:dennis.wallace@mswDTV.com)