RF Spectrum Open Issues

Frequency Bands and Center Frequencies

It was suggested on the Nov 20 Ad Hoc call that we combined the FDD DS frequency band and center frequency increment into a set of mandatory and another sent of optional center frequencies. So the following table does just that.

FDD Downstream Channels (Center Frequencies)

Parameter	Possible Values	Recommendation to TF
Mandatory Channel Set	[648, 650, … 904, 906]	
Optional Channel Set	[204, 206, … 644, 646] and [908, 910, … 1702, 1704]	

We may also want to take the same approach for the FDD US and for TDD once we have an idea of the channel bandwidth.

FDD Upstream Band

Parameter	Possible Values	Recommendation to TF
FDD US Lower Band Edge	• 5 MHz • 15 MHz	
FDD US Upper Band Edge	• 200 MHz • 250 MHz	

TDD Band1

Parameter	Possible Values	Recommendation to TF
TDD Band1 Lower Band Edge	• 5 MHz	
TDD Band1 Upper Band Edge	• 200 MHz	

TDD Band2

Parameter	Possible Values	Recommendation to TF
TDD Band2 Lower Band Edge	• 860 MHz • 960 MHz	
TDD Band2 Upper Band Edge	• 1200 MHz • Approx. 1800 MHz	

Center Frequency Tunability

Parameter	Possible Values	Recommendation to TF
FDD US Center Frequency Tunability Resolution	• 2 MHz	
TDD Center Frequency Tunability Resolution	• 2 MHz	

OFDM Channel Bandwidth

Parameter	Possible Values	Recommendation to TF
FDD DS OFDM Channel Bandwidth	• 192 MHz	TF selected 192 MHz
FDD US OFDM Channel Bandwidth	• 192 MHz	
TDD OFDM Channel Bandwidth	• 192 MHz	

Exclusion Sub-Band Rules

Note, the standard may include multiple exclusion sub-band rules, so the TF may have multiple recommendations to the Task Force on exclusion sub-band rules.

Topic	Possible Rules	Recommendation to TF
FDD DS Exclusion Sub-Band Rules	• Definition: Sub-carriers of the exclusion sub-bands are set to zero (i.e. nulled) • Exclusion sub-band can be on the lower portion of the channel, the upper part of the channel, or within the channel • Exclusion sub-bands are for reducing the channel bandwidth, protection of legacy cable services and for controlling egress in specific spectrum. • ~~They are not intended to address ingress, which can be handled with bit loading/variable MCS~~ • Two possible approaches 1. Exclusion sub-bands are a multiple of 2 MHz and on a 1 MHz grid 2. Alternative method would be to specify the start and stop index for the exclusion sub-band. • If we used approach #2 the minimum exclusion sub-band width is **TBD** subcarriers (possible minimum bandwidth of 500 kHz) • After exclusion sub-bands there must be a continuous sub-band of at least 24 MHz wide. (Do we want to make sure this is the middle 24 MHz?) • A minimum amount of cumulative bandwidth • Do not support exclusion sub-bands for analog TV services within the 192-	• Exclusion sub-band can be on the lower portion of the channel, the upper part of the channel, or within the channel • Exclusion sub-bands are configured by the operator • Exclusion sub-bands are for reducing the channel bandwidth, protection of legacy cable services, for controlling known egress/ingress in specific spectrum. • An exclusion sub-band is a group of contiguous subcarriers • Define a sub-group of sub-carriers that is 200 kHz wide (e.g. 4 subcarriers for 4k FFT, or 8 subcarrers for 8k FFT) • Exclusion sub-bands consist of a multiple of sub-groups minimum exclusion sub-band of five sub-groups (bandwidth of 1 MHz)

	MHz OFDM channel.	
FDD US Exclusion Sub-Band Rules	•	
TDD Exclusion Sub-Band Rules	•	

Out-of-Band Emission Requirements

Parameter	Possible Values	Recommendation to TF