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# BreezeNET<sup>®</sup> B

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BreezeNET B Version 5.5M

Release Notes

May 2009

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## 1 General

This document details the main features, known limitations, and other important notifications with respect to BreezeNET B product release 5.5M. It corresponds to software version 5.5.27

BreezeNET B release 5.5M is supported starting from Device Driver version 2.6.0.13 of AlvariSTAR and AlvariCRAFT.

AlvariSTAR DD 2.6.0.13 version has to be installed on AlvariSTAR infrastructure platform version 3.2.3.5

## 2 Introduction

Release 5.5M introduces support for the updated ETSI regulation for DFS detection. .

For more details please refer to the applicable sections in the System Manual or the customer support teams.

## 3 Frequency Bands

The currently supported frequency bands:

- 5.8 GHz Band: 5.725–5.875 GHz (Universal Country Code with HW Revision C) /  
5.725–5.850 GHz (all other Country Codes)
- 5.4 GHz Band: 5.470–5.725 GHz
- 5.2 GHz Band: 5.150–5.350 GHz
- 5.3 GHz Band: 5.250–5.350 GHz
- 2.4 GHz Band: 2.400-2.4835 GHz

## 4 Release 5.5 Key New Features

- **Updated ETSI DFS Compliancy**

Support for the updated ETSI standards on both BU and RB including

- Supporting EN 301 893 v1.5.1, including:
  - Staggered PRF detection across the bands 5470-5725 MHz
  - Pulse Width detection down to 0,8 uSec in the band 5470-5725 MHz
  - Solution for the noise calibration of weather radars in 5600-5650 MHz (CAC = 10min)
- Supporting EN 302 502 v1.2.1. for the 5.8 GHz band

- **Licenses**

PRODUCT	DESCRIPTION	P/N
B14 to B100	License upgrade from B14 units to B100 (only for units HW rev C)	858146

- **BU LED indicators**

Starting with Release 5.5M, the BU LED indicators will have the same functionality as RB LED indicators, improving the alignment easiness from both ends of the link

## 5 Important Notes

- Although minimum output power is defined as -10 dB when configuring the Tx Power manually, when ATPC is enabled the RB's output power may be less than this minimum.
- Extra care should be taken when configuring VLAN management and management IP filtering in order not to lose connectivity with unit. In case of connectivity loss, use the "restore default parameters" application to reset to factory values.
- Upon downgrade from version 5.0 and higher to version 3.0 or lower, all the information in the new Network Management IP Address Ranges table will be lost. Hence, management access may be lost if the unit was managed from an IP address that is on a subnet defined in the new tables.

- When upgrading from version 3.0 or lower to version 5.0, the high/low packet classification settings according to the old VLAN Priority Threshold or IP Precedence Threshold parameters will be lost. The new parameters are forced to the default value of 7, meaning no prioritization.
- When Wireless Link Prioritization feature is activated in BreezeNET B100, the prevention of Low Priority Traffic Starvation is automatically disabled.
- Remote changes of the Maximum Modulation Level in an RB while Adaptive Modulation is disabled may lead to lose of connectivity with the unit. The recommended workaround is to enable Adaptive Modulation, reset the unit to apply the change, and then change the Maximum Modulation Level.
- Adaptive Modulation may not converge to best modulation in some setups with high variance in noise levels. In these cases better performances may be achieved with manual modulation settings (Adaptive Modulation Disabled).
- Upon upgrade to SW version 5.0 and later from a version 3.1 or lower the FTP Client IP Address and Subnet Mask no longer exist as configurable parameters and the unit's IP parameters are used instead. Upon downgrade from SW version 5.0 and later to version 3.1 or lower the FTP Client IP Address of the unit is automatically set to the same value as the IP Address of the device. In this case following warning message appears:

```
*** WARNING: Same 'Unit IP Address' and 'FTP Client IP Address!' ***  
*** 'FTP Client IP Address' ignored until change and reset! ***
```

After downgrade it is recommended changing the FTP Client IP Address to 1.1.1.3 and the FTP Server IP Address to 1.1.1.4.

- Using FTP to put/get some files into/from the units might fail. However, the operation will succeed after several trials. In such cases it is recommended to use TFTP for the same file transfer.
- When an RB with SW version 3.x is upgrade to version 5.0 or later and the ATPC is activated, the TX power of the SU will be modified to the maximum value allowed by HW version and regulatory domain used (Country Code). ATPC will later adjust it to the optimal level.

- The operation of “Reset and boot from shadow” executed from SW version 5.0 and higher may take up to 2 seconds longer when the shadow version is lower than 5.0.
- With respect to the new ETSI DFS functionality in 5.4Ghz,
  - When upgrading the installed RB units to version 5.5.27, the DFS feature will not be enabled. However a Country Code change, a Country Code re-apply or factory default will force the DFS mechanism to be enabled
  - When upgrading the installed BU units to version 5.5.27, the DFS parameter called “minimum pulse to detect” will not be changed. However a Country Code change, a Country Code re-apply or factory default will force the “Minimum Pulses to Detect” parameter to be set to a new value
  - When using the units in 5600-5650 MHz, with ETSI DFS feature activated, please note that due to the CAC = 10min, it is possible, in the worst case, to have the link established within maximum 20 min, after radar detection/system reset/power up.
- With respect to the new ETSI DFS functionality in 5.8GHz, when upgrading the installed RB units to version 5.5.27, the DFS feature will be automatically enabled.
- With respect to the new ETSI DFS regulation in the 5.4 -5.8 GHz, the updated standard mandates RB units capability of DFS sequences detection similar to the BU units – the DFS detection mechanism on both ends (BU and RB) can lead to slight throughput degradation compared to old version performance in which detection of DFS was not required on the RB.

## 6 Limitations & Known Issues

- The appropriate ESSID has to be set and also require disabling the BU country code learning in order to avoid a situation in which the RB changes its country code without actually associating to a BU. If BU country code learning is enabled and it has the same ESSID as the RB, then the (scanning) RB will try to associate to it and will change its country code before association is completed.

- When operating in very noisy environments, the automatic noise immunity mechanism (ANI) can force the OWS to a level of '1'. In the event that this will happen (on the BU side) the RB, with SNRs below 25, can disassociate without being able to re-associate back again. In such cases (very noisy environments) the ANI must be set to 'MANUAL' and the OWS value must never be set to '1'.
- An invalid IP address is accepted, without generating any error message, when the following IPs are set to the "AP Client IP address" via SNMP: 224.0.0.1, 255.0.0.0, 255.255.0.0, 255.255.255.0.
- Units running SW version 4.5 or later with country code 1044 (Australia) should not be downgraded to 4.0 and prior but only after changing the country code. The above mentioned country code is supported only by version 4.5 and later.
- Prior to changing the country code setting, it is recommended that the user should verify that under the new EIRP conditions, imposed by the new country code, it is still possible to maintain the link (relevant in cases where the new CC EIRP value is lower than the original EIRP value).
- Recommended procedure for customers who would like to downgrade from version 5.x to previous released versions
  - 1) Download the operator defaults (CMR file)
  - 2) Downgrade from SW 5.x
  - 3) Load the operator defaultsThis procedure will insure that the operator maintains the defaults settings inside the unit
- Sensitivity may change slightly as a function of frequency (+/-2dB).
- Transmission power accuracy is +/-1dB above 8dBm @ antenna port (typical condition). At lower levels the accuracy is +/-3dBm, never contradicting regulations. At very low levels the use of ATPC may cause significant fluctuations in the power level of the transmitted signal. When operating at such low levels, it is recommended to disable the ATPC Option in the RB

and to set the Transmit Power parameter to the average Tx Power level before the ATPC was disabled.

- For full compliance with FCC regulations, the following requirements should be followed in units using a 20 MHz bandwidth:
  - In units HW Revision B, if you wish to include frequency channel 5270 MHz in the set of frequencies to be used, then the Transmit Power parameter in the BU, and the Maximum Tx Power parameter in the RB, should not be set to a value above “17-Antenna Gain”. If there is a need to use a higher value for these parameters, this frequency should not be used.
  - In units with HW Revision C, if you wish to include one or more of frequency channels 5270, 5275 and 5330 MHz in the set of frequencies to be used, then the Transmit Power parameter in the BU, and the Maximum Tx Power parameter in the RB, should not be set to a value above “20-Antenna Gain”. If there is a need to use a higher value for these parameters, this frequency should not be used.
- For full compliance with FCC regulations, the following requirements should be followed in units using a 40 MHz bandwidth (Turbo Mode):
  - In units with HW Revision B, Frequency channels 5270 and 5280 MHz should not be used.
  - In units with HW rev C, if you wish to include frequency channel 5290 MHz in the set of frequencies to be used, then the Transmit Power parameter in the BU, and the Maximum Tx Power parameter in the RB, should not be set to a value above “25-Antenna Gain”. If there is a need to use a higher value for these parameters, this frequency should not be used.

If you wish to include frequency channel 5310 MHz in the set of frequencies to be used, then the Transmit Power parameter in the BU, and the Maximum Tx Power parameter in the RB, should not be set to a value above “29-Antenna Gain. If there is a need to use a higher value for these parameters, this frequency should not be used.
- For full compliance with FCC regulations for units using 10 MHz bandwidth, frequency 5265 MHz should not be used. For these units, the Transmit Power parameter in the BU, and the Maximum Tx Power parameter in the RB connected to this BU, should not be set to a value above “25-Antenna Gain”.

- The maximum Transmit Power (at antenna port) of units using FCC 5.3 GHz and FCC 5.4 GHz Country Codes is 9 dBm.
- In units with HW Revision B, Burst Mode cannot be activated when using WEP for data encryption. In units with HW Revision B, the Burst Mode option will be “blocked” upon trying to enable it when using WEP for data encryption. This limitation does not apply to units with HW Revision C. Note that the Burst Mode parameter may be wrongly displayed on HW Revision B units as Enabled instead of Blocked, when DFS or data encryption is activated. However the behavior of the Burst Mode is as expected (blocked).
- The character “;” (semicolon) is a reserved character. It should not be used in defining any string parameters (unit name, ESSID, etc) since the string will be cut before the semicolon.
- If you are using the Feature Upgrade option in Telnet to enter a license string using copy and paste operation, check carefully that the string is copied properly. You may have to enter it manually due to potential problems in performing copy/paste in Telnet.
- When an RB running SW version lower than 5.0 is associated with a BU running SW version 5.0 or later:
  - A special warning messages might be displayed in the log file:  
WRN: Unknown vendor private element code: 15  
WRN: Unknown vendor private element code: 16  
WRN: Unknown vendor private element code: 17
  - Parameters that are not included in the old ADB table will be either not available (unknown) or with wrong values.
- When DFS is enabled, “Pulse sensitivity” parameter, although configurable, is not significant. At this case an equivalent value of HIGH will be automatically assigned to this parameter.
- When using a 40MHz channel the maximum range of the link can be 27 km. For 20 MHz channels the maximum range is 54 km.
- When DFS option is activate (enabled), the Noise Floor Value cannot be greater than -90dBm.
- RSSI reading feature requires an on-filed calibration. Without this calibration the RSSI value read may have less accuracy (7-10dB). It is recommended to run the calibration at least once before using the RSSI readings.

- The RSSI calibration might fail in case of heavy interference present on more than 50% of the available RF channels.
- Changing the Fairness Factor will produce changes also in total distance reported by the RB units.