ANYWAVE

ATSC VHF III 600W PA

User Manual

Version 1.0 – May 29, 2019

Copyright Notice

FCC Compliance

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense

The antenna(s) used for this transmitter must be fixed-mounted on the outdoor permanent structures. RF exposure compliance is addressed at the time of licensing, as required by the responsible FCC Bureau(s), including antenna co-location requirements of §1.1307(b)(3).

Changes or modifications not expressly approved by Anywave Communication Technologies, Inc. could void the user's authority to operate the equipment.

Disclaimer

Information provided by Anywave Communication Technologies is believed to be accurate and complete; however, no liability can be assumed for its use.

The manufacturer makes no representations or warranties, either expressed or implied, by or with respect to anything in this manual, and shall not be liable for any implied warranties of fitness for a particular purpose or for any indirect, special, or consequential damages. Information in this document is subject to change without notice and does not represent a commitment on the part of the manufacturer.

USE OF THIS PRODUCT IN A MANNER OTHER THAN DESCRIBED IN THIS MANUAL MAY RESULT IN DAMAGE TO THE EQUIPMENT AND/OR PERSONAL INJURY.

PLEASE READ THIS MANUAL IN ITS ENTIRETY BEFORE ATTEMPTING TO INSTALL THE EQUIPMENT. CONTACT ANYWAVE WITH ANY QUESTIONS OR CONCERNS YOU MAY HAVE.

Unpacking

Carefully unpack the equipment and perform a visual inspection to determine if any apparent damage has occurred during shipment. Please notify the delivery carrier and Anywave immediately if shipment damage has occurred. Retain all original shipping materials.

Please locate and reference the Packing Check List to verify you have received all components of your system. Retain the Packing Check List for future reference.

Also, please identify and remove all packing materials and supports (foam pads, etc.) prior to initial turn on of the equipment.

Returns and Exchanges

Written approval and a Return Authorization Number (RAN) are required from Anywave for all equipment returns. Please direct all return inquiries to the Anywave Service Department at support_us@anywavecom.com, providing the Sales Order number and Serial Number(s) of the equipment. Complete details regarding the nature and circumstances of your return must be included in your RAN request. Proper handling and return shipping instructions will be provided with an approved RAN number.

Technical Support

Technical support and troubleshooting assistance for Anywave Transmitters is available through the Anywave Service Department during normal business hours (8:00 AM - 5:00 PM CST) at (847) 415-2258. Email questions to support_us@anywavecom.com.

Note: For all service and support requests, you will need to provide the Serial Number of the equipment with your Sales Order number. For future reference, please record that information here: _____

Anywave Communication Technologies Inc.
300 Knightsbridge Parkway, Suite 150, Lincolnshire, IL 60069
Tel: (847) 415-2258
Fax: (847) 415-2112
http://www.anywavecom.net

WARNING

THE VOLTAGES, CURRENTS, AND RF ENERGY IN THIS EQUIPMENT ARE DANGEROUS. PERSONNEL MUST AT ALL TIMES OBSERVE ALL SAFETY WARNINGS, INSTRUCTIONS, AND REGULATIONS.

IN THE CASE OF EMERGENCY, ENSURE THAT ALL POWER HAS BEEN DISCONNECTED.

ALWAYS DISCONNECT POWER BEFORE REMOVING COVERS, ENCLOSURES, OR SHIELDS. DO NOT PERFROM SERVICE ON THE EQUIPMENT WHEN ALONE OR FATIGUED. KNOW YOUR EQUIPMENT AND DO NOT TAKE RISKS.

This manual is provided as a general guide for trained and qualified personnel well aware of the dangers inherent in handling potentially hazardous electrical transmission equipment.

The installation, operation, maintenance and service of this equipment involves risks both to personnel and equipment and must ONLY be performed by qualified personnel exercising due care. Anywave Communication Technologies, Inc. shall not be responsible for injury or damage resulting from improper handling or from the use of improperly trained or inexperienced personnel performing such tasks.

All local building and electrical codes as well as fire protection standards must be observed in the installation and operation of the equipment.

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1 Product Appearance

1.1 Front Panel

- LED_PWR
  - Green light will be on when the DC voltage of internal power supply is within the normal range (48 VDC ~ 52 VDC).
  - Green light will flash when the DC voltage of internal power supply is out of the normal range (48 VDC ~ 52 VDC).
  - Green light will be off when the external power supply is turned off, or internal power supply module does not work.
- LED_RS485
  - Green light will flash once per second when the internal communication is normal.
  - Green light will stay constantly on or off when the internal communication is abnormal.
- LED_FWD
  - Blue light will be on when RF_OUT has power output.
  - Blue light will be off when the RF button is turned off, or the PA enters the auto-protection mode and therefore shuts down its RF output. There are several situations which will result in auto-protection mode, such as the input power is too high, the reflected power is too high, or the temperature is too high.
- LED_ALARM
  - Red light will be off if there is no alarm.
  - Red light will be on if there is any alarm.

Note:

1) The front fan covers can be removed to clean the air intake path. No screw driver is needed, and no disassembly of the PA is required.
2) When a warning occurs and the PA enters auto-protection mode, the only way to clear this state is to cycle power on the PA module once the problem(s) is resolved. Otherwise all warning LEDs will remain on even if the problem(s) no longer exists.

1.2 Back Panel

- RF IN
  - Connector: N
  - Impedance: 50 Ω
  - Note: If input power from RF_IN is lower than rated input value, the output power will be lower than rated output power accordingly. This is because the PA has a fixed gain. If the input level from RF_IN is higher than the rated value, it will result in RF output distortion and performance deterioration. If the input level is more than 1 dB higher than the rated value or the output power is higher than preset FWD threshold, it may trigger the current-limiting function. The PA will enter the auto-protection mode, and there will be reduced RF output or even no RF output.
- RF_OUT
  - Connector: 7/16 DIN
  - Impedance: 50 Ω
  - Note: RF_OUT must be connected with a load, otherwise the PA will enter the auto-protection mode and there will be in no RF output.
- RS485
  - Connector: DB9-M
  - Note: Connected to REMOTE (PRS-485-1) port of Controller, which is used for control and communication between the Controller and the PA.
- LAN
  - Connector: 10M/100M Ethernet
  - Note: Ethernet port for web-based remote control (ipaddress: 192.168.1.210, username/password: anywavecom/anywavecom)

- AC INPUT: 176~300VAC, 47~63Hz, 16A/220VAC (single-phase, 3-wire – L1, L2, GND)
- AC Power Breaker: ON/OFF

2 Specifications

- Environment
  - Operation Temperature: -10 ºC ~ +60 ºC (+14 ºF ~ +140 ºF)
  - Operation Humidity: 20 % ~ 90 % (non-condensing)
  - Atmospheric Pressure: 86 kPa ~ 106 kPa
- Power Supply
  - Voltage: 176 ~ 300 VAC (full load)
  - Frequency: 47 ~ 63 Hz
- RF Performance
  - Frequency: 177 MHz ~ 213 MHz
  - VSWR: ≤ 1.5
  - Shoulder Level: ≥ 36dBc (with pre-correction ON)
  - Size: 480mm(W)*222mm(H)*423mm(L)

Note

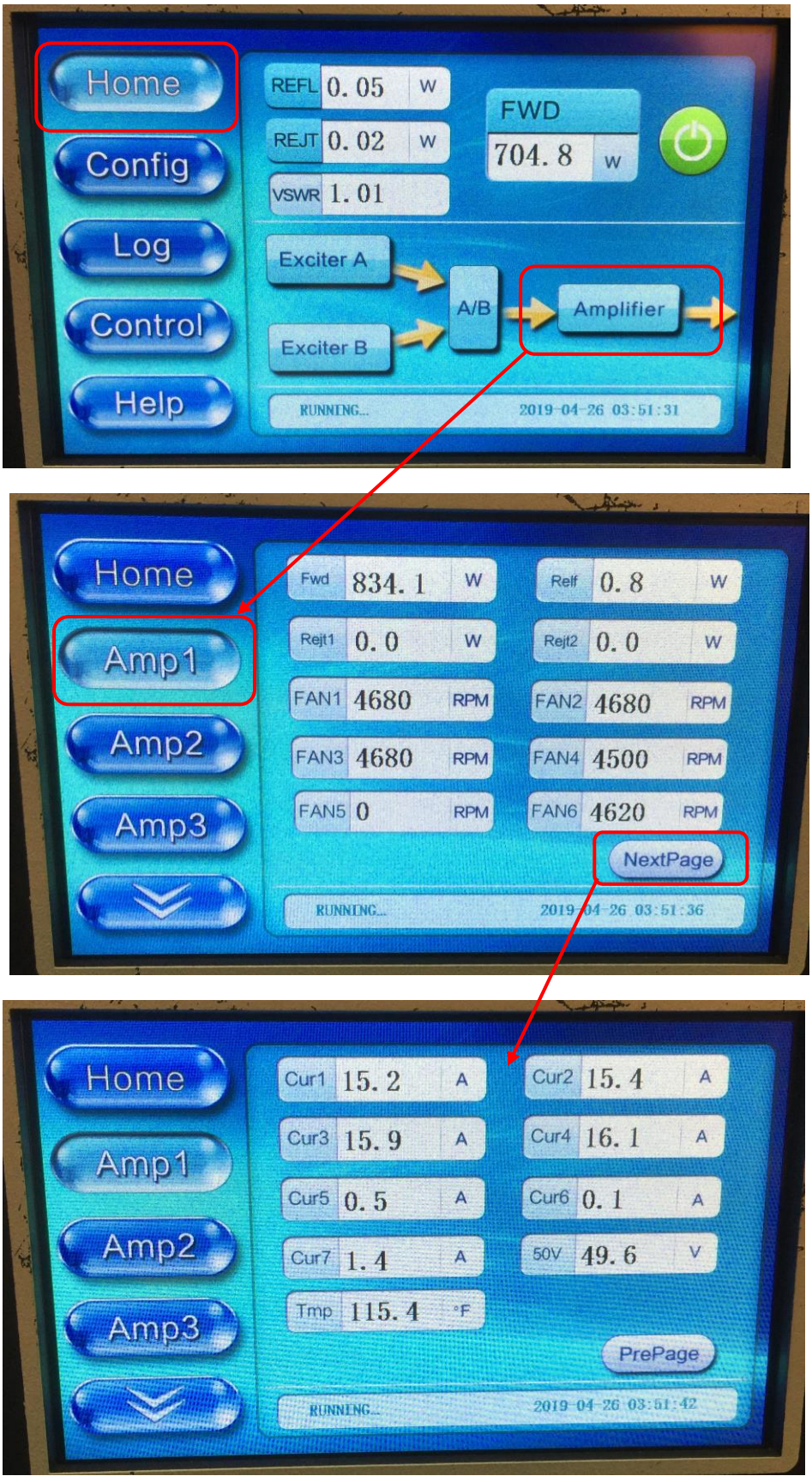
1) The electrical interface characteristics are measured at rated power. Values may change.
2) Operating in abnormal conditions may result in damage to the equipment. Long operating hours in severe environments may reduce the reliability of the entire system, which may cause permanent damage to equipment. Make sure all electrical interface characteristics and environmental parameters are within the defined range listed above before operating this equipment.

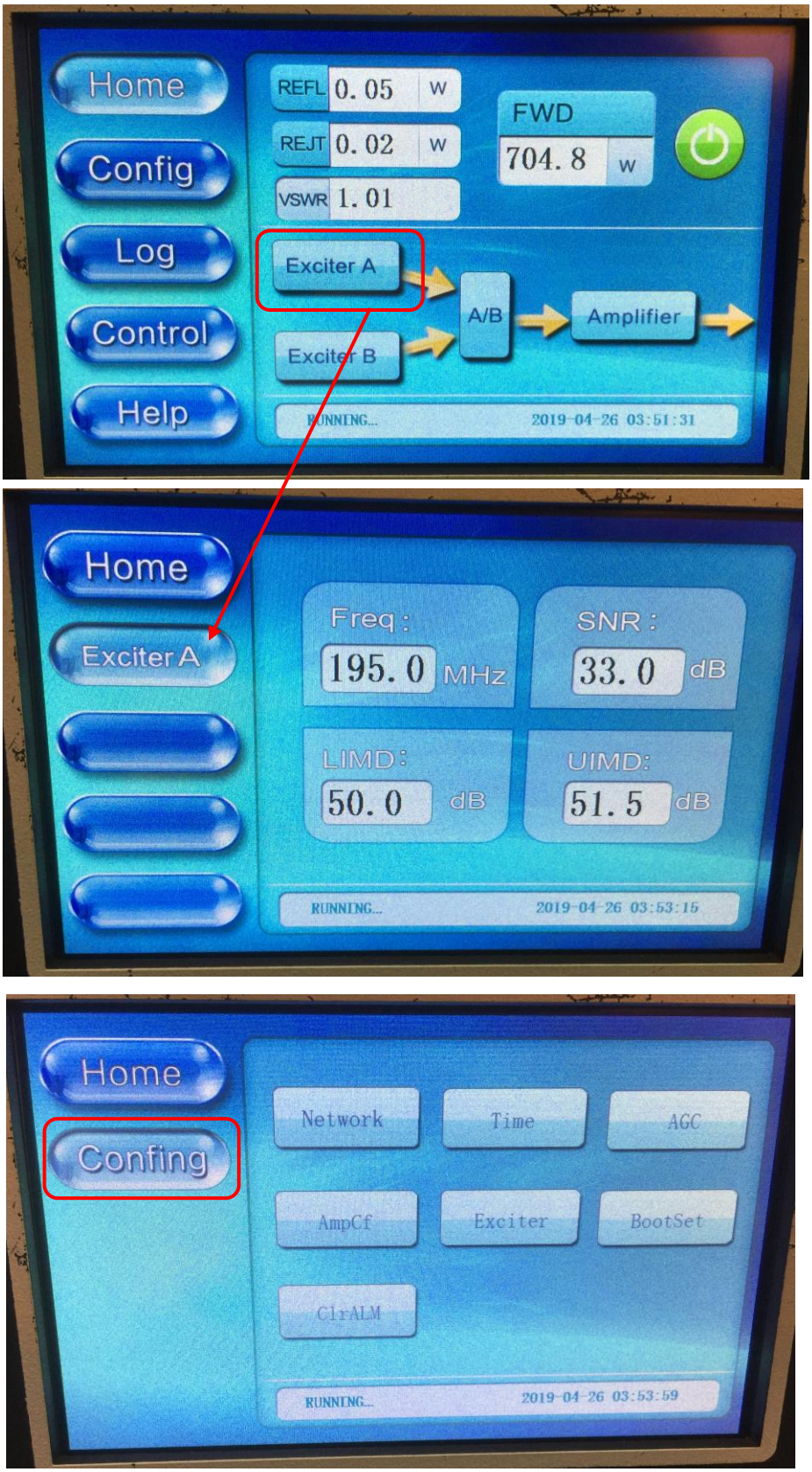
3 Control Interface

3.1 Local (Controller) Interface

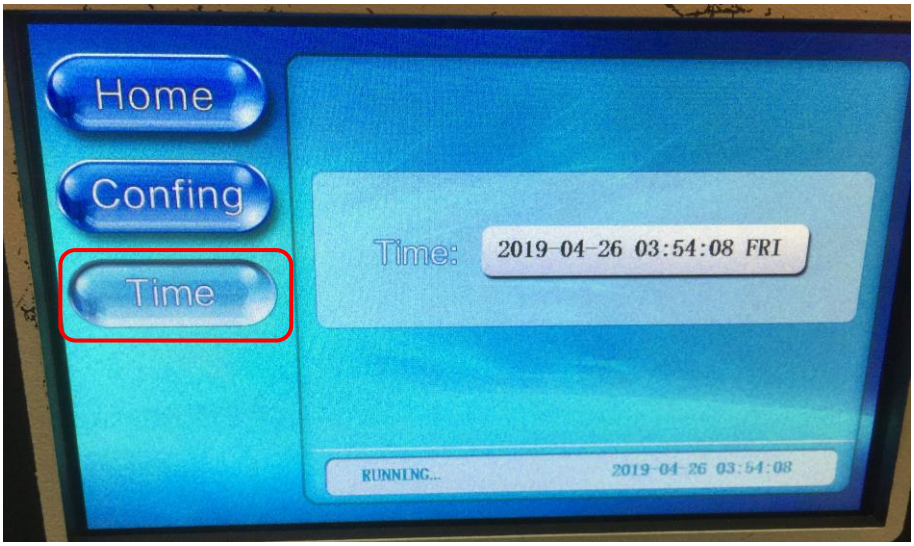
Local control and monitoring of the PA unit can be accomplished via the Controller touch panel interface. Use a standard serial cable to connect the PA DB9 RS485 port to the Controller PRS-485-1 RS485port (please reference the 600W VIII TX QSG for the system interconnect diagram and details). With this connection established, the PA information will be displayed on the Controller touch screen and web interface, as shown below:

Note: The displayed settings and numbers contained in the screens below are for illustration purposes only and may be different from those in actual use.

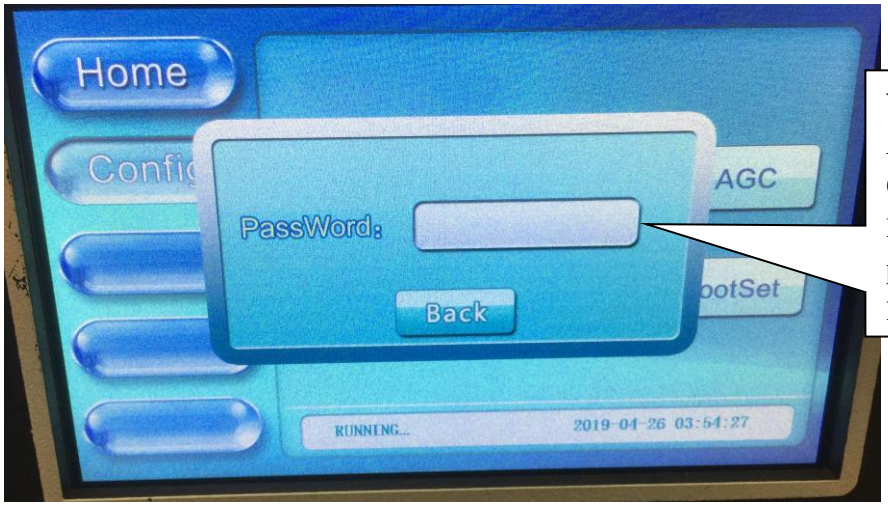

Home
Config
Log
Control
Help
REFL 0.05 W
REJT 0.02 W
VSWR 1.01
FWD
704.8 W
Exciter A
Exciter B
A/B
Amplifier
RUNNING...
2019-04-26 03:51:31
Home
Amp1
Amp2
Amp3
Fwd 834.1 W
Refl 0.8 W
Rejt1 0.0 W
Rejt2 0.0 W
FAN1 4680 RPM
FAN2 4680 RPM
FAN3 4680 RPM
FAN4 4500 RPM
FAN5 0 RPM
FAN6 4620 RPM
NextPage
RUNNING...
2019-04-26 03:51:36
Home
Amp1
Amp2
Amp3
Cur1 15.2 A
Cur2 15.4 A
Cur3 15.9 A
Cur4 16.1 A
Cur5 0.5 A
Cur6 0.1 A
Cur7 1.4 A
50V 49.6 V
Tmp 115.4 °F
PrePage
RUNNING...
2019-04-26 03:51:42


Home
Config
Log
Control
Help
REFL 0.05 W
REJT 0.02 W
VSWR 1.01
FWD
704.8 W
Exciter A
Exciter B
A/B
Amplifier
RUNNING...
2019-04-26 03:51:31
Home
Exciter A
Freq:
195.0 MHz
SNR:
33.0 dB
LIMD:
50.0 dB
UIMD:
51.5 dB
RUNNING...
2019-04-26 03:53:15
Home
Confing
Network
Time
AGC
AmpCf
Exciter
BootSet
ClrALM
RUNNING...
2019-04-26 03:53:59

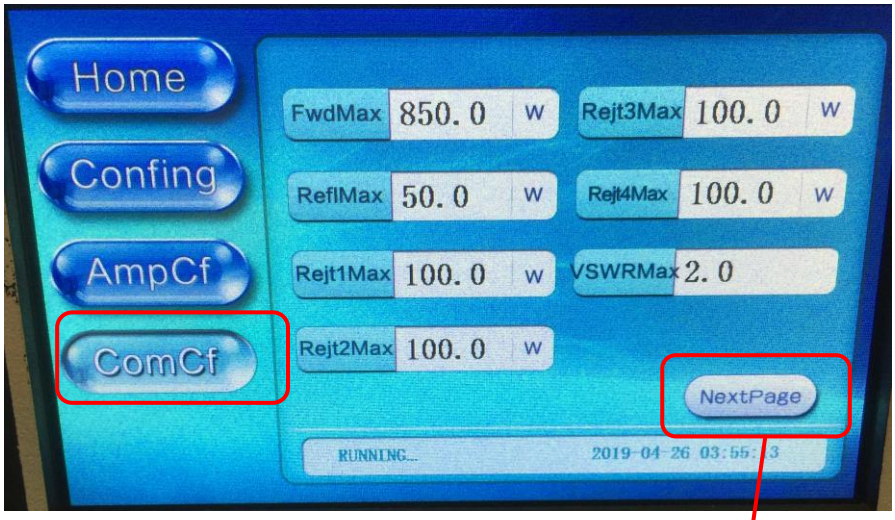

Home
Config
NetWork
IP
192. 168. 001. 210
Mask
255. 255. 255. 000
GW
192. 168. 001. 001
RUNNING...
2019-04-26 03:54:03

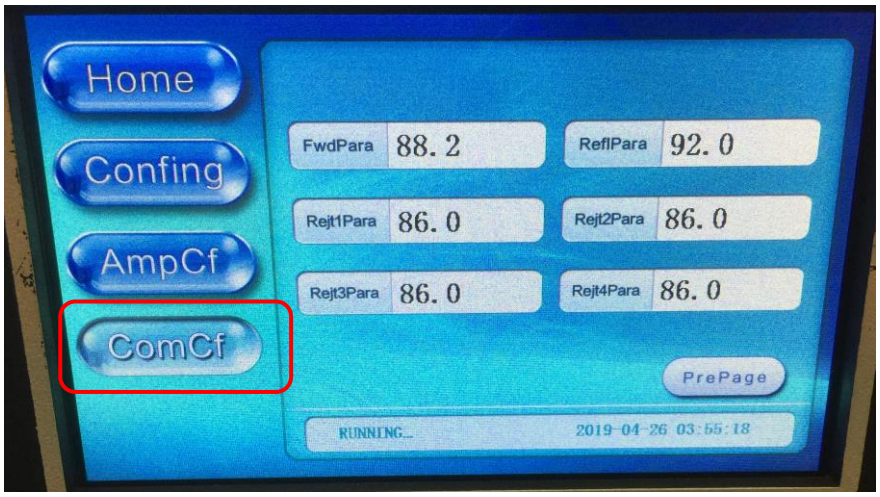

Home
Confing
Time
Time:
2019-04-26 03:54:08 FRI
RUNNING...
2019-04-26 03:54:08

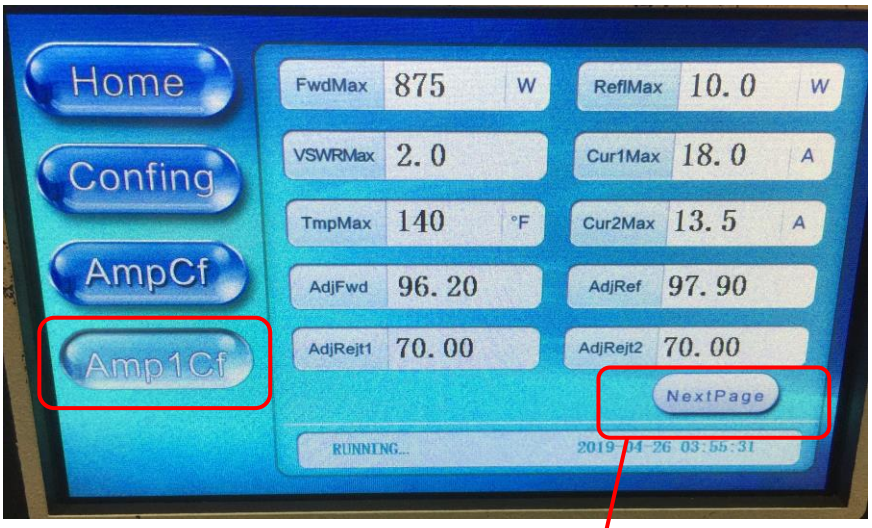

Home
Confing
AGC
Rated Power:
700
W
AGC
RUNNING...
2019-04-26 03:54:14



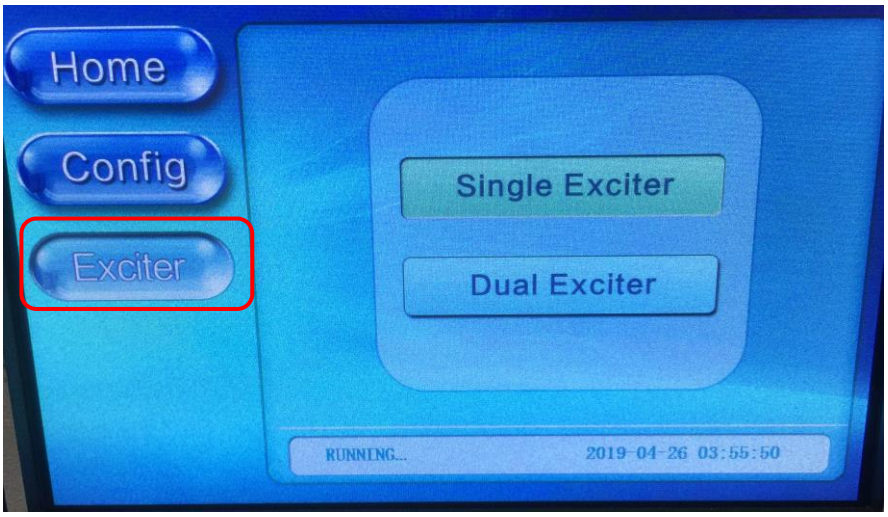
When press the AmpCf (Amplifier Configuration) Button, you will be prompted to enter Password: 27654

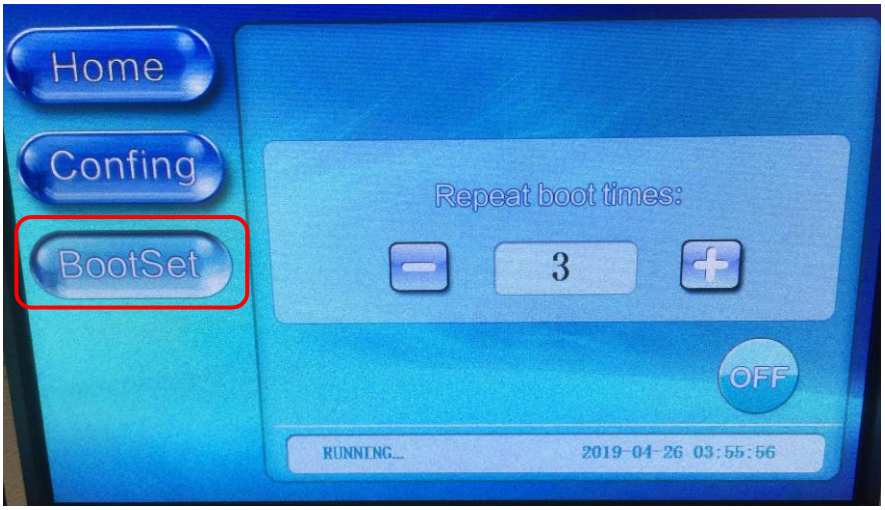


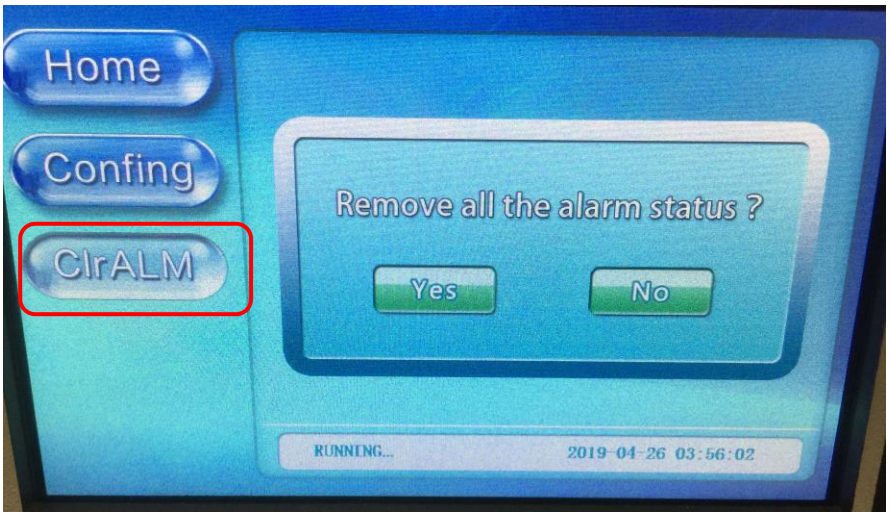

Home
Confing
AmpCf
ComCf
FwdPara 88. 2
ReflPara 92. 0
Rejt1Para 86. 0
Rejt2Para 86. 0
Rejt3Para 86. 0
Rejt4Para 86. 0
PrePage
RUNNING...
2019-04-26 03:55:18

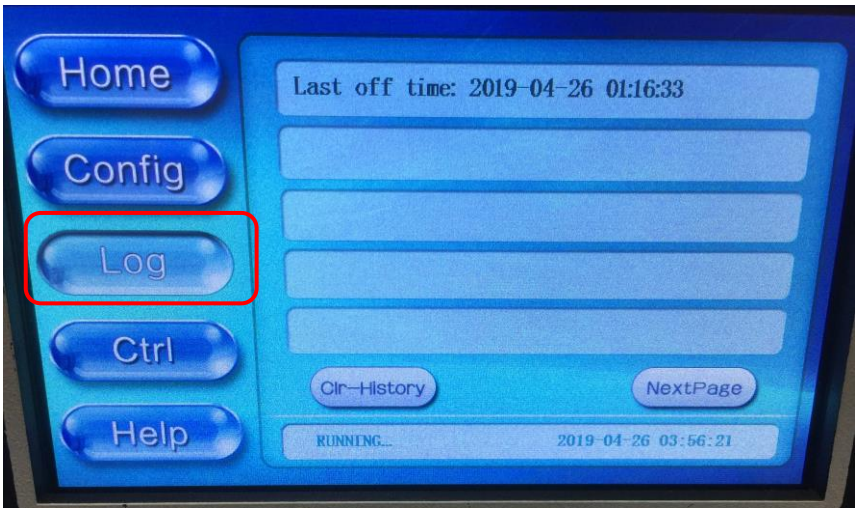

Home
Confing
AmpCf
Amp1Cf
FwdMax 875 W
ReflMax 10. 0 W
VSWRMax 2. 0
Cur1Max 18. 0 A
TmpMax 140 °F
Cur2Max 13. 5 A
AdjFwd 96. 20
AdjRef 97. 90
AdjRejt1 70. 00
AdjRejt2 70. 00
NextPage
RUNNING...
2019-04-26 03:55:31


Home
Confing
AmpCf
Amp1Cf
DacVol1 2. 045 V
DacVol2 2. 045 V
DacVol3 2. 045 V
DacVol4 2. 045 V
PrePage
RUNNING...
2019-04-26 03:55:35

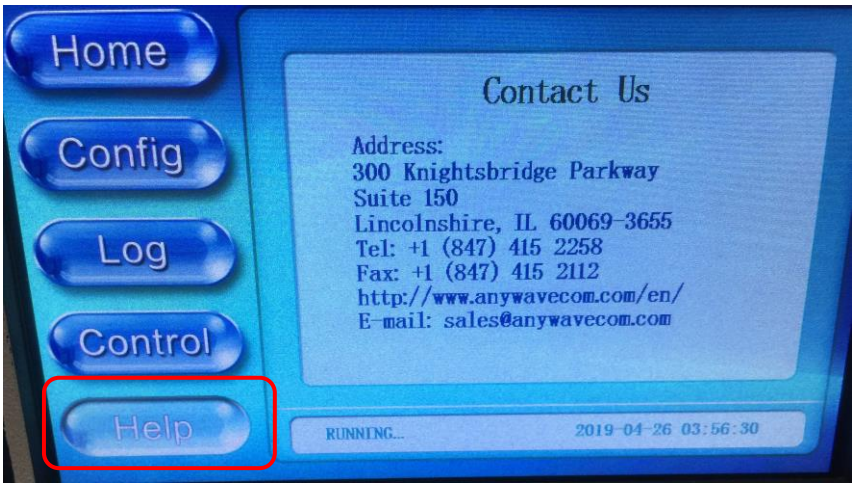

Home
Config
Exciter
Single Exciter
Dual Exciter
RUNNING...
2019-04-26 03:55:50


Home
Confing
BootSet
Repeat boot times:
3
OFF
RUNNING...
2019-04-26 03:55:56


Home
Confing
ClrALM
Remove all the alarm status ?
Yes
No
RUNNING...
2019-04-26 03:56:02

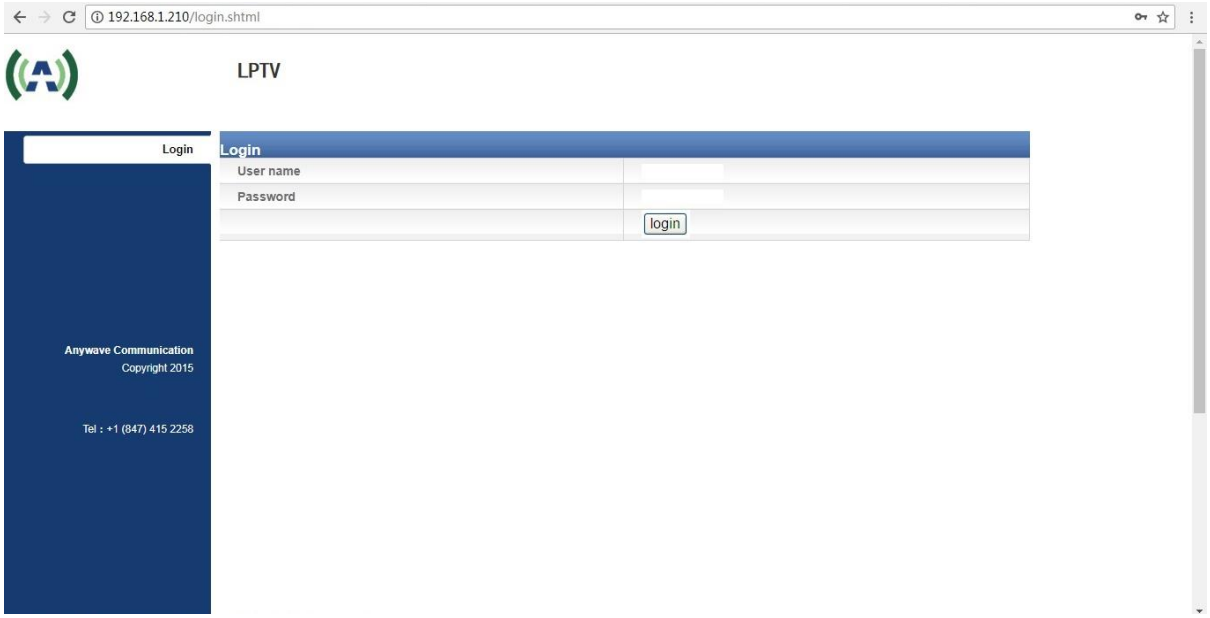

Home
Config
Log
Ctrl
Help
Last off time: 2019-04-26 01:16:33
Clr-History
NextPage
RUNNING...
2019-04-26 03:56:21


Home
Config
Log
Control
Help
LOCAL
REMOTE
RUNNING...
2019-04-26 03:56:25


Home
Config
Log
Control
Help
Contact Us
Address:
300 Knightsbridge Parkway
Suite 150
Lincolnshire, IL 60069-3655
Tel: +1 (847) 415 2258
Fax: +1 (847) 415 2112
http://www.anywavecom.com/en/
E-mail: sales@anywavecom.com
RUNNING...
2019-04-26 03:56:30

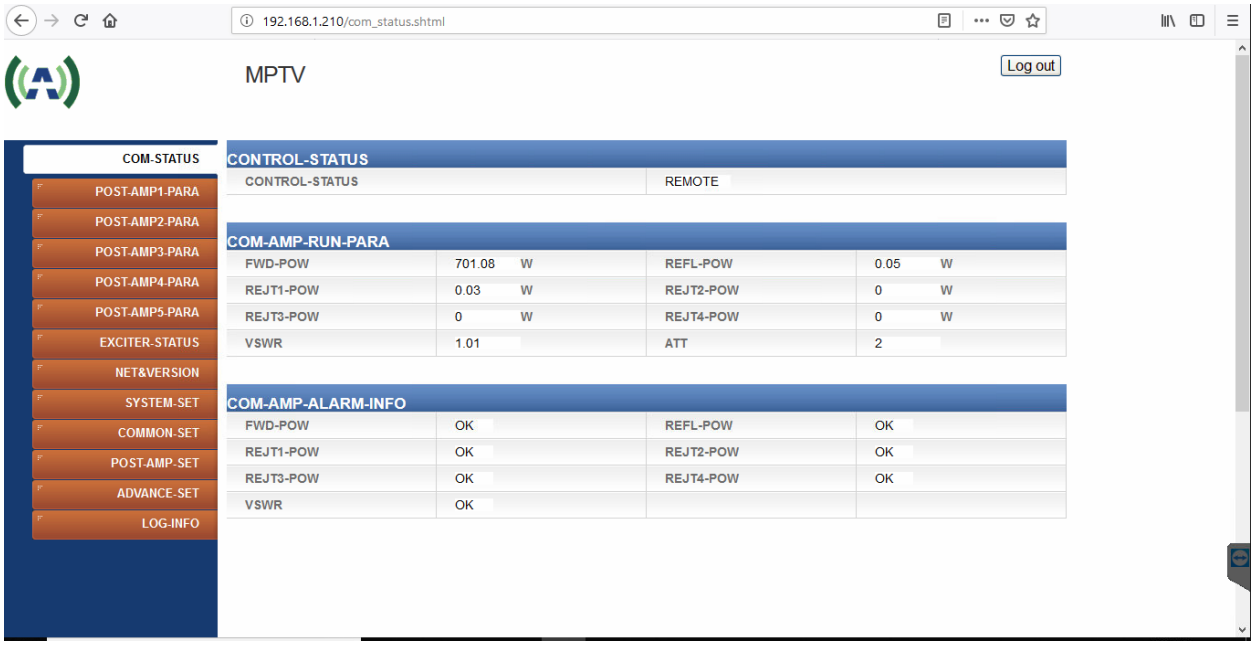
3.2 Web Interface

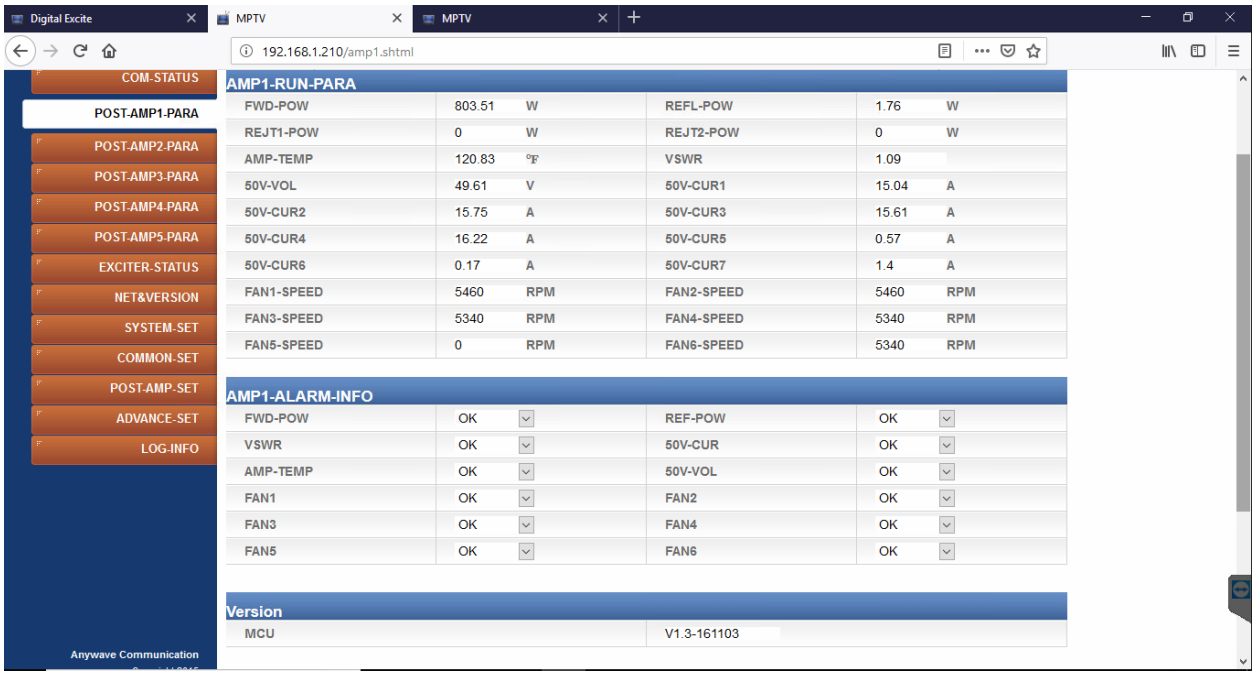
The 600W PA, Controller, and Exciter all have built-in web interfaces for system monitoring and control. Below are screenshots of the PA (192.168.1.200), Controller (192.168.1.210), and Exciter (192.168.1.143) web interfaces. Enter the IP address of the equipment in a web browser's address bar to cause a login window to pop up.

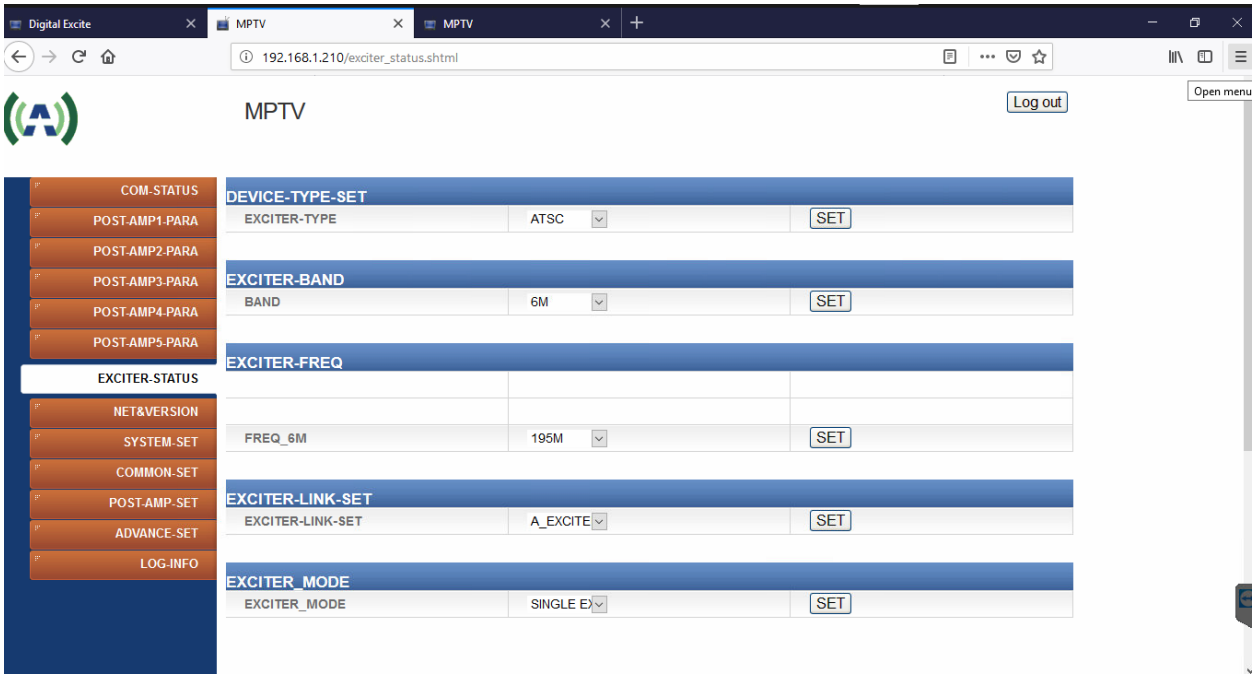


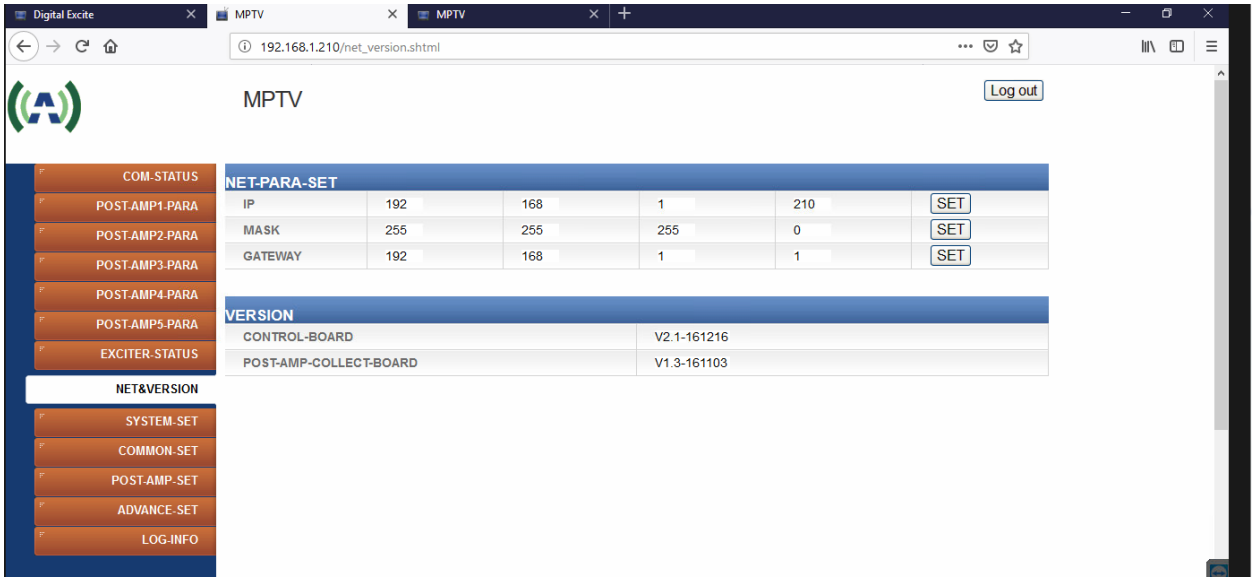
The “admin” tier provides full status and control of the equipment and is accessed with a username and password of "anywavecom" and "anywavecom" (case sensitive).

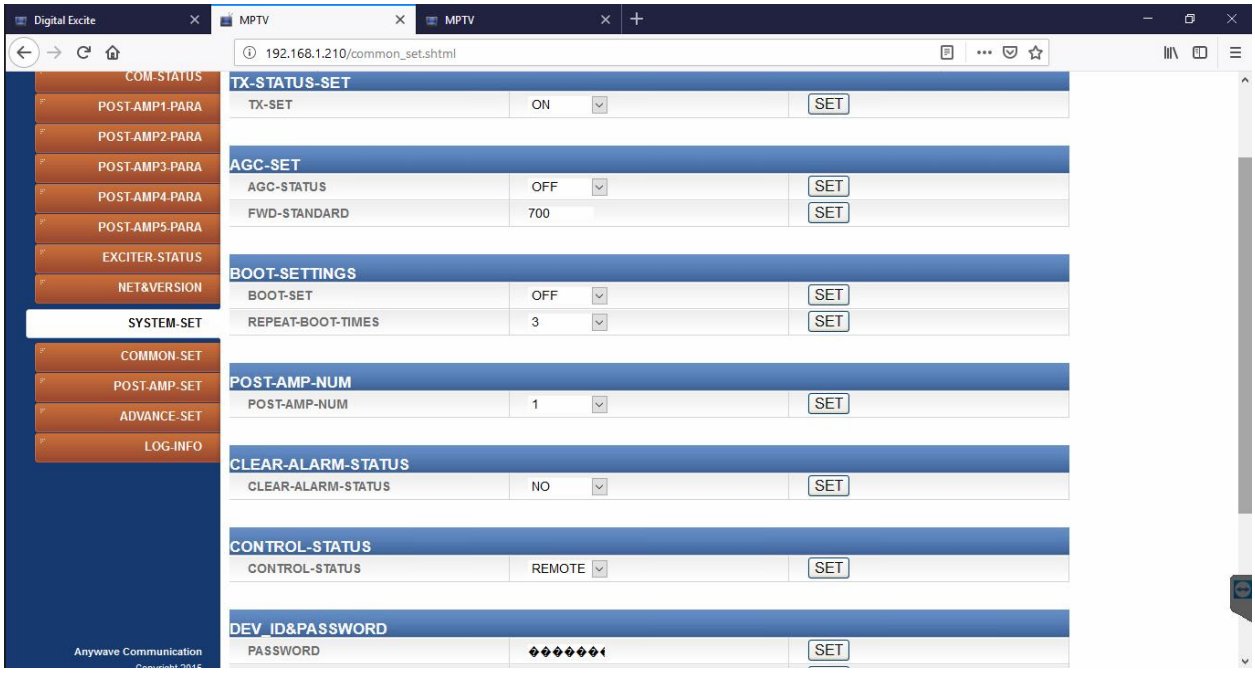
Controller web pages:

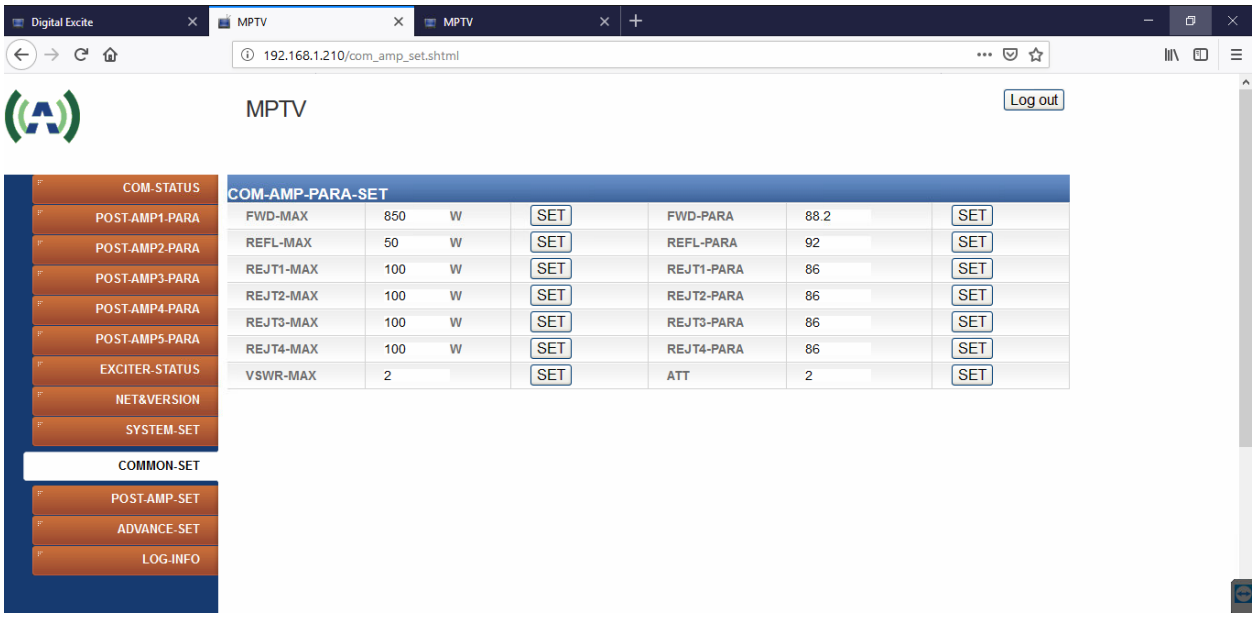


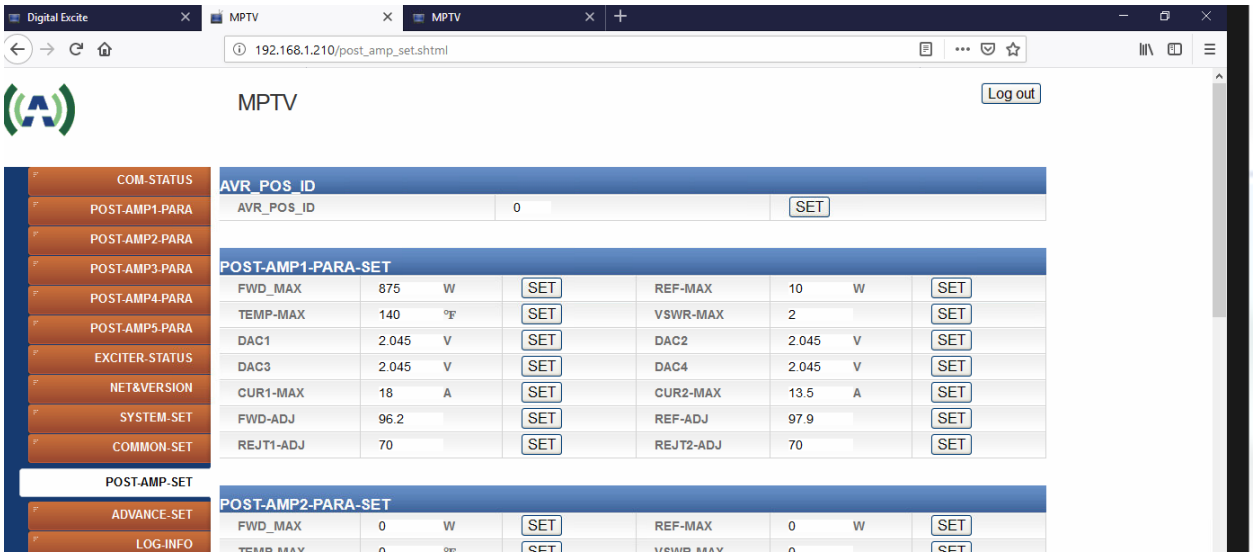


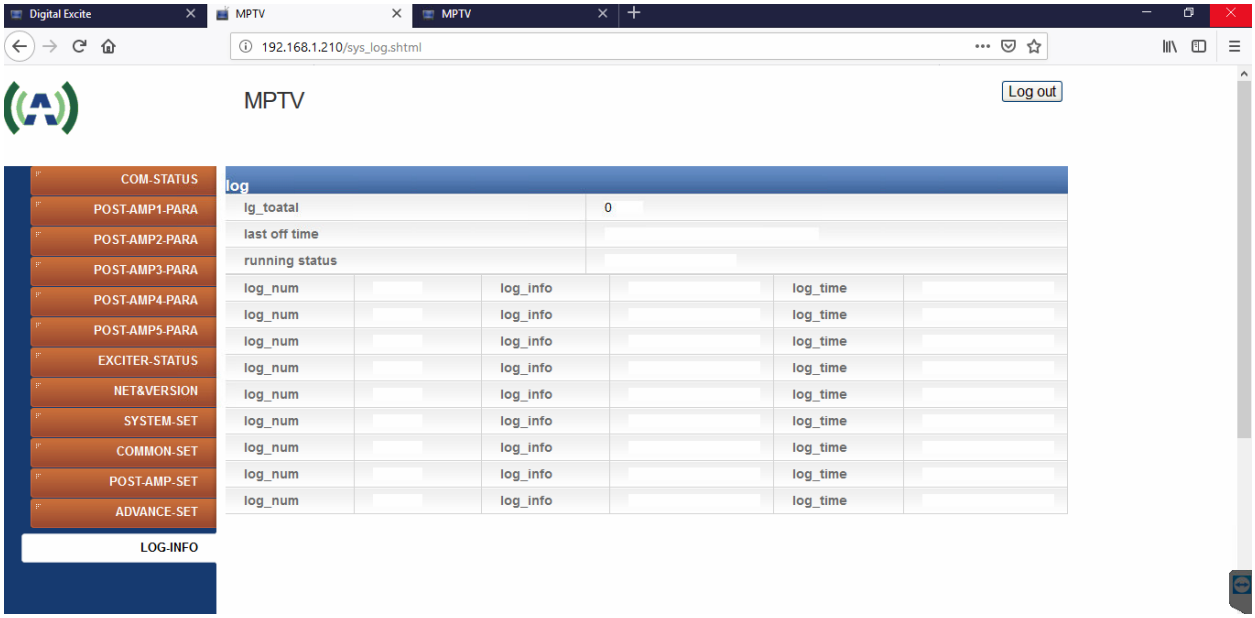

Digital Excite
MPTV
MPTV
192.168.1.210/exciter_status.shtml
Open menu
MPTV
Log out
COM-STATUS
POST-AMP1-PARA
POST-AMP2-PARA
POST-AMP3-PARA
POST-AMP4-PARA
POST-AMP5-PARA
EXCITER-STATUS
NET&VERSION
SYSTEM-SET
COMMON-SET
POST-AMP-SET
ADVANCE-SET
LOG-INFO
DEVICE-TYPE-SET
EXCITER-TYPE
ATSC
SET
EXCITER-BAND
BAND
6M
SET
EXCITER-FREQ
FREQ_6M
195M
SET
EXCITER-LINK-SET
EXCITER-LINK-SET
A_EXCITE
SET
EXCITER_MODE
EXCITER_MODE
SINGLE EX
SET


Digital Excite
MPTV
MPTV
192.168.1.210/net_version.shtml
MPTV
Log out
COM-STATUS
POST-AMP1-PARA
POST-AMP2-PARA
POST-AMP3-PARA
POST-AMP4-PARA
POST-AMP5-PARA
EXCITER-STATUS
NET&VERSION
SYSTEM-SET
COMMON-SET
POST-AMP-SET
ADVANCE-SET
LOG-INFO
NET-PARA-SET
IP 192 168 1 210 SET
MASK 255 255 255 0 SET
GATEWAY 192 168 1 1 SET
VERSION
CONTROL-BOARD V2.1-161216
POST-AMP-COLLECT-BOARD V1.3-161103

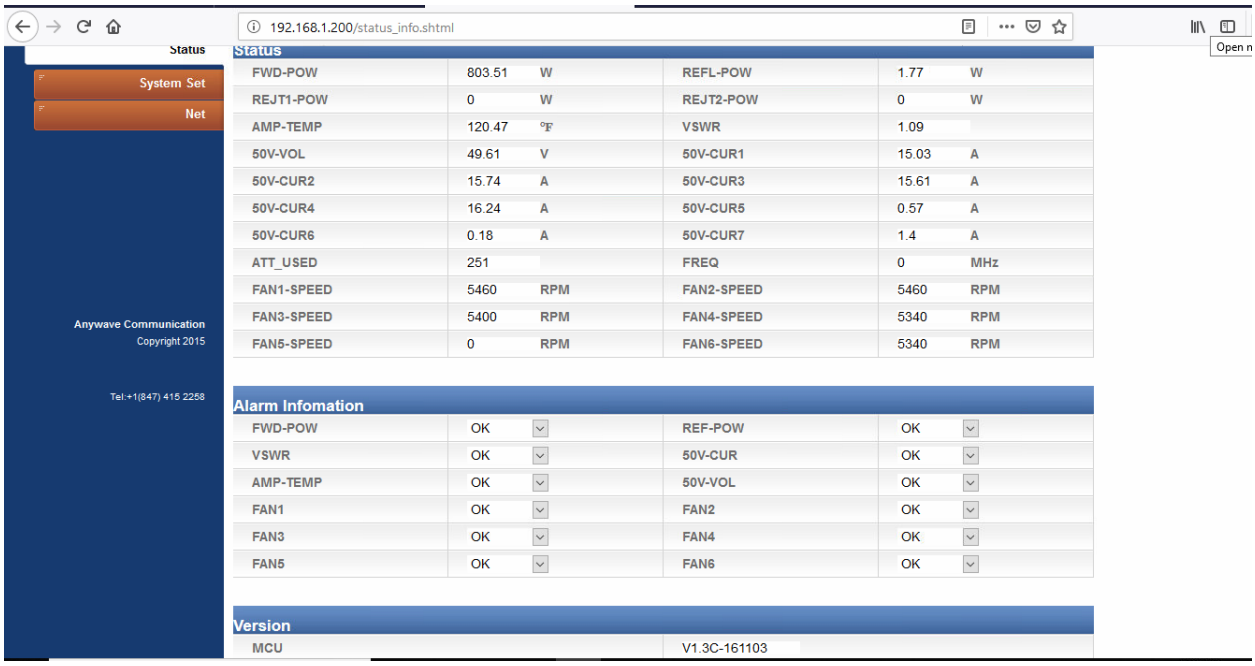

Digital Excite
MPTV
MPTV
192.168.1.210/common_set.shtml
COM-STATUS
POST-AMP1-PARA
POST-AMP2-PARA
POST-AMP3-PARA
POST-AMP4-PARA
POST-AMP5-PARA
EXCITER-STATUS
NET&VERSION
SYSTEM-SET
COMMON-SET
POST-AMP-SET
ADVANCE-SET
LOG-INFO
Anywave Communication
TX-STATUS-SET
TX-SET
ON
SET
AGC-SET
AGC-STATUS
OFF
SET
FWD-STANDARD
700
SET
BOOT-SETTINGS
BOOT-SET
OFF
SET
REPEAT-BOOT-TIMES
3
SET
POST-AMP-NUM
POST-AMP-NUM
1
SET
CLEAR-ALARM-STATUS
CLEAR-ALARM-STATUS
NO
SET
CONTROL-STATUS
CONTROL-STATUS
REMOTE
SET
DEV_ID&PASSWORD
PASSWORD
SET

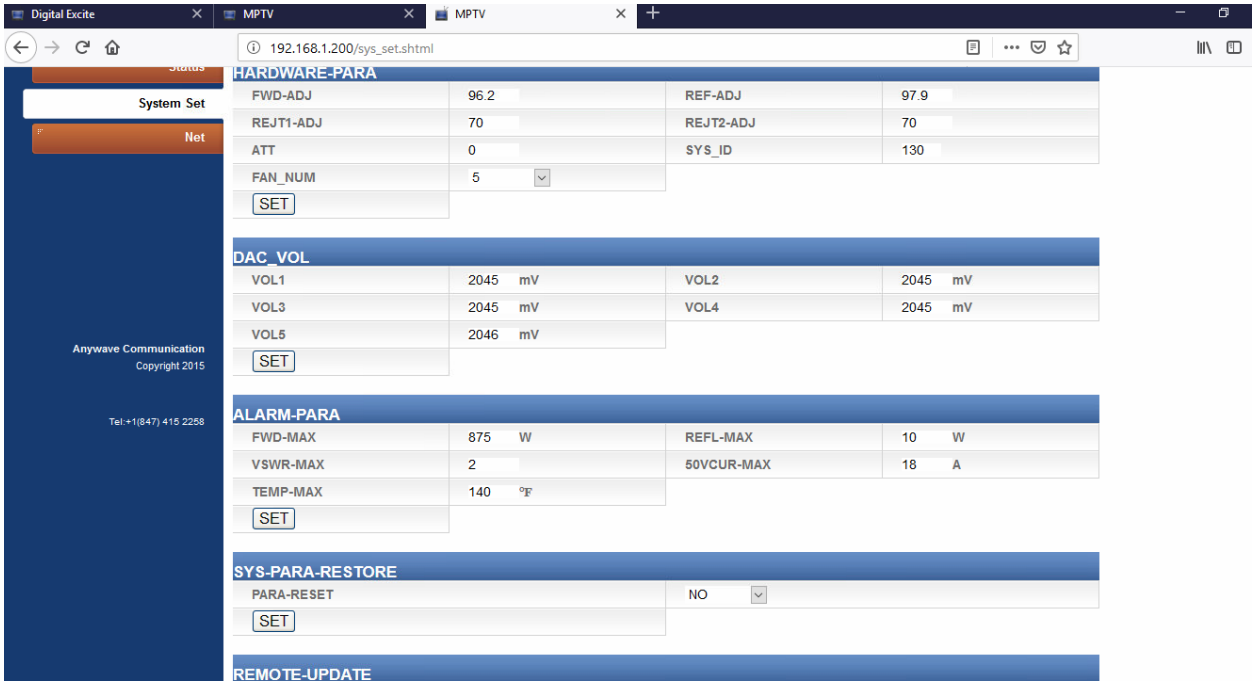

Digital Excite
MPTV
MPTV
192.168.1.210/com_amp_set.shtml
MPTV
Log out
COM-STATUS
POST-AMP1-PARA
POST-AMP2-PARA
POST-AMP3-PARA
POST-AMP4-PARA
POST-AMP5-PARA
EXCITER-STATUS
NET&VERSION
SYSTEM-SET
COMMON-SET
POST-AMP-SET
ADVANCE-SET
LOG-INFO
COM-AMP-PARA-SET
FWD-MAX 850 W SET
FWD-PARA 88.2 SET
REFL-MAX 50 W SET
REFL-PARA 92 SET
REJT1-MAX 100 W SET
REJT1-PARA 86 SET
REJT2-MAX 100 W SET
REJT2-PARA 86 SET
REJT3-MAX 100 W SET
REJT3-PARA 86 SET
REJT4-MAX 100 W SET
REJT4-PARA 86 SET
VSWR-MAX 2 SET
ATT 2 SET

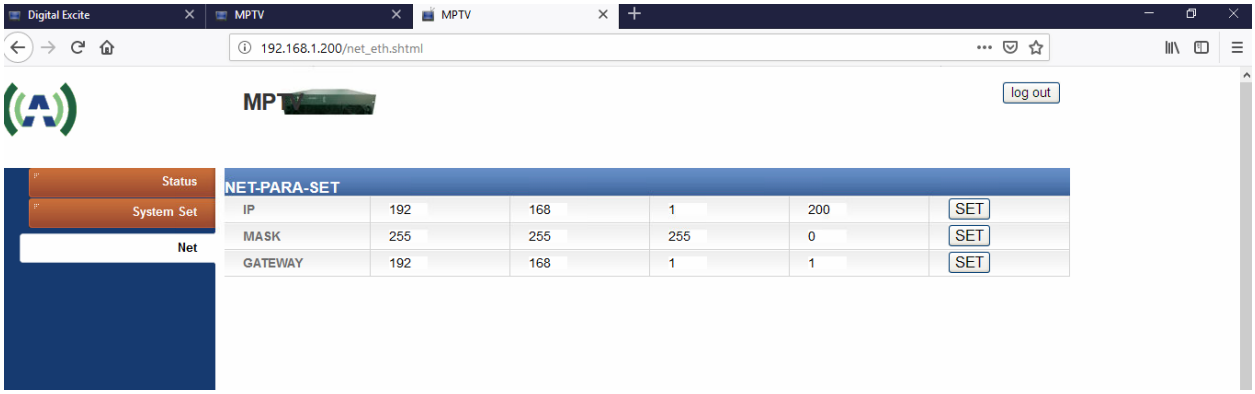

Digital Excite
MPTV
MPTV
192.168.1.210/post_amp_set.shtml
MPTV
Log out
COM-STATUS
POST-AMP1-PARA
POST-AMP2-PARA
POST-AMP3-PARA
POST-AMP4-PARA
POST-AMP5-PARA
EXCITER-STATUS
NET&VERSION
SYSTEM-SET
COMMON-SET
POST-AMP-SET
ADVANCE-SET
LOG-INFO
AVR_POS_ID
AVR_POS_ID 0 SET
POST-AMP1-PARA-SET
FWD_MAX 875 W SET
REF-MAX 10 W SET
TEMP-MAX 140 °F SET
VSWR-MAX 2 SET
DAC1 2.045 V SET
DAC2 2.045 V SET
DAC3 2.045 V SET
DAC4 2.045 V SET
CUR1-MAX 18 A SET
CUR2-MAX 13.5 A SET
FWD-ADJ 96.2 SET
REF-ADJ 97.9 SET
REJT1-ADJ 70 SET
REJT2-ADJ 70 SET
POST-AMP2-PARA-SET
FWD_MAX 0 W SET
REF-MAX 0 W SET


Digital Excite
MPTV
MPTV
192.168.1.210/sys_log.shtml
MPTV
Log out
COM-STATUS
POST-AMP1-PARA
POST-AMP2-PARA
POST-AMP3-PARA
POST-AMP4-PARA
POST-AMP5-PARA
EXCITER-STATUS
NET&VERSION
SYSTEM-SET
COMMON-SET
POST-AMP-SET
ADVANCE-SET
LOG-INFO
log
lg_toatal 0
last off time
running status
log_num log_info log_time

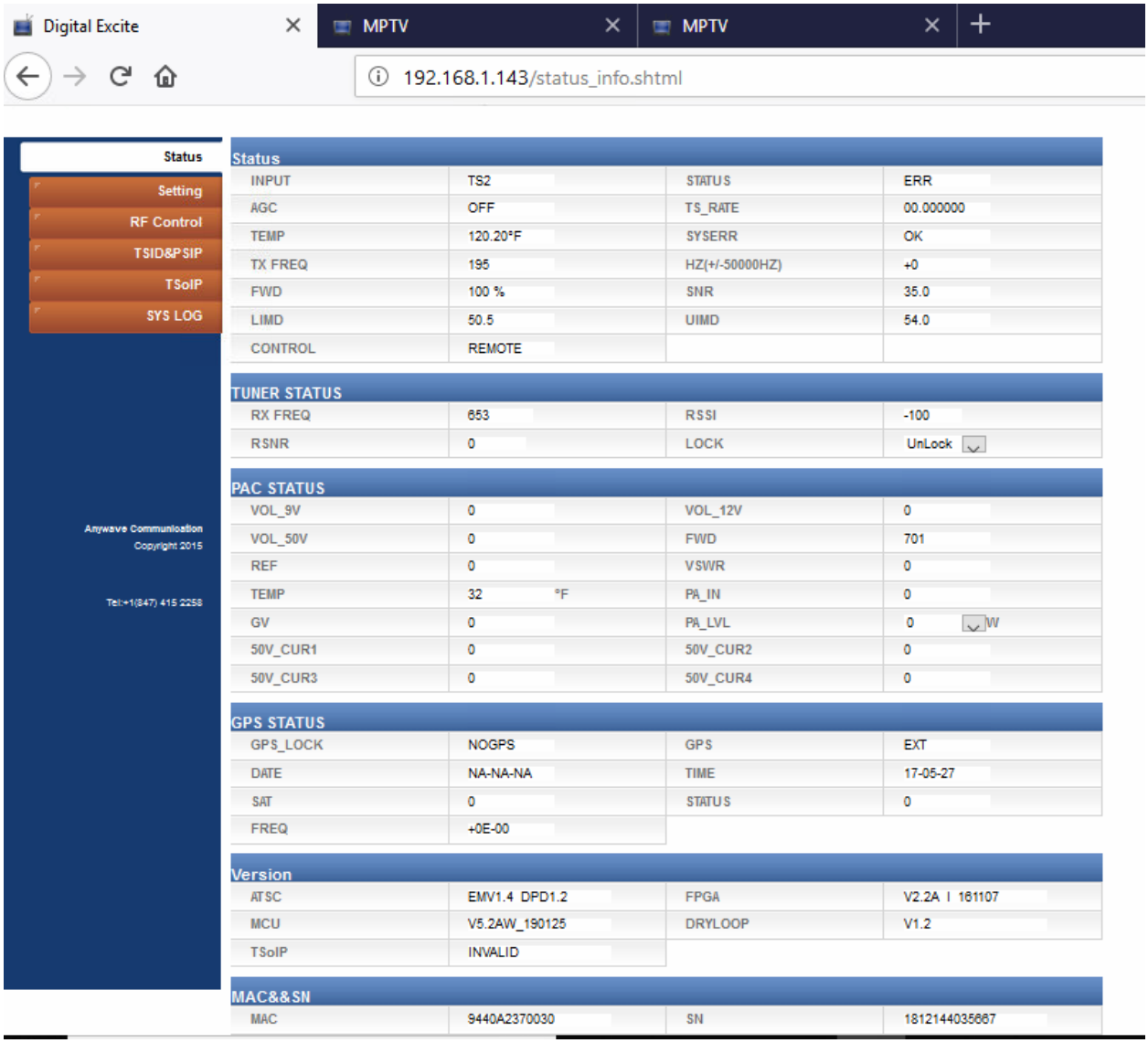
PA web pages:

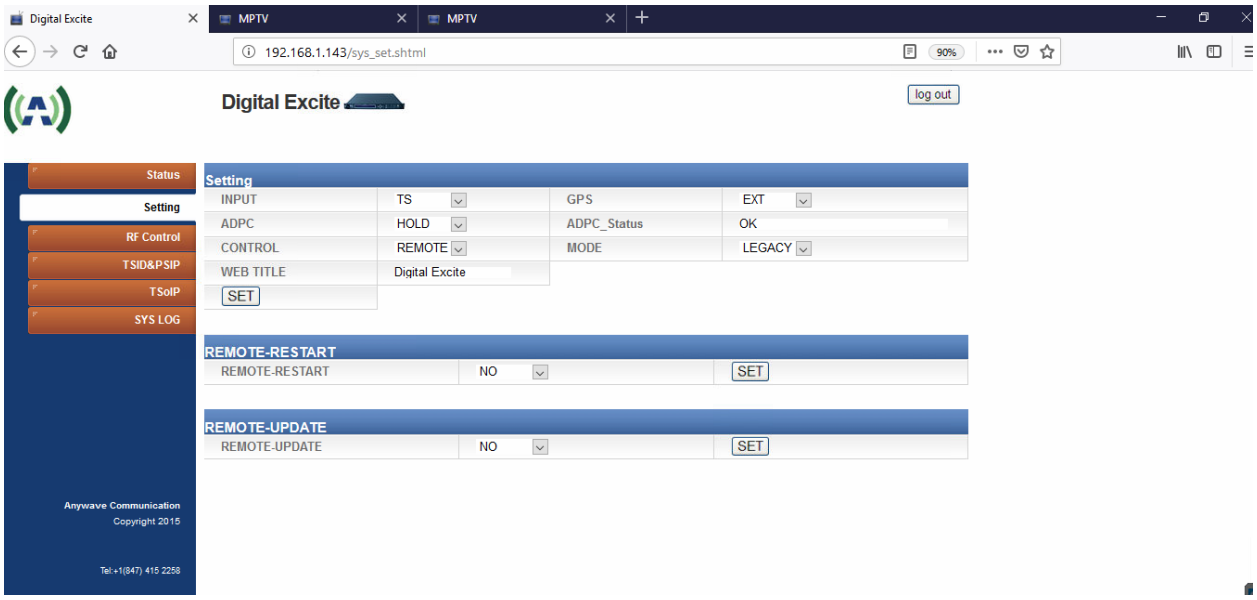

192.168.1.200/status_info.shtml
Status
System Set
Net
Anywave Communication
Copyright 2015
Tel:+1(847) 415 2258
Status
FWD-POW 803.51 W REFL-POW 1.77 W
REJT1-POW 0 W REJT2-POW 0 W
AMP-TEMP 120.47 °F VSWR 1.09
50V-VOL 49.61 V 50V-CUR1 15.03 A
50V-CUR2 15.74 A 50V-CUR3 15.61 A
50V-CUR4 16.24 A 50V-CUR5 0.57 A
50V-CUR6 0.18 A 50V-CUR7 1.4 A
ATT_USED 251 FREQ 0 MHz
FAN1-SPEED 5460 RPM FAN2-SPEED 5460 RPM
FAN3-SPEED 5400 RPM FAN4-SPEED 5340 RPM
FAN5-SPEED 0 RPM FAN6-SPEED 5340 RPM
Alarm Infomation
FWD-POW OK REF-POW OK
VSWR OK 50V-CUR OK
AMP-TEMP OK 50V-VOL OK
FAN1 OK FAN2 OK
FAN3 OK FAN4 OK
FAN5 OK FAN6 OK
Version
MCU V1.3C-161103

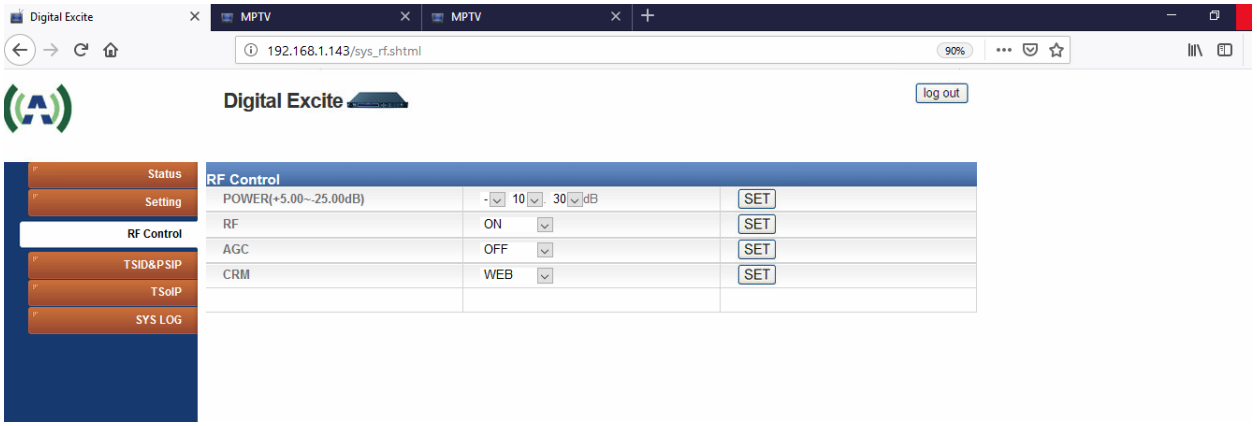

Digital Excite
MPTV
MPTV
192.168.1.200/sys_set.shtml
System Set
Net
Anywave Communication
Copyright 2015
Tel:+1(847) 415 2258
HARDWARE-PARA
FWD-ADJ 96.2 REF-ADJ 97.9
REJT1-ADJ 70 REJT2-ADJ 70
ATT 0 SYS_ID 130
FAN_NUM 5
SET
DAC_VOL
VOL1 2045 mV VOL2 2045 mV
VOL3 2045 mV VOL4 2045 mV
VOL5 2046 mV
SET
ALARM-PARA
FWD-MAX 875 W REFL-MAX 10 W
VSWR-MAX 2 50VCUR-MAX 18 A
TEMP-MAX 140 °F
SET
SYS-PARA-RESTORE
PARA-RESET NO
SET
REMOTE-UPDATE

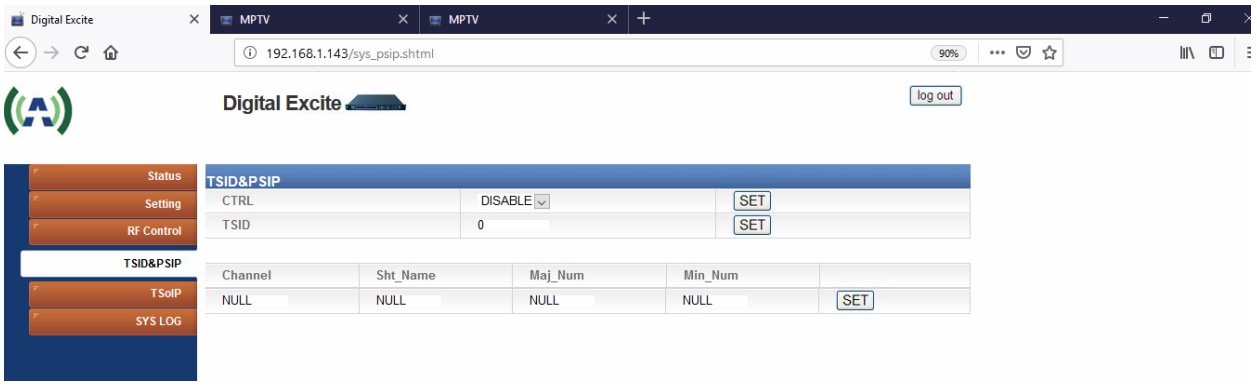


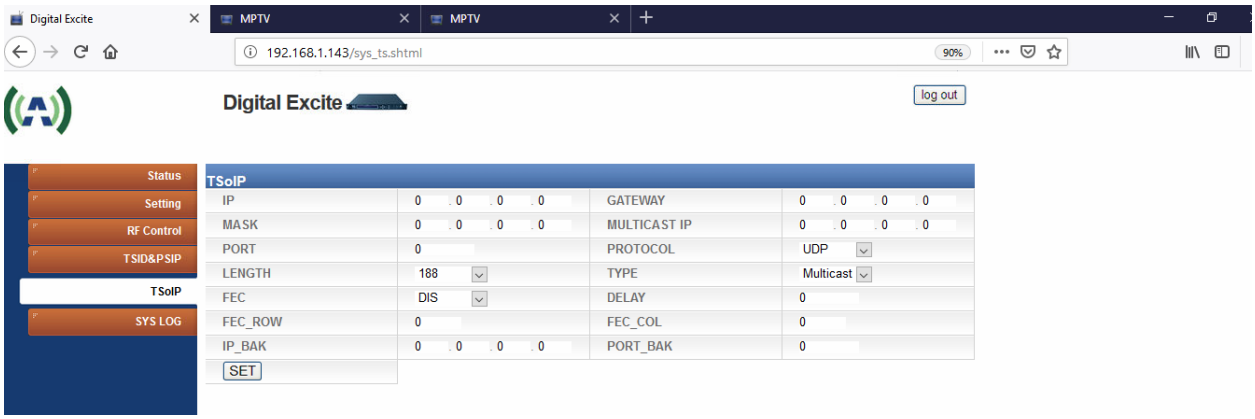
Exciter web pages:

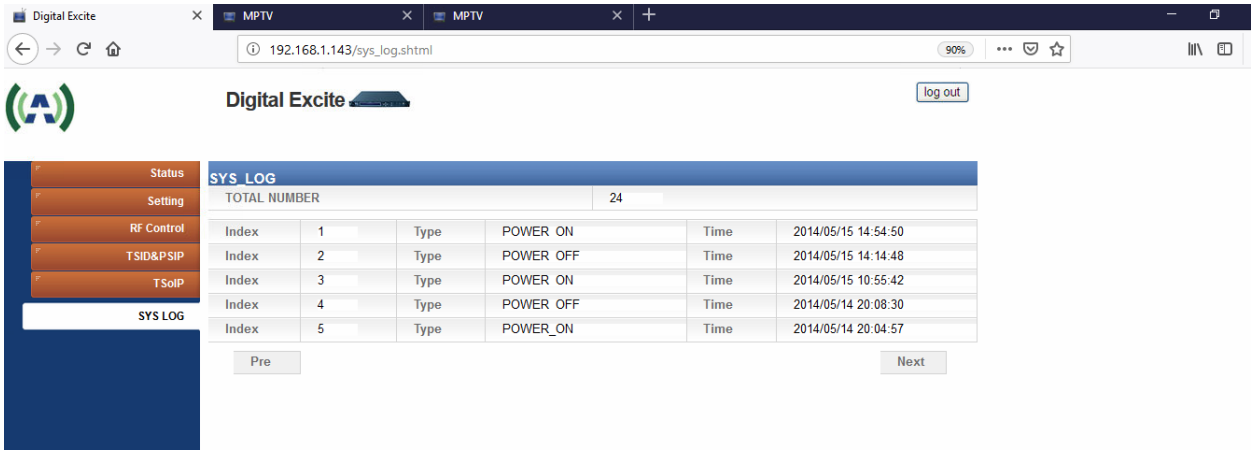



Digital Excite
MPTV
MPTV
192.168.1.143/sys_set.shtml
90%
Digital Excite
log out
Status
Setting
RF Control
TSID&PSIP
TSoIP
SYS LOG
Setting
INPUT
TS
GPS
EXT
ADPC
HOLD
ADPC_Status
OK
CONTROL
REMOTE
MODE
LEGACY
WEB TITLE
Digital Excite
SET
REMOTE-RESTART
REMOTE-RESTART
NO
SET
REMOTE-UPDATE
REMOTE-UPDATE
NO
SET
Anywave Communication
Copyright 2015
Tel:+1(847) 415 2258


Digital Excite
MPTV
MPTV
192.168.1.143/sys_rf.shtml
90%
Digital Excite
log out
Status
Setting
RF Control
TSID&PSIP
TSoIP
SYS LOG
RF Control
POWER(+5.00~-25.00dB)
10
30
dB
SET
RF
ON
SET
AGC
OFF
SET
CRM
WEB
SET


Digital Excite
MPTV
MPTV
192.168.1.143/sys_psip.shtml
90%
Digital Excite
log out
Status
Setting
RF Control
TSID&PSIP
TSoIP
SYS LOG
TSID&PSIP
CTRL
DISABLE
SET
TSID
0
SET
Channel
Sht_Name
Maj_Num
Min_Num
NULL
NULL
NULL
NULL
SET


Digital Excite
MPTV
MPTV
192.168.1.143/sys_ts.shtml
90%
Digital Excite
log out
Status
Setting
RF Control
TSID&PSIP
TSoIP
SYS LOG
TSoIP
IP 0 . 0 . 0 . 0
GATEWAY 0 . 0 . 0 . 0
MASK 0 . 0 . 0 . 0
MULTICAST IP 0 . 0 . 0 . 0
PORT 0
PROTOCOL UDP
LENGTH 188
TYPE Multicast
FEC DIS
DELAY 0
FEC_ROW 0
FEC_COL 0
IP_BAK 0 . 0 . 0 . 0
PORT_BAK 0
SET


Digital Excite
MPTV
MPTV
192.168.1.143/sys_log.shtml
90%
Digital Excite
log out
Status
Setting
RF Control
TSID&PSIP
TSoIP
SYS LOG
SYS_LOG
TOTAL NUMBER 24
Index 1 Type POWER ON Time 2014/05/15 14:54:50
Index 2 Type POWER OFF Time 2014/05/15 14:14:48
Index 3 Type POWER ON Time 2014/05/15 10:55:42
Index 4 Type POWER OFF Time 2014/05/14 20:08:30
Index 5 Type POWER_ON Time 2014/05/14 20:04:57
Pre
Next

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