Regulatory/Operating classes specifications

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Abstract

This presentation discusses how channelization should be done in TVWS in USA/Canada for 802.11 systems.

Current Numbering System for 802.11

Channel center frequency = Channel starting frequency + 5 × *nch* (MHz) (17-27)
Where *nch* = 1,…200

Channel starting frequency =dot11ChannelStartingFactor × 500 kHz

For example, dot11ChannelStartingFactor = 10000 indicates that Channel zero center frequency is 5.000 GHz. The value NULL for *nch* shall be reserved.

This system is generated for bandwidths of 5,10 and 20 MHz, where the difference between two center frequeny is always a multiple of 5 MHz.

Available TVWS channels in USA/Canada

TV Channel No	Freq. band (MHz)	Center Freq. (MHz)	TV Channel No	Freq. band (MHz)	Center Freq. (MHz)	TV Channel No	Freq. band (MHz)	Center Freq. (MHz)
2	54-60	57	19	500-506	503	36	602-608	605
3	60-66	63	20	506-512	509	37	608-614	611
4	66-72	69	21	512-518	515	38	614-620	617
5	76-82	79	22	518-524	521	39	620-626	623
6	82-88	85	23	524-530	527	40	626-632	629
7	174-180	177	24	530-536	533	41	632-638	635
8	180-186	183	25	536-542	539	42	638-644	641
9	186-192	189	26	542-548	545	43	644-650	647
10	192-198	195	27	548-554	551	44	650-656	653
11	198-204	201	28	554-560	557	45	656-662	659
12	204-210	207	29	560-566	563	46	662-668	665
13	210-216	213	30	566-572	569	47	668-674	671
14	470-476	473	31	572-578	575	48	674-680	677
15	476-482	479	32	578-584	581	49	680-686	683
16	482-488	485	33	584-590	587	50	686-692	689
17	488-494	491	34	590-596	593	51	692-698	695
18	494-500	497	35	596-602	599	52	698-704	701

5 MHz Channels

We are suggesting to use center frequencies of available bands for 5 MHz channels. This will reduce adjacent channel problems.

In USA/CANADA, we need to have 5 starting frequencies. We selected 50 MHz, 51 MHz, 52 MHz , 53 MHz, 54MHz with dot11ChannelStartingFactors of 100, 102, 104,106,108 respectively.

5 MHz TVWS channels for 802.11

Center Freq. (MHz)	.dot11Ch.St. Factor	nch	Center Freq. (MHz)	.dot11Ch.St. Factor	nch	Center Freq. (MHz)	.dot11Ch.St. Factor	nch
57	104	1	515	108	91	605	100	111
79	108	5	521	100	93	617	104	113
85	100	7	527	102	94	623	106	114
177	104	25	533	104	95	629	108	115
183	106	26	539	106	96	635	100	117
189	108	27	545	108	97	641	102	118
195	100	29	551	100	99	647	104	119
201	102	30	557	102	100	653	106	120
207	104	31	563	104	101	659	108	121
213	106	32	569	106	102	665	100	123
473	106	84	575	108	103	671	102	124
479	108	85	581	100	105	677	104	125
485	100	87	587	102	106	683	106	126
491	102	88	593	104	107	689	108	127
497	104	89	599	106	108	695	100	129
503	106	90	593	108	109			
509	108	91	599	106	108			

10 MHz Channels

We are suggesting to use middle frequency of available adjacent bands.

In USA/CANADA, we need to have 5 starting frequencies. We selected 50 MHz, 51 MHz, 52 MHz , 53 MHz, 54MHz with dot11ChannelStartingFactors of 100, 102, 104,106,108 respectively.

10 MHz TVWS channels for 802.11

Center Freq. (MHz)	.dot11Ch.St. Factor	nch	Center Freq. (MHz)	.dot11Ch.St. Factor	nch	Center Freq. (MHz)	.dot11Ch.St. Factor	nch
82	104	6	530	100	96	638	106	117
180	100	26	536	102	97	644	108	118
186	102	27	542	104	98	650	100	120
192	104	28	548	106	99	656	102	121
198	106	29	554	108	100	662	104	122
204	108	30	560	100	102	668	106	123
210	100	32	566	102	103	674	108	124
476	102	85	572	104	104	680	100	126
482	104	86	578	106	105	686	102	127
488	106	87	584	108	106	692	104	128
494	108	88	590	100	108			
500	100	90	596	102	109			
506	102	91	602	104	110			
512	104	92	620	100	114			
518	106	93	626	102	115			
524	108	94	632	104	116			

20 MHz Channels

We are suggesting to use middle frequency of available 4 adjacent bands.

In USA/CANADA, we need to have 5 starting frequencies. We selected 50 MHz, 51 MHz, 52 MHz , 53 MHz, 54 MHz with dot11ChannelStartingFactors of 100, 102, 104,106,108 respectively.

20 MHz TVWS channels for 802.11

Center Freq. (MHz)	.dot11Ch.St. Factor	nch	Center Freq. (MHz)	.dot11Ch.St. Factor	nch	Center Freq. (MHz)	.dot11Ch.St. Factor	nch
180	100	26	530	100	96	632	104	116
186	102	27	536	102	97	638	106	117
192	104	28	542	104	98	644	108	118
198	106	29	548	106	99	650	100	120
204	108	30	554	108	100	656	102	121
482	104	86	560	100	102	662	104	122
488	106	87	566	102	103	668	106	123
494	108	88	572	104	104	674	108	124
500	100	90	578	106	105	680	100	126
506	102	91	584	108	106	686	102	127
512	104	92	590	100	108			
518	106	93	596	102	109			
524	108	94	626	102	115			

Conclusions

- **Channelization of 802.11 system is provided, in which 802.11 transmission band is located in the center of the available bands.**