



**DSIM-CC & DSIM-CF**  
**Installation Guide**  
**Rev E**

## 1. Quick Start Instructions for Single Pilot AGC Operation

1. Install the Amplifier with the DSIM-CC or DSIM-CF.
2. Attach the adapter cable to the DSIM, THEN plug the DSIM into the adapter cable. The controller light should be solid blue indicating MGC mode (if not press mode button until it is).
3. Set the input and output levels to the system design.
4. Set Reserve Gain:
  - a. Max out the gain by pressing the '+' button on the controller.
  - b. Back off the gain based on the outside temperature:

|                                 |             |
|---------------------------------|-------------|
| <b>Above 100°F</b>              | <b>-2dB</b> |
| <b>Between 80°F &amp; 100°F</b> | <b>-3dB</b> |
| <b>Between 40°F &amp; 80°F</b>  | <b>-4dB</b> |
| <b>Between 20°F &amp; 40°F</b>  | <b>-5dB</b> |
| <b>Below 20°F</b>               | <b>-6dB</b> |

5. Do a final balance of the downstream levels.
6. Press mode button once. The controller light will flash blue and red for approximately 45 seconds. When done the controller light will have a half second blue blink indicating that the DSIM is in AGC mode.
7. Remove the controller THEN the cable from the DSIM, and the DSIM setup complete.



**DSIM-CF  
(FNT/FNB 700)**



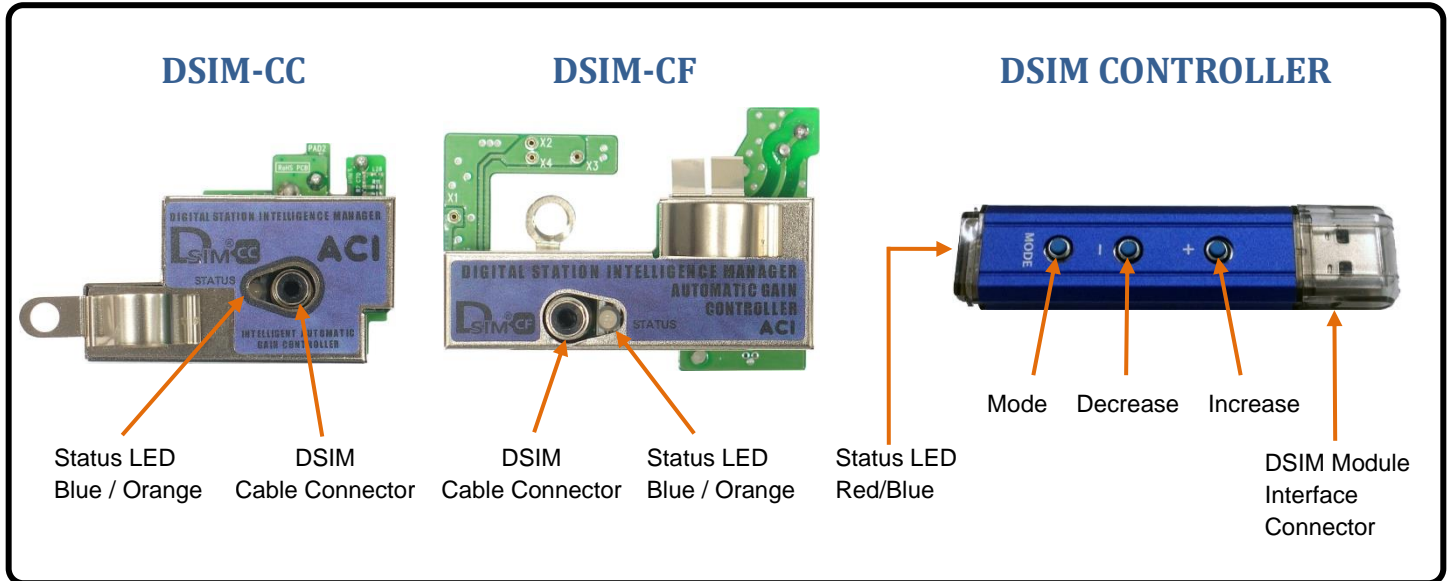
**DSIM-CC  
(Flexnet E7 series)**

**DSIM-CF and DSIM-CC Installed in the RF modules  
(Shown with faceplate cover removed for clarity)**

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## 2. DSIM AGC Module & DSIM Controller Overview



The Digital Station Intelligence Manager (DSIM) product line is the next generation of automatic gain control modules that provides the outside plant maintenance team with station diagnostic tools that are unprecedented in the industry. The DSIM AGC module is agile that allows the program settings to be modified at any time to change the pilot channel number and type from analog to digital or to change the operational mode into the SPAGC or manual modes of operation. Having this flexibility to reprogram the DSIM modules is a huge cost savings when doing system pilot channel modifications over the fixed SPAGC, only the program settings need to be changed instead of having to change out the entire AGC fixed module.

The DSIM module is programmed to operate as a single pilot AGC. In the SPAGC mode the DSIM can be programmed to use either an analog or digital pilot signal from channels 52 to 142. If the pilot channel is lost, the DSIM module will default into a thermal TGC mode and then return to the single pilot SPAGC mode automatically once the pilot channel has been restored. DSIM incorporates a bi-colored blue and orange LED that indicates the different operational modes and settings of the DSIM during setup and operation.

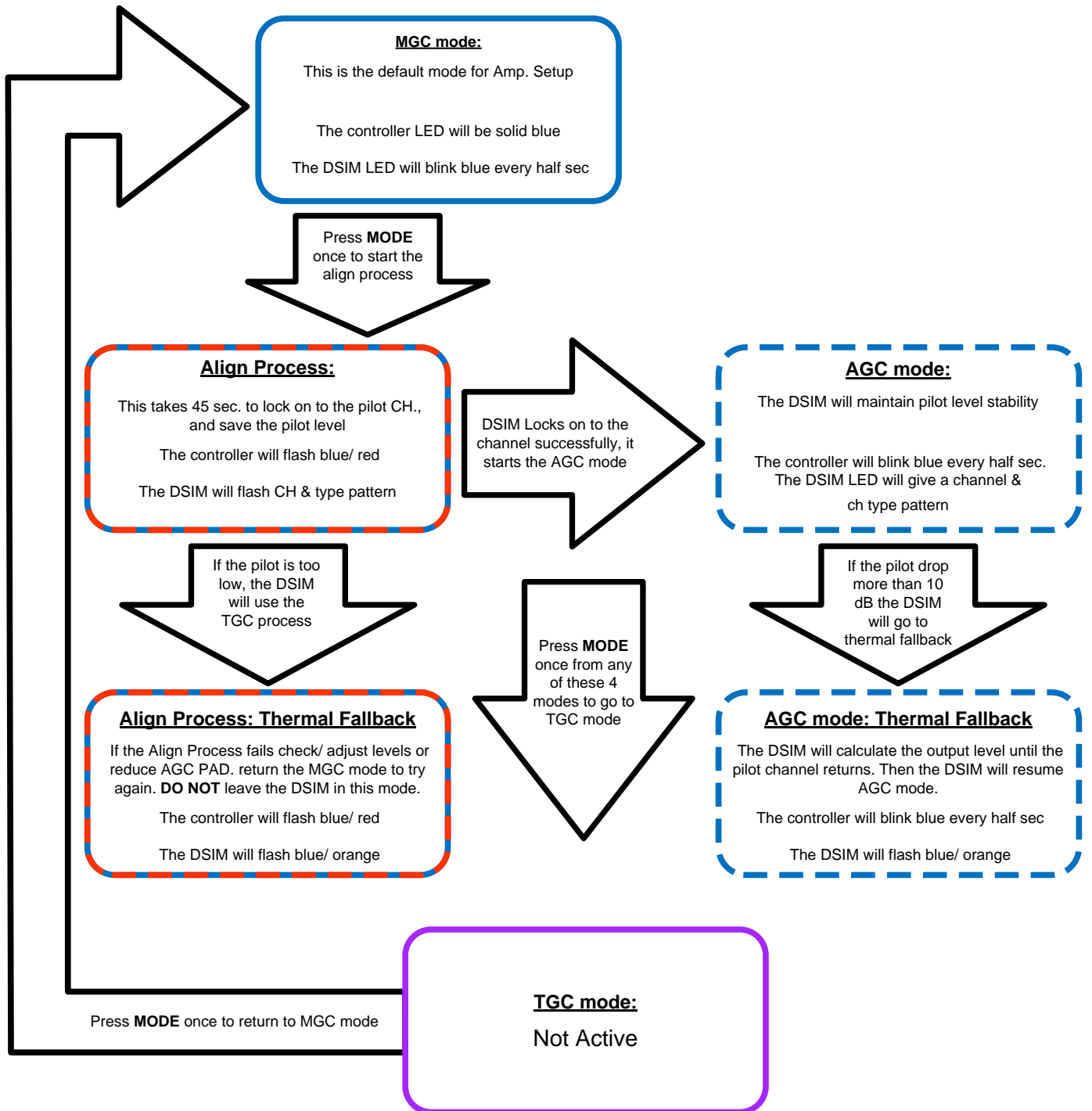
The DSIM controller is used to set the DSIM module's pilot channel and to change into the different operational modes during the amplifier setup. The bi-colored blue and red LED indicator's blinking patterns will denote the current optional mode setting.

The DSIM controller is used to set the DSIM modules to the customer selected pilot channel. In the setup of the DSIM module the pilot channel that is programmed into the controller is downloaded into the memory of the DSIM module. The pilot channel setting in the DSIM module can be changed in the future by simply using a controller with the new desired pilot channel programmed.

### 3. DSIM Mode Definitions

| Operation Mode | Definition   |
|----------------|--|
| MGC            | <p>In the Manual Gain Control (MGC) mode the DSIM automatic gain control is turned off.</p> <p>The MGC mode is used during the setup of the station so that no gain adjustments are made when the levels and slopes are setup.</p>           |
| AGC            | <p>In Automatic Gain Control (AGC) mode will make gain adjustments to the station based on the level changes that occur on the pilot channel.</p>  |
| TGC            | <p>The DSIM-CC and DSIM-CF do not function in TGC mode. The only time the TGC function is active is when or if the pilot is lost. If the pilot is lost the DSIM will compensate based on recent memory of temperature and bode position.</p> |

# DSIM Mode Flow Chart



## 4. DSIM Controller Operation Instruction Guidelines

| Switch | Function    | Description   |
|--------|-------------|---|
| +      | Increase    | In MGC Mode, Click to increase RF output level  |
|        |             | In AGC Mode, no function  |
|        |             | In TGC Mode, no function  |
| -      | Decrease    | In MGC Mode, Click to decrease RF output level  |
|        |             | In AGC Mode, no function  |
|        |             | In TGC Mode, no function  |
| Mode   | Mode Change | In MGC mode, Click to go to Align Mode to load controller channel setting, DSIM module will then automatically switch to AGC mode |
|        |             | In AGC Mode, Click to return to TGC Mode  |
|        |             | In TGC Mode, Click to go to MGC Mode  |

## 5. DSIM Controller Status LED Essentials

| LED Blinking Pattern    | Indications   |
|-------------------------|---|
| Quick Blue / Red Blinks | DSIM controller to module syncing process - Occurs when controller is installed into the DSIM module. |
|                         | Aligning process: in progress   |
| Steady on Blue          | In MGC Mode   |
| Series of Blue Blinks   | In AGC Mode   |
| Steady on Purple        | In TGC Mode   |

## 6. DSIM Module Status LED Essentials

### Operation Blinking Patterns for DSIM Module

| LED Blinking Pattern                                | Indications  |
|---|--|
| Steady Repeating Blue Dashes                        | Manual Mode  |
| Series of Blue Blinks                               | Pilot Channel Number - See tables in section 9 at the end of the guide for blinking sequences        |
| Single Blue Long Dash Between Series of Blue Blinks | IRC Analog channel is set  |
| 2 Blue Long Dashes Between Series of Blue Blinks    | Digital channel is set   |
| 3 Blue Long Dashes Between Series of Blue Blinks    | TGC Mode - The default cable length setting for TGC mode is 27 dB of cable in front of the amplifier |
| Quick Blue / Orange Blinks                          | Pilot paste in progress - Wait or Pilot channel not found or lost                                    |



## LED Fault Conditions Blinking Patterns

| LED Blinking Pattern           | Indications   |
|--------------------------------|---|
| Steady on Pink                 | 24 volt input into DSIM module is out of the operational range of 21.5 to 26.5 VDC. If this occurs, check for correct AC voltage input to the amplifier and for correct output DC voltage of internal power supply to the RF module |
| Steady Repeating Orange Blinks | Temperature in DSIM module is too high / low (above 221°F/105°C or below -40°F/-40°C)   |
| Quick Blue / Orange Blinks     | Pilot Lost; DSIM automatically switches to Thermal (TGC) mode until Pilot channel is restored   |

**Note:** The DSIM LED blinks after the pilot channel count will be orange during programming and blue when in operation.

## 7. DSIM Interface Cable Assembly

To make the connection from the DSIM controller to the DSIM AGC module use cable assembly P/N 240330-01 as shown below. Plug in Controller cable, then plug the controller into the cable. Same for removal. Remove the controller from the cable then remove the cable from the DSIM. Note: The RF module is shown with faceplate cover removed for clarity.



## 8. Single Pilot AGC Setup

The DSIM controllers will come preset to have a desired pilot channel stored in the memory. The controller is used to set the DSIM module to the desired pilot channel by downloading the pilot channel program into the DSIM module's memory during setup.

1. Let the DSIM warmup if the outside temperature is below 20°F:
  - a. 0°F to 20°F – 5 min.
  - b. Below 0°F – 10 min.
  - c. Closing the amplifier's housing will speed up the warm-up time.
2. Attach the adapter cable to the DSIM, THEN plug the Controller into the adapter cable.
3. The controller LED will then flash red / blue rapidly while the DSIM controller and DSIM module completes the syncing process (2-3 Seconds).
4. Once the controller LED stops flashing the red / blue sequence, it should then display a constant blue, indicating that it is in MGC (manual) mode.
5. Set the input and output levels to the system design.
6. Set Reserve Gain:
  - a. Max out the gain by pressing the '+' button on the controller.
  - b. Back off the gain based on the outside temperature:

|                                 |             |
|---------------------------------|-------------|
| <b>Above 100°F</b>              | <b>-2dB</b> |
| <b>Between 80°F &amp; 100°F</b> | <b>-3dB</b> |
| <b>Between 40°F &amp; 80°F</b>  | <b>-4dB</b> |
| <b>Between 20°F &amp; 40°F</b>  | <b>-5dB</b> |
| <b>Below 20°F</b>               | <b>-6dB</b> |

7. Complete final balance of the downstream levels
8. Press the 'Mode' button once. During the align process the DSIM LED will blink the pilot channel code (see section 9), but the slow blink indicating Analog or Digital will be orange. This will take approximately 45 seconds.
9. When done, the controller LED will blink blue indicating that the DSIM is in AGC mode.
10. Remove the cable from the controller, THEN remove the cable from the DSIM. The DSIM setup is complete.

## 9. LED Pilot Channel Blink Series Overview

| Channel | IRC    | DIGITAL | Set 1  | Set 2  | Set 3 | Set 4                                |
|---------|--------|---------|--------|--------|-------|--------------------------------------|
|         | MHz    | MHz     | Blue   | Blue   | Blue  | Blue-Operation<br>Orange-Programming |
| 52      | 391.25 | 393.00  | 5-Dits | 2-Dits |       | 1 IRC / 2 DIGITAL<br>Long dash       |
| 53      | 397.25 | 399.00  | 5-Dits | 3-Dits |       |                                      |
| 54      | 403.25 | 405.00  | 5-Dits | 4-Dits |       |                                      |
| 55      | 409.25 | 411.00  | 5-Dits | 5-Dits | -     |                                      |
| 56      | 415.25 | 417.00  | 5-Dits | 6-Dits | -     |                                      |
| 57      | 421.25 | 423.00  | 5-Dits | 7-Dits | -     |                                      |
| 58      | 427.25 | 429.00  | 5-Dits | 8-Dits | -     |                                      |
| 59      | 433.25 | 435.00  | 5-Dits | 9-Dits | -     |                                      |
| 60      | 439.25 | 441.00  | 6-Dits | 1-Dash | -     |                                      |
| 61      | 445.25 | 447.00  | 6-Dits | 1-Dits | -     |                                      |
| 62      | 451.25 | 453.00  | 6-Dits | 2-Dits | -     |                                      |
| 63      | 457.25 | 459.00  | 6-Dits | 3-Dits | -     |                                      |
| 64      | 463.25 | 465.00  | 6-Dits | 4-Dits | -     |                                      |
| 65      | 469.25 | 471.00  | 6-Dits | 5-Dits | -     |                                      |
| 66      | 475.25 | 477.00  | 6-Dits | 6-Dits | -     |                                      |
| 67      | 481.25 | 483.00  | 6-Dits | 7-Dits | -     |                                      |
| 68      | 487.25 | 489.00  | 6-Dits | 8-Dits | -     |                                      |
| 69      | 493.25 | 495.00  | 6-Dits | 9-Dits | -     |                                      |
| 70      | 499.25 | 501.00  | 7-Dits | 1-Dash | -     |                                      |
| 71      | 505.25 | 507.00  | 7-Dits | 1-Dits | -     |                                      |
| 72      | 511.25 | 513.00  | 7-Dits | 2-Dits | -     |                                      |
| 73      | 517.25 | 519.00  | 7-Dits | 3-Dits | -     |                                      |

| Channel | IRC    | DIGITAL | Set 1  | Set 2  | Set 3  | Set 4                                |
|---------|--------|---------|--------|--------|--------|--------------------------------------|
|         | MHz    | MHz     | Blue   | Blue   | Blue   | Blue-Operation<br>Orange-Programming |
| 74      | 523.25 | 525.00  | 7-Dits | 4-Dits |        | 1 IRC / 2 DIGITAL<br>Long dash       |
| 75      | 529.25 | 531.00  | 7-Dits | 5-Dits |        |                                      |
| 76      | 535.25 | 537.00  | 7-Dits | 6-Dits | -      |                                      |
| 77      | 541.25 | 543.00  | 7-Dits | 7-Dits | -      |                                      |
| 78      | 547.25 | 549.00  | 7-Dits | 8-Dits | -      |                                      |
| 79      | 553.25 | 555.00  | 8-Dits | 9-Dits | -      |                                      |
| 80      | 559.25 | 561.00  | 8-Dits | 1-Dash | -      |                                      |
| 81      | 565.25 | 567.00  | 8-Dits | 1-Dits | -      |                                      |
| 82      | 571.25 | 573.00  | 8-Dits | 2-Dits | -      |                                      |
| 83      | 577.25 | 579.00  | 8-Dits | 3-Dits | -      |                                      |
| 84      | 583.25 | 585.00  | 8-Dits | 4-Dits | -      |                                      |
| 85      | 589.25 | 591.00  | 8-Dits | 5-Dits | -      |                                      |
| 86      | 595.25 | 597.00  | 8-Dits | 6-Dits | -      |                                      |
| 87      | 601.25 | 603.00  | 8-Dits | 7-Dits | -      |                                      |
| 88      | 607.25 | 609.00  | 8-Dits | 8-Dits | -      |                                      |
| 89      | 613.25 | 615.00  | 8-Dits | 9-Dits | -      |                                      |
| 90      | 619.25 | 621.00  | 9-Dits | 1-Dash | -      |                                      |
| 91      | 625.25 | 627.00  | 9-Dits | 1-Dits | -      |                                      |
| 92      | 631.25 | 633.00  | 9-Dits | 2-Dits | -      |                                      |
| 93      | 637.25 | 639.00  | 9-Dits | 3-Dits | -      |                                      |
| 94      | 643.25 | 645.00  | 9-Dits | 4-Dits | -      |                                      |
| 100     | 649.25 | 651.00  | 1-Dits | 1-Dash | 1-Dash |                                      |

| Channel | IRC    | DIGITAL | Set 1  | Set 2  | Set 3  | Set 4                             |
|---------|--------|---------|--------|--------|--------|-----------------------------------|
|         | MHz    | MHz     | Blue   | Blue   | Blue   | Blue-Operation Orange-Programming |
| 101     | 655.25 | 657.00  | 1-Dits | 1-Dash | 1-Dits | 1 IRC / 2 DIGITAL<br>Long dash    |
| 102     | 661.25 | 663.00  | 1-Dits | 1-Dash | 2-Dits |                                   |
| 103     | 667.25 | 669.00  | 1-Dits | 1-Dash | 3-Dits |                                   |
| 104     | 673.25 | 675.00  | 1-Dits | 1-Dash | 4-Dits |                                   |
| 105     | 679.25 | 681.00  | 1-Dits | 1-Dash | 5-Dits |                                   |
| 106     | 685.25 | 687.00  | 1-Dits | 1-Dash | 6-Dits |                                   |
| 107     | 691.25 | 693.00  | 1-Dits | 1-Dash | 7-Dits |                                   |
| 108     | 697.25 | 699.00  | 1-Dits | 1-Dash | 8-Dits |                                   |
| 109     | 703.25 | 705.00  | 1-Dits | 1-Dash | 9-Dits |                                   |
| 110     | 709.25 | 711.00  | 1-Dits | 1-Dits | 1-Dash |                                   |
| 111     | 715.25 | 717.00  | 1-Dits | 1-Dits | 1-Dits |                                   |
| 112     | 721.25 | 723.00  | 1-Dits | 1-Dits | 2-Dits |                                   |
| 113     | 727.25 | 729.00  | 1-Dits | 1-Dits | 3-Dits |                                   |
| 114     | 733.25 | 735.00  | 1-Dits | 1-Dits | 4-Dits |                                   |
| 115     | 739.25 | 741.00  | 1-Dits | 1-Dits | 5-Dits |                                   |
| 116     | 745.25 | 747.00  | 1-Dits | 1-Dits | 6-Dits |                                   |
| 117     | 751.25 | 753.00  | 1-Dits | 1-Dits | 7-Dits |                                   |
| 118     | 757.25 | 759.00  | 1-Dits | 1-Dits | 8-Dits |                                   |
| 119     | 763.25 | 765.00  | 1-Dits | 1-Dits | 9-Dits |                                   |
| 120     | 769.25 | 771.00  | 1-Dits | 2-Dits | 1-Dash |                                   |
| 121     | 775.25 | 777.00  | 1-Dits | 2-Dits | 1-Dits |                                   |
| 122     | 781.25 | 783.00  | 1-Dits | 2-Dits | 2-Dits |                                   |

| Channel | IRC    | DIGITAL | Set 1  | Set 2  | Set 3  | Set 4                             |
|---------|--------|---------|--------|--------|--------|-----------------------------------|
|         | MHz    | MHz     | Blue   | Blue   | Blue   | Blue-Operation Orange-Programming |
| 123     | 787.25 | 789.00  | 1-Dits | 2-Dits | 3-Dits | 1 IRC / 2 DIGITAL<br>Long dash    |
| 124     | 793.25 | 795.00  | 1-Dits | 2-Dits | 4-Dits |                                   |
| 125     | 799.25 | 801.00  | 1-Dits | 2-Dits | 5-Dits |                                   |
| 126     | 805.25 | 807.00  | 1-Dits | 2-Dits | 6-Dits |                                   |
| 127     | 811.25 | 813.00  | 1-Dits | 2-Dits | 7-Dits |                                   |
| 128     | 817.25 | 819.00  | 1-Dits | 2-Dits | 8-Dits |                                   |
| 129     | 823.25 | 825.00  | 1-Dits | 2-Dits | 9-Dits |                                   |
| 130     | 829.25 | 831.00  | 1-Dits | 3-Dits | 1-Dash |                                   |
| 131     | 835.25 | 837.00  | 1-Dits | 3-Dits | 1-Dits |                                   |
| 132     | 841.25 | 843.00  | 1-Dits | 3-Dits | 2-Dits |                                   |
| 133     | 847.25 | 849.00  | 1-Dits | 3-Dits | 3-Dits |                                   |
| 134     | 853.25 | 855.00  | 1-Dits | 3-Dits | 4-Dits |                                   |
| 135     | 859.25 | 861.00  | 1-Dits | 3-Dits | 5-Dits |                                   |
| 136     | 865.25 | 867.00  | 1-Dits | 3-Dits | 6-Dits |                                   |
| 137     | 871.25 | 873.00  | 1-Dits | 3-Dits | 7-Dits |                                   |
| 138     | 877.25 | 879.00  | 1-Dits | 3-Dits | 8-Dits |                                   |
| 139     | 883.25 | 885.00  | 1-Dits | 4-Dits | 9-Dits |                                   |
| 140     | 889.25 | 891.00  | 1-Dits | 4-Dits | 1-Dash |                                   |
| 141     | 895.25 | 897.00  | 1-Dits | 4-Dits | 1-Dits |                                   |
| 142     | 901.25 | 903.00  | 1-Dits | 4-Dits | 2-Dits |                                   |

### NOTES

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