NEW RADIO COMMUNICATION FOR NEW ERA

NRC7394 Evaluation Kit User Guide
(S1G Channel)
Ultra-low power & Long-range Wi-Fi

Ver 1.3
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1 Overview

The wpa_supplicant is required for the NRC7394 STA operation. As the wpa_supplicant does not natively support S1G (Sub-1 GHz) channels, an internal channel mapping table is used within the firmware to uniquely associate each S1G channel to its pre-determined channel in the traditional 2.4/5GHz band.

As the set of available S1G channels is region-specific, a separate wpa_supplicant configuration file is used to handle the usage for each supported region.

The rest of the document will present the channel mapping table for each supported region and explain how to modify the configuration file.

2 Channel

2.1 US (United States) Channel

Table 2.1 presents all US channels and its index.

Table 2.1 US channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
1	1	902.5	2412
3	1	903.5	2422
5	1	904.5	2432
7	1	905.5	2442
9	1	906.5	2452
11	1	907.5	2462
36	1	908.5	5180
37	1	909.5	5185
38	1	910.5	5190
39	1	911.5	5195
40	1	912.5	5200
41	1	913.5	5205
42	1	914.5	5210
43	1	915.5	5215
44	1	916.5	5220
45	1	917.5	5225
46	1	918.5	5230
47	1	919.5	5235
48	1	920.5	5240

149	1	921.5	5745
150	1	922.5	5750
151	1	923.5	5755
152	1	924.5	5760
100	1	925.5	5500
104	1	926.5	5520
108	1	927.5	5540
2	2	903	2417
6	2	905	2437
10	2	907	2457
153	2	909	5765
154	2	911	5770
155	2	913	5775
156	2	915	5780
157	2	917	5785
158	2	919	5790
159	2	921	5795
160	2	923	5800
161 (Default)	2	925	5805
112	2	927	5560
8	4	906	2447
162	4	910	5810
163	4	914	5815
164	4	918	5820
165	4	922	5825
116	4	926	5580

New channel can be used by adding the channel in the configuration file (ex. ap_halow_open.conf or sta_halow_open.conf) as shown below.

Figure 2.1   Channel mapping in configuration file

2.2 KR (Korea) Channel

2.2.1 KR USN1 (K1) Package

Table 2.2 KR USN1 (K1) channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36 (Default)	1	921.5	5180
37	1	922.5	5185

2.2.2 KR USN5 (K2) Package

Table 2.3 KR USN5 (K2) channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36	1	925.5	5180
37	1	926.5	5185
38	1	927.5	5190
39 (Default)	1	928.5	5195
40	1	929.5	5200
41	1	930.5	5205
42	2	927.0	5210
43	2	929.0	5215

2.3 JP (Japan) channel

Table 2.4 JP channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
40 (Default)	1	921.0	5200
42	1	923.0	5210
43	1	924.0	5215
44	1	925.0	5220
45	1	926.0	5225
46	1	927.0	5230
36	2	923.5	5180
37	2	924.5	5185
38	2	925.5	5190
39	2	926.5	5195
47	4	924.5	5235
48	4	925.5	5240

2.4 TW (Taiwan) channel

2.4.1 TW 840MHz band (T8) Package

Table 2.5 TW 840MHz band (T8) channel (Licensed)

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36	1	839.0	5180
37	1	840.0	5185
38	1	841.0	5190
39	1	842.0	5195
40	1	843.0	5200
41	1	844.0	5205
42	1	845.0	5210
43	1	846.0	5215
44	1	847.0	5220
45	1	848.0	5225
46	1	849.0	5230
47	1	850.0	5235
48	1	851.0	5240
149	2	839.5	5745
150	2	841.5	5750
151 (Default)	2	843.5	5755
152	2	845.5	5760
153	2	847.5	5765
154	2	849.5	5770
155	4	840.5	5775
156	4	844.5	5780
157	4	848.5	5785

2.4.2 TW 920MHz band (T9) Package

Table 2.6 TW 920MHz band (T9) channel (Unlicensed)

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36	1	921.0	5180
37	1	922.0	5185
38	1	923.0	5190
39	1	924.0	5195
40 (Default)	2	921.5	5200
41	2	923.5	5205
42	4	922.5	5210

2.5 EU (Europe) channel

The EU channels have been applied to the following EU-compliant country codes, in accordance with ISO 3166-1 alpha-2 standard:

> AT(Austria), BE(Belgium), BG(Bulgaria), CY(Cyprus), CZ(Czechia), DE(Germany), DK(Denmark), EE(Estonia), ES(Spain), FI(Finland), FR(France), GR(Greece), HR(Croatia), HU(Hungary), IE(Ireland), IT(Italy), LT(Lithuania), LU(Luxembourg), LV(Latvia), MT(Malta), NL(Netherlands), PL(Poland), PT(Portugal), RO(Romania), SE(Sweden), SI(Slovenia), SK(Slovakia), GB(Great Britain) and SA(Saudi Arabia).

Table 2.7 EU channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36 (Default)	1	863.5	5180
37	1	864.5	5185
38	1	865.5	5190
39	1	866.5	5195
40	1	867.5	5200

2.6 CN (China) channel

Table 2.8 CN channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36	1	749.5	5180
37	1	750.5	5185
38	1	751.5	5190
39	1	752.5	5195
40	1	753.5	5200
41	1	754.5	5205
42	1	755.5	5210
43	1	756.5	5215
149 (Default)	2	750.0	5745
151	2	752.0	5755
153	2	754.0	5765
155	2	756.0	5775
150	4	751.0	5750
154	4	755.0	5770

2.7 NZ (New Zealand) channel

Table 2.9 NZ channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36 (Default)	1	915.5	5180
37	1	916.5	5185
38	1	917.5	5190
39	1	918.5	5195
40	1	919.5	5200
41	1	920.5	5205
42	1	921.5	5210
43	1	922.5	5215
44	1	923.5	5220
45	1	924.5	5225
46	1	925.5	5230
47	1	926.5	5235
48	1	927.5	5240
153	2	917.0	5765
154	2	919.0	5770
155	2	921.0	5775
156	2	923.0	5780
157	2	925.0	5785
158	2	927.0	5790
162	4	918.0	5810
163	4	922.0	5815
164	4	926.0	5820

2.8 AU (Australia) channel

Table 2.10AU channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36 (Default)	1	915.5	5180
37	1	916.5	5185
38	1	917.5	5190
39	1	918.5	5195
40	1	919.5	5200
41	1	920.5	5205
42	1	921.5	5210
43	1	922.5	5215

44	1	923.5	5220
45	1	924.5	5225
46	1	925.5	5230
47	1	926.5	5235
48	1	927.5	5240
153	2	917.0	5765
154	2	919.0	5770
155	2	921.0	5775
156	2	923.0	5780
157	2	925.0	5785
158	2	927.0	5790
162	4	918.0	5810
163	4	922.0	5815
164	4	926.0	5820

2.9 SG (Singapore) Channel

2.9.1 SG 860MHz band (S8) Package

Table 2.11SG 860MHz band (S8) channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36	1	866.5	5180
37	1	867.5	5185
38	1	868.5	5190
39 (Default)	2	868	5195

2.9.2 SG 920MHz band (S9) Package

Table 2.12SG 920MHz band (S9) channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36	1	920.5	5180
37	1	921.5	5185
38	1	922.5	5190
39	1	923.5	5195
40	1	924.5	5200
41 (Default)	2	921	5205
42	2	923	5210
43	4	922	5215

3 Revision history

Revision No	Date	Comments
Ver 1.0	4/5/2023	Initial version
Ver 1.1	7/31/2023	Update KR channels
Ver 1.2	9/14/2023	Update CN channels
Ver 1.3	8/21/2024	Fix legacy channel frequency value for K1 channels Add SG channels Update EU channels with EU-compliant country codes Update TW channels: T8/T9