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BreezeACCESS® VL, BreezeNET® B

Altering the Country Code

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1 Scope

Version 5.0 of BreezeACCESS VL and BreezeNET B introduces the ability to alter the Country Code of a given unit.

This document details the procedure to be followed when altering the Country Code.

WARNING

It is the responsibility of the wireless system operator to verify that use of the selected Country Code does not result in violation of the relevant local radio regulations!

NOTE

Parameters of Frequency, Bandwidth and Tx power will be modified automatically upon a Country Code change. To ensure proper operation of all radio units, make sure to follow the below procedure fully to alter the Country Code.

For details on parameters setting of the available Country Codes please refer to the "Country Codes" document. This Document can be downloaded from the Alvarion Customer Support website or obtained from your local distributor.

2 Selecting/Altering the Country Code in a Live Network

It is recommended to manage the change using either AlvariSTAR or AlvariCRAFT, which enable easy management of the AU/BU and all associated SUs/RB.

Assuming that the change is to be performed for an entire BreezeACCESS VL cell (AU and all associated SUs) or a BreezeNET B link (BU and RB) in a live network, the following procedure should be followed:

1. Make sure that ALL units in the cell/link are running the same SW version (i.e. 5.0.18) from the main version.
2. Write down the below configured parameters for: Frequency, Bandwidth and Tx power of the AU/BU/SU/RB:
   - Air Interface/Frequency/Defined Frequency (MHz)
   - Air Interface//Frequency/Current Operating Frequency (MHz)
   - If DFS is supported and Enabled: Air Interface/Frequency/Planed Frequency Definition Table (ALL Yes/No values)
   - Air interface/Frequency/Current Bandwidth (MHz)
   - Air Interface/Country Code Parameters/Sub Band Select
   - Air interface/Tx Power Parameters/Transmit Power (dBm)

- Scanning frequency range per Sub Band for SU/RB units.

3. Make sure the ATPC is enabled on AU/BU and all SUs/RB.

   After changing the Country Code, the Tx power of SU/RB may be set to the maximum permitted value. If this is not the optimal value, the ATPC will correct it.

4. If you wish to ensure that the SUs/RB will associate with the same AU/BU after the change, configure the Preferred AU/BU accordingly.

5. (For BA VL): In the AU, enable the Country Code Learning by SU.

   (For BN B): Select the new Country Code in the RB unit and reset the unit.

6. In the AU/BU, configure the Tx Control to Disable.

   By disabling the Tx control, the AU/BU will stop sending the beacons and the SUs/RB will enter into scanning mode until the Tx Control is enabled again.

7. Select the new Country Code in AU/BU

8. Reset the AU/BU.

9. Check, and if necessary correct, the configured parameters for: Frequency, Bandwidth and Tx power of the AU/BU to the values you noted down on STEP 2.

10. Enable the Tx Control in the AU/BU and wait for all SUs/RB to associate

11. Make sure the Country Code used by all SUs have been updated. If yes, disable the Country Code Learning by SU. If necessary, disable also the ATPC, bringing back the cell to the original configuration

NOTE

If this procedure is to be applied on a single unit, either AU/BU or SU/RB, all you need is to verify that all parameters that may be affected are configured after the change to their correct values.

The list of the parameters to be monitored on the SU/RB side includes:



- Air Interface/Frequency/Current Operating Frequency (MHz)
- Air Interface/Frequency/Planed Frequency Definition Table
- Air Interface/Frequency/Current Bandwidth (MHz)
- Air Interface/Tx Power Parameters/Transmit Power (dBm)
- Air Interface/Tx Power Parameters/Maximum Tx Power (dBm)

For the AU/BU/SU/RB, see the list of parameters in STEP 2 above.

3 Important Notes

3.1 New Country Codes

Version 5.0 introduces the following new Country codes (supported by Revision C and higher):

- ETSI-F (France and Australia) 5.4 GHz
- Germany 5.8 GHz
- India 5.8 GHz

Note the following limitations related to the new Country Codes:

1. A unit cannot be downgraded to a SW version that does not support the current Country Code used by the unit. To downgrade the SW version of such a unit, the Country Code must first be changed to a Country Code that is supported by the lower SW version.
2. The Country Code Learning by SU feature in an AU using SW version 5.0 with a new Country Code must be disabled until all the SUs served by it are upgraded to SW Version 5.0. This should be done to prevent SUs running previous SW version to try learning a Country Code that is unrecognized by their SW version.

3.2 HW Limitations

- HW rev A is no longer supported by SW 5.0
- In frequency Band 5.4GHz, SUs with attached antennas (SU-A) and BreezeNET B (BU and RB) units that are delivered from factory with the following Country Codes: CC= 1010 (ETSI), CC = 1014 (ETSI_F), CC = 1024 (FCC) or CC = 1044 (AU5.4) have limited - by HW - maximum TX power. Rev C HW is limited to 9dBm and rev E HW is limited to 10dBm. These limitations cannot be changed by altering the country codes.
- The previous rule does not apply to AU units and SU with external antenna.

3.3 Limitations & Known Issues

- In units operating in the 5.3 GHz band, the following rule must be met for full compliance with FCC regulations:
  - For units with HW Revision B, frequency 5270MHz should not be used with a 20 MHz bandwidth. For these units, the Transmit Power parameter in the AU/BU, and the Maximum Tx Power parameter in the SUs/RB, should not be set to a value above “17-Antenna Gain”. Since DFS is mandatory in this Country Code, the frequency subset

configured for one AU/BU unit shall not hold frequency 5270 MHz together with others, unless this reduced Tx power is acceptable for all channels

- For units with HW Revision C, frequencies 5270 MHz, 5275 MHz and 5330 MHz should not be used with a 20 MHz bandwidth. For these units, the Transmit Power parameter in the AU/BU, and the Maximum Tx Power parameter in the SUs/RB, should not be set to a value above "20-Antenna Gain". Since DFS is mandatory in this Country Code, the frequency subset configured for one AU/BU unit shall not hold frequency 5270 MHz, 5275 MHz and 5330MHz together with others, unless this reduced Tx power is acceptable for all channels

- For units with HW Revision C, frequency 5265 MHz should not be used with a 10 MHz bandwidth. For these units, the Transmit Power parameter in the AU, and the Maximum Tx Power parameter in the SUs connected to this AU, should not be set to a value above "25-Antenna Gain". Since DFS is mandatory in this Country Code, the frequency subset configured for one AU(BU) unit shall not hold frequency 5265 MHz together with others, unless this reduced TX power is acceptable for all channels

- In BreezeACCESS VL units operating in the 4.9 GHz Japan band (not B&B point-to-point) with a 10 MHz bandwidth, the following rules must be met for full compliance with regulations:

  - When operating at 4945 MHz, the Transmit Power parameter in the AU should not be set to a value above 11 dBm. The Maximum Transmit Power of the SU should not be set to a value above 10 dBm.

  - When operating at 5055 MHz, the Transmit Power parameter in the AU should not be set to a value above 13 dBm. The Maximum Transmit power of the SU should not be set to a value above 10 dBm.

    This requirement, although not indicated in the certification document, is needed following the tests performed in the certification lab.

- In addition to the limitations related to new Country Codes detailed in Section 3.1, note also the following:

  - An SU will learn a Country Code from the AU only if the SU is running from its main version.

  - In a deployment with two (or more) AUs running different Country Codes, if the Country Code learning feature is activated, SUs may migrate after reset from one AU to the other, try to learn the

Country Code during association process and never be able to come back to the original AU. In such cases the Preferred AU feature must be activated in the SUs before enabling Country Code learning.