Federal Communications Commission
Office of Engineering and Technology
Laboratory Division Public Draft Review

<u>**Draft Laboratory Division Publications Report**</u>

Title: Interim Certification Application Procedure for UNII Devices Operating in the 5470 – 5725 MHz Band with Radar Detection and DFS Capabilities

Short Title: Approval of DFS UNII Devices

Reason: Update Publication 443999

Note: This draft publication is only available for comment and is not in effect. The current publication is still in effect.

Publication: 443999

Keyword/Subject: 15E, Dynamic Frequency Selection, DFS, DFS Approval

First Category: Radio Service Rules

Second Category: Part 15 Intentional Radiators

Third Category: Unlicensed National Information Infrastructure (UNII) devices - 15.401

Question: What are the Commissions interim plans to approve UNII devices operating in the 5470 – 5725 MHz band with radar detection and DFS capabilities?

Answer:
The attachment below <u>443999 D01 Approval of DFS UNII Devices v01</u> provides interim certification application procedure for UNII devices operating in the 5470 – 5725 MHz band with radar detection and DFS capabilities.

Attachment List:

<u>443999 D01 Approval of DFS UNII Devices v01</u>

Attachment

Interim Certification Application Procedure for UNII Devices Operating in the 5470 – 5725 MHz Band with Radar Detection and DFS Capabilities

The FCC, NTIA, FAA and industry are working to resolve interference to Terminal Doppler Weather Radar (TDWR) systems used near airports that has occurred from some outdoor wireless systems operating in the 5470 MHz – 5725 MHz band. These wireless devices are subject to Section 15.407 of our rules and when operating as a master device they are required to implement radar detection and DFS functions. We are continuing our work to develop long-term equipment authorization test procedures that will ensure that the devices comply with our rules that include protecting the TDWR operations. In the interim, the Commission will now allow certification of wireless master devices with radar detection function and with DFS capability, if they meet the following conditions:

- Devices will not permit operation on channels which overlap the 5600 – 5650 MHz band.[1]
- Devices intended for outdoor use will be further restricted, as follows:
    - Devices must be professionally installed when operating in the 5470 – 5725 MHz band,[2]
    - Grantees must provide owners, operators and all such installers with specific instructions in their users manual on requirements to avoid interference TDWR and information that meet the following instructions:
        - Any installation within 35 km of a TDWR location shall be separated by at least 30 MHz (center-to-center) from TDWR operating frequency (as shown in the attached table)[3, 4], and
        - Procedures for the installers and the operators on how to register the devices in the industry-sponsored database with the appropriate information regarding the location and operation of the device and installer information in that database.[5]

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[1] The devices subject to the requirements in this KDB can select the initial channel for operation to avoid TDWRs and apply the Uniform Channel Spreading requirements (see FCC 06-96 in ET Docket 03-122 released June 30, 2006) on the remaining available frequency band of operation. A revision to the measurement procedure with modification to the Uniform Channel Spreading requirement will be released in the future.

[2] The grantee must identify the specific expertise and the training required by the installers for installing these types of devices.

[3] In some instances it is possible that a device may be within 35 km of multiple TDWRs. In this case the device must ensure that it avoids operation within 30 MHz for each of the TDWRs.

[4] The requirement for ensuring 30 MHz frequency separation is based on the best information available to date. If interference is not eliminated, a distance limitation based on line-of-sight from TDWR will need to be used. In addition, devices with bandwidths greater than 20 MHz may need greater frequency separation.

[5] A voluntary WISPA sponsored database has been developed that allows operators and installers to register the location information of the UNII devices operating outdoors in the 5470 – 5725 MHz band within 35 km of any TDWR location (see http://www.spectrumbridge.com/udia/home.aspx). This database may be used by government agencies in order to expedite resolution of any interference to TDWRs.

- Devices must meet all of the other requirements specified in Section 15.407, and no configuration controls (e.g. country code settings or other options to modify DFS functions) may be provided to change the frequency of operations to any frequency other than those specified on the grant of certification for US operation.[6]
- All applications must clearly show compliance with all of the technical requirements under worse case parameters under user or operator control based on frame rates, listen/talk ratios and user data transfer conditions.

All the devices subject to the DFS requirements must be submitted to the Commission's Laboratory Division for pre-grant testing and equipment authorization. The grantee must ensure that the applications subject to this interim procedure must include appropriate attestations that the device has no option to change the DFS parameters and must demonstrate through test reports that the transmission is disabled in the 5600 – 5650 MHz band. The application must include the users manual with the appropriate installation and operations requirements for the installers and operators.

We are continuing to evaluate what additional measures may need to be taken to further ensure against interference from 5 GHz outdoor wireless systems located near airports. While manufacturers have an obligation to ensure that their equipment complies with FCC rules, and must take steps to ensure their devices do not cause harmful interference, Section 15.5 of the Commission's rules also places an obligation on users of devices that operate under Part 15 to avoid causing interference and correct any interference that may occur. We encourage the manufacturers to include information for the users to ensure that they understand that it is incumbent on users to cooperate with manufacturers to implement any changes necessary to facilitate compliance.

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[6] For example, device software must not have any Country code options or settings which allow an end user to modify the DFS operation or impact the performance of DFS.

TDWR Location Information*

STATE	CITY	LONGITUDE	LATITUDE	FREQUENCY	TERRAIN ELEVATION (MSL) [ft]	ANTENNA HEIGHT ABOVE TERRAIN [ft]
AZ	PHOENIX	W 112 09 46	N 33 25 14	5610 MHz	1024	64
CO	DENVER	W 104 31 35	N 39 43 39	5615 MHz	5643	64
FL	FT LAUDERDALE	W 080 20 39	N 26 08 36	5645 MHz	7	113
FL	MIAMI	W 080 29 28	N 25 45 27	5605 MHz	10	113
FL	ORLANDO	W 081 19 33	N 28 20 37	5640 MHz	72	97
FL	TAMPA	W 082 31 04	N 27 51 35	5620 MHz	14	80
FL	WEST PALM BEACH	W 080 16 23	N 26 41 17	5615 MHz	20	113
GA	ATLANTA	W 084 15 44	N 33 38 48	5615 MHz	962	113
IL	MCCOOK	W 087 51 31	N 41 47 50	5615 MHz	646	97
IL	CRESTWOOD	W 087 43 47	N 41 39 05	5645 MHz	663	113
IN	INDIANAPOLIS	W 086 26 08	N 39 38 14	5605 MHz	751	97
KS	WICHITA	W 097 26 13	N 37 30 26	5603 MHz	1270	80
KY	COVINGTON CINCINNATI	W 084 34 48	N 38 53 53	5610 MHz	942	97
KY	LOUISVILLE	W 085 36 38	N 38 02 45	5646 MHz	617	113
LA	NEW ORLEANS	W 090 24 11	N 30 01 18	5645 MHz	2	97
MA	BOSTON	W 070 56 01	N 42 09 30	5610 MHz	151	113
MD	BRANDYWINE	W 076 50 42	N 38 41 43	5635 MHz	233	113
MD	BENFIELD	W 076 37 48	N 39 05 23	5645 MHz	184	113
MD	CLINTON	W 076 57 43	N 38 45 32	5615 MHz	249	97
MI	DETROIT	W 083 30 54	N 42 06 40	5615 MHz	656	113
MN	MINNEAPOLIS	W 092 55 58	N 44 52 17	5610 MHz	1040	80
MO	KANSAS CITY	W 094 44 31	N 39 29 55	5605 MHz	1040	64
MO	SAINT LOUIS	W 090 29 21	N 38 48 20	5610 MHz	551	97
MS	DESOTO COUNTY	W 089 59 33	N 34 53 45	5610 MHz	371	113
NC	CHARLOTTE	W 080 53 06	N 35 20 14	5608 MHz	757	113
NC	RALEIGH DURHAM	W 078 41 50	N 36 00 07	5647 MHz	400	113
NJ	WOODBRIDGE	W 074 16 13	N 40 35 37	5620 MHz	19	113
NJ	PENNSAUKEN	W 075 04 12	N 39 56 57	5610 MHz	39	113
NV	LAS VEGAS	W 115 00 26	N 36 08 37	5645 MHz	1995	64
NY	FLOYD BENNETT FIELD	W 073 52 49	N 40 35 20	5647 MHz	8	97
OH	DAYTON	W 084 07 23	N 40 01 19	5640 MHz	922	97
OH	CLEVELAND	W 082 00 28	N 41 17 23	5645 MHz	817	113
OH	COLUMBUS	W 082 42 55	N 40 00 20	5605 MHz	1037	113
OK	AERO. CTR TDWR #1	W 097 37 31	N 35 24 19	5610 MHz	1285	80
OK	AERO. CTR TDWR #2	W 097 37 43	N 35 23 34	5620 MHz	1293	97
OK	TULSA	W 095 49 34	N 36 04 14	5605 MHz	712	113
OK	OKLAHOMA CITY	W 097 30 36	N 35 16 34	5603 MHz	1195	64
PA	HANOVER	W 080 29 10	N 40 30 05	5615 MHz	1266	113

PR	SAN JUAN	W 066 10 46	N 18 28 26	5610 MHz	59	113
TN	NASHVILLE	W 086 39 42	N 35 58 47	5605 MHz	722	97
TX	HOUSTON INTERCONTL	W 095 34 01	N 30 03 54	5605 MHz	154	97
TX	PEARLAND	W 095 14 30	N 29 30 59	5645 MHz	36	80
TX	DALLAS LOVE FIELD	W 096 58 06	N 32 55 33	5608 MHz	541	80
TX	LEWISVILLE DFW	W 096 55 05	N 33 03 53	5640 MHz	554	31
UT	SALT LAKE CITY	W 111 55 47	N 40 58 02	5610 MHz	4219	80
VA	LEESBURG	W 077 31 46	N 39 05 02	5605 MHz	361	113
WI	MILWAUKEE	W 088 02 47	N 42 49 10	5603 MHz	820	113

*   Latitude and Longitude are specified in NAD 83

- Last updated July 30, 2010

- Rev. Note (July 30, 2010) – Adjusted coordinates and Elevation Information for Charlotte, NC