BreezeNET® B

BreezeNET B Version 6.6
GA Release Note



August 2011

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General

This document details the main features, known limitations, and other important notifications with respect to BreezeNET B product Release 6.6. It corresponds to software version 6.6.2.

BreezeNET B Release 6.6 is supported starting from Device Driver version 3.5.10.23 of AlvariSTAR and AlvariCRAFT.

AlvariSTAR DD 3.5.10.23 version has to be installed on AlvariSTAR Infrastructure platform version 4.8.3.335.

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: 2.402-2.494 GHz (Universal Country Code)
  2.402-2.482 GHz (all other Country Codes)

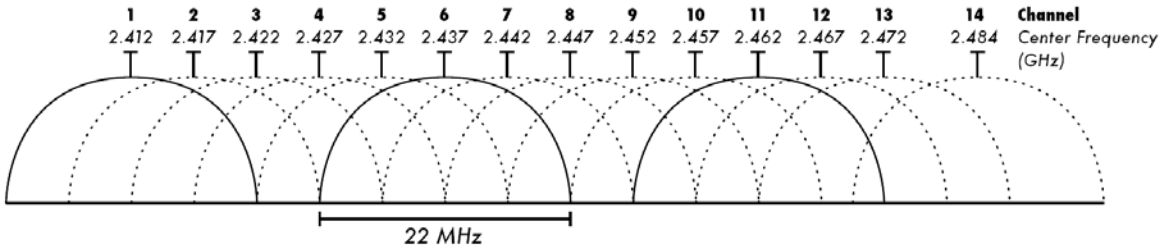
Release 6.6 Key New Features

New Product

Release 6.6 introduces the BreezeNET B100 product type for the 2.4 GHz Band. This new product is similar to the existing BreezeNET B14 in 2.4 GHz, but provides increased data rates, with MIR and CIR configurable up to 107.904 Mbps.

Customer Value Proposition

1. New high capacity PTP link in 2.4GHz with two types of HW version
   a. Low power version – transmit power up to 18dBm
   b. High Power version – transmit power up to 21dBM
2. BrezzeNET B100 in 2.4GHz covering all channels in 2.5GHz including band 14
3. Fully asymmetrical link, up to 73Mbps, in each direction



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BreezeNET B100 2.4GHz Ordering Information

P/N	Product	Description
	BreezeNET B - Point to Point Radio	
	BreezeNET B100 - 2.4 GHz Point to Point Radio (Attached Anntena)	
824281	BU/RB-B100-2.4	2.4 GHz, up to 73Mbps BW, Base Unit / Remote Bridge that includes: Outdoor Unit (ODU) with integrated 15.5 dBi 12 degrees antenna, Indoor Units (IDU) with Lightning Protection, Indoor to outdoor 20m baseband cable and 1.5m Power Cable.
824281RU	BU/RB-B100-2.4	2.4 GHz, up to 73Mbps BW, Base Unit / Remote Bridge that includes: Outdoor Unit (ODU) with integrated 15.5 dBi 12 degrees antenna, Indoor Units (IDU) with Lightning Protection, Indoor to outdoor 20m baseband cable and 1.5m Power Cable. (High Power up to 21dBm)
824281N	BU/RB-B100-2.4	2.4 GHz, up to 73Mbps BW, Base Unit / Remote Bridge that includes: Outdoor Unit (ODU) with integrated 15.5 dBi 12 degrees antenna, Indoor Units (IDU) with Lightning Protection, Indoor to outdoor 20m baseband cable and 1.5m Power Cable.
824281CU	BU/RB-B100-2.4	2.4 GHz, up to 73Mbps BW, Base Unit / Remote Bridge that includes: Outdoor Unit (ODU) with integrated 15.5 dBi 12 degrees antenna, Indoor Units (IDU) with Lightning Protection, Indoor to outdoor 20m baseband cable and 1.5m Power Cable.(High Power up to 21dBm)
824281WLG	BU/RB-B100-2.4	2.4 GHz, up to 73Mbps BW, Base Unit / Remote Bridge that includes: Outdoor Unit (ODU) without antenna (the antenna must be ordered separately), Indoor Units (IDU) with Lightning Protection, Indoor to outdoor 20m baseband cable and 1.5m Power Cable.(High Power up to 21dBm)
	BreezeNET B100 - 2.4 GHz Point to Point Radio (Detached Anntena)	
824283	BU/RB-B100D-2.4	2.4 GHz, up to 73Mbps BW, Base Unit / Remote Bridge that includes: Outdoor Unit (ODU) without antenna (the antenna must be ordered separately), Indoor Units (IDU) with Lightning Protection, Indoor to outdoor 20m baseband cable and 1.5m Power Cable.
824283RU	BU/RB-B100D-2.4	2.4 GHz, up to 73Mbps BW, Base Unit / Remote Bridge that includes: Outdoor Unit (ODU) without antenna (the antenna must be ordered separately), Indoor Units (IDU) with Lightning Protection, Indoor to outdoor 20m baseband cable and 1.5m Power Cable.(High Power up to 21dBm)
824283N	BU/RB-B100D-2.4	2.4 GHz, up to 73Mbps BW, Base Unit / Remote Bridge that includes: Outdoor Unit (ODU) without antenna (the antenna must be ordered separately), Indoor Units (IDU) with Lightning Protection, Indoor to outdoor 20m baseband cable and 1.5m Power Cable.
824283CU	BU/RB-B100D-2.4	2.4 GHz, up to 73Mbps BW, Base Unit / Remote Bridge that includes: Outdoor Unit (ODU) without antenna (the antenna must be ordered separately), Indoor Units (IDU) with Lightning Protection, Indoor to outdoor 20m baseband cable and 1.5m Power Cable.(High Power up to 21dBm)
824283WLG	BU/RB-B100D-2.4	2.4 GHz, up to 73Mbps BW, Base Unit / Remote Bridge that includes: Outdoor Unit (ODU) without antenna (the antenna must be ordered separately), Indoor Units (IDU) with Lightning Protection, Indoor to outdoor 20m baseband cable and 1.5m Power Cable.(High Power up to 21dBm)

Limitations & Known Issues

- When operating in very noisy environments, the Automatic Noise Immunity mechanism (ANI) can force the OFDM Weak Signal (OWS) to a level of '1'. In the event that this happens (on the BU side), if the RB has SNR below 25, it can disassociate without being able to re-associate. In such cases (very noisy environments) the ANI must be set to 'Manual' and the OWS value must never be set to '1'.

- Units running SW version 4.5 or later with Country Code 1044 (Australia) should not be downgraded to 4.0 or earlier; this can be performed 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, 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).
- When downgrading to previously released versions, the operator defaults might be corrupted. To avoid this, the recommended downgrade procedure is:
    1. Download the operator defaults (.cmr file)
    2. Downgrade from current SW
    3. Load the operator defaults
- 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 is 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 enabled 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 enabled. 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, ANI “Pulse Detection Sensitivity” parameter, although configurable, is not significant. In this case an equivalent value of High will be automatically assigned to this parameter.
- When using 40MHz channels, the maximum range of the link can be 27 km. For 20 MHz channels, the maximum range is 54 km.
- It is recommended to use TFTP, as opposed to FTP, in all cases when files need to be transferred from/to the unit.
- It is not recommended to force the Noise Floor to more than 15-20dB above the measured value. This might affect the SNR calculation (showing much higher values) for signals that are up to 10dB above the new Noise Floor Forced Value.
- When DFS option is enabled, the Noise Floor Value cannot be higher than -90dBm.
- RSSI reading feature requires a field calibration of the Noise Floor. Without this calibration the RSSI value read may have less accuracy (7-10dB). It is recommended to run the Calibration of Noise Floor at least once before using the RSSI readings.
- The Noise Floor 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.
- Spectrum Analysis might display NF values of 0 on channels with very high continuous interference, because the unit is not able to calibrate the NF. This might occur together with unusually high values of Signal Width (over 200 microseconds).

- If Noise Floor Level setting on the BU is high, the RB might not be able to associate even if the downlink SNR is good. This is because higher the NF value in the AU will result in shorter coverage distance. (RSSI=SNR+NF)
- In the current version, Extended VLAN rules do not apply to PPPoE encapsulated traffic (the algorithm does not look inside PPPoE frames).
- In case of “Statistics-Based Rate Control” feature, when a transmitted packet doesn't arrive successfully from the first try, sometimes it is dropped without 10 attempts of re-transmitting. Also, sometimes the retransmissions are performed only on the same modulation even if Retries on Lower Modulations are enabled and possible.
- In case of using Statistics-Based Rate Control mechanism, with Retries on Lower Modulations enabled, dropped frames on modulation 8 can still occur, either because of short retries (RTS dropped) or trials on higher modulations from modulation levels lower than 8.
- The maximum recommended Multicast Modulation Level to be configured in the BU is 6. Configuring a higher value might lead to increased amounts of CRC at the receiving RB.
- Packets received from Ethernet and dropped at the Ethernet port are not reported in Traffic Statistics counters.
- With respect to system performance with small packets (e.g. 64 bytes):
    - For high MIR values, MIR might not be reachable with small packets.
    - Small packets expected maximum throughput starting with Release 6.0 is below 40.000pps – around 33000pps for uplink unidirectional only.
    - Small packets maximum throughput starting with Release 6.0 is asymmetric: around 44000pps downlink and 33000pps uplink.
- Combining Best BU and Automatic Noise Floor Selection should be done cautiously since Best BU selected (max RSSI) may not be in the SNR range as implied by the Automatic CCS/NFS Noise Floor level.
- When running Clear Channel Selection on BU units with values other than Default, the result may be picking a channel with very low noise floor or one with very high noise floor depending on the parameters configured.
- While Interference Mitigation is active, the Spectrum Analysis results table in AlvariCRAFT starts displaying irrelevant values. This behavior ends once the Interference Mitigation process is over, after which Spectrum Analysis in AlvariCRAFT resumes display of the values stored in the results table prior to running Interference Mitigation. This behavior is only present in AlvariCRAFT and it does not occur when accessing via Telnet.
- For channels where no suitable solution was found because of high noise levels, the displayed values for NF, Distance and Performance will be 0.
- During Interference Mitigation, if more than 100.000 events are picked up on one channel, the scanning process will automatically move to the next channel in the Frequency Subset list, regardless of the duration configured in Channel Scan Period option.
- If the unit finds over 100.000 events on most or all channels, the outcome might be unreliable, because it does not perform a fair comparison between different channels. This means that the entire spectrum is heavily interfered. In this case, it is recommended to decrease the Channel Scan Period and re-run Interference Mitigation.
- ’Ethernet Frame Size’ settings (e.g. changing frame size from 1600B to 2000B) are applied only after unit restart, although the new setting is shown on the unit.

- Changing Threshold Type (e.g. from RSSI to SNR) for a selected LED keeps the current values for Mode and Target, which might cause them to be out of range for the new threshold type.
- BU SNR LED Bar indicates SNR only after data traffic is received from the RB.