

CSMAC
Subcommittee 2
Non-Federal Current and Future
Spectrum Requirements

July 30, 2020

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Question

- Explore the feasibility and utility of requesting information about future spectrum requirements and current usage from industry and other non-federal users and, considering that, identify what information is already available (including prior CSMAC reports and recommendations) and recommend possible approaches to obtaining future spectrum requirements and current spectrum usage of non-federal users.

Tasks

1. Explore the feasibility and utility of requesting information about current usage and future spectrum requirements* from industry and other non-federal users.
2. Considering that, identify what information is already available (including prior CSMAC reports and recommendations).
3. Recommend possible approaches to obtaining future spectrum requirements and current spectrum usage of non-federal users.

*Reordered from original question to put current use ahead of future requirements

Additional Information Provided by NTIA on the Potential Use of Such Information

- To see what information might be available to facilitate compatibility analyses that NTIA does to consider sharing between federal and non-federal systems
- To anticipate non-government (industry) needs that might involve use of or sharing in Federal spectrum
- To use as a comparison with the data NTIA is collecting about Federal agency use and expected requirements to see if Federal agencies may be missing out on opportunities identified by the commercial sector, and
- To allow comparison between Federal and industry use trends.
- Looking for a description of what needs to be done to collect data and describe limitations of such data
- Categories of data (*e.g.*, geographic, temporal, frequency, etc.)
 - What elements are needed to support greater sharing?

Additional Questions and Considerations

- What data are needed?
- How will the data be used?
- What are the limitations to data availability (costs, form, etc.) ?
- Consider data and information on new technology implications and advances
- Does NTIA have authority to gather some of the data?
- Data on some commercial operations may be difficult to obtain due to the commercial sensitivity of this information
 - May require additional efforts to procure (*e.g.*, NDA)
- Considering the diversity of data sources and complexities of acquisition and analysis, NTIA may wish to consider outsourcing
 - May need to constrain tasks
 - Drive testing, sampling, ...?
 - Practicality?
- Consider implications of SC #1 recommendation on Spectrum Research Agency R&D element

Current Work Plan

- Identify commercial services for study
 - Using FCC rule parts/services as a template
- Categorize spectrum needs by service as
 - Growing
 - Stable
 - Declining
- Identify whether data are available
- Identify possible data sources
 - Current usage
 - Future usage
- Recommendations

Findings

- The subcommittee encountered concerns about the authority of the NTIA to collect current or future spectrum usage data from commercial licensees.
 - Concerns with proprietary nature of some data and the need to protect it from disclosure
- Before current and future spectrum usage data are made available to NTIA from commercial spectrum licensees, these issues will need to be addressed, as well as the cost of providing/acquiring this data.

Findings

- Data for some services are available publicly, but the quality of the data should be verified.
- In addition, the formats are not consistent, which will likely require additional processing to be useful to NTIA.
- The utility of the data for evaluating sharing or relocation (or other spectrum use trends) will therefore be highly variable without post-processing.

Recommendations

- 1. Review sources of spectrum usage data provided in Appendix 2 [of the report].**
- 2. Survey existing Federal resources for data on spectrum usage.**
- 3. Identify existing commercial resources and collaborate on data available to identify current and future spectrum needs.**
- 4. Consider working with or contracting to third parties to gather and process data available from commercial sources.**
- 5. Work with research and development entities to identify and quantify technology trends and advances regarding impact on spectrum demand and potential usage efficiencies.**
- 6. Review and analyze existing data resources, possibly using advanced data-mining techniques.**
- 7. Utilize the Research and Development function described by Subcommittee #1 to take on much of the suggested data collection and processing functions.**

Attachment 1

FCC Services Showing Spectrum Need Trends and
Possible Data Sources

CFR Part	Subpart	Service Title	Spectrum Need: Growing (↑) Steady (-) Declining (↓)	Is data available on spectrum usage/need	Challenges or issues collecting data on spectrum usage/need	Possible data sources (considering potential for compatibility analyses w/Fed Operations)
15 Radio Frequency Devices (Growing/greater sharing)						
	B.	Intentional Radiators	-	?		
	D.	UPCS	-			
	E.	U-NII (Including WiFi)	↑	Y	Lots of data, multiple sources	Industry data & reports
	F.	UWB	-	?	Sources?	UWB Alliance
	G.	Access BPL	↓			
	H.	TVWS	↑	Y	Data may be embedded in other data sources. Limited deployments.	TVWS DBAs, Microsoft, industry reports
22 Public Mobile Services (Stable)						
	E.	Paging and Radiotelephone	-		Lots of data, multiple sources, third-party data sources	ULS
	F.	Rural Radiotelephone	-		Lots of data, multiple sources	ULS
	G.	Air-Ground Radiotelephone Service	-		Lots of data, multiple sources	ULS
	H.	Cellular Radiotelephone Service	-		Lots of data, multiple sources	ULS
	I.	Offshore Radiotelephone Service	-		Lots of data, multiple sources	ULS
24 Personal Communications Services (Stable)						
	D.	Narrowband PCS	-	?		
	E.	Broadband PCS	↑	Y	Multiple commercial licensees, data may be considered commercially sensitive, third-party	ULS, multiple commercial licensees
25 Satellite Communications						
		Broadcast (Static)	-			
		Mobile (Growing)	↑	Y		ULS, EAS filings (research), ITU (spectrum needs docs)
		Fixed (Growing)	↑	Y		IBFS
27 Miscellaneous Wireless Communications Services (Growing/greater sharing)						
	I.	1.4 GHz Band	- (?)	Y	Ongoing regulatory activity	ULS (no active licenses)
	J.	1670-1675 MHz Band	↑ (?)	Y		ULS (one nationwide licensee)
	K.	AWS-H Block (1915-1920 MHz and 1995-2000 MHz)	↑ (?)	Y		ULS (one nationwide licensee)
		AWS-3 (1695-1710 MHz, 1755-1780 MHz, 2155-2180 MHz)	↑	Y	Multiple commercial licensees, data may be considered commercially sensitive	ULS, multiple commercial licensees, industry reports
	L.	AWS-1 (1710-1755 MHz, 2110-2155 MHz)	↑	Y	Multiple commercial licensees, data may be considered commercially sensitive	
		AWS-4 (2000-2020 MHz, 2180-2200 MHz)	↑ (?)	Y	Data may be considered commercially sensitive	ULS (one nationwide licensee)
	M.	Broadband Radio Service (BRS)	↑	Y	Multiple commercial licensees, data may be considered commercially sensitive	ULS, multiple commercial licensees, industry reports
		Educational Broadband Service (EBS)	↑	Y	Multiple commercial licensees, data may be considered commercially sensitive	ULS, multiple commercial licensees, industry reports
	N.	600 MHz Band	↑	Y	Multiple commercial licensees, data may be considered commercially sensitive	ULS, multiple commercial licensees, industry reports
30 Upper Microwave Flexible Use Service (Stable)						
			↑	Y	Multiple commercial licensees, data may be considered commercially sensitive	ULS, multiple commercial licensees, industry reports
73 Radio Broadcast Services (Stable)						
	A.	AM Broadcast Stations	-			
	B.	FM Broadcast Stations	-			
	E.	Television Broadcast Stations	↓			
	F.	International Broadcast Stations	-			
	G.	Low Power FM Broadcast Stations (LPFM)	-			
74 Experimental Radio, Auxiliary, Special Broadcast and Other Program Distributional Services (Stable)						
	D.	Remote Pickup Broadcast Stations	-			
	E.	Aural Broadcast Auxiliary Stations	-			
	F.	Television Broadcast Auxiliary Stations	-			
	G.	Low Power TV, TV Transmitter, and TV Booster Stations	-			
	H.	Low Power Auxiliary Stations	-			
	L.	FM Broadcast Transmitter Stations and FM Broadcast Booster Stations	-			
76 Multichannel Video and Cable Television Service (Stable)						
			-			
78 Cable Television Relay Service (Stable)						
			-	?		COALS
80 Maritime Services (Stable)						
			-	?		
87 Aviation Services (Growing)						
		UAS	↑	?		
90 Private Land Mobile Radio Services (Stable)						
	B.	Public Safety Radio Pool	-			
	C.	Industrial/Business Radio Pool	-			
	F.	Radiolocation Service	-			
	M.	Intelligent Transportation Systems Radio Service	-			
	Y.	4940-4990 MHz Band (Stable)	-			
	Z.	3650-3700 MHz Band (Shrinking)	↓			

47 CFR Part	Subpart	Service Title	Spectrum Need: Growing (↑) Steady (-) Declining (↓)	Is data available on spectrum usage/need	Challenges or issues collecting data on spectrum usage/need	Possible data sources (considering potential for compatibility analyses w/Fed Operations)
95		Personal Radio Services (Shrinking)				
	B.	Family Radio Service (FRS)	-			
	C.	Radio Control Radio Service	-			
	D.	CB Radio Service	-			
	E.	General Mobile Radio Service	-			
	F.	218-219 MHz Service	-			
	G.	Low Power Radio Service	-			
	H.	Wireless Medical Telemetry Service	↑	Y	Registration database managed by AHA. Additional data may be considered commercially sensitive	AHA, OEMs
	I.	Medical Device Radio Communications Service (Stable)	-			
	J.	Multi-Use Radio Service	-			
	K.	Personal Locator Beacons and Maritime Survivor Locating Devices	-			
	M.	The 76-81 GHz Band Radar Service	↑	Y		
96		Citizens Broadband Radio Service (Growing)	↑	Y	Multiple commercial licensees, data may be considered commercially sensitive	SASs
97		Amateur Radio Service (Shrinking)	↓			
101		Fixed Microwave Services (Shrinking)				
	G.	24 GHz Service and Digital Electronic Message Service	↓			
	H.	Private Operational Fixed Point-to-Point Microwave Service	-	Y	Multiple commercial licensees, data may be considered commercially sensitive	ULS, multiple commercial licensees, industry reports
	I.	Common Carrier Fixed Point-to-Point Microwave Service	-	Y	Multiple commercial licensees, data may be considered commercially sensitive	ULS, multiple commercial licensees, industry reports
	J.	Local Television Transmission Service	-			
	L.	Local Multipoint Distribution Service	↓			
	O.	Multiple Address Systems	↓	Y	Multiple commercial licensees, data may be considered commercially sensitive	ULS, multiple commercial licensees, industry reports