# AISG Modes of Multi Band TMAs User Guide

Amphenol
ANTENNA SOLUTIONS

JAYBEAMWireless

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# Contents

# 1 General

This document describes the different possible modes of Amphenol Antenna Solutions multi band AISG TMAs. It also describes how to change between the modes. The description is for using a AISG Primary Device and it requires that the TMA has been found and correctly setup with the AISG Primary Device prior to change mode of TMA. A CCU or MCU from other vendors can also be used and the procedure will be similar.

# 2 Operation Modes

See tables below for a description about all available modes of TMA. A more detailed description of the different modes can be found further down.

### Dual Band TMAs

| Operation Mode | Number of Addresses | Number of Subunits | Supply Voltage |
|---|---|---|---|
| 2XTWIN | 1* | 2* | Separate (Independent AISG) |
| TWOTWO | 2 | 2 | Common |
| ONETWO | 1 | 2 | Common |
| ONEFOR | 1 | 4 | Common |

* This mode requires one DC+AISG controller on each BTS-port. All other modes require only one AISG controller at any BTS-port and this AISG controller will control both TMA-sides.

### Triple Band TMAs

| Operation Mode | Number of Addresses | Number of Subunits | Supply Voltage |
|---|---|---|---|
| 2XTWIN | 1* | 2* | Separate (Independent AISG) |
| TWOTWO | 2 | 2 | Common |
| TRITWO | 3 | 2 | Common |

* This mode requires one DC+AISG controller on each BTS-port. All other modes require only one AISG controller at any BTS-port and this AISG controller will control both TMA-sides.

# 3 Operation Modes - Dual Band TMAs

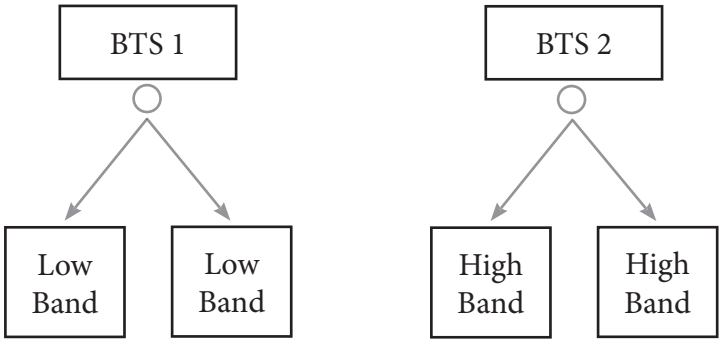
### Dual Band TMAs

| Operation Mode | Number of Addresses | Number of Subunits | Supply Voltage |
|---|---|---|---|
| 2XTWIN | 1* | 2* | Separate (Independent AISG) |
| TWOTWO | 2 | 2 | Common |
| ONETWO | 1 | 2 | Common |
| ONEFOR | 1 | 4 | Common |

* This mode requires one DC+AISG controller on each BTS-port. All other modes require only one AISG controller at any BTS-port and this AISG controller will control both TMA-sides.

## 3.1 2XTWIN

This mode makes it possible to control a multi band TMA as two standard single band Twin TMA by dividing the control between the two BTS ports. The TMA is seen as 1 logic unit on each BTS- port with 2 subunits each.




**TMA Status:**

| Name | [Subunit] | Sector ID | Antenna Serial | Mode | | Gain [dB] | Status | |
|---|---|---|---|---|---|---|---|---|
| TMA 1 | 1 | --- | --- | ON | Set Mode | 12.00 | OK | Details |
| | 2 | --- | --- | ON | Set Mode | 12.00 | OK | Details |

*Image 1* (above) - shows configuration after successful device scan on BTS 1 or BTS 2. One TMA with two subunits are found.*

| TMA Information | |
|---|---|
| Device Name : | TMA 1 |
| SubUnit / Channel : | 1 |
| Vendor ID : | AAS |
| Product Number : | 473057A.101 |
| Serial Number : | UY132612345_2.1 |
| Hardware Version : | A |
| Software Version : | 1.0.9 |

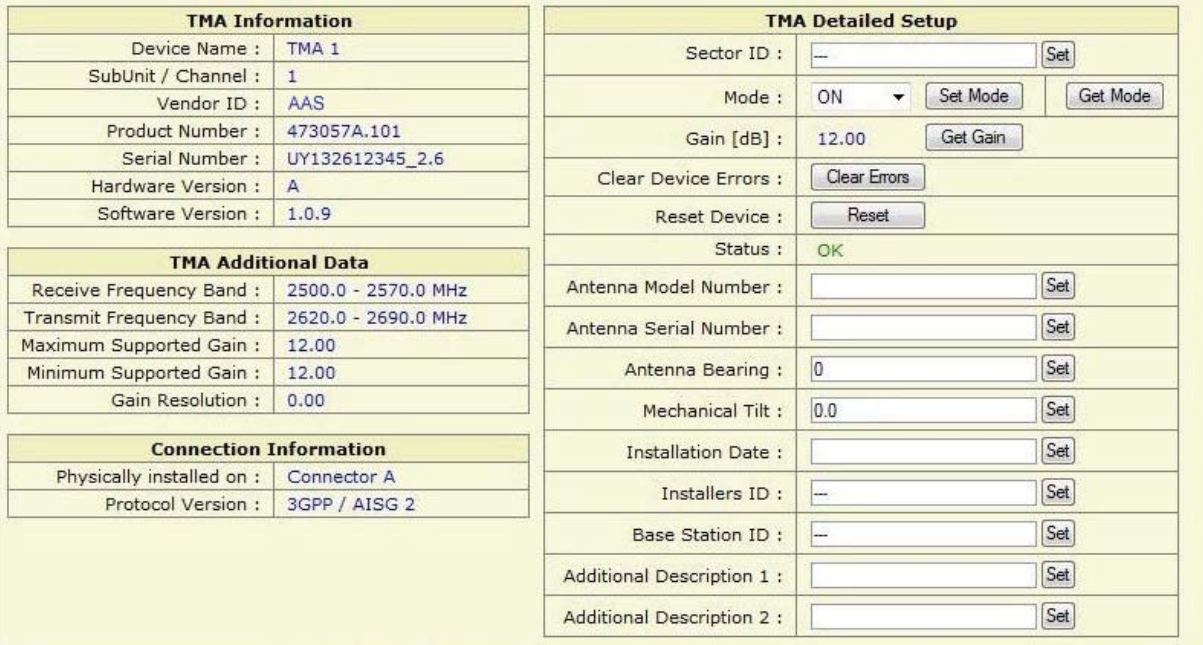
| TMA Additional Data | |
|---|---|
| Receive Frequency Band : | 1920.0 - 1980.0 MHz |
| Transmit Frequency Band : | 2110.0 - 2170.0 MHz |
| Maximum Supported Gain : | 12.00 |
| Minimum Supported Gain : | 12.00 |
| Gain Resolution : | 0.00 |

| Connection Information | |
|---|---|
| Physically installed on : | Connector A |
| Protocol Version : | 3GPP / AISG 2 |

| TMA Detailed Setup | | | |
|---|---|---|---|
| Sector ID : | --- | Set | |
| Mode : | ON | Set Mode | Get Mode |
| Gain [dB] : | 12.00 | Get Gain | |
| Clear Device Errors : | Clear Errors | | |
| Reset Device : | Reset | | |
| Status : | OK | | |
| Antenna Model Number : | | Set | |
| Antenna Serial Number : | | Set | |
| Antenna Bearing : | 0 | Set | |
| Mechanical Tilt : | 0.0 | Set | |
| Installation Date : | | Set | |
| Installers ID : | --- | Set | |
| Base Station ID : | --- | Set | |
| Additional Description 1 : | | Set | |
| Additional Description 2 : | | Set | |

*Image 2* (above) - shows details for subunit 1 on BTS 1 on a 2100/2600 TMA. Subunit 2 on same BTS port will show same information.*

**All Images are samples of possible screen depiction and are strictly for reference only. Actual screen apperance may differ. Please contact your sales representative or visit www.amphenol-antennas.com for additional information.*



| TMA Information | |
|---|---|
| Device Name : | TMA 1 |
| SubUnit / Channel : | 1 |
| Vendor ID : | AAS |
| Product Number : | 473057A.101 |
| Serial Number : | UY132612345_2.6 |
| Hardware Version : | A |
| Software Version : | 1.0.9 |

| TMA Additional Data | |
|---|---|
| Receive Frequency Band : | 2500.0 - 2570.0 MHz |
| Transmit Frequency Band : | 2620.0 - 2690.0 MHz |
| Maximum Supported Gain : | 12.00 |
| Minimum Supported Gain : | 12.00 |
| Gain Resolution : | 0.00 |

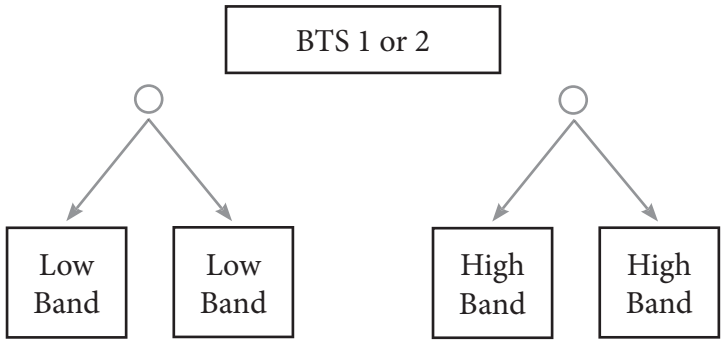
| Connection Information | |
|---|---|
| Physically installed on : | Connector A |
| Protocol Version : | 3GPP / AISG 2 |

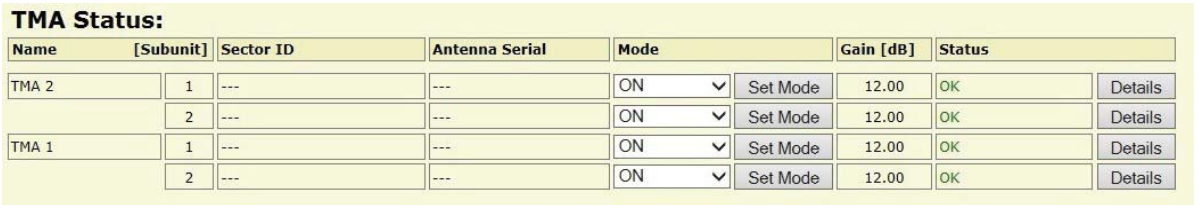
| TMA Detailed Setup | | | |
|---|---|---|---|
| Sector ID : | --- | Set | |
| Mode : | ON | Set Mode | Get Mode |
| Gain [dB] : | 12.00 | Get Gain | |
| Clear Device Errors : | Clear Errors | | |
| Reset Device : | Reset | | |
| Status : | OK | | |
| Antenna Model Number : | | Set | |
| Antenna Serial Number : | | Set | |
| Antenna Bearing : | 0 | Set | |
| Mechanical Tilt : | 0.0 | Set | |
| Installation Date : | | Set | |
| Installers ID : | --- | Set | |
| Base Station ID : | --- | Set | |
| Additional Description 1 : | | Set | |
| Additional Description 2 : | | Set | |

*Image 3* (above) - shows details for subunit 1 on BTS 2 on a 2100/2600 TMA. Subunit 2 on same BTS port will show same information.*

## 3.2 TWOTWO

In this mode the multi band TMA is seen as 2 logic units with 2 subunits each and it is only required to connect to one of the two BTS ports. Either port can be used.



**TMA Status:**

| Name | [Subunit] | Sector ID | Antenna Serial | Mode | | Gain [dB] | Status | |
|---|---|---|---|---|---|---|---|---|
| TMA 2 | 1 | --- | --- | ON | Set Mode | 12.00 | OK | Details |
| | 2 | --- | --- | ON | Set Mode | 12.00 | OK | Details |
| TMA 1 | 1 | --- | --- | ON | Set Mode | 12.00 | OK | Details |
| | 2 | --- | --- | ON | Set Mode | 12.00 | OK | Details |

*Image 4* (above) - shows configuration after successful device scan on BTS 1 or BTS 2. Two TMA's with two subunits each are found.*

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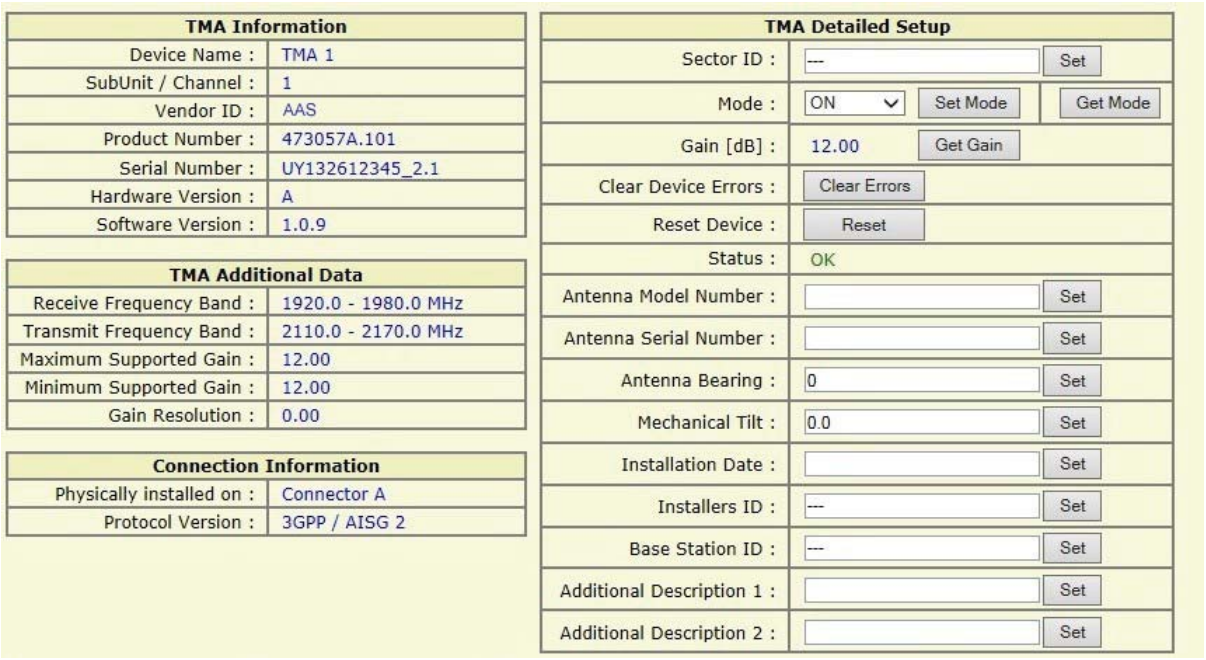


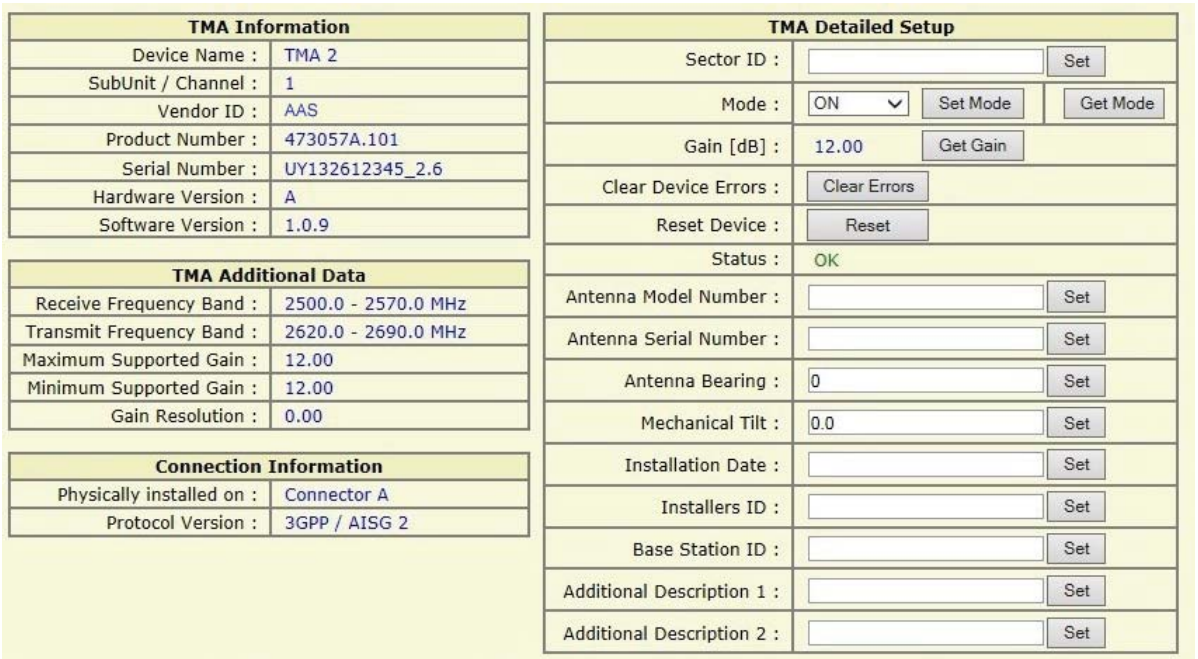
| TMA Information | |
|---|---|
| Device Name : | TMA 1 |
| SubUnit / Channel : | 1 |
| Vendor ID : | AAS |
| Product Number : | 473057A.101 |
| Serial Number : | UY132612345_2.1 |
| Hardware Version : | A |
| Software Version : | 1.0.9 |

| TMA Additional Data | |
|---|---|
| Receive Frequency Band : | 1920.0 - 1980.0 MHz |
| Transmit Frequency Band : | 2110.0 - 2170.0 MHz |
| Maximum Supported Gain : | 12.00 |
| Minimum Supported Gain : | 12.00 |
| Gain Resolution : | 0.00 |

| Connection Information | |
|---|---|
| Physically installed on : | Connector A |
| Protocol Version : | 3GPP / AISG 2 |

| TMA Detailed Setup | | | |
|---|---|---|---|
| Sector ID : | --- | Set | |
| Mode : | ON | Set Mode | Get Mode |
| Gain [dB] : | 12.00 | Get Gain | |
| Clear Device Errors : | Clear Errors | | |
| Reset Device : | Reset | | |
| Status : | OK | | |
| Antenna Model Number : | | Set | |
| Antenna Serial Number : | | Set | |
| Antenna Bearing : | 0 | Set | |
| Mechanical Tilt : | 0.0 | Set | |
| Installation Date : | | Set | |
| Installers ID : | --- | Set | |
| Base Station ID : | --- | Set | |
| Additional Description 1 : | | Set | |
| Additional Description 2 : | | Set | |

*Image 5* (above) - shows details for subunit 1 on TMA 1 on a 2100/2600 TMA. Subunit 2 on same TMA will show same information.*



| TMA Information | |
|---|---|
| Device Name : | TMA 2 |
| SubUnit / Channel : | 1 |
| Vendor ID : | AAS |
| Product Number : | 473057A.101 |
| Serial Number : | UY132612345_2.6 |
| Hardware Version : | A |
| Software Version : | 1.0.9 |

| TMA Additional Data | |
|---|---|
| Receive Frequency Band : | 2500.0 - 2570.0 MHz |
| Transmit Frequency Band : | 2620.0 - 2690.0 MHz |
| Maximum Supported Gain : | 12.00 |
| Minimum Supported Gain : | 12.00 |
| Gain Resolution : | 0.00 |

| Connection Information | |
|---|---|
| Physically installed on : | Connector A |
| Protocol Version : | 3GPP / AISG 2 |

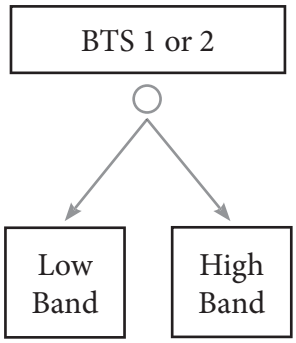
| TMA Detailed Setup | | | |
|---|---|---|---|
| Sector ID : | | Set | |
| Mode : | ON | Set Mode | Get Mode |
| Gain [dB] : | 12.00 | Get Gain | |
| Clear Device Errors : | Clear Errors | | |
| Reset Device : | Reset | | |
| Status : | OK | | |
| Antenna Model Number : | | Set | |
| Antenna Serial Number : | | Set | |
| Antenna Bearing : | 0 | Set | |
| Mechanical Tilt : | 0.0 | Set | |
| Installation Date : | | Set | |
| Installers ID : | | Set | |
| Base Station ID : | | Set | |
| Additional Description 1 : | | Set | |
| Additional Description 2 : | | Set | |

*Image 6* (above) - shows details for subunit 1 on TMA 2 on a 2100/2600 TMA. Subunit 2 on same TMA will show same information.*

**All Images are samples of possible screen depiction and are strictly for reference only. Actual screen apperance may differ. Please contact your sales representative or visit www.amphenol-antennas.com for additional information.*

## 3.3 ONETWO

In this mode the multi band TMA is seen as 1 logic units with 2 subunits and it is only required to connect to one of the two BTS ports. Either port can be used. This means that it is being controlled as a standard Single band Twin TMA but with different frequencies on the subunits corresponding to the two frequencies supported by the multiband TMA.




**TMA Status:**

| Name | [Subunit] | Sector ID | Antenna Serial | Mode | | Gain [dB] | Status | |
|---|---|---|---|---|---|---|---|---|
| TMA 1 | 1 | --- | --- | ON | Set Mode | 12.00 | OK | Details |
| | 2 | --- | --- | ON | Set Mode | 12.00 | OK | Details |

*Image 7* (above) - shows configuration after successful devicescan on BTS 1 or BTS 2. One TMA with two subunits are found.*

| TMA Information | |
|---|---|
| Device Name : | TMA 1 |
| SubUnit / Channel : | 1 |
| Vendor ID : | AAS |
| Product Number : | 473057A.101 |
| Serial Number : | UY132612345_2.1 |
| Hardware Version : | A |
| Software Version : | 1.0.9 |

| TMA Additional Data | |
|---|---|
| Receive Frequency Band : | 1920.0 - 1980.0 MHz |
| Transmit Frequency Band : | 2110.0 - 2170.0 MHz |
| Maximum Supported Gain : | 12.00 |
| Minimum Supported Gain : | 12.00 |
| Gain Resolution : | 0.00 |

| Connection Information | |
|---|---|
| Physically installed on : | Connector A |
| Protocol Version : | 3GPP / AISG 2 |

| TMA Detailed Setup | | | |
|---|---|---|---|
| Sector ID : | --- | Set | |
| Mode : | ON | Set Mode | Get Mode |
| Gain [dB] : | 12.00 | Get Gain | |
| Clear Device Errors : | Clear Errors | | |
| Reset Device : | Reset | | |
| Status : | OK | | |
| Antenna Model Number : | | Set | |
| Antenna Serial Number : | | Set | |
| Antenna Bearing : | 0 | Set | |
| Mechanical Tilt : | 0.0 | Set | |
| Installation Date : | | Set | |
| Installers ID : | --- | Set | |
| Base Station ID : | --- | Set | |
| Additional Description 1 : | | Set | |
| Additional Description 2 : | | Set | |

*Image 8* (above) - shows details for subunit 1 on a 2100/2600 TMA.*

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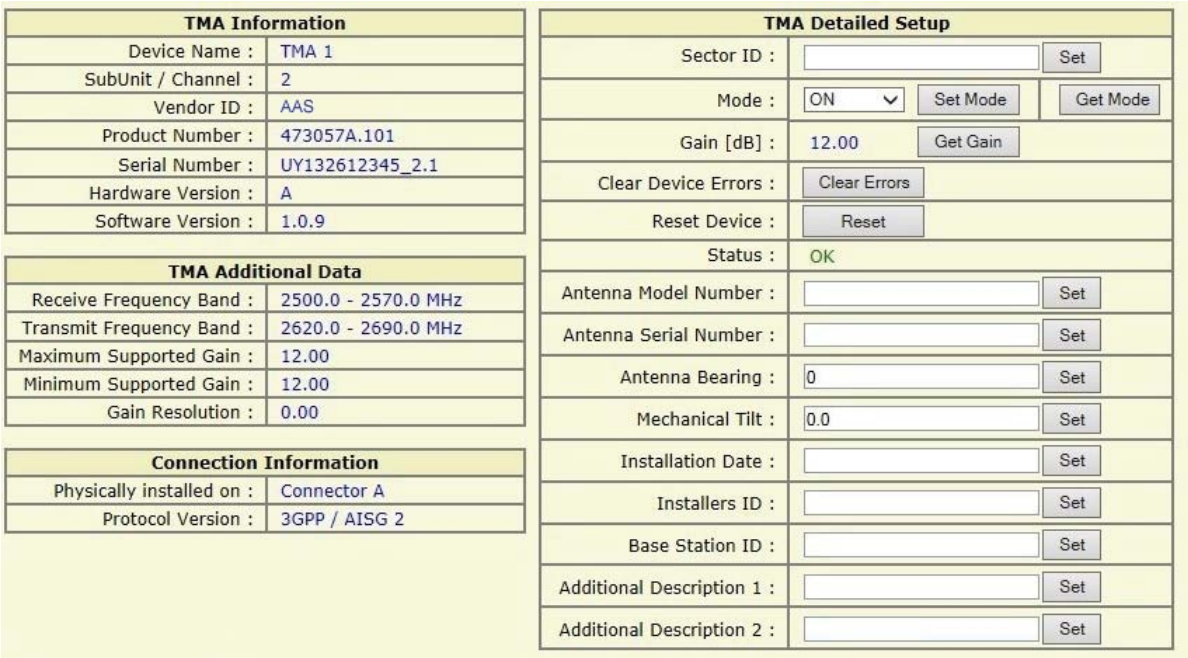


| TMA Information | |
|---|---|
| Device Name : | TMA 1 |
| SubUnit / Channel : | 2 |
| Vendor ID : | AAS |
| Product Number : | 473057A.101 |
| Serial Number : | UY132612345_2.1 |
| Hardware Version : | A |
| Software Version : | 1.0.9 |

| TMA Additional Data | |
|---|---|
| Receive Frequency Band : | 2500.0 - 2570.0 MHz |
| Transmit Frequency Band : | 2620.0 - 2690.0 MHz |
| Maximum Supported Gain : | 12.00 |
| Minimum Supported Gain : | 12.00 |
| Gain Resolution : | 0.00 |

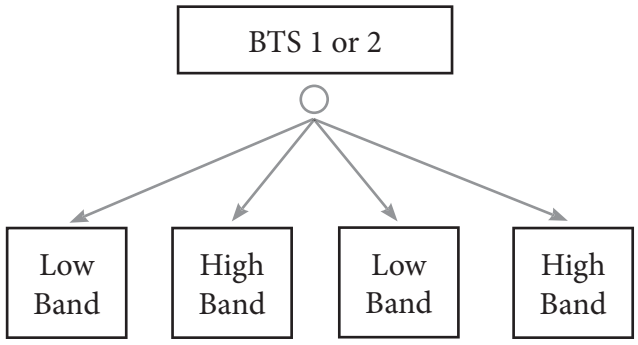
| Connection Information | |
|---|---|
| Physically installed on : | Connector A |
| Protocol Version : | 3GPP / AISG 2 |

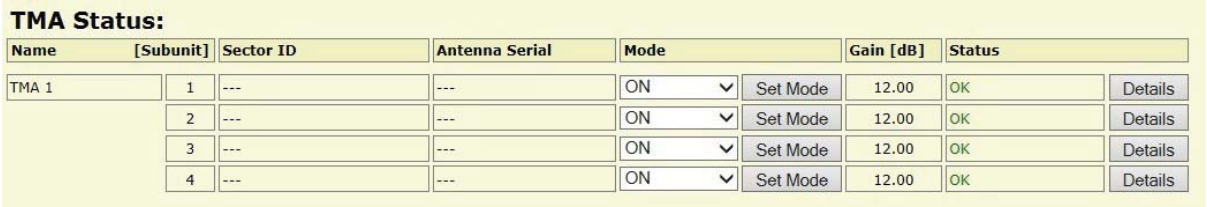
| TMA Detailed Setup | | | |
|---|---|---|---|
| Sector ID : | | Set | |
| Mode : | ON | Set Mode | Get Mode |
| Gain [dB] : | 12.00 | Get Gain | |
| Clear Device Errors : | Clear Errors | | |
| Reset Device : | Reset | | |
| Status : | OK | | |
| Antenna Model Number : | | Set | |
| Antenna Serial Number : | | Set | |
| Antenna Bearing : | 0 | Set | |
| Mechanical Tilt : | 0.0 | Set | |
| Installation Date : | | Set | |
| Installers ID : | | Set | |
| Base Station ID : | | Set | |
| Additional Description 1 : | | Set | |
| Additional Description 2 : | | Set | |

*Image 9* (above) - shows details for subunit 2 on a 2100/2600 TMA.*

## 3.4 ONEFOR

In this mode the multi band TMA is seen as 1 logic units with 4 subunits each and it is only required to connect to one of the two BTS ports. Either port can be used.



**TMA Status:**

| Name | [Subunit] | Sector ID | Antenna Serial | Mode | | Gain [dB] | Status | |
|---|---|---|---|---|---|---|---|---|
| TMA 1 | 1 | --- | --- | ON | Set Mode | 12.00 | OK | Details |
| | 2 | --- | --- | ON | Set Mode | 12.00 | OK | Details |
| | 3 | --- | --- | ON | Set Mode | 12.00 | OK | Details |
| | 4 | --- | --- | ON | Set Mode | 12.00 | OK | Details |

*Image 10* (above) - shows configuration after successful device scan on BTS 1 or BTS 2. One TMA with four subunits are found.*

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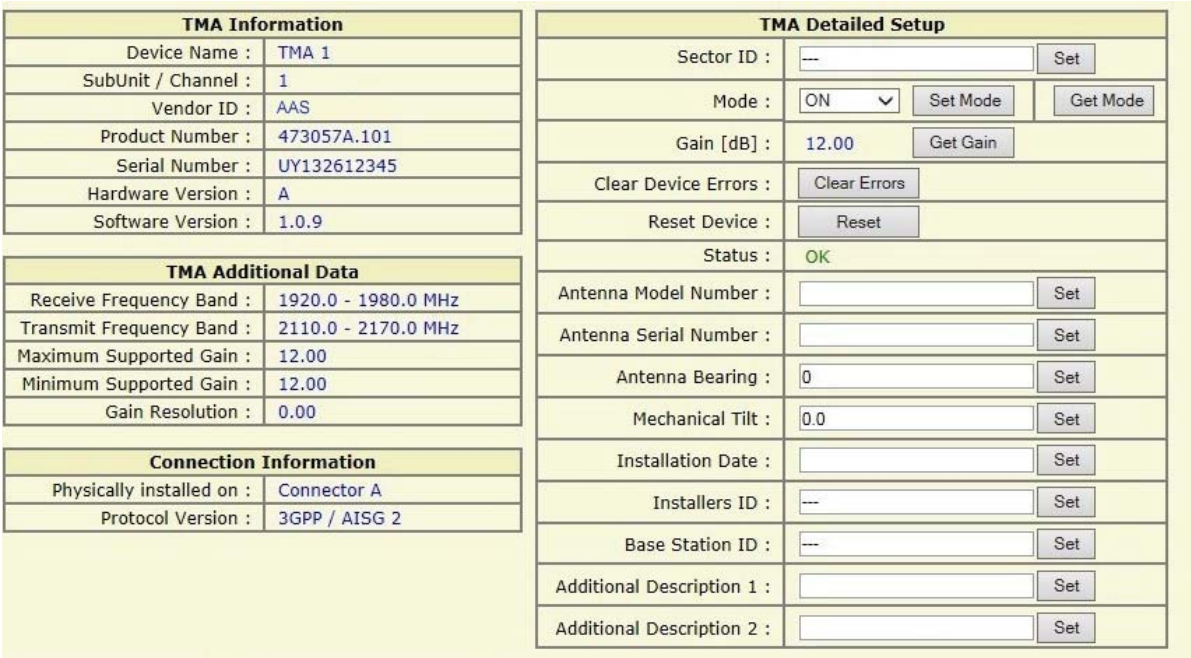


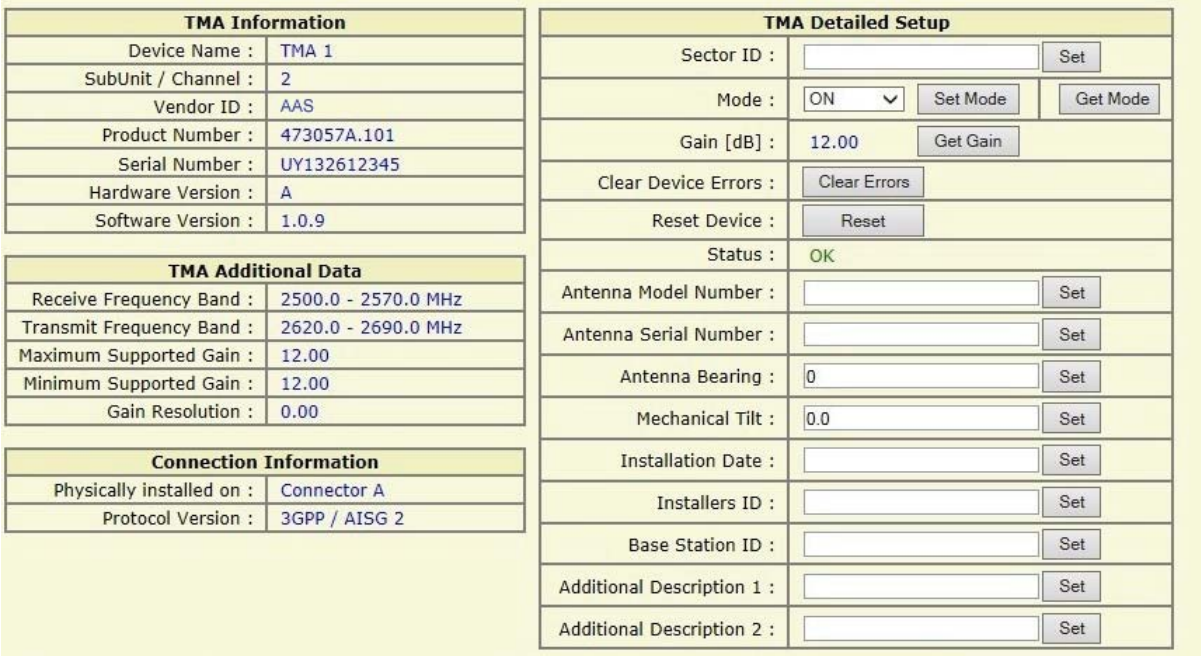
| TMA Information | |
|---|---|
| Device Name : | TMA 1 |
| SubUnit / Channel : | 1 |
| Vendor ID : | AAS |
| Product Number : | 473057A.101 |
| Serial Number : | UY132612345 |
| Hardware Version : | A |
| Software Version : | 1.0.9 |

| TMA Additional Data | |
|---|---|
| Receive Frequency Band : | 1920.0 - 1980.0 MHz |
| Transmit Frequency Band : | 2110.0 - 2170.0 MHz |
| Maximum Supported Gain : | 12.00 |
| Minimum Supported Gain : | 12.00 |
| Gain Resolution : | 0.00 |

| Connection Information | |
|---|---|
| Physically installed on : | Connector A |
| Protocol Version : | 3GPP / AISG 2 |

| TMA Detailed Setup | | | |
|---|---|---|---|
| Sector ID : | --- | Set | |
| Mode : | ON | Set Mode | Get Mode |
| Gain [dB] : | 12.00 | Get Gain | |
| Clear Device Errors : | Clear Errors | | |
| Reset Device : | Reset | | |
| Status : | OK | | |
| Antenna Model Number : | | Set | |
| Antenna Serial Number : | | Set | |
| Antenna Bearing : | 0 | Set | |
| Mechanical Tilt : | 0.0 | Set | |
| Installation Date : | | Set | |
| Installers ID : | --- | Set | |
| Base Station ID : | --- | Set | |
| Additional Description 1 : | | Set | |
| Additional Description 2 : | | Set | |

*Image 11* (above) - shows details for subunit 1 on a 2100/2600 TMA.*



| TMA Information | |
|---|---|
| Device Name : | TMA 1 |
| SubUnit / Channel : | 2 |
| Vendor ID : | AAS |
| Product Number : | 473057A.101 |
| Serial Number : | UY132612345 |
| Hardware Version : | A |
| Software Version : | 1.0.9 |

| TMA Additional Data | |
|---|---|
| Receive Frequency Band : | 2500.0 - 2570.0 MHz |
| Transmit Frequency Band : | 2620.0 - 2690.0 MHz |
| Maximum Supported Gain : | 12.00 |
| Minimum Supported Gain : | 12.00 |
| Gain Resolution : | 0.00 |

| Connection Information | |
|---|---|
| Physically installed on : | Connector A |
| Protocol Version : | 3GPP / AISG 2 |

| TMA Detailed Setup | | | |
|---|---|---|---|
| Sector ID : | | Set | |
| Mode : | ON | Set Mode | Get Mode |
| Gain [dB] : | 12.00 | Get Gain | |
| Clear Device Errors : | Clear Errors | | |
| Reset Device : | Reset | | |
| Status : | OK | | |
| Antenna Model Number : | | Set | |
| Antenna Serial Number : | | Set | |
| Antenna Bearing : | 0 | Set | |
| Mechanical Tilt : | 0.0 | Set | |
| Installation Date : | | Set | |
| Installers ID : | | Set | |
| Base Station ID : | | Set | |
| Additional Description 1 : | | Set | |
| Additional Description 2 : | | Set | |

*Image 12* (above) - shows details for subunit 2 on a 2100/2600 TMA.*

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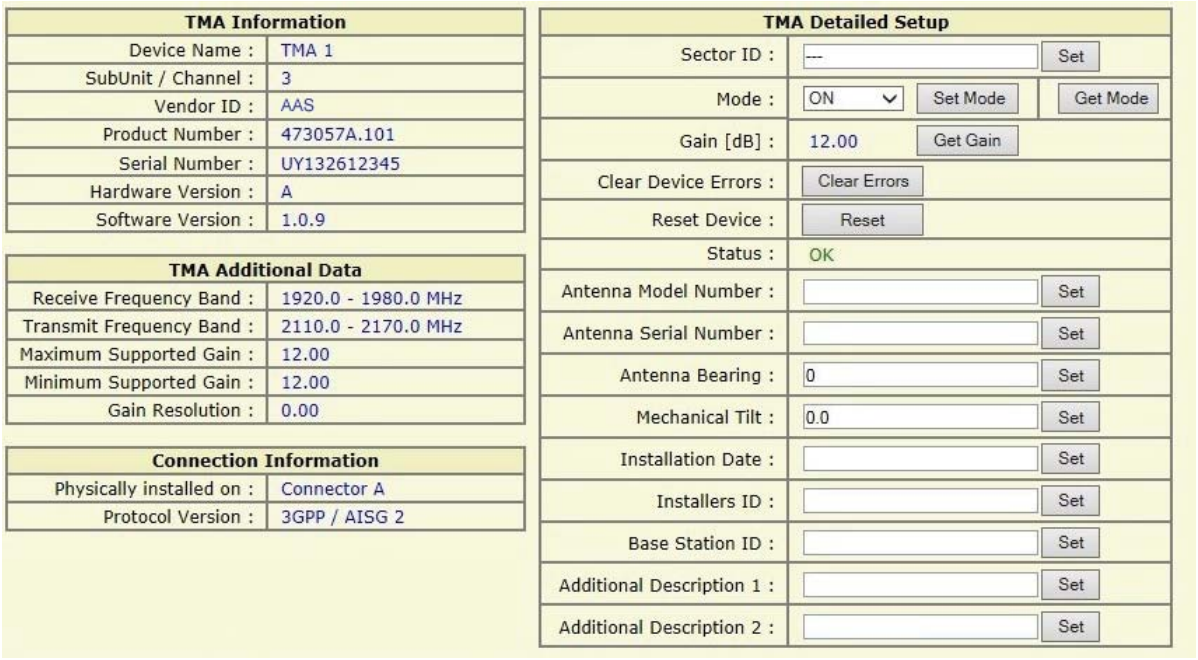


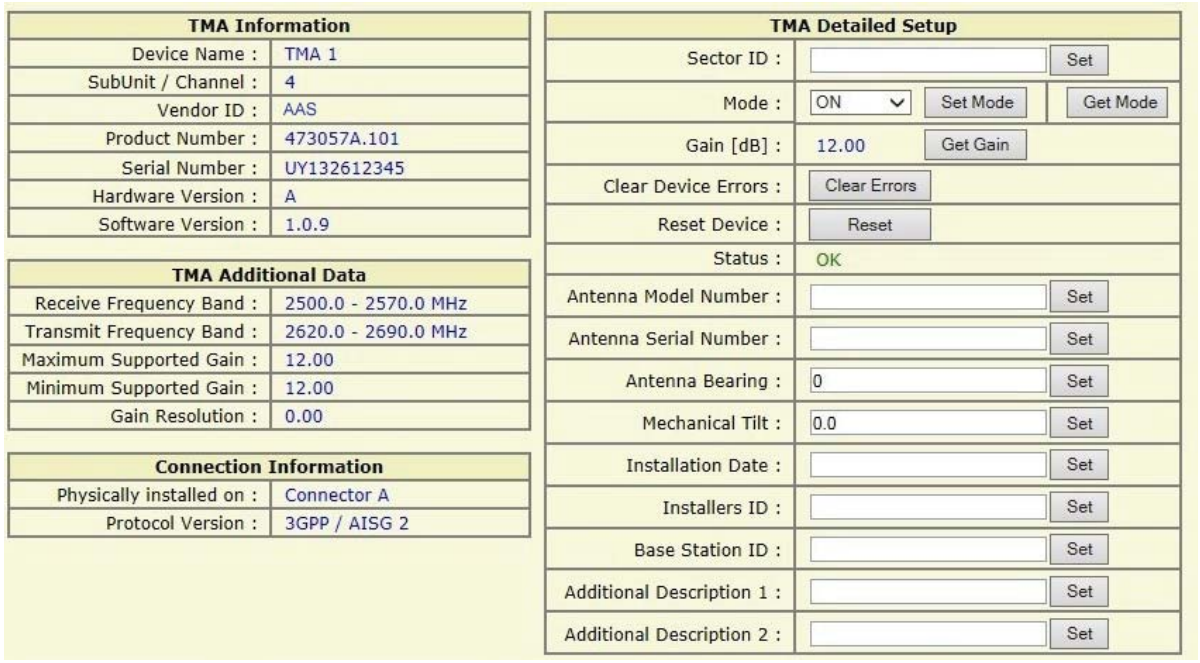
| TMA Information | |
|---|---|
| Device Name : | TMA 1 |
| SubUnit / Channel : | 3 |
| Vendor ID : | AAS |
| Product Number : | 473057A.101 |
| Serial Number : | UY132612345 |
| Hardware Version : | A |
| Software Version : | 1.0.9 |

| TMA Additional Data | |
|---|---|
| Receive Frequency Band : | 1920.0 - 1980.0 MHz |
| Transmit Frequency Band : | 2110.0 - 2170.0 MHz |
| Maximum Supported Gain : | 12.00 |
| Minimum Supported Gain : | 12.00 |
| Gain Resolution : | 0.00 |

| Connection Information | |
|---|---|
| Physically installed on : | Connector A |
| Protocol Version : | 3GPP / AISG 2 |

| TMA Detailed Setup | | | |
|---|---|---|---|
| Sector ID : | --- | Set | |
| Mode : | ON | Set Mode | Get Mode |
| Gain [dB] : | 12.00 | Get Gain | |
| Clear Device Errors : | Clear Errors | | |
| Reset Device : | Reset | | |
| Status : | OK | | |
| Antenna Model Number : | | Set | |
| Antenna Serial Number : | | Set | |
| Antenna Bearing : | 0 | Set | |
| Mechanical Tilt : | 0.0 | Set | |
| Installation Date : | | Set | |
| Installers ID : | | Set | |
| Base Station ID : | | Set | |
| Additional Description 1 : | | Set | |
| Additional Description 2 : | | Set | |

*Image 13* (above) - shows details for subunit 3 on a 2100/2600 TMA.*



| TMA Information | |
|---|---|
| Device Name : | TMA 1 |
| SubUnit / Channel : | 4 |
| Vendor ID : | AAS |
| Product Number : | 473057A.101 |
| Serial Number : | UY132612345 |
| Hardware Version : | A |
| Software Version : | 1.0.9 |

| TMA Additional Data | |
|---|---|
| Receive Frequency Band : | 2500.0 - 2570.0 MHz |
| Transmit Frequency Band : | 2620.0 - 2690.0 MHz |
| Maximum Supported Gain : | 12.00 |
| Minimum Supported Gain : | 12.00 |
| Gain Resolution : | 0.00 |

| Connection Information | |
|---|---|
| Physically installed on : | Connector A |
| Protocol Version : | 3GPP / AISG 2 |

| TMA Detailed Setup | | | |
|---|---|---|---|
| Sector ID : | | Set | |
| Mode : | ON | Set Mode | Get Mode |
| Gain [dB] : | 12.00 | Get Gain | |
| Clear Device Errors : | Clear Errors | | |
| Reset Device : | Reset | | |
| Status : | OK | | |
| Antenna Model Number : | | Set | |
| Antenna Serial Number : | | Set | |
| Antenna Bearing : | 0 | Set | |
| Mechanical Tilt : | 0.0 | Set | |
| Installation Date : | | Set | |
| Installers ID : | | Set | |
| Base Station ID : | | Set | |
| Additional Description 1 : | | Set | |
| Additional Description 2 : | | Set | |

*Image 14* (above) - shows details for subunit 4 on a 2100/2600 TMA.*

# 4 Operation Modes - Triple Band TMAs

See table and pictures below for a description about all available modes of TMA. A more detailed description of the different modes can be found further down.

**All Images are samples of possible screen depiction and are strictly for reference only. Actual screen apperance may differ. Please contact your sales representative or visit www.amphenol-antennas.com for additional information.*

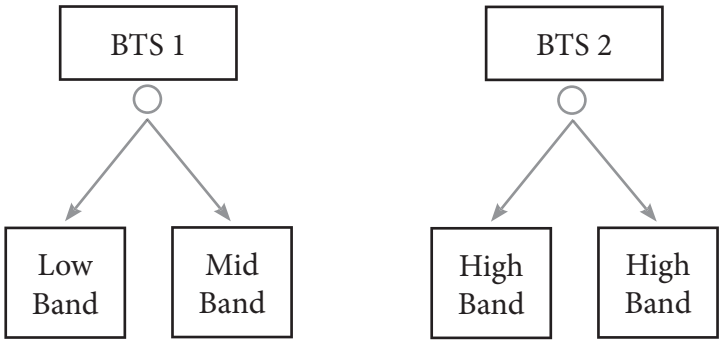
**Triple Band TMAs**

| Operation Mode | Number of Addresses | Number of Subunits | Supply Voltage |
|---|---|---|---|
| 2XTWIN | 1* | 2* | Separate (Independent AISG) |
| TWOTWO | 2 | 2 | Common |
| TRITWO | 3 | 2 | Common |

* This mode requires one DC+AISG controller on each BTS-port. All other modes require only one AISG controller at any BTS-port and this AISG controller will control both TMA-sides.

## 4.1 2XTWIN

This mode makes it possible to control a multi band TMA as two standard single band Twin TMA by dividing the control between the two BTS ports. The TMA is seen as 1 logic unit on each BTS- port with 2 subunits each.

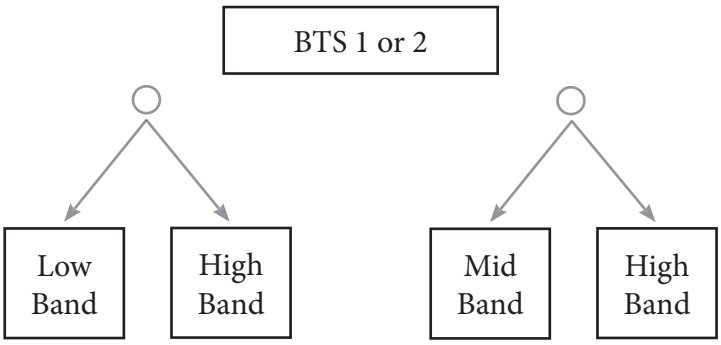



Below table shows configuration after successful device scan on BTS 1 or BTS 2. One TMA with two subunits are found.

| TTA-TU100N, 2XTWIN | |
|---|---|
| BTS 1 | BTS 2 |
| 1800/2100 | 2600/2600 |

## 4.2 TWOTWO

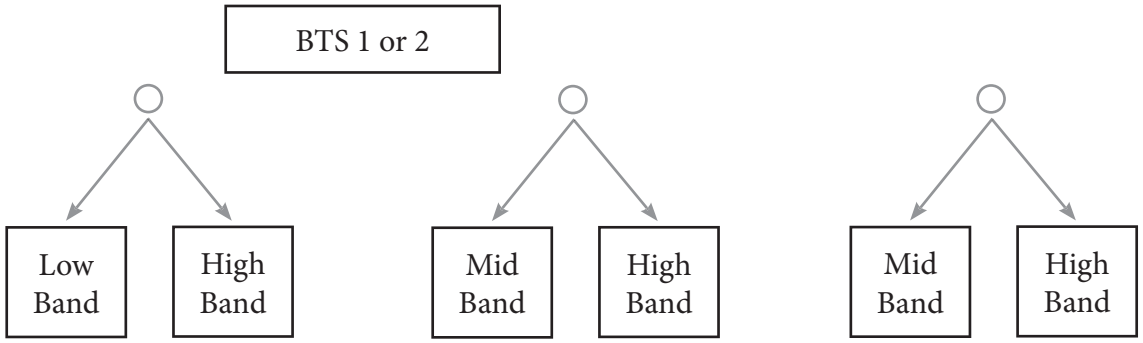
In this mode the triple band TMA is seen as 2 logic units with 2 subunits each and it is only required to connect to one of the two BTS ports. Either port can be used.



| TTA-TU100H, TWOTWO | |
|---|---|
| BTS 1 or 2 | |
| 1800/2100 | |
| 2600/2600 | |

### 4.3 TRITWO

The TMA is seen as 3 logic unit on each BTS-port with 2 subunits each.




| TTA-TU101H, TRITWO | |
|---|---|
| BTS 1 or 2 | |
| 1800/2100 | |
| 2100/2100 | |
| 2600/2600 | |

## 5 Change Mode of TMA

This setting is available for SW version 1.0.9 and above.

1. Select "Devices Status" and then select "Details" of any subunit. Write desired operation mode in field "Installation Date". See chapter 2 for description of available operation modes of TMA. Text must be exactly as described in the table in chapter 2. Six characters in uppercase. It is enough to write operation mode to only one subunit.
2. Press button "Set" and after around 5 s press button "Reset". Operation mode of TMA is now changed.

To see if CCU has detected the new AISG configuration you select "Devices Setup" and then "Scan Sub Menu". Check how many devices and subunits that CCU has found. If CCU has not automatically detected the new AISG configuration you have to restart scan and then select "Clear & Import -> Setup" or "Import -> Setup". Then you press button "Save Devices Setup" if you want to save setup on CCU.



info@amphenol-antennas.com
www.amphenol-antennas.com