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Comments for IDA Consultation Paper on TV White Space Operations

iconectiv Response

September 16, 2013

iconectiv™

Question 1:
IDA invites views on adopting a license-exempt approach for WSDs in Singapore, subject to the devices meeting the conditions set by IDA.

> As a TVWS database provider, we will be able to accommodate license-exempt use in the proposed band.

Question 2:
IDA invites views on designating a restricted number of TVWS channels to support the deployment of services that require certainty of spectrum access.

> We believe that the advantage of a geolocation database in providing access to spectrum is in its flexibility and ability to dynamically provide protection for high priority services. In the US white space model, two channels were set aside for dedicated use by wireless microphones (PMSE) nationwide as priority users. This registration mechanism is combined with the ability for microphone operators to request location based protection.

Question 3:
In the event where IDA designates channels to support such services, IDA invites views on the appropriate regulatory approach in designating and managing these TVWS channels and the regulatory framework for the operations of prioritized WSDs.

> The geolocation database is capable of providing protection to services dynamically on an as-needed basis. Specific channels can be designated as high priority, but can be utilized by white space devices when not in use. High priority users can request protection on either a scheduled basis or as-needed in a geographic area and the white space database will then mark the channels as unavailable for use by white space devices.

Question 4:
IDA invites views on allowing operation of WSDs in the 694 MHz – 806 MHz band until
IDA allocates these frequencies for IMT deployment.

> The database can support operation in the 694 – 806 MHz band until IDA allocates the
> frequencies to IMT use. At that time, the database can prevent TVWS devices from using
> those channels.
>
> Operation on channels which are not used at certain times of day could also be allowed
> when the channels are not used or are used only to transmit test signals, which do not
> require protection to the same extent that content does. The Geolocation Database would
> need to be provisioned with transmission schedules. These types of scheduled protection
> areas are not only possible, but are already being provided by the US FCC certified
> databases.

Question 5:
IDA invites views on adopting a database approach as the mandated method to access white
space spectrum.

> Supportive. A database approach for determining and disseminating channel availability
> information is simple, flexible, and feasible. The quality and variety of the data used in
> making availability determinations is critical. Internal consistency checks and attention to
> interoperability are important and have all been addressed by white space database
> providers in their existing solutions.

Question 6:
IDA invites views on the proposed general requirements for the database query and
registration.

> Supportive of the requirements as defined in the consultation.

Question 7:

IDA invites views on the three situations in which a WSD must query the database. In particular, IDA invites views on defining 50m as the maximum distance that WSDs are allowed to move from its original location, without contacting the geo-location database.

> Supportive. We also feel that mobile white space devices, i.e., Personal/Portable devices, should be allowed to pre-query the database to allow for rapid channel switching in a quickly moving vehicle.

Question 8:

IDA invites views on the output power transmission of WSDs as shown in Table 2.

> We are supportive of the proposed power limits on white space devices.

Question 9:

IDA invites views on allowing the Fixed Devices to have tunable output power that is capped at a maximum of 4Watts EIRP

> Supportive. The ability to calculate and communicate a maximum permissible output power at a given time and place has the potential to allow fine-tuning of the use of spectrum to maximize utilization.

Question 10:

IDA invites views on the requirement of a Unique WSD Identifier and for this identifier to be based on standards developed by recognized standards organizations.

> Supportive of use of a Unique WSD identifier.

Question 11:

IDA invites views on the proposed maximum transmission level of 100mW EIRP for WSDs operating in channels adjacent to a local broadcast channel.

> The databases is flexible enough to support 100mW operation in adjacent channels initially. If any interference results from this operation, rules for operation on adjacent channels can easily be changed within the database and communicated to devices in an expedient manner.

Question 12:
IDA invites views on the proposed OOB emission limit of -56.8dBm, which will be imposed on WSDs operating in channels that are directly adjacent to a local broadcast service.

> As a database provider, we do not feel it is applicable for us to comment on this question.

Question 13:
IDA invites views on defining the OOB emission limits for WSD to WSD operations

> As a database provider, we do not feel it is applicable for us to comment on this question.

Question 14:
IDA invites views on the proposed approach to manage coexistence between a WSD and the other secondary services within the TVWS channels.

> Both exclusion zones, as well as adjustable power levels around secondary incumbent services (wireless microphones, for instance) are supportable with a geolocation database.

Question 15:
IDA invites views on the proposed propagation model and parameters used to determine the maximum transmission power level of a WSD.

> The database is capable of supporting the use of the Hata propagation model.

Question 16:
IDA invites views on its proposal for the protection of license-exempt and licensed wireless microphones. IDA also invites views and comments on the optimal number of safe harbour channels required to ensure that license-exempt wireless microphones can continue to be used once WSDs are deployed.

> The whitespace database is capable of supporting a regulator-specified number of safe harbor channels and is flexible enough to support any future changes to these channels.

Question 17:
IDA invites views on the need to develop a registration process for users of license-exempt wireless microphones that require additional channels beyond the safe harbor channels.

> The current implementations of the US white space databases provide wireless microphone users a convenient and flexible method for requesting protection for short-notice protection from interference from WSDs. In the US system, this protection only needs to be entered with one database operator and it propagated to all other certified databases on a near-real-time basis. We believe IDA should consider allowing wireless microphone operators to request protection this way, rather than requiring temporary licenses.

Question 18:
IDA invites views on whether the proposed demarcation zone approach is sufficient in terms of managing cross border interference issue and if there are any other factors IDA should consider.

> We believe that as long as reliable information is available regarding incumbent television transmitters in adjacent countries, that an approach can be taken where the white space databases protect foreign incumbents using the same methods as it does for in-country incumbents.
>
> If reliable information is not present at the outset of system operation, a demarcation zone approach is acceptable in the interim.
>
> Either method can be supported by the database approach.

Question 19:
IDA invites views on the aggregate interference effect of WSD and whether any adjustment in terms of technical requirement is needed.

> As a database provider, we do not feel it is applicable for us to comment on this question.

Question 20:
IDA invites views on using GPS as the method to determine location accuracy, and on whether 50m is a sufficient location accuracy requirement for the operation of WSDs.

> As a database provider, we can support re-querying based on any level of accuracy requirement.

Question 21:
IDA invites views on allowing the manual input and internal storage of geographic coordinates for indoor Fixed Devices.

> We are supportive of manual coordinate input by a professional installer.

Question 22:
IDA invites views on the requirement of an approval process for the installer of indoor Fixed Devices and the necessary conditions for approval.

> We support such a process. We suggest that the installer also provide contact information in the device registration information to allow future ability to lookup information regarding the entity that installs the equipment.

Question 23:
IDA invites views on the possible types of TVWS network topologies and use case scenarios.

> We support the use cases shown in Figures 5&6 as just two possible use-cases for white space operation. In addition to the Fixed-to-Fixed device architecture shown in Figure 5, where wired connection to the database is implied from all fixed devices to the database, an additional case should be considered, where a Fixed device with a wired connection to the database (master) can provide service to another fixed device (slave) with no wired connection to the database. Once the slave device makes the initial connection to the master device on a channel available to the master device, it should then request its own available channel list over-the-air through the master device to the database. Subsequent communication between master and slave must take place on a channel that is contained in the intersection of the available channel lists for both master and slave device.

Question 24:
IDA invites views on the payment of fees for the use of database services.

Question 25:
IDA invites views on both approaches in managing the database (i.e. industry-managed or government-managed database).

> We are supportive of industry-managed databases that can provide cost-effective, timely support for white space operation. Multiple databases would provide competitive costs as well as innovation.

Question 26:
To better gauge the level of interest from the industry, IDA invites companies that are interested in developing and managing the database for Singapore to register its interest with us and share the following details:
i) Funding for database development and management (i.e. self-funded, cost recovery, etc)
ii) Business models considered when providing database services
iii) Possible fees involved for TVWS users

> iconectiv is interested in developing and managing a TV white space database for Singapore.
>
> i) We envision that the database development would be self-funded, leveraging our existing infrastructure developed for other white space markets.
>
> ii) We will consider sharing possible business models at the time of formal registration of our interest to provide database services.
>
> iii) We believe that fees paid to database providers for use of TVWS, either directly or through hardware manufacturers, would be sufficient to sustain a viable business in Singapore.

Question 27:
IDA invites views on the proposed preliminary conditions for the operation and administration of the databases

> We are supportive of most of the conditions set forth in the consultation and will be able to support these requirements. However, costs could be better managed, assuming appropriate security is applied, by leveraging cloud services in which the data may not be resident in Singapore.

Question 28:
IDA invites views on the proposed approach and communications protocols between the following:
i) WSD and IDA website containing the list of authorized database administrators
ii) WSD and the database

> i) We support a list of authorized databases if provided by the regulator.
> ii) There is already standardization work being performed in the IETF to specify the interface and connection requirements for WSD-to-database communication. We believe that aside from security requirements, no further specification of requirements is necessary for this link.

Question 29:
IDA invites views on the proposed frequency of update for Time A validity and Time B validity.

> We defer to the judgment of IDA as to the frequency of updates required for the Service List (Time Validity A), noting that the FCC requires 24 hours only, so that the update can be performed outside of normal working hours.

Question 30:
IDA invites views on requiring the adjustment of the value for Time A validity and Time B validity, and for this to be within the range of 6 to 24 hours.

> We are supportive of the capability for adjustments to be made to validity times and for those times to be communicated to the database and WSDs.

Question 31:
IDA invites views on the benefits and costs of a requirement for WSD to report its operational parameters to the database.

> We believe that there is value in having devices report chosen channel back to the database, but do not believe it should be a requirement placed on devices.

Question 32:
IDA invites views on the benefits of including within the TVWS regulations a requirement for WSD to register its contact parameters to the database.

> Supportive. We would also support a mechanism to allow a "no change" response upon re-registration.
>
> We believe that there should also be separate contact information for the owner of the facility and the operator/manager of it, which may not always be the same. Different circumstances would require different contacts.

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