



BreezeACCESS[®] EZ

BreezeACCESS EZ Release 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 BreezeACCESS EZ product release 5.5M. It corresponds to software versions:

- AU-EZ software version 5.5.27
- SU-EZ software version 2.1.10

BreezeACCESS EZ release 5.5M is supported starting from version 5.5.1 of BreezeCONFIG configuration tool.

2 Introduction

BreezeACCESS EZ SW version 2.1 presents EZ customers with highly enhanced functionality (remotely upgraded), including new networking capabilities, robust security and advanced QoS support.

3 Frequency bands

- 5.8 GHz Band (5.725–5.875 GHz)
- 5.4 GHz Band (5.470–5.725 GHz)
- 5.3 GHz Band (5.250–5.350 GHz)
- 5.2 GHz Band (5.150–5.350 GHz)

4 BA-EZ Solution

AU-EZ

Serving up to 23 Mbps of Internet access, an AU-EZ consists of a network-interface/power-supply indoor unit (IDU) and an outdoor radio unit (ODU) with an interface to an external antenna. The modular design of the AU-EZ enables flexibility in covering target areas by using different external antennas. The antenna is not included in the AU-EZ and it should be ordered separately. Available antennas for the AU-EZ include 120°, 90° and 60° sector antennas and a 360° Omni antenna.



SU-EZ

Each SU-EZ, connected wirelessly to an AU-EZ, provides an efficient platform for continuous, broadband access. It consists of an outdoor wireless radio with integrated high performance 17dBi flat panel antenna, and the same IDU as the AU-EZ for power supply and network interface.



Designed for fast installation and configuration, the SU-EZ includes a complete pole mounting bracket, link quality display for easy antenna alignment and an intuitive web-based user interface.

The SU-EZ utilizes a multi-band radio covering the entire 5.150–5.875 GHz band, with automatic frequency selection. Upon installation, the outdoor radio will tune itself to the appropriate band (5.2, 5.3, 5.4 or 5.8) and frequency, according to the AU-EZ it is associated with.

5 Release 5.5M Key New Features -

- **Updated ETSI DFS Compliancy**

Support for the updated ETSI standards on both AU and SU 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

- **New External Antennas**

Starting with Release 5.5M, the following new antennas are available:

PRODUCT	DESCRIPTION	P/N
ANT,BS,4.9-5.875G,90V, 16.5dBi,FLAT.	Sectorial Antenna, 90 deg. Vertical Polarity. 4.9-5.875 GHz. Terminating connector: N female, Gain: 16.5 dBi (4.9-5.15) 17 dBi (5.15-5.875). Cable (0.5m) included.	858170
ANT,BS,4.9-5.1G,120V, 15dBi, FLAT	Sectorial Antenna, 120 deg. Vertical Polarity. 4.9-5.1GHz Flat. Terminating connector: N female, Gain: 15 dBi. Cable (0.5m) included.	300646
ANT,BS,4.9-	9.5 dBi Omni-directional ruggedized high-performance	300709

5.875G,V 9.5dBi, OMNI	antenna, 4.9-5.875 GHz, 5 ft. (0.5m) cable INCLUDED, and mast mount hardware. Terminating connector: N male Total gain: 9.5dBi	
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Comments:

- **858170 has extended range starting this release to cover 4.9 – 5.1 GHz band**
- **300709 is a new Omni antenna for the entire 4.9-5.875GHz. This antenna would replace eventually the following antennas which covers portion of the band each:**

PN PLANNED FOR REPLACEMENT	DESCRIPTION
854270	ANT,BS,5.15-5.725G, 8dBi, OMNI
872812	ANT,BS,5.725-5.875G,90V 9dBi,OMNI.
849270	ANT,BS,4.9-5.15G, 9dBi, OMNI

Product replacement announcement is expected shortly

- **New Power Supply Option – DC Power Injector**

Suitable for feeding when 48V DC (protected) is available on site.

PRODUCT	DESCRIPTION	P/N
DC power injector	Indoor unit for DC power injection for VL and BNB (DC pass through + Eth to PoE female). Including DC source cable (3 wires: +,-,GND). DC feed should be in compliance to the product requirements (protected, 40 to 60 VDC). Indoor-outdoor cable not included and should be ordered separately.	891000

SU-EZ Key benefits and advantages

- Cost effective reliable solution enabling improved business case and rapid ROI
- Single CPE for all 5Ghz bands and country codes enables simple ordering & stocking
- Rapid and simplified deployment via near-line-of-sight (NLOS) technology, integral display for optimal alignment and intuitive Web-based management
- Instant network expansion with out-of-the-box solution and local available stock
- Throughput of up to 12 Mbps per Subscriber Unit
- QoS – MIR/CIR per SU per direction (UL/DL)
- Complete VLAN Tagging functionality (802.1Q)
- A range of over 12 Km (FCC), extends broadband anywhere and everywhere
- HW based AES encryption (FIPS-197) enables secured wireless links without sacrificing performance
- Priority – allowing customers to configure over the air priority per SU-EZ (either low or high) thus providing high priority to selected customers
- Advanced ATPC to support improved network performance
- Management - BreezeConfig configuration tool and web for the SU-EZ

6 Ordering Information

AU-EZ		
PRODUCT	DESCRIPTION	P/N
AU-EZ-5.x (x=2, 3, 4, 8)	BreezeACCESS EZ Access Unit. Package includes stand alone Indoor Network Interface + Outdoor radio unit for the 5.x GHz band. Should be ordered conjointly with antenna (872444, 858170, 858169 or 854270). Indoor to Outdoor Cable are NOT INCLUDED.	85x900
AU-EZ ANTENNAS		

PRODUCT	DESCRIPTION	P/N
AU-Ant-5G-16-60	Sectorial Antenna for AU-EZ, 60 deg. Vertical polarity. 5.15-5.875 GHz. Gain: 16 dBi. Cable (0.5m) included.	872444
AU-Ant-5G-17-90	Sectorial Antenna for AU-EZ, 90 deg. Vertical Polarity. 5.15-5.875 GHz. Gain: 17 dBi. Cable (0.5m) included.	858170
AU-Ant-5G-15-120	Sectorial Antenna for AU-EZ, 120 deg. Vertical Polarity. 5.15-5.875 GHz. Gain: 15 dBi. Cable (0.5m) included.	858169
OMNI-8	8 dBi Omni-directional ruggedized high-performance antenna for AU-EZ, 5.15-5.725 GHz, 5 ft. (0.5m) cable INCLUDED, and mast mount hardware. Gain: 8dBi	854270
OMNI-8-5.8	8 dBi Omni-directional ruggedized high-performance antenna for AU-EZ, 5.725-5.875 GHz, 5 ft. (0.5m) cable INCLUDED, and mast mount hardware. Gain: 8dBi	872812
SU-EZ		
SU-A-MB-12-EZ	SU-EZ CPE equipment. A multi band Subscriber Unit (4.9 – 5.875 GHz). Package includes: An indoor Power supply/ Network Interface Unit + Outdoor radio unit with 17dBi flat panel Integrated antenna, Indoor to Outdoor Cat5 cable should be ordered separately. Full Data Bridge, Up to 12Mbps data rate	850900
CABLES		
The below are Indoor unit to outdoor unit base band cable for use with SU-EZ and AU-EZ. Terminating connectors: Ruggedized RJ 45		
CBL-BB/10	10 meter cable	811570
CBL-BB/20	20 meter cable	811654
CBL-BB/30	30 meter cable	811572
CBL-BB/50	50 meter cable	811593
CBL-BB/70	70 meter cable	811573
CBL-BB/90	90 meter cable	811598

7 Important Notes

- **Customer should upgrade from version 1.0 only using the upgrade application (upgrade_ez.exe) provided by Alvarion. Choosing other upgrade methods (web, FTP etc) may produce unrecoverable damage to the units.**

To help within the upgrade process Alvarion is also providing a technical note (SU-EZ Software Upgrade Procedure) which is guiding, step by step, through this process. The upgrade application and the technical note are available on the customer support web page and CD, or via the distributor.

- The Outdoor Unit of the SU-EZ must be grounded properly. In addition to potential hazards due to lightning strikes, a failure to properly ground the ODU may cause communication problem on the local Ethernet interface.
- In certain regulatory domains AU-EZ may use channels that are not available on SU-EZ due to different steps between channels. Therefore, when selecting the operating frequency in the AU-EZ (or the Frequency Subset to be used in case DFS should be used), verify that the selected frequency (or all frequencies in the subset) are supported by the SU-EZ.
- Extra care should be taken when configuring in AU-EZ 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 default values.
- When using encryption, either for data or authentication, make sure the string is 34 segment long in the SU-EZ (“0x” + 32 characters). In the AU-EZ the string should omit the “0x” and remain only 32 characters.
- 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 by limiting the maximum modulation level to lower a value.
- The reset button and indicator LEDs on the indoor unit (IDU) of the SU are intended for SU-VL. When using the SU-EZ the button and indicator LEDs are inactive.

- ESSID can be dynamically changed on the SU-EZ using the web interface. However, on the access unit (AU-EZ) a reset is needed to make the change effective.
- In cases where Information Rate (IR) is not achieved, the SU-EZ total aggregated traffic can be increased by decreasing the CW parameter value effectively increasing the SU-EZ chances to use the air (special care should be taken as decreasing the CW value can increase the collision probability resulting in reduced capacity)
- With respect to the new ETSI DFS functionality in 5.4Ghz,
 - When upgrading the installed AU-EZ 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 regulation in the 5.4 -5.8 GHz, when upgrading the installed SU-EZ units to version 2.1.10, the DFS feature will not be enabled. Manually enabling the DFS option is required.
- With respect to the new ETSI DFS regulation in the 5.4 -5.8 GHz, the updated standard mandates SUs capability of DFS sequences detection similar to the BST – the DFS detection mechanism on both ends (SU and AU) can lead to slight throughput degradation compared to old version performance in which detection of DFS was not required on the SU.

8 Known Issues

- Customer should use the firmware upgrade file provided by Alvarion. In case customer accidentally uses a different file bigger than 18MB the result is unpredictable and can result in a need to reset the SU-EZ.
- Customer is advised not to refresh the web page with unreasonable speed
- Downgrading from SW version 2.0 or later to 1.0.15 and upgrading back to version 2.0 or later may result in unexpected behavior of the AES and WEP security options.

- SU-EZ re-association time might be longer than regular SU when DFS requires channel change
- From the HTTP/HTTPS interface if the DHCP option is activated the static IP can not be configured. It is recommended to configure the static IP address prior to activation of DHCP
- When working via webpage in the SU-EZ there is no way to verify that the encryption key has been introduced successfully - there is no warning message or other indication when configuring the encryption key from the web fails (for example if a wrong value is accidentally inserted)

9 Limitations

- It is recommended not to set the same exact values for the CIR and MIR in case CIR=MIR then the CIR value will not be reached
- When cell capacity is reached the overall delay might increase dramatically
- The version name downloaded to the unit via FTP must have a minimum of 6 characters
- Customers that need to recover the SU-EZ password should contact Alvarion's customer support center (CSC) for assistance
- RF distance parameter is set to 1km when reset to factory defaults is applied. Following factory reset customers should configure the 'distance' parameter according to their needs.
- Working with the SU-EZ ATPC requires customers to configure the same management VLAN ID on both the AU and the SU
- If Shared Key authentication is used then the data encryption option must be enable in order to allow the SU-EZ to associate
- Upon unit upgrade or downgrade, at boot time, if the unit detects errors in the new versions, it might temporarily switch to the default values. Applying HW reset to the unit will bring it back to the configured values.
- Data encryption must be set in the same way throughout the cell in order to support traffic relay. If the SU data encryption is enabled then the AU data encryption must also be enabled.
- In the event that the Ethernet data rate exceeds the MIR value the packet delay, especially when working with UDP traffic, can significantly increase
- Simultaneous setting of all 4 MIR/CIR parameters from web does not work – customer is advised to set them one by one according to the right order
- When using http to configure SU-EZ if one parameter is set outside its range none of the parameters will be applied (the page is rejected as a block)
- Restoring an encrypted config file in the SUEZ doesn't necessarily change all the MIR/CIR parameters – In which case customer will require to manually configure the MIR/CIR parameters
- When upgrading the SU-EZ the absolute FTP path of the upgrade file is not taken into account – customer needs to set the root of the FTP server manually

- Setting the admin password in telnet does not require status update
- When an SU-EZ is scanning for available AU-EZ Access Units, it may discover also other – non AU-EZ - unit types. However, it will associate only with AU-EZ units.
- When using encryption, either for data or authentication, make sure all relevant settings are the same in the SU and the AU otherwise the SU-EZ might not associate
- When configuring parameters of SU-EZ, do not use backslash (“\”) in free text parameters such as ESSID. A backslash may be interpreted by the device as a command, causing unexpected behavior that may result in complete lose of the ability to manage the unit.
- SW upgrade of SU-EZ may fail when the last channel on the frequencies list is being heavily interfered. In such cases, that heavily interfered frequency should be removed form the list and SW upgrade repeated.
- Sensitivity may change slightly as a function of frequency (+/-2dB).
- Transmission power accuracy in AU-EZ is +/-1dB above 8dBm @ antenna port (typical condition). At lower levels the accuracy is +/-3dBm, never contradicting regulations.
- In AU-EZ units operating in the 5.3 GHz band, the following rule must be met for full compliance with FCC regulations: 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 AU 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.
- When encryption is used by the Authentication Algorithm (Shared Key option), in large cells the association process may be relatively long.
- BreezeCONFIG does not support multiple configurations of frequency parameters and Spectrum Analysis tests.