Post Initial Certification Revisions to CBRS Baseline Operational and Functional Requirements Specification
(WINNF-TS-0112-V1.9.1)

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1   Scope

This document contains changes to "Requirements for Commercial Operation in the U.S. 3550-3700 MHz Citizens Broadband Radio Service Band" technical specification (WINNF-TS-0112-V1.9.0), also known as the Release 1 Baseline Operational and Functional Requirements. Unlike the requirements capture in "CBRS Operational and Functional Requirements (Release 2)", which are entirely driven by industry need to improve commercial operation, the requirements captured here extend the baseline requirements used for initial certification to capture changes in the FCC Part 96 rules or changes in the implementation of those rules as communicated by the FCC via Public Notice, Knowledge Database (KDB) entry, or other means. The source for each change is referenced throughout the document wherever applicable. While adoption of the requirements captured in this extension, or any WInnForum Standard, is voluntary, as with Release 1, demonstrating conformance with these requirements may be deemed by the FCC to be sufficient to show compliance with the Part 96 rules.

NOTE: Heading numbers have been kept consistent with TS-0112 throughout for readability purposes.

2   Definitions and Abbreviations

The Wireless Innovation Forum Spectrum Sharing Committee (SSC) leverages the definitions provided by the FCC from their Title 47 Part 96 rules. These definitions and others are also available at reference [3].

2.1   Wireless Innovation Forum Definitions

This document contains no new definitions.

2.2   Abbreviations

This document contains no new abbreviations.

3   Requirement Organization

Requirements shall be uniquely identified by: REL1Ext-R#-<CATEGORY>-<XX>-<Y>. Where

- REL1Ext designates these requirements as Release 1 Extensions

- R0-: Requirements directly from FCC Rules
  R1-: Requirements derived from FCC Rules
  R2-: Requirements imposed by WInnForum to address FCC Rules

- <CATEGORY>

Code	Category
SGN	SAS General
IPM	Incumbent Protection Management
IMZ	SAS Interference Management and Exclusion Zones
SAD	SAS Administration
SPU	SAS Requirements for PAL Users
SGU	SAS Requirements for GAA Users
ISC	Inter-SAS Communication
PAL	Priority Access Licensee and PAL Protection Requirements (Leasing, Transfer of Control, etc.)
DEV	CBSD and EUD Requirements
DPX	Domain Proxy
SRR	System Registration Requirements (includes CBSD User, CBSD & Certified Professional Installer Registration)
ESC	Environmental Sensing Capability
CPI	Certified Professional Installer

- <XX>: Unique number to identify the requirement

- <Y>: Optional and used to identify subordinate requirements, typically captured in an alphabetical list following the main requirement number <XX> (e.g., R0-IPM-01-a).

Requirements taken from the FCC Rules are included as "R0" and we attempted to use the FCC Rules without change. In some instances, the FCC uses "must" or "will" for rules, which we have included below as a requirement; however, we insert [shall] to indicate we consider this as a formal requirement.

3.1 Keywords or Requirements Language

The following terms are used within this document and should be interpreted as described in RFC-2119 [Ref-9]:

- SHALL is a mandatory requirement (negative is SHALL NOT)
- SHOULD is recommended requirement/best practice (negative is SHOULD NOT)
- MAY is an optional requirement, i.e. something that is allowed (negative is NEED NOT)

When applicable, "shall" and "shall not" identify requirements that are mandatory for conformance with this standard. "Should" and "should not" indicate that a particular action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is discouraged but not prohibited. "May" and "need not" indicate a course of

action permissible within the limits of the standard. "Can" and "cannot" are used for statements of possibility and capability, whether material, physical, or causal.

4   SAS Requirements

4.5   SAS Requirements for PAL Holders (SPU)

Note: the changes in this section were previously balloted and approved as WINNF-TS-0112-V1.10.0

REL1Ext-R2-SPU-10: PAL Channel Assignment Planning: At the conclusion of the auction and prior to PAL use commencing, and at the times requested by the Commission, SAS Administrators shall cooperate to apply appropriate protocols to allocate and to assign "steady-state" frequencies to PAL Licensees to meet FCC requirements 96.11 (a)(3), 96.13, 96.31, 96.25(b)(1)(i), and 96.25(b)(2)(i), as well as meeting incumbent protection requirements. The SAS Administrators may consider additional constraints and objectives provided by PAL Licensees. The proposed allocation methodology shall be presented to the PAL Licensees for review and comment.

4.5.1   SAS Requirements for Temporary PAL Channel Reassignment (per R1-SPU-05)

Note: this section was added to this document after SAS Initial Certification.

REL1Ext-R1-SPU-06: SAS Administrators shall cooperate to apply appropriate protocols for identifying temporary PAL channel reassignments to avoid conflicts among SASs.

REL1Ext-R1-SPU-07: When individual PALs have to be reassigned by SAS, they shall have higher priority over GAA users in the lower 100 MHz of the band.

REL1Ext-R2-SPU-11: The SAS shall temporarily reassign impacted PAL channels to unoccupied channels where possible in the lower 100 MHz, such that:

a. Impact to PAL contiguity shall be minimized, and

b. Impact to PAL users shall be minimized, and

c. Impact to GAA users shall be minimized.

REL1Ext-R2-SPU-12: PPA Enforcement on Temporary PAL Channel Reassignment: If and when a managing SAS indicates that a PAL has been reassigned to a temporary PAL channel, all SASs shall protect the PAL (and its associated PPAs and CBSDs) in the temporary PAL channel.

5 References

[1] Federal Communications Commission, "Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band," GN Docket 12-354, FCC 15-47, Report and Order and Second Notice of Proposed Rulemaking, Released April 21, 2015, available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-47A1_Rcd.pdf

[2] Title 47, Code of Federal Regulations, Part 96 (2015), available at: http://www.ecfr.gov/cgi-bin/text-idx?node=pt47.5.96&rgn=div5.

[3] Wireless Innovation Forum, Spectrum Sharing Committee, "Definitions Related to Commercial Operations in the U.S. 3550-3700 MHz Citizens Broadband Radio Service Band" available at: http://www.wirelessinnovation.org/fcc-definitions

[4] Title 47, Code of Federal Regulations (various parts referenced), available at: www.ecfr.gov.

[5] National Telecommunications and Information Administration, "An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, and 4200-4220 MHz, 4380-4400 MHz Bands," October 2010 ("Fast Track Report"). Available at: https://www.ntia.doc.gov/files/ntia/publications/fasttrackevaluation_11152010.pdf

[6] National Telecommunications and Information Administration, "Spectrum Occupancy Measurements of the 3550-3650 Megahertz Maritime Radar Band near San Diego, California," Technical Report TR-14-500, January 2014. Available at: http://www.its.bldrdoc.gov/publications/2747.aspx

[7] Federal Communications Commission, "Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band," GN Docket 12-354, FCC 16-55, Order on Reconsideration and Second Report and Order, available at: https://apps.fcc.gov/edocs_public/attachmatch/FCC-16-55A1_Rcd.pdf

[8] Wireless Innovation Forum, Spectrum Sharing Committee, "CBRS Operational Security Technical Specification" available at: http://www.wirelessinnovation.org/assets/work_products/Specifications/winnf-15-s-0071-v1.0.0%20cbrs%20operational%20security.pdf

[9] RFC-2119, "Key words for use in RFCs to Indicate Requirement Levels", March 1997. Available at: https://tools.ietf.org/html/rfc2119

[10] T. Vincenty, "Direct And Inverse Solutions Of Geodesics On The Ellipsoid With Application Of Nested Equations", Survey Review, Volume 23, Issue 176 (01 April 1975), pp. 88-93.

[11] "Feasibility study for enhanced uplink for UTRA FDD", 3GPP TR 25.896

[12] https://www.its.bldrdoc.gov/media/50674/itm.pdf section §47

[13] Federal Communications Commission, "Wireless Telecommunications Bureau and Office of Engineering and Technology Announce Methodology for Determining the Protected Contours for Grandfathered 3650-3700 MHz Band Licensees," GN Docket No. 12-354, Public Notice DA 16-946 (Aug. 19, 2016) available at https://apps.fcc.gov/edocs_public/attachmatch/DA-16-946A1.pdf

[14] National Telecommunications & Information Administration, DPA information to be available at: https://www.ntia.doc.gov/category/3550-3650-mhz. (Note: information not published as yet, but expected to be published in time for commercial deployment)

[15] Arrangement R: https://transition.fcc.gov/ib/sand/agree/files/can-nb/Arrangement_R.pdf

[16] NTIA Technical Memorandum 18-527, "Procedures for Laboratory Testing of Environmental Sensing Capability Sensor Devices" November 2017. Available at: https://www.its.bldrdoc.gov/publications/3184.aspx

[17] National Telecommunications & Information Administration, "3.5 GHz Exclusive Zone Analyses and Methodology". Technical Report 15-517, June 2015. Available at https://www.its.bldrdoc.gov/publications/2805.aspx

[18] NTIA Letter to FCC on Commercial Operations in the 3550-3650 MHz Band, https://www.ntia.doc.gov/fcc-filing/2015/ntia-letter-fcc-commercial-operations-3550-3650-mhz-band.

[19] FCC KDB 940660 D02, Citizens Broadband Radio Service Devices Handshake Procedures. https://apps.fcc.gov/oetcf/kdb/forms/FTSSearchResultPage.cfm?id=229297&switch=P

[20] Federal Communications Commission, "Promoting Investment in the 3550-3700 MHz Band," GN Docket 17-258, FCC 18-149, Report and Order, available at: https://docs.fcc.gov/public/attachments/FCC-18-149A1.pdf.

Appendix A: Revision History

Document History		
V1.0.0	TBA	WINNF-22-I-00050 on Temporary PAL Channel Reassignment
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