

July 17, 2015

Julius P. Knapp
Chief, Office of Engineering and Technology
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: TV White Spaces Databases Accuracy and Technical Rules
ET Docket No. 14-165; RM – 11745
Ex Parte Presentation

Dear Mr. Knapp:

On March 19, 2015, the National Association of Broadcasters (“NAB”) filed a petition requesting that certain flaws in the television white spaces rules and database be corrected. Subsequent to that filing, NAB and a number of TV white space device manufacturers have worked cooperatively to address the issues raised in the petition.

As a result of this cooperative effort, the TV White Space device manufacturers, Adaptrum, Inc., Carlson Wireless Technologies, KTS Wireless and MELD Technology (collectively, the TV Band Device Manufacturers), and NAB have agreed to a proposed TVWS device solution that will vastly improve the accuracy of the TVWS database and eliminate many of the device and database problems identified in the NAB petition. TV band devices manufactured by Adaptrum, Carlson Wireless Technologies, KTS Wireless and MELD Technology represent well over 95% of deployed devices registered in the TVWS databases.

NAB and the TV Band Device Manufacturers agree that TV White Space rules need to transition to a system that does not require or that minimizes human intervention with regard to the determination of geolocation information for TVWS devices. NAB and the TV Band Device Manufacturers recommend that all TV band devices incorporate automatic geolocation capability or be under the control of a device that includes that capability. Having this capability will ensure, to the extent practical and possible, that valid location information for all TV Band devices is reported to the TV Bands Database Administrators.

NAB and the TV Band Device Manufacturers agree that a sufficient transition time is needed to provide time for manufacturers to incorporate changes and get new products certified, that existing inventory should be grandfathered, and that existing devices can continue to operate and to be deployed during this transition. NAB and the TV Band Device Manufacturers, therefore, also agree that these new requirements would apply to all TV Band

devices manufactured either one year after rules are adopted or January 31, 2017, whichever is later, to provide TV band device manufacturers sufficient time to comply with this new requirement and deploy existing inventory. To facilitate these modifications, NAB and the TV Band Device Manufacturers urge the FCC to treat equipment changes that simply add geolocation to an existing TVWS equipment authorization as permissive change applications and expedite the processing of such requests.

NAB commends Adaptrum, Carlson, KTS and MELD for working together with NAB to develop an approach that will promote and enhance sharing between unlicensed TVWS devices and licensed broadcast operations without increasing the potential for harmful interference. The rule changes recommended by NAB and the TV Band Device Manufacturers are shown in the attached Appendix.

In addition, and as a product of this collaborative effort, NAB and the TV Band Device Manufacturers have also discussed and reached consensus on a number of rulemaking items raised in the 2014 Part 15 NPRM. In this regard, NAB agrees that incorporating this geo-location capability in TV Band Devices will ensure that the device's location information delivered to the TV Band Database Administrators is more accurate and reliable and therefore supports the proposed rule changes that permit such TV Band device to operate a higher power levels and increased height above average terrain (HAAT) provided the same levels of protections are maintained to TV viewers. NAB and the TV Band Device Manufacturers also pledge to continue to work together to facilitate other increased sharing approaches that do not increase harmful interference to incumbent users.

Respectfully submitted,

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APPENDIX

Proposed rule changes:

§15.711 Interference avoidance methods.

Except as provided in §15.717, television channel availability for a TVBD is determined based on the geo-location and database access method described in paragraphs (a) and (b) of this section.

(a) *Geo-location and database access.* A TVBD shall rely on the geo-location and database access mechanism to identify available television channels consistent with the interference protection requirements of §15.712. Such protection will be provided for the following authorized and unlicensed services: digital television stations, digital and analog Class A, low power, translator and booster stations; translator receive operations; fixed broadcast auxiliary service links; private land mobile service/commercial radio service (PLMRS/CMRS) operations; offshore radiotelephone service; low power auxiliary services authorized pursuant to §§74.801 through 74.882 of this chapter, including wireless microphones and MVPD receive sites; and unlicensed wireless microphones used by venues of large events and productions/shows as provided under §15.713(h)(8). In addition, protection shall be provided in border areas near Canada and Mexico in accordance with §15.712(g).

(b) *Geo-location and database access requirements.* (1) The geographic coordinates of a fixed or Mode II personal/portable TVBD shall be determined to an accuracy of ± 100 meters by an incorporated geo-location capability. The incorporated geo-location capability can be built directly into the TVBD or can be in a separate device that is supplied with and connected to the TVBD by Ethernet, USB, serial port or other connection.

Note: The same separately supplied incorporated geolocation device may be connected to more than one TVBD at the same location. This would permit a single geolocation device to provide location data to an in-building network of TVBDs provided that no TVBD was more than 100 meters from the location device or any other TVBD within the network.

(1) The geographic coordinates of a fixed TVBD shall be determined at the time of installation and first activation from a power-off condition, and this information shall be stored internally in the TVBD. The fixed device must use its geolocation capability to check its location at least once every day, except while it is not in operation, and confirm its location has not changed with the location information stored internally and previously reported to the database. If the fixed TVBD is moved to another location or if its stored coordinates become altered, the operator shall re-establish the device's:

(i) Geographic location and store this information in the TVBD; and

(ii) Registration with the database based on the device's new coordinates.

(c) *Special consideration for indoor operation of low power fixed devices.* For fixed low power devices that operate indoors at 40 mW or less, the accuracy of the incorporated geo-location capability shall be ± 100 meters.

Note: Because some geo-location technologies may be less accurate in certain indoor locations, the initial location of the device can be established at a location immediately outside the indoor location of the device and that location stored internally in TVBD along with the time location data was obtained. The device must then be installed and registered with database within 30 minutes of the time the location data was obtained. All location data must be supplied automatically by the TVBD.

§15.712 Interference protection requirements.

Given the reduction in location accuracy above. The required separation distances in the existing rule chart are increase slightly (by 0.1km), as shown below:

Antenna height above average terrain of unlicensed device	Required separation (km) from digital or analog TV (full service or low power) protected contour	
	Co-channel (km)	Adjacent channel (km)
Less than 3 meters	4.1	0.5
3-Less than 10 meters	7.4	0.8
10-Less than 30 meters	11.2	1.3
30-Less than 50 meters	14.4	1.9
50-Less than 75 meters	18.1	2.1
75-Less than 100 meters	21.2	2.2
100-Less than 150 meters	25.4	2.3
150-Less than 200 meters	28.6	2.4
200-250 meters	31.3	2.5