

Plan	EU868	CN779	EU433	IN865	KR920	AS923-1	AS923-2	AS923-3	AS923-4	RU864
Default Freq band	863 to 870 MHz	779 to 787 MHz	433 to 434	865 to 867 MHz	920.9 to 923.3 MHz	915 to 928 MHz	915 to 928 MHz	915 to 928 MHz	917 to 920 MHz	864 to 870 MHz
Mandatory Channel Freq (Join Req)	868.10 MHz 868.30 MHz 868.50 MHz	779.5 MHz 779.7 MHz 779.9 MHz	433.175 MHz 433.375 MHz 433.575 MHz	865.0625 MHz 865.4025 MHz 865.985 MHz	922.10 MHz 922.30 MHz 922.50 MHz	923.20 MHz 923.40 MHz	921.4 MHz 921.6 MHz	916.6 MHz 916.8 MHz	917.3 MHz 917.5 MHz	868.9 MHz 869.1 MHz
JoinReq DataRate [MinDR:MaxDR]	[0:5]	[0:5]	[0:5]	[0:5]	[0:5]	[2:5]	[2:5]	[2:5]	[2:5]	[0:5]
CFLIST Type Supported	0	0	0	0	0	0	0	0	0	0
Mandatory Data Rate [MinDR:MaxDR]	[0:5]	[0:5]	[0:5]	[0:5]	[0:5]	[0:5]	[0:5]	[0:5]	[0:5]	[0:5]
Optional Data Rate [MinDR:MaxDR]	[6:7] [6:11]	[6:7]	[6:7]	[7]		[6:7]	[6:7]	[6:7]	[6:7]	[6:7]
Number of channels	16	16	16	16	16	16	16	16	16	16
ChMaskCtrl - ChMask	0 -> Channels 0-15 6 -> All channels on	0 -> Channels 0-15 6 -> All channels on	0 -> Channels 0-15 6 -> All channels on	0 -> Channels 0-15 6 -> All channels on	0 -> Channels 0-15 6 -> All channels on	0 -> Channels 0-15 6 -> All channels on	0 -> Channels 0-15 6 -> All channels on	0 -> Channels 0-15 6 -> All channels on	0 -> Channels 0-15 6 -> All channels on	0 -> Channels 0-15 6 -> All channels on
Default channels	[0:2]	[0:2]	[0:2]	[0:2]	[0:2]	[0:1]	[0:1]	[0:1]	[0:1]	[0:1]
Default RX1DROffset	0	0	0	0	0	0	0	0	0	0
Allowed RX1DROffset	[0:5]	[0:5]	[0:5]	[0:7]	[0:5]	[0:7]	[0:7]	[0:7]	[0:7]	[0:5]
Duty Cycle	< 1%	< 1%	< 10%		LBT	< 1%	< 1%	< 1%	< 1%	< 1%
Dwell time limitation	No	No	No	No	No	Yes (400ms)	Yes (400ms)	Yes (400ms)	Yes (400ms)	No
TxParamSetupReq support	No	No	No	No	No	Yes	Yes	Yes	Yes	No
Max EIRP (default) - TXPower 0	+16 dBm	+12 dBm	+12dBm	+30 dBm	+14 dBm	+16 dBm	+16 dBm	+16 dBm	+16 dBm	+16 dBm
Default RX2DataRate	DR0	DR0	DR0	DR2	DR0	DR2	DR2	DR2	DR2	DR0
Default RX2 Frequency	869.525 MHz	786.0 MHz	434.665 MHz	866.550 MHz	921.90 MHz	923.2 MHz	921.4 MHz	916.6 MHz	917.3 MHz	869.1 MHz
Class B default Beacon Freq	869.525 MHz	785.0 MHz	434.665 MHz	866.550 MHz	923.1 MHz	923.4 MHz	921.6 MHz	916.8 MHz	917.5 MHz	869.1 MHz
Class B default downlink pingSlot Freq	869.525 MHz	785.0 MHz	434.665 MHz	866.550 MHz	923.1 MHz	923.4 MHz	921.6 MHz	916.8 MHz	917.5 MHz	868.9 MHz

Plan	US915	AU915
Default Freq band	902 to 928 MHz	915 to 928 MHz
Mandatory Channel Freq (Join Req)	upstream: 64 (902.3 to 914.9 [+ by 0.2]) + 8 (903.0 to 914.2 [+ by 1.6]) downstream: 8 (923.3 to 927.5 [+ by 0.6])	upstream: 64 (915.2 to 927.8 [+ by 0.2]) + 8 (915.9 to 927.1 [+ by 1.6]) downstream: 8 (923.3 to 927.5 [+ by 0.6])
JoinReq DataRate [MinDR:MaxDR]	64 (125 kHz channels) using DR0 and 8 (500 kHz channels) using DR4	64 (125 kHz channels) using DR2 and 8 (500 kHz channels) using DR6
CFList Type Supported	1	1
Mandatory Data Rate [MinDR:MaxDR]	[0:4],[8:13]	[0:6],[8:13]
Optional Data Rate [MinDR:MaxDR]	[5:6]	[7]
Number of channels	upstream: 64 (125 kHz) + 8 (500 kHz) downstream: 8 (500 kHz)	upstream: 64 (125 kHz) + 8 (500 kHz) downstream: 8 (500 kHz)
ChMaskCtrl - ChMask	0 -> Channels 0 to 15 1 -> Channels 16 to 31 ... 4 -> Channels 64 to 71 5 -> 8LSBs controls Channel Blocks 0 to 7, 8MSBs are RFU 6 -> All 125 kHz ON, ChMask applies to channels 64 to 71 7 -> All 125 kHz OFF, ChMask applies to channels 64 to 71	0 -> Channels 0 to 15 1 -> Channels 16 to 31 ... 4 -> Channels 64 to 71 5 -> 8LSBs controls Channel Blocks 0 to 7, 8MSBs are RFU 6 -> All 125 kHz ON, ChMask applies to channels 64 to 71 7 -> All 125 kHz OFF, ChMask applies to channels 64 to 71
Default channels	[0:71]	[0:71]
Default RX1DROffset	0	0
Allowed RX1DROffset	[0:3]	[0:5]
Duty Cycle	No Limit	No Limit
Dwell time limitation	[0:63] 400ms [64:71] No	[0:63] 400ms (regional dependence) [64:71] No
TxParamSetupReq support	No	Yes
Max EIRP (default) - TXPower 0	+30 dBm	+30 dBm

Plan	US915	AU915
Default RX2DataRate	DR8	DR8
Default RX2 Frequency	923.3 MHz	923.3 MHz
Class B default Beacon Freq	Hops across all 8 downlink channels	Hops across all 8 downlink channels
Class B default downlink pingSlot Freq	Follows beacon channel	Follows beacon channel

Plan	CN470(20 MHz Antenna planA)	CN470(20 MHz Antenna planB)	CN470(26 MHz Antenna planA)	CN470(26 MHz Antenna planB)
Default Freq band	470 to 510 MHz	470 to 510 MHz	470 to 510 MHz	470 to 510 MHz
Mandatory Channel Freq (Join Req)	upstream(Group 1): 32 (470.3 to 476.5 [+ by 0.2]) downstream(Group 1): 32 (483.9 to 490.1 [+ by 0.2]) upstream(Group 2): 32 (490.3 to 496.5 [+ by 0.2]) downstream(Group 2): 32 (503.5 to 509.7 [+ by 0.2])	upstream(Group 1): 32 (476.9 to 483.1 [+ by 0.2]) downstream(Group 1): 32 (476.9 to 483.1 [+ by 0.2]) upstream(Group 2): 32 (496.9 to 503.1 [+ by 0.2]) downstream(Group 2): 32 (496.9 to 503.1 [+ by 0.2])	upstream: 48 (470.3 to 479.7 [+ by 0.2]) downstream: 24 (490.1 to 494.7 [+ by 0.2])	upstream: 48 (480.3 to 489.7 [+ by 0.2]) downstream: 24 (500.1 to 504.7 [+ by 0.2])
JoinReq DataRate [MinDR:MaxDR]	[0:5]	[0:5]	[0:5]	[0:5]
CFLIST Type Supported	1	1	1	1
Mandatory Data Rate [MinDR:MaxDR]	[0:5]	[0:5]	[0:5]	[0:5]
Optional Data Rate [MinDR:MaxDR]	[6:7]	[6:7]	[6:7]	[6:7]
Number of channels	upstream: 32 (125 kHz) downstream: 32 (125 kHz)	upstream: 32 (125 kHz) downstream: 32 (125 kHz)	upstream: 48 (125 kHz) downstream: 24 (125 kHz)	upstream: 48 (125 kHz) downstream: 24 (125 kHz)
ChMaskCtrl - ChMask	0 -> Channels 0 to 15 1 -> Channels 16 to 31 2 -> Channels 32 to 47 3 -> Channels 48 to 63 6 -> All Channels Enabled 7 -> All Channels Disabled	0 -> Channels 0 to 15 1 -> Channels 16 to 31 2 -> Channels 32 to 47 3 -> Channels 48 to 63 6 -> All Channels Enabled 7 -> All Channels Disabled	0 -> Channels 0 to 15 1 -> Channels 16 to 31 2 -> Channels 32 to 47 3 -> All Channels Enabled 4 -> All Channels Disabled	0 -> Channels 0 to 15 1 -> Channels 16 to 31 2 -> Channels 32 to 47 3 -> All Channels Enabled 4 -> All Channels Disabled
Default channels	[0:63]	[0:63]	[0:71]	[0:71]
Default RX1DRoffset	0	0	0	0

Plan	CN470(20 MHz Antenna planA)	CN470(20 MHz Antenna planB)	CN470(26 MHz Antenna planA)	CN470(26 MHz Antenna planB)
Allowed RX1DROffset	[0:5]	[0:5]	[0:5]	[0:5]
Duty Cycle	No Limit	No Limit	No Limit	No Limit
Dwell time limitation	No	No	No	No
TxParamSetupReq support	No	No	No	No
Max EIRP (default) - TXPower 0	+19 dBm	+19 dBm	+19 dBm	+19 dBm
Default RX2DataRate	DR1	DR1	DR1	DR1
Default RX2 Frequency	OTAA:Table 61 ABP:486.9 MHz	OTAA:Table 62 ABP:498.3 MHz	492.5 MHz	502.5 MHz
Class B default Beacon Freq	Table 64	Table 66	494.9 MHz	504.9 MHz
Class B default downlink pingSlot Freq	Table 65	Table 67	494.9 MHz	504.9 MHz

Common Join Channel Index	Beacon Channel Number
0	$\lfloor \text{floor}(\frac{\text{beacontime}}{\text{beaconperiod}}) \rfloor \text{ modulo } 8$
1	$8 + \lfloor \text{floor}(\frac{\text{beacontime}}{\text{beaconperiod}}) \rfloor \text{ modulo } 8$
2	$16 + \lfloor \text{floor}(\frac{\text{beacontime}}{\text{beaconperiod}}) \rfloor \text{ modulo } 8$
3	$24 + \lfloor \text{floor}(\frac{\text{beacontime}}{\text{beaconperiod}}) \rfloor \text{ modulo } 8$
4	$32 + \lfloor \text{floor}(\frac{\text{beacontime}}{\text{beaconperiod}}) \rfloor \text{ modulo } 8$
5	$40 + \lfloor \text{floor}(\frac{\text{beacontime}}{\text{beaconperiod}}) \rfloor \text{ modulo } 8$
6	$48 + \lfloor \text{floor}(\frac{\text{beacontime}}{\text{beaconperiod}}) \rfloor \text{ modulo } 8$
7	$56 + \lfloor \text{floor}(\frac{\text{beacontime}}{\text{beaconperiod}}) \rfloor \text{ modulo } 8$

Table 64: Beacon Channel Number for channel plan type A for 20 MHz antenna

Common Join Channel Index	Ping-slot Channel Number
0	$[\text{DevAddr} + \text{floor}(\frac{\text{beacon_time}}{\text{beacon_period}})] \bmod 8$
1	$8 + [\text{DevAddr} + \text{floor}(\frac{\text{beacon_time}}{\text{beacon_period}})] \bmod 8$
2	$16 + [\text{DevAddr} + \text{floor}(\frac{\text{beacon_time}}{\text{beacon_period}})] \bmod 8$
3	$24 + [\text{DevAddr} + \text{floor}(\frac{\text{beacon_time}}{\text{beacon_period}})] \bmod 8$
4	$32 + [\text{DevAddr} + \text{floor}(\frac{\text{beacon_time}}{\text{beacon_period}})] \bmod 8$
5	$40 + [\text{DevAddr} + \text{floor}(\frac{\text{beacon_time}}{\text{beacon_period}})] \bmod 8$
6	$48 + [\text{DevAddr} + \text{floor}(\frac{\text{beacon_time}}{\text{beacon_period}})] \bmod 8$
7	$56 + [\text{DevAddr} + \text{floor}(\frac{\text{beacon_time}}{\text{beacon_period}})] \bmod 8$

Table 65: Ping-slot Channel Number for channel plan type A for 20 MHz antenna

Common Join Channel Index	Beacon Channel Number
8	23
9	55

Table 66: Beacon Channel Number for channel plan type B for 20 MHz antenna

Common Join Channel Index	Ping-slot Channel Number
8	$[\text{DevAddr} + \text{floor}(\frac{\text{beacon_time}}{\text{beacon_period}})] \bmod 32$
9	$32 + [\text{DevAddr} + \text{floor}(\frac{\text{beacon_time}}{\text{beacon_period}})] \bmod 32$

Table 67: Ping-slot Channel Number for channel plan type B for 20MHz antenna

