NRC7292 Evaluation Kit User Guide

(S1G Channel)

Ultra-low power & Long-range Wi-Fi

Ver 1.1
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NEWRACOM, Inc.

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1 Overview

The wpa_supplicant is required for the NRC7292 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.

```
#2MHz
#909MHz
#channel=153
#915MHz
#channel=156
#921MHz
#channel=159
#925MHz
#channel=161
#927MHz
channel=112
```

```
2.159(921)  2.161(925)  2.112(927)  4.162(910)
    5795        5805        5560        5810
    5795        5805        5560        5810
```

Figure 2.1   Channel mapping in congifuation file

2.2 KR (Korea) Channel

There are two kinds of packages for KR. The developer could see the 'KR MIC (922.5Mhz-929.0Mhz)' log for KR (Korea) Channel (925.5Mhz – 929.0Mhz).

2.2.1 Default Package (918.0Mhz – 923.0Mhz, 942.8Mhz – 944.3Mhz)

Table 2.2 KR channel (918.0Mhz – 923.0Mhz, 942.8Mhz – 944.3Mhz)

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36	1	918.0	5180
37	1	919.0	5185
38	1	920.0	5190
39	1	921.0	5195
40	1	922.0	5200
41	1	923.0	5205
46	1	942.8	5230
47	1	943.8	5235
48	1	944.8	5240
149	1	945.8	5745
42	2	918.5	5210
43	2	920.5	5215
44 (Default)	2	922.5	5220
150	2	943.3	5750
151	2	945.3	5755
45	4	921.5	5225
152	4	944.3	5760

2.2.2 KR MIC Package (925.5Mhz – 929.0Mhz)

Table 2.3 KR MIC channel (922.5Mhz – 929.0Mhz)

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36 (Default)	1	925.5	5180
37	1	926.5	5185
38	1	927.5	5190
39	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
36 (Default)	1	917.0	5180
37	1	918.0	5185
38	1	919.0	5190
39	1	920.0	5195
40	1	921.0	5200
41	1	922.0	5205
42	1	923.0	5210
43	1	924.0	5215
44	1	925.0	5220
45	1	926.0	5725
46	2	927.0	5230

2.4 TW (Taiwan) channel

Table 2.5 TW channel

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

2.5 EU (Europe) channel

Table 2.6 EU channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36	1	863.5	5180
37	1	864.5	5185
38	1	865.5	5190
39	1	866.5	5195
40	1	867.5	5200
41 (Default)	2	864.0	5205
42	2	866.0	5210

2.6 CN (China) channel

Table 2.7 CN channel

Available frequency band index	Bandwidth (MHz)	Sub-1GHz frequency	2.4 / 5G frequency
36	1	755.5	5180
37	1	756.5	5185
38	1	757.0	5190
39	1	758.5	5195
40	1	759.5	5200
41	1	760.5	5205
42	1	761.5	5210
43	1	762.5	5215
44	1	763.5	5220
45	1	764.5	5225
46	1	765.5	5230
47	1	766.5	5235
48	1	767.5	5240
149	1	768.5	5745
150	1	769.5	5750
151	1	770.5	5755
152	1	779.5	5760
153	1	780.5	5765
154	1	781.5	5770

155	1	782.5	5775
156	1	783.5	5780
157	1	784.5	5785
158	1	785.5	5790
159	1	786.5	5795
160 (Default)	2	780.0	5800
161	2	782.0	5805
162	2	784.0	5810
163	2	786.0	5815
164	4	781.0	5820
165	4	785.0	5825

3 Revision history

Revision No	Date	Comments
Ver 1.0	05/30/2020	Initial version
Ver 1.1	07/30/2020	Add KR MIC (Korea) Channel (925.5Mhz – 929.0Mhz)