

## PUPPI IF Amp. Controller Commands

### Luis Quintero, Arecibo Observatory

#### 1 Introduction

All the commands must start with the same header (ATN - case sensitive) to be recognized by the controller. The attenuator values must be between 00 (0dB) and 31 (15.5dB) (two characters format). The examples below show commands from the computer to the device >>, and the the device response <<. All command and responses terminate with Carriage Return (CR - \r - 0x0d).

#### 2 Commands

The status request ? command will return the actual configuration values of the A (VATN1<sup>1</sup>) and B (VATN2) channels. If the controller is restarted/power-cycled, these values correspond to the default values stored in the EEPROM memory. This is the command syntax:

Command: ATN? Response: atnmAABB, where

atn: lower case header  
m: multiple attenuators display  
AA: atten. value of A  
BB: atten. value of B

Example (0dB channel A, 15.5dB channel B):

```
>> ATN?
<< atnm0031
```

You can use the R command to print out default configuration (EEPROM) of the device:

Command: ATNR Response: atnrAABB, where

Example (0.5dB channel A, 1.0dB channel B):

```
>> ATNR
<< atnr0102
```

The A command is used to set the attenuator A:

Command: ATNAxx, where

xx: Attenuator value, 00<=x<=31

Response: atnok

Example:

```
>> ATN?
<< atnm0102
>> ATNA31
<< atnok
>> ATN?
<< atnm3102
```

The B command is used to set the attenuator B:

Command: ATNBxx, where

xx: Attenuator value, 00<=x<=31

Response: atnok

Example:

```
>> ATN?
<< atnm0102
>> ATNB31
<< atnok
>> ATN?
<< atnm0131
```

You can use the M command if you want to configure multiple attenuators with one command:

Command: ATNMAABB, where

M: multiple attenuators  
AA: value of atten. A  
BB: value of atten. B

Response: atnok

Example:

```
>> ATNM0123
<< atnok
>> ATN?
<< atnm0123
```

The W command is used if you want to store your actual configuration as default (EEPROM):

Command: ATNW

Response: atnok

Example:

```
>> ATNR
<< atnr0123
>> ATNM3210
<< atnok
>> ATNW
<< atnok
>> ATNR
<< atnr3210
```

Use the D command to load the default configuration (EEPROM):

Command: ATND

Response: atnok

Example:

<sup>1</sup>Variable Attenuator, MiniCircuits ZX76-15R5-SP+

```
>> ATNR
<< atnr3210
>> ATND
<< atnok
>> ATN?
<< atnm3210
```

### 3 Error codes

The controller is expecting digits after the command character. If there is an error, the device will return an error code 01 (`atnERR01`). For example:

```
>> ATNA0a
<< atnERR01
>> ATNM*&()
<< atnERR01
```

The controller will return an error code 02 if the attenuator configuration is out of range (between 0 and 31). Examples:

```
>> ATNA99
<< atnERR02
>> ATNB70
<< atnERR03
```

The attenuator setup command A and B only accepts six (6) characters total. If a different number is provided, the device returns an error code 06. For example:

```
>> ATNA0
<< atnERR06
>> ATNB111
<< atnERR06
```

If you are trying to use the M command, and do not provide all the parameters (8 characters -  $2 \times 2 + 4$ ), the device will return an error code 07:

```
>> ATNM012
<< atnERR07
```

The M command also returns an error code 03 if one of the attenuator values is out of range:

```
>> ATNM0033
<< atnERR03
```

If the command has the ATN header, but not command at all, the controller will return an error code 05. Commands related to EEPROM, information and default configuration require four characters. For example:

```
>> ATN
<< atnERR05
```

Finally, if the command does not exits, the device will return an error code 04:

```
>> ATNT
<< atnERR04
```

### 4 Examples

- Maximum attenuation ( $15.5dB$ ) for all the attenuators: ATNM3131
- Minimum attenuation ( $0dB$ ) for all the attenuators: ATNM0000
- $12.5dB$  ( $25 = 12.5 \times 2$ ) attenuation for A: ATNA25
- $4.5dB$  ( $9 = 4.5 \times 2$ ) attenuation for B: ATNA09