

## Answers to Questions regarding to FCC inquiry 43739

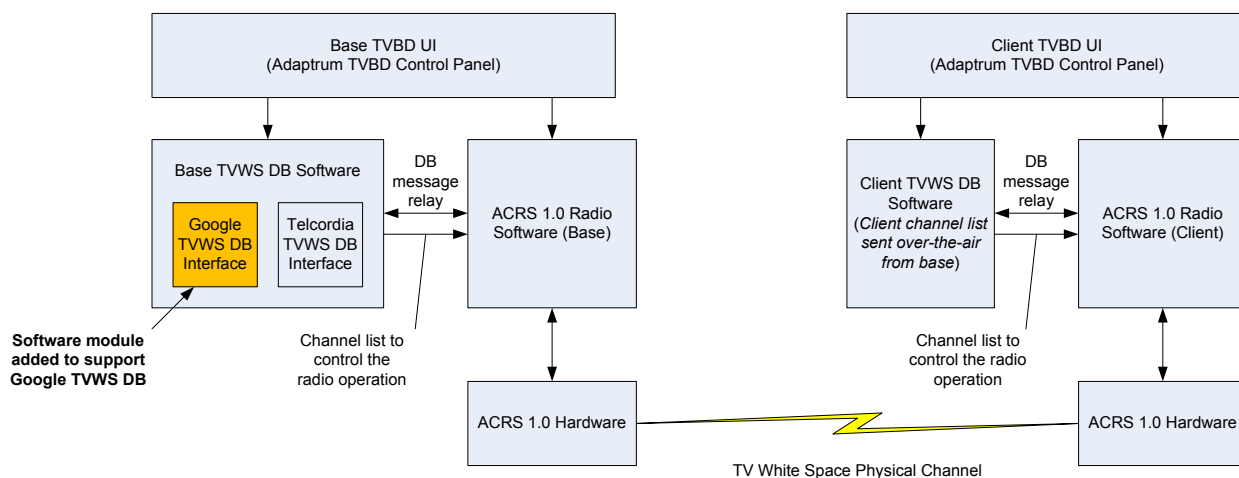
1. **608-614 MHz is not part of the Part 15H TVBD frequency band and therefore should be excluded from Form 731 frequency listing per KDB 634817.**

While the device can tune to Channel 37 (608 – 614 MHz), there won't be any signal transmission on the channel. The base (master) unit will never transmit on Channel 37 since the channel will not appear in any channel list returned from an authorized TV white space database. Subsequently, the client will not detect any active base signal on Channel 37 so it will not transmit on the channel.

2. **Channel #37 (608-614 MHz) can be seen on several drop-down menus in the user manual and the installation menu. The use of Channel 37 is not allowed.**

In the manuals, Channel 37 only appears in the client station "Scan Channel List" which is used by the client station in receive mode to detect the active base station signal. Since base station won't transmit on Channel 37 (as discussed above), the client device will not transmit on Channel 37.

3. **An installation manual and a user manual are not sufficient to support this Permissive Change application. Please provide a detailed list of what hardware and software changes have resulted from adding a database. This information would allow us to independently assess the possibility of any potential changes in reported RF and database interface performance. In the meantime, it is the applicant's responsibility to present supporting reasoning and test data to show that compliance is maintained. Please present your case against the applicable items listed in KDB 416721. Note that even the RF characteristics can be shown to be the same test results for the database interface requirements (15.713, 15.711, 15.707, 15.712, 15.709, and 15.715) should be presented**



A software module "Google TVWS DB Interface" is added to the base "TVWS DB Software" to support the Google TVWS Database as shown in the above figure. *Other software modules are not changed.* The added software module "Google TVWS DB Interface" allows the base software to register and retrieve channel lists from the Google TVWS Database for *both the base and the client*. The base channel list is

used to control the base radio operation as illustrated above. The client channel list is sent over-the-air to the client (on the base operating channel) and is used to control the client radio operation.

In the past certification of ACRS 1.0 system, the radio operation is controlled based on the channel list retrieved from Telcordia TVWS Database. In the new implementation, the radio operation is controlled based on the channel list retrieved from Google TVWS Database. However, the radio operation itself has not been changed. Please refer to the document "Test Procedures for Joint Certification of Google TVWS Database and Adaptrum ACRS 1.0 Fixed TV Band Device" for detailed compliance testing for the listed database interface requirements per KDB 416721.

**4. Please clarify whether Channels 35, 36, 38 and 39 are blocked by the device.**

In general, to provide the maximum operation flexibility, the device itself doesn't block any channel. Permissible operation on any radio channel is controlled by TV White Space Database. We understand the current rules implicitly block the usage of Channels 36 and 38 since they will be assigned to wireless microphones even if they are available. We can block these channels in the radio software if required. However, we prefer to let the database decide the permissible channels of operation. This way any future rule change will only require updating the database and will be transparent to the end user device.

**5. Please clarify the specification that up to 4 antennas can be supported while there is only one antenna connector**

Multiple antenna operation is currently not supported on ACRS 1.0. Only a single antenna can be connected to the antenna port. Please refer to the updated user manual where we have removed the MIMO spec.

**6. Please clarify whether power listed is the sum of all antenna ports or that of a single port**

The power listed is that of the single antenna port.

**7. With antenna gain > 6 dBi, the conducted power and PSD should be backed off. This should be pointed out, along with example(s), in the installation manual**

Please refer to the discussion on Page 5 of the installer's manual for required power backoff. The same configuration was approved for the certification previously. In the EAS grant of A2UACRS10, the maximum device conducted output power is 0.617 W or about 28 dBm. The installer manual requires the antenna and cable assembly to have a maximum gain of 7 dBi total or the conducted output power from the device will be backed off by the amount exceeding 7 dBi by applying output attention. With the cable plus antenna assembly has a gain  $\leq 7$  dBi, the output EIRP of system will be limited to 35 dBm which is less than the 4 W EIRP limit specified for Fixed TVBD.

**8. Please clarify while in "installer mode" the difference between the two device information entries (LAT, LNG, Height). Can different information be entered in those two fields?**

The two device location information (LAT, LNG and Height) entry blocks are used for registration and channel list request respectively. When ACRS 1.0 was certified with Telcordia TVWS Database, the Telcordia TVWS Database requires device location information in both registration and channel list messages.

In Google TVWS Database, the registration and channel list messages are combined and a channel list request with new location information will update the current location information in the device registration. Thus only the “Device Information” entries under “Channel Request” are effective.

**9. The antenna height entry should include a unit (meters, feet) to avoid incorrect input.**

The software has been updated to include the units. See updated manuals.

**10. Please clarify how often a client sends channel list request to the database**

The period for both the base and client channel list update is specified in the “Update Interval” on the “Database” panel in the base TVBD control software. For example, if the “Update Interval” is 12 hours, both the base and client will send the channel list requests every 12 hours.

**11. Please justify the feature that a client can scan and subsequently use a channel not on the list provided by the database (user manual Pages 7 & 12, installer manual Page 16)**

In the scanning mode, the client will be receive-only before it finds an active base signal on a channel. Once the client finds the base signal, it will send its location information to the base and the base will perform device registration and channel list request on behalf of the client. The channel list will be returned to the client and *only when the current operating channel is present in the client channel list*, the client will enter normal communication with the base. Such client initialization procedure is permitted under 15.711 (e) for Fixed TVBD without direct Internet access.