

NRC7292 Evaluation Kit

User Guide

(S1G Channel)

Ultra-low power & Long-range Wi-Fi

Ver 1.8
Aug. 31, 2023

NEWRACOM, Inc.

NRC7292 NRC7292 Evaluation Kit User Guide (S1G Channel)

Ultra-low power & Long-range Wi-Fi

© 2023 NEWRACOM, Inc.

All right reserved. No part of this document may be reproduced in any form without written permission from Newracom.

Newracom reserves the right to change in its products or product specification to improve function or design at any time without notice.

Office

Newracom, Inc.

505 Technology Drive, Irvine, CA 92618 USA

<http://www.newracom.com>

Contents

- 1 Overview..... 6**
- 2 Channel..... 6**
 - 2.1 US (United States) Channel.....6
 - 2.2 KR (Korea) Channel8
 - 2.2.1 KR USN1 (K1) Package8
 - 2.2.2 KR USN5 (K2) Package8
 - 2.3 JP (Japan) channel.....8
 - 2.4 TW (Taiwan) channel9
 - 2.5 EU (Europe) channel9
 - 2.6 CN (China) channel.....10
 - 2.7 NZ (New Zealand) channel10
 - 2.8 AU (Australia) channel11
- 3 Revision history..... 13**

List of Tables

Table 2.1	US channel.....	6
Table 2.2	KR USN1 (K1) channel	8
Table 2.3	KR USN5 (K2) channel	8
Table 2.4	JP channel.....	8
Table 2.5	TW channel	9
Table 2.6	EU channel	9
Table 2.7	CN channel	10
Table 2.8	NZ channel	10
Table 2.9	AU channel	11

List of Figures

Figure 2.1 Channel mapping in congifuation file 7

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

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	5195
37	1	922.5	5200

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

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

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

2.7 NZ (New Zealand) channel

Table 2.8 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 2.9 AU 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

3 Revision history

Revision No	Date	Comments
Ver 1.0	5/30/2020	Initial version
Ver 1.1	7/30/2020	Add KR MIC (Korea) Channel (925.5Mhz – 929.0Mhz)
Ver 1.2	9/20/2021	Add AU and NZ Channel
Ver 1.3	10/15/2021	Add KR-USN Channel (921.5 Mhz – 922.5 Mhz)
Ver 1.4	5/20/2022	Document overhaul
Ver 1.5	7/22/2022	JP/AU/NZ channel update
Ver 1.6	2/28/2023	Remove 2Mhz channel in EU
Ver 1.7	6/12/2023	Update KR channels
Ver 1.8	8/31/2023	Update KR channels: remove K0 channels