INTELIPORT® I
2W / 4W DATA STATION TERMINATION WITH AUTOMATIC ALIGNMENT CAPABILITY
MODEL SDS5486C (ISSUE 3)

(*CLEI™ Code: DSTN4UU3AA)

CONTENTS

1. GENERAL

1.01 Enginuity's INTELIPORT® I, Model SDS5486C Issue 3, is an Intelligent 2W or 4W Data Station Termination module. The SDS5486C Issue 3 provides an interface between a 4-wire facility and a 2W or 4W Data Modem. As a member of Enginuity's family of intelligent Network Channel Terminating Equipment, the SDS5486C provides all the functions of a standard Data Station Termination module but with additional features (see features listed in paragraph 1.03). The SDS5486C is a microprocessor-controlled plug-in. The integral microprocessor and precision oscillator circuits allow comprehensive remote alignment and testing of the circuit when activated from a Serving Test Center. The unique feature of Enginuity's SDS5486C is the unit's command mode of operation. The command mode is the operational state from which INTELIPORT monitors it's transmission paths for incoming frequencies. These frequencies are interpreted as commands for the unit to perform specific functions.

1.02 The Issue 3 SDS5486C provides a 200 Mechanics® platform for the SDS5486 Issue 3. Whenever this practice is reissued or revised, the reason for reissue or revision will be stated in this paragraph. **Update contact information.**

1.03 Features of the SDS5486C Issue 3 are:

- Operates in either 2W or 4W data modem applications

CAUTION
This product incorporates static sensitive components. Proper electrostatic discharge procedures must be followed.

- Microprocessor-controlled
- Acknowledgement tone (alternating 408/1008Hz) identifies unit being accessed as INTELIPORT by Enginuity.
- Switch-selected, Facility-side terminating impedance option of 150/600/1200 Ohms; Equipment-side impedance is fixed for 600 Ohms
- Switch-selected sealing current option; Unit can be configured to supply sealing current, provide a termination for sealing current supplied from the distant end, or can be set to off if sealing current is not required
- Remote 3-tone or 4-tone alignment capability
- Automatic alignment capability; Automatically aligns the SDS5486C with another intelligent unit at the near-end; Activated via tone or by pressing the front-panel TEST switch

- Automatically adjusts amplitude response characteristics (up to 15.3dB, referenced at 1004Hz) to meet C5 conditioning requirements
- Automatically adjusts the receive path for proper level coordination between the facility and data modem
- Levels can be referenced at TLP (Transmission Level Point) or DLP (Data Level Point) via the TLP/DLP toggle feature
- Alignment Query mode allows verification of alignment status
- Wire Test Mode allows installer to verify station wiring
- Full-range (300Hz to 3600Hz) transmission response test mode with quiet termination permits remote testing of noise and tone level measurements
- Four-tone Auto-Sweep test mode permits quick level verification of tones over the XMT OUT port
- Four-tone Auto-Sweep test mode permits quick level verification of tones over the RCV IN port
- Manual or tone-activated loopback capability
- Equipped with six front-panel LEDs indicating the status and operational mode of the unit
- Unit operates from -22 to -56Vdc at 85mA maximum or from 20 to 28Vac at 115mA maximum
- Power Query mode allows verification of power supply status
- Non-volatile memory circuit retains programmed information if a loss of power occurs
- Mounts in one position of a Teltrend 200 Mechanics® or a standard 400-type mounting
- 7-year warranty

2. APPLICATIONS

2.01 INTELIPORT provides an interface between a 4-wire facility and a 2-wire or 4-wire data modem. INTELIPORT is normally located on the same premises as the data modem. The integral microprocessor and precision oscillator circuits of INTELIPORT control the testing and alignment functions via a command mode when activated from a manual or automated Serving Test Center. Refer to Figure 1, the SDS5486C (Issue 3) Block Diagram, as needed.

2.02 The command mode is the operational state from which INTELIPORT monitors its transmission paths for incoming frequencies. These frequencies, when sent from the Serving Test Center, instruct INTELIPORT to perform specific functions. Most of the SDS5486C's intelligent functions are controlled from the command mode. The only exceptions are manual activation of the loopback circuit and manual activation of the Auto-Align feature. Details of INTELIPORT's operating modes are discussed in Section 5.

3. OPTIONS

3.01 The SDS5486C is equipped with three option switches. Refer to Figure 2 for the location and description of each option. These switches must be set to the required position before the unit is installed.

Sealing Current
Option switch S1 selects the sealing current configuration. Set S1 to SUPPLY to have the unit supply 20mA of sealing current to the facility's simplex leads. Set S1 to TERM to have the unit provide a termination for sealing current supplied from the distant end. Set S1 to OFF (disabled) if sealing current is not required.

Facility Impedance
Option switch S2 selects the Facility-side impedance (150, 600, or 1200 Ohms) for the unit. The 150 Ohm position is selected when interfacing long non-loaded cable facilities. The 600 Ohm position is selected when interfacing short non-loaded cable facilities. The 1200 Ohm position is selected when interfacing loaded cable facilities.

2W/4W
Option switch S3 sets the internal circuitry for properly interfacing a 2-wire data modem or a 4-wire data modem. When interfacing a 2-wire data modem, set S3 to the 2W position. When interfacing a 4-wire data modem, set S3 to the 4W position.

TEST Switch
3.02 The front panel TEST switch serves a dual purpose. When the TEST switch is pressed and released in less than five seconds, INTELIPORT activates its Wire Test mode. The Wire Test mode is used by the installer for verifying station wiring. When the TEST switch is pressed and held for longer than five seconds, INTELIPORT activates it's automatic alignment sequence. Details of the Wire Test mode is discussed in Section 4. Details of the Automatic Alignment feature is discussed in Section 5.

TLP/DLP Toggle Feature
3.03 INTELIPORT is factory programmed to operate with levels referenced at TLP (Transmission Level Point). This feature can, however, be programmed to accommodate levels referenced at Data Level Point (DLP). In the TLP

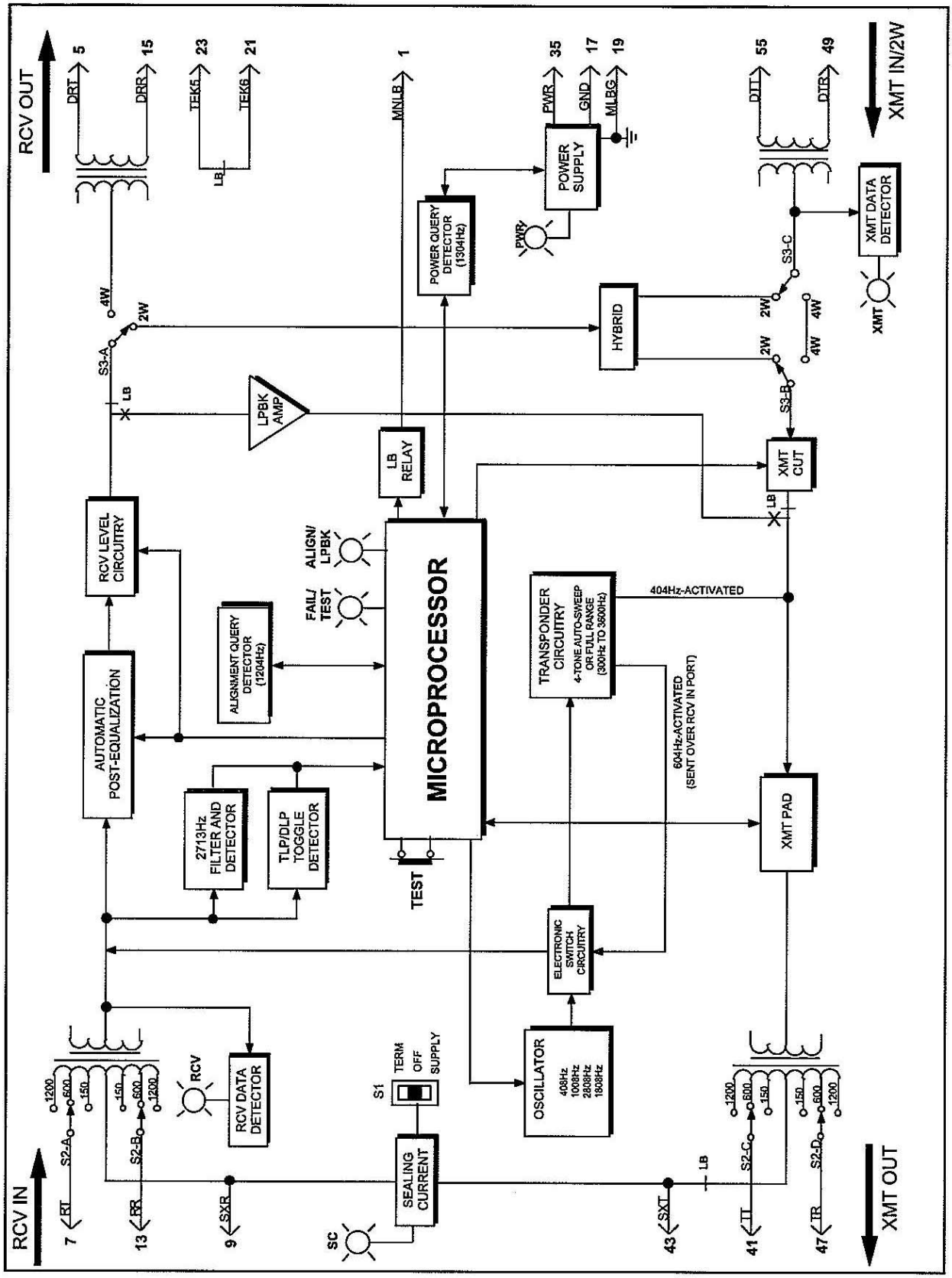
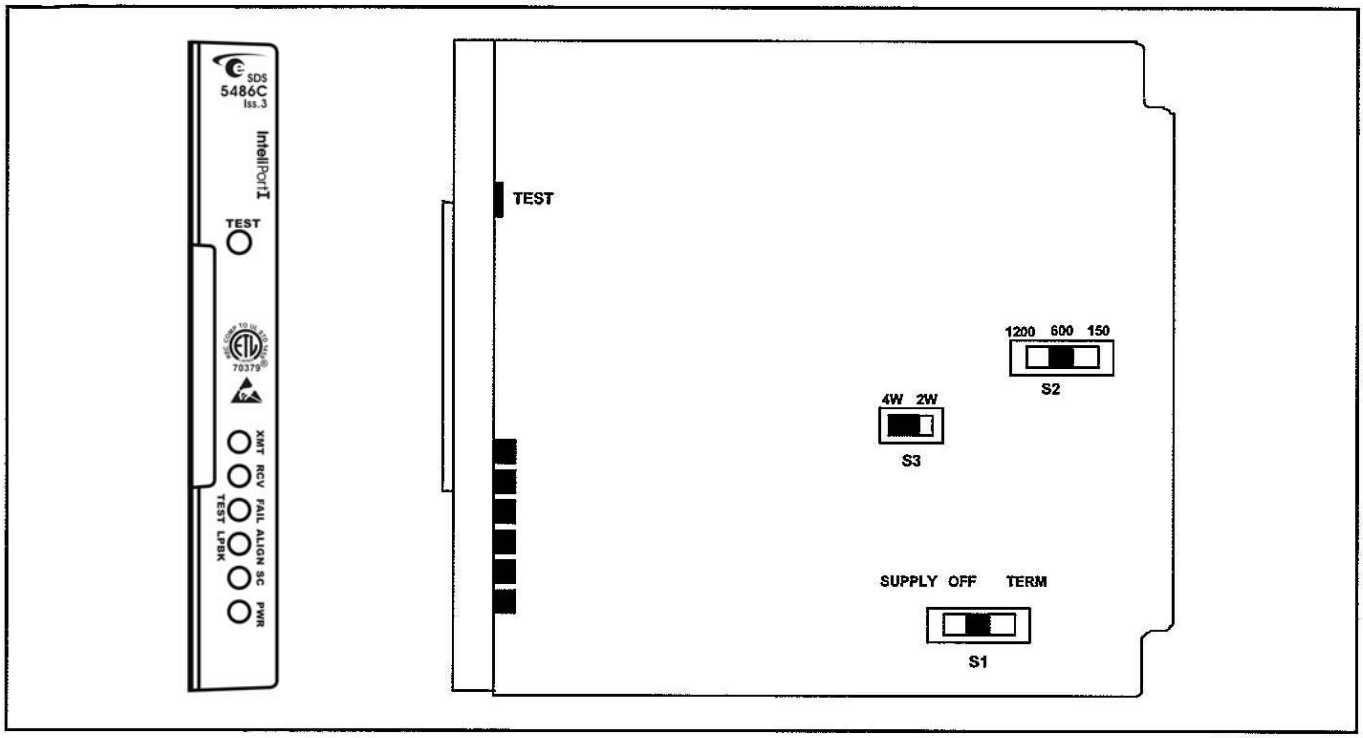


Figure 1. SDS5486C Issue 3 (INTELIPORT I) Block Diagram



OPTION	POSITION	FUNCTION
S1	SUPPLY	Select to have unit provide 20mA of sealing current to facility's simplex leads
	OFF	Select to disable internal sealing current circuit if sealing current is not required
	TERM	Select to have unit provide a termination for sealing current supplied from distant end
S2	150	Select when interfacing long, non-loaded cable facilities
	600	Select when interfacing short, non-loaded cable facilities
	1200	Select when interfacing loaded cable facilities
	NOTE: When interfacing a mixture of loaded and non-loaded cable, the predominating cable will determine the setting of the impedance option	
S3	2W	Select when interfacing a 2-wire data modem
	4W	Select when interfacing a 4-wire data modem
TEST SWITCH		Press for less than five seconds to activate Wire Test Mode Press again (for less than five seconds) to end Wire Test Mode
		Press for longer than five seconds but less than 10 seconds to activate Auto-Align sequence and when unit at the near-end is known to be an intelligent ETO
		Press for longer than 10 seconds to activate Auto-Align sequence and when unit at the near-end is known to be an intelligent DST

Figure 2. SDS5486C (Issue 3) Option Location And Front-Panel Diagram

mode, the SDS5486C outputs its respective tones during testing and alignment at +5dBm. In the DLP mode, the SDS5486C changes its internal circuitry to output these tones at -8dBm. The TLP/DLP toggling function is controlled from the command mode by sending 2804Hz. Details on the TLP/DLP toggling function is discussed in paragraph 5.05.

CAUTION

This product incorporates static sensitive components. Proper electrostatic discharge procedures must be followed

4. INSTALLATION

4.01 Upon receipt of the equipment, visually inspect it for signs of damage. If the equipment has been damaged in transit, immediately report the extent of damage to the transportation company and to Enginuity Communications.

Installer Connections

4.02 When installing the unit into an NCTE pre-wired type 200 Mechanics® or Type 550 Universal Shelf Assembly (USA), installer connections are made by connecting 25-pair cables to the appropriate 25-pair cable connectors located on the rear of the shelf assembly. When installing the unit into any un-wired Type 550 or 200 Mechanics® assembly, connections are made by wire-wrapping the appropriate leads from the Facility and from the data modem to the proper pins of the appropriate 56-pin connector of the mounting assembly. In addition, Enginuity also offers a single-position Data Auxiliary Set (DAS) for single module installations. Refer to the appropriate mounting assembly practice for detailed installation information. Pinouts for Enginuity SDS5486C are listed in Table 1.

Table 1. Installer Connections

LEAD DESIGNATIONS		PIN
RCV IN Tip - RT	To/From the Facility	7
RCV IN Ring - RR		13
XMT OUT Tip - TT		41
XMT OUT Ring - TR		47
Simplex RCV - SXR		9
Simplex XMT - SXT		43
4W RCV OUT Tip - DRT	To/From the Data Modem	5
4W RCV OUT Ring - DRR		15
XMT IN/2W Tip - DTT		55
XMT IN/2W Ring - DTR		49
Data Modem - TEK5		23
Disable Leads - TEK6		21
Manual Loopback - MNLB	Miscellaneous	1
Man. Lpbk. Ground - MLBG		19
Power IN - PWR		35
Ground - GND		17

Power Requirements

4.03 Power for proper operation can be provided from a -22 to -56Vdc (-48Vdc nominal) power source at 85mA maximum or from a 20 to 28Vac (24Vac nominal) power source at 115mA maximum.

4.04 Once the installer connections are complete, the unit can be installed. Before installing the unit, be sure the option switches are set to the required position.

Wire Test Mode

4.05 INTELIPORT's Wire Test Mode is used by the installer to verify installation and station wiring.

CAUTION

When the Wire Test Mode is activated, INTELIPORT places a 1008Hz tone on the transmission pairs. Be sure INTELIPORT is not connected to an in-service circuit where this tone may cause interference.

4.06 The Wire Test Mode is activated by momentarily pressing the front panel TEST switch for less than five seconds. If the switch is pressed for longer than five seconds, INTELIPORT interprets this as a command to activate the AUTO-ALIGN feature.

4.07 When the Wire Test Mode is activated, station wiring is verified by connecting a Transmission Measuring Set, with a built-in speaker, or other suitable listening device, to the RCV and XMT pairs at both the cable entry point and at the demarcation point, and listening for the appropriate tones. Tones output by INTELIPORT during the Wire Test mode are shown in Table 2.

Table 2. Wire Test Mode Tones

CONNECT TMS TO:	In 4W Applications - VERIFY -	In 2W Applications - VERIFY -
RCV IN Port (Cable Entry Point)	CONTINUOUS 1008Hz	CONTINUOUS 1008Hz
XMT OUT Port (Cable Entry Point)	INTERRUPTED 1008Hz	INTERRUPTED 1008Hz
RCV OUT Port (Demarcation Point)	CONTINUOUS 1008Hz	
XMT IN Port (Demarcation Point)	INTERRUPTED 1008Hz	INTERRUPTED 1008Hz*

***NOTE:** In 2W applications, the SDS5486C utilizes the same transmission pairs for the RCV OUT and XMT IN port (T&R, pins 55 and 49). Therefore, in 2W applications, interrupted 1008Hz will be present.

4.08 After the proper tones are verified, press the TEST switch again (for less than five seconds) to end the Wire Test mode. If the switch is not pressed a second time, the Wire Test mode automatically times out one hour after initial activation. If desired, the Test Center can release the Wire Test mode remotely by sending 2713Hz to the SDS5486C, 10 to 60 minutes after the Wire Test mode is first activated.

5. COMMAND MODE OPERATION

5.01 INTELIPORT's command mode is the operational state from which the intelligent functions are accessed. The command mode is activated by sending 2713Hz to INTELIPORT's RCV IN port (pins 7 and 13) for longer than 30 seconds. If the tone is removed in less than 30 seconds, INTELIPORT enters loopback (see paragraph 6.02).

5.02 Upon detecting 2713Hz for longer than 30 seconds, INTELIPORT returns a steady 1008Hz acknowledgement tone to the STC. Upon detecting 1008Hz from INTELIPORT, the STC removes the 2713Hz tone being sent to INTELIPORT. The command mode is activated and a 5-min timer circuit is set. From the command mode, the STC can initiate the power supply query mode, toggle the TLP/DLP reference, initiate the alignment query mode, activate the remote alignment feature, activate the automatic alignment sequence, or enter the quiet termination/transponder mode of operation. **NOTE:** If no tone is sent to INTELIPORT during the 5-minute time frame while in the command mode, INTELIPORT, after five minutes of no activity, times out and returns to idle. The STC can escape from any mode (except loopback) and return to command mode at any time by sending 2604Hz for more than five seconds.

Power Supply Query

5.03 The Power Supply Query mode allows the STC to verify the status of the power supply to determine if power was interrupted. Power Supply Query is activated from the command mode by sending 1304Hz. Upon detecting 1304Hz, INTELIPORT returns either a ramp-up tone (308Hz to 3008Hz) indicating power has not been interrupted since the last alignment or query or a ramp-down tone (3008Hz to 308Hz) indicating power has been interrupted. Following the ramping tone, INTELIPORT returns to command mode.

Alignment Query

5.04 The Alignment Query allows the STC to verify INTELIPORT's alignment status. Alignment Query is activated from the command mode by sending 1204Hz. Upon detecting 1204Hz, INTELIPORT returns either a ramp-up tone (308Hz to 3008Hz) indicating a good alignment (i.e., met C5 conditioning parameters) or a ramp-down tone (3008Hz to 308Hz) indicating C5 conditioning could not be achieved. Following the ramping tone, INTELIPORT returns to command mode.

TLP/DLP Toggle

5.05 The TLP/DLP toggle feature allows INTELIPORT to perform all functions referenced at TLP (Transmission Level Point) or at data level (DLP). The standard parameter is TLP. The TLP/DLP toggling function is activated from the command mode by sending 2804Hz. Upon detecting 2804Hz, INTELIPORT toggles its internal circuitry to accommodate the change in reference levels, then returns to command mode. The STC can verify the toggling function by monitoring the 1008Hz output level for a change of 13dB.

NOTE

Whenever the command mode is re-accessed from the idle state, the TLP/DLP circuit automatically toggles back to TLP. Therefore, whenever testing or alignment is to be done at data level, the STC must send 2804Hz to toggle to the DLP mode.

Alignment - Remote And Automatic

5.06 INTELIPORT features both remote (manual) and automatic alignment capability. Remote alignment is used to align the SDS5486C. Automatic Alignment is used to automatically align the SDS5486C with another SDS5486C, or intelligent equivalent, at the near end.

Remote (Manual) Alignment

5.07 INTELIPORT can be aligned to either three tones or four tones. The 3-Tone alignment feature aligns the unit with respect to 1004Hz, 2804Hz and 404Hz. The 4-Tone alignment feature aligns the unit with respect to 1004Hz, 2804Hz, 1804Hz and 404Hz. The 4-tone alignment feature provides for a more accurate alignment when interfacing long sections of loaded cable or a mixture of loaded and nonloaded cable.

5.08 From the command mode (1008Hz present), the STC should first measure/record the level received from INTELIPORT. Remote alignment is then activated by sending 1004Hz to INTELIPORT. Upon detecting 1004Hz from the STC, INTELIPORT returns 2808Hz to the STC. Upon detecting 2808Hz from INTELIPORT, the STC measures/records the level received then sends 2804Hz to INTELIPORT. Upon detecting 2804Hz, INTELIPORT returns 408Hz to the STC. Upon detecting 408Hz from INTELIPORT, the STC measures/records the level received then sends 404Hz to INTELIPORT. Upon detecting 404Hz, INTELIPORT returns 1808Hz for 60 seconds. During this 60-second time frame the STC has the option of sending 1804Hz to INTELIPORT (to perform a 4-tone alignment) or letting the 1808Hz tone time out after 60 seconds (to perform a 3-tone alignment).

3-Tone Alignment

5.09 If a 3-tone alignment is required, the STC has the option of letting the 1808Hz tone from INTELIPORT time out automatically or can send 1004Hz to INTELIPORT to bypass the 60-second timer feature. If the 1808Hz tone times out or if 1004Hz is detected during the 60-second time frame, INTELIPORT aligns to the three tones. Gain and equalization is automatically set. Upon completing the alignment, INTELIPORT returns either a ramp-up tone (308Hz to 3008Hz) indicating alignment is within the requirements of C5 conditioning or a ramp-down tone (3008Hz to 308Hz) indicating alignment is not within the requirements of C5. In either case, after sending the ramping tone, INTELIPORT enters loopback to permit verification of alignment settings (see paragraph 5.11).

4-Tone Alignment

5.10 If a 4-tone alignment is required, the STC sends 1804Hz during the 60-second time frame in response to INTELIPORT's 1808Hz tone. Upon detecting 1804Hz from the STC, INTELIPORT aligns to the four tones. Gain and equalization is automatically set. Upon completing the alignment, INTELIPORT returns either a ramp-up tone

(308Hz to 3008Hz) indicating alignment is within the requirements of C5 conditioning or a ramp-down tone (3008Hz to 308Hz) indicating alignment is not within the requirements of C5. In either case, after sending the ramping tone, INTELIPORT enters loopback to permit verification of alignment settings (see paragraph 5.11).

Loopback After Remote Alignment

5.11 While in loopback, the RCV OUT path is interconnected to the XMT IN path via a loopback amplifier. Signals from the data modem are isolated during loopback. The loopback amplifier automatically inserts 16dB of gain to provide an equal-level loopback condition toward the facility. During loopback, the STC sends tones, one at a time, to INTELIPORT. The STC should verify and record the level of each tone as it is returned by INTELIPORT.

Loopback Release

5.12 Loopback is equipped with an automatic timeout feature that releases the loopback condition 20 minutes after initial activation. If release from loopback is desired before the 20-minute time frame, the STC can send 2713Hz for 0.9 seconds, or longer. Loopback releases upon detecting 2713Hz. The automatic timeout feature ensures the transmission paths restore to normal if the 2713Hz tone is not sent.

Auto-Align

5.13 Auto-align is used to automatically align INTELIPORT with the near-end equipment. Auto-align can be initiated by one of two ways: Auto-align from command mode, Auto-align via the TEST switch. When auto-align is initiated via the TEST switch, the TEST switch can be pressed for less than 10 seconds to initiate a DST to ETO alignment or for more than 10 seconds to initiate a DST to DST alignment.

NOTE

The TEST switch should be pressed only when instructed. Otherwise, pressing this switch at an inappropriate time may cause circuit interference. Please also note that pressing the TEST switch for less than five seconds activates the Wire Test mode. When auto-align is initiated via the TEST switch alignment takes place at TLP only.

DST-ETO Alignment Via TEST Switch

5.14 In this application, INTELIPORT must be interfacing an intelligent ETO. When the TEST switch is pressed for more than five seconds but less than 10 seconds (the front-panel FAIL/TEST and ALIGN/LPBK LEDs will light steady) INTELIPORT recognizes this as a command to perform a DST to ETO alignment. When activated, INTELIPORT outputs 2913Hz on the RCV IN port (that is, in the reverse direction) toward the ETO. Continue with paragraph 5.18.

DST-DST Alignment Via TEST Switch

5.15 In this application, INTELIPORT must be interfacing an intelligent DST. When the TEST switch is pressed for more than 10 seconds (the front-panel FAIL/TEST and ALIGN/LPBK LEDs will flash), INTELIPORT recognizes this as a command to perform a DST to DST alignment. Continue with paragraph 5.18.

Auto-Align Via the Command Mode

5.16 Before auto-align is initiated from the command mode, the STC must decide if alignment is to be done at TLP or DLP, see paragraph 5.05. From the command mode (1008Hz present), Auto-align is initiated by sending 1804Hz.

5.17 Upon detecting 1804Hz, INTELIPORT sends 2913Hz to the near-end equipment via the RCV IN port for 60 seconds.

- During this time, if INTELIPORT detects command mode tone from near-end in response to the 2913Hz tone, INTELIPORT knows that an intelligent ETO is in place. In this case, INTELIPORT removes the 2913Hz tone and automatic alignment continues. Continue with paragraph 5.18

- If INTELIPORT does not detect command mode tone in response to the 2913Hz tone, INTELIPORT removes the 2913Hz and sends 2713Hz. If command mode tone from the near-end equipment is detected after sending 2713Hz, INTELIPORT knows that an intelligent DST is in place. In this case, INTELIPORT removes the 2713Hz tone and automatic alignment continues. Continue with paragraph 5.18

NOTE: If no response is detected from the near-end equipment after sending 2913Hz or 2713Hz, INTELIPORT re-sends 2713Hz (for more than five seconds) to the other end and returns to idle. If this occurs the test person may want to perform a 3- or 4-tone manual alignment (see paragraph 5.08 through 5.10).

5.18 Upon detecting command mode tone from the near end, INTELIPORT begins the auto-align sequence by sending a series of tones (2808, 408, and 1808Hz) to the near-end equipment. These tones are sent and received between both ends automatically until alignment is complete. Upon completion, INTELIPORT returns either a ramp-up tone or a ramp-down tone sequence. The ramp-up tone sequence indicates alignment is within the requirements of C5 conditioning. The ramp-down tone sequence indicates alignment is not within the requirements of C5 conditioning.

NOTE

If INTELIPORT determines that the loop cannot be aligned to C5, the FAIL/TEST and ALIGN/LPBK LEDs will flash (alternately). This indication lets the Installer know to check the equalization to verify that the circuit meets specification.

5.19 After sending the ramp-up or ramp-down tone sequence, INTELIPORT resends either 2913Hz (if the unit at the other end is an ETO) or 2713Hz (if the unit at the other end is a DST) for approximately five seconds and returns to idle. Upon detecting the appropriate tone from INTELIPORT, the equipment at the other end also returns to idle.

6. MAINTENANCE TESTING

6.01 INTELIPORT provides a variety of maintenance testing features from which the test person can choose. Maintenance features include: Loopback from the idle state, a Quiet/Term Transponder mode of operation, and a 4-tone automatic sweep transmission level response test mode over the RCV IN port.

Loopback From Idle State

6.02 Loopback is activated from the idle state by sending 2713Hz to INTELIPORT for greater than 1.5 seconds but less than 30 seconds. If the tone is present for more than 30 seconds, INTELIPORT recognizes this as a command to enter the command mode (see paragraph 5.01 and 5.02). While in loopback, the RCV OUT path is interconnected to the XMT IN path via a loopback amplifier. Signals from the data modem are isolated during loopback. The loopback amplifier automatically inserts 16dB of gain to provide an equal-level loopback condition toward the facility. During loopback, the STC sends tones, one at a time, to INTELIPORT. The STC should verify and record the level of each tone as it is returned by INTELIPORT.

Loopback Release

6.03 Loopback is equipped with an automatic timeout feature that releases the loopback condition 20 minutes after initial activation. If release from loopback is desired before the 20-minute time frame, the STC can send 2713Hz for 0.9 seconds, or longer. Loopback releases upon detecting 2713Hz. The automatic timeout feature ensures the transmission paths restore to normal if the 2713Hz tone is not sent.

Quiet Term/Transponder

6.04 INTELIPORT's quiet term/transponder mode of operation allows the STC to conduct noise and tone level measurements. To access the Quiet Term/Transponder operation, the STC must enter the command mode. From the command mode, the STC sends 404Hz.

6.05 Upon detecting 404Hz, INTELIPORT applies a quiet termination over the XMT IN port. During quiet termination, the STC performs noise measurements over the XMT OUT port. **NOTE:** Quiet termination remains in effect for 20 minutes or until another tone is sent to INTELIPORT. If no tone is sent to INTELIPORT during the 20-minute time frame, INTELIPORT, after 20 minutes, times out and returns to idle. If release from the quiet term/transponder mode is desired before the 20 minute time out expires, send 2604Hz (return to command mode) or 2713Hz (return to idle) for more than five seconds.

Transponder Operation

6.06 INTELIPORT features a 4-Tone Auto-sweep and a Full-Range Transponder mode of operation. Both tests are activated from the quiet termination mode only. The 4-Tone Auto-sweep allows for a quick level verification test as INTELIPORT sweeps four tones (1008Hz, 2808Hz, 408Hz, and 1808Hz). The Full-Range Transponder allows for a more detailed level verification test over a range of frequencies from 300Hz to 3600Hz.

4-Tone Auto-Sweep

6.07 The 4-Tone Auto-sweep Transponder is activated from the quiet termination mode only by sending 404Hz as the first tone. Upon detecting 404Hz, INTELIPORT sweeps the tones of 1008Hz, 2808Hz, 408Hz and 1808Hz, each for 15 seconds over the XMT OUT port. After sending the last tone, INTELIPORT reapplies quiet termination and resets the 20-minute timeout circuit. The 4-Tone Auto-sweep Transponder can be restarted while in quiet termination by sending another 404Hz.

Full-Range Transponder

6.08 The Full-Range Transponder is activated from the quiet termination mode only by sending any tone from 304Hz to 3604Hz (except 404Hz, 2604Hz and 2713Hz) as the first tone while in quiet termination. **NOTE:** If 404Hz is detected as the first tone, INTELIPORT activates the 4-Tone Auto-sweep Transponder. The 404Hz tone can, however, be sent any time after the full-range transponder has started. If 2604Hz is detected at any time, INTELIPORT releases from the quiet term/transponder mode and returns to command mode. If 2713Hz is detected at any time, INTELIPORT returns to idle.

6.09 Upon detecting tone, INTELIPORT responds with a similar tone over the XMT OUT port for the same duration of time tone is received from the STC or for 15 seconds (whichever is longer). The STC should record the level of each tone returned by INTELIPORT. Tones being sent to INTELIPORT should be in increments of 100Hz.

6.10 Following transmission and removal of the last tone from the STC, INTELIPORT reapplies a quiet termination and resets the 20-minute timeout circuit. If no other tone is sent to INTELIPORT during the 20-minute time frame, INTELIPORT, after 20 minutes, times out and returns to idle. If release from quiet term/transponder is desired before the 20-minute timeout circuit expires, the STC can send 2604Hz (return to command mode) or 2713Hz (return to idle) for longer than five seconds.

4-Tone Auto-Sweep (RCV IN Port)

6.11 The RCV IN port 4-Tone Auto-sweep Transponder allows the STC to perform a quick level verification test as INTELIPORT sweeps four tones over the Receive In port. This test is activated from the command mode by sending 604Hz.

6.12 Upon detecting 604Hz, INTELIPORT sends 1008Hz for 60 seconds followed by 15 seconds of quiet termination. At the end of the 15 second time frame INTELIPORT sweeps the tones of 408Hz, 1808Hz and 2808Hz at 0dBm. Each tone is applied for 15 seconds. After sending the last tone for 30 seconds, INTELIPORT returns to the command mode. **NOTE:** The STC can bypass the 15-second quiet termination portion of the test and quickly enter the auto-sweep portion by sending 1004Hz for five seconds during quiet termination. Please also note that this 4-Tone Auto-sweep Transponder can be restarted while in command mode by sending another 604Hz.

Testing And Alignment Procedures

6.13 The Testing and Alignment procedures for the SDS5486C Issue 3 are also given in table form (see Table 3). The procedures outlined are intended only to ascertain proper operation of the unit and, if problems should occur, to isolate those problems to the most probable area. These procedures are not designed to effect repairs or modifications. Tests performed beyond those outlined, or repairs made beyond replacing a faulty unit, are not recommended and may void the warranty. If trouble is encountered, check all installer connections. Also check that the option switches have been set correctly and that the unit is making a positive connection with the backplane connector of the mounting assembly. If trouble persists, replace the unit and repeat the procedures outlined. If technical assistance is required, please call Enginuity Customer Service Department at

6.14 If a unit needs repair, please call Enginuity for a Return Material Authorization (RMA) number. After obtaining the RMA number, return the defective unit, freight prepaid, along with a brief description of the problem, to:

Enginuity Communication
1251 Nagel Blvd.
Batavia, IL 60510
ATTN: Repair and Return Department

6.15 As specified in our warranty, Enginuity will repair and return the unit at no charge to the customer providing the warranty of the unit has not expired. If an out-of-service situation exists, a replacement unit can be obtained. The replacement unit will be shipped in the fastest manner possible, depending on the urgency of the situation. However, before a replacement is shipped, a purchase order number will be required to ensure return of the replacement unit.

7. SPECIFICATIONS

Impedance: Facility-side, 150/600/1200 Ohms (switch-selectable by option switch S2); Equipment-side, 600 Ohms, fixed

2W/4W Operation: Factory-set for 4-wire operation but can be optioned for 2-wire operation. Operating mode is set by option switch S3

Sealing Current: Unit can be configured to supply 20mA of sealing current (SUPPLY), provide a 20mA current-limiting load for sealing current supplied from distant end (TERM) or can be disabled (OFF) if sealing current is not required. Sealing current configuration is controlled by option switch S1

Wire Test Mode: Activated by pressing front-panel TEST switch for less than five seconds*. When activated, 1008Hz tone is applied to the transmission channel ports (see table). **Release:** Automatically times out one hour after initial activation or can be released remotely by sending 2713Hz, 10 to 59 minutes after initial activation. ***NOTE:** If switch is pressed for more than five seconds, INTELIPORT enters Auto-Align

CONNECT TMS TO:	4W Applications	2W Applications
RCV IN Port (Cable Entry Point)	CONTINUOUS 1008Hz	CONTINUOUS 1008Hz
XMT OUT Port (Cable Entry Point)	INTERRUPTED 1008Hz	INTERRUPTED 1008Hz
RCV OUT Port (Demarcation Point)	CONTINUOUS 1008Hz	
XMT IN Port (Demarcation Point)	INTERRUPTED 1008Hz	INTERRUPTED 1008Hz*

***NOTE:** In 2W applications, the SDS5486C utilizes the same transmission pairs for the RCV OUT and XMT IN port (T&R, pins 55 and 49). Therefore, in 2W applications, interrupted 1008Hz will be present.

Operating Levels:

	Level (In dBm)	
PORT	**TLP**	**DLP**
RCV IN	+5 to -10	-8 to -23
RCV OUT	-3	-16
XMT IN	+13	0
XMT OUT	+5	-8

Command Mode: Activated by sending 2713Hz via RCV IN port for more than 30 seconds. INTELIPORT returns 1008Hz at +5dBm (TLP) via the XMT OUT port indicating command mode initiation. **Return to Command mode:** Send 2604Hz (>5 sec.); **Return to Idle:** Send 2713Hz (>5 sec.)

TLP/DLP Toggle: Factory-set to align and transpond at TLP but can be toggled to have unit align and transpond at data level (DLP). Toggling is accomplished from command mode by sending 2804Hz. **NOTE:** Each time INTELIPORT returns to idle, circuit automatically toggles back to TLP. Therefore, if levels are to be referenced at data level, circuit must be toggled to DLP mode.

Remote (Manual) Alignment: Used to manually align INTELIPORT using either 3 or 4 tones - see paragraph 5.08 - 5.10; Initiated from command mode by sending 1004Hz in response to INTELIPORT's 1008Hz command mode tone. Upon completion, INTELIPORT returns ramp-up tone or a ramp-down tone sequence then automatically enters loopback to permit verification of alignment settings. **NOTE:** Remote alignment can be done at either TLP or DLP

Ramp-Up/Ramp-Down Tone Sequence: After alignment, INTELIPORT returns tone sequence indicating whether alignment is in or out of C5 conditioning requirements. Ramp-up tone (308Hz to 3008Hz in ascending order) indicates alignment is within requirements of C5. Ramp-down tone (3008Hz to 308Hz in descending order) indicates alignment is not within requirements of C5

Loopback After Alignment: While in loopback, STC sends tones to INTELIPORT. Each tone returned by INTELIPORT in response to tones from the STC should be recorded. **Release:** 20 minute automatic timeout feature; If release is desired before timeout period, send 2713Hz (>5 sec.). INTELIPORT returns to idle.

Loopback From Idle State: Activated by sending 2713Hz for >1.5 sec. but less than 30 sec.*. See description above for performing tests while in loopback. **Release:** 2713Hz for >0.9 seconds (unit returns to idle upon detecting 2713Hz) or releases automatically after 20-minutes. ***NOTE:** If tone is present for more than 30 seconds, INTELIPORT enters command mode

2713Hz Detector Threshold Level: -24dBm (typically -30dBm)

Manual Loopback: Activated by placing a ground on the MNLB Lead, pin 1. **Release**, Removal of ground only

Loopback Gain: Automatically inserts 16dB of gain for equal-level loopback transmission

Auto-Align: Initiated by pressing front-panel TEST switch or from command mode by sending 1804Hz. When activated from command mode, alignment can be done at either TLP or DLP. When activated via the TEST switch, alignment takes place at TLP only. Press TEST switch for >5 but <10 seconds to activate DST To ETO Alignment (see Paragraph 5.14); Press TEST switch for more than 10 seconds to activate DST To DST Alignment (see Paragraph 5.15)

Alignment Query: Activated from command mode by sending 1204Hz. INTELIPORT returns ramp-up tone if alignment is within C5 conditioning or ramp-down tone if not within C5 conditioning parameters. Following the ramping tone, INTELIPORT returns to command mode

Quiet Term/Transponder: Activated from command mode by sending 404Hz. Upon detecting 404Hz, INTELIPORT applies quiet termination over XMT IN port. STC performs noise measurements. **NOTE:** Quiet termination remains in effect for 20 minutes or until another tone is detected. If no tone is detected within 20-minute time frame, INTELIPORT, after 20-minutes, times out and returns to idle

4-Tone Auto Sweep Transponder: Activated from quiet termination mode only by sending 404Hz as the first tone. Upon detecting this 404Hz, INTELIPORT sweeps tones of 408Hz, 1008Hz, 2808Hz and 1808Hz (at +5dBm or at -8dBm depending on TLP or DLP setting), each for 30 seconds, then reapplies quiet termination and resets 20-MIN timer. Release: Automatically releases after 20-minutes if no tone is sent or STC can send2604Hz (return to command mode) or 2713Hz (return to idle) (>5 sec.)

Full Range Transponder: Activated from quiet termination mode only by sending any tone from 304Hz to 3604Hz (except for tones close to 404Hz, 2604Hz or 2713Hz). Tones sent from STC should be in increments of 100Hz. Upon detecting tone, INTELIPORT returns similar tone (at a slight offset) at +5dBm or -8dBm (depending on TLP or DLP setting) for same duration tone is received or 15 seconds (whichever is longer). Upon detecting no other tone from STC, INTELIPORT reapplies quiet termination. **Release:** Automatically releases after 20-minutes if no tone is sent or STC can send 2604Hz (return to command mode) or 2713Hz (return to idle) (>5 sec.)

4-Tone Auto-Sweep (RCV IN Port): Activated from command mode by sending 604Hz. Allows STC to perform a quick level verification as INTELIPORT sweeps four tones over the Receive In port. Upon detecting 604Hz, INTELIPORT sends 1008Hz for 60 seconds followed by 15 seconds of quiet termination. At the end of the 15 second time frame INTELIPORT sweeps the tones of 408Hz, 1808Hz and 2808Hz at 0dBm, each for 15 seconds. After the last tone, INTELIPORT returns to the command mode. **NOTE:** STC can bypass the 15-second quiet termination portion of the test and quickly enter the auto-sweep portion by sending 1004Hz (>5 sec.) during quiet termination.

Idle Noise: Less than 17dBrnC0

Frequency Response: RCV path, meets C5 conditioning requirements; XMT path, ±0.5dB (relative to 1004Hz) from 300Hz to 3200Hz at full gain

2W Return Loss: Greater than 30dB, ERL

Transhybrid Loss: Greater than 30dB minimum, 45dB typical

Longitudinal Balance: Greater than 60dB at 200 to 3000Hz

Harmonic Distortion: Less than -60dB at 200 to 3000Hz

Power Requirement: Operates from 20 to 28Vac at 115mA (maximum) or from -22 to -56Vdc at 85mA (maximum)

Power Query: Activated from command mode by sending 1304Hz. INTELIPORT returns either a ramp-up tone (308Hz to 3008Hz) indicating power has not been interrupted since the last alignment or query or a ramp-down tone (3008Hz to 308Hz), indicating power has been interrupted. Following the ramping tone, INTELIPORT returns to command mode

Operating Environment: Temperature, 32° F to 122° F (0° to 50° C); Humidity, 0 to 95% (no condensation)

Physical Dimensions: Height, 5.58 in (14.2cm); width, 1.4 in. (3.6cm); depth, 5.9 in. 15cm)

Weight: Unit weighs approximately 1.4 lbs (0.68kg)

Mounting: Mounts in one position on NCTE 200 Mechanics® or equivalent) mounting assembly (pre-wired or unwired, rack or wall-mount versions) or in one slot of a 400-type mounting

ORDERING INFORMATION

Order in accordance with the following:

5486C I3 INTELIPORT I (2W/4W DST w/Auto Align)

Table 3. Testing And Alignment Procedures

STEP	ACTION
1.	**Installer's Procedures** Set all option switches as required per the Circuit Layout Record (CLR) card. Install unit and apply power. Verify: PWR LED on Sealing Current LED on (if applicable) ALIGN/LPBK LED off FAIL/TEST LED off* ***NOTE:** FAIL/TEST LED may flash a few times upon initial installation but should extinguish. If FAIL/TEST LED continues to flash, press the front-panel TEST switch for less than five seconds. If FAIL/TEST LED is on steady, replace the unit and repeat these procedures.
2.	**Wire Test Mode - CAUTION:** INTELIPORT places 1008Hz tone on the transmission ports when Wire Test Mode is activated. Be sure INTELIPORT is not connected to an in-service circuit where this tone may cause interference. Momentarily press the front-panel TEST switch for less than five seconds*. Verify FAIL/TEST LED flashing. *If the TEST switch is pressed and held for longer than five seconds, INTELIPORT enters the Automatic Alignment Sequence Connect a TMS with a built-in speaker, or other suitable listening device, to:

PORT		4W APPLICATIONS	2W APPLICATIONS
RCV pair at cable entry point	VERIFY	Steady 1008Hz	Steady 1008Hz
XMT pair at cable entry point		Interrupted 1008Hz	Interrupted 1008Hz
RCV pair at demarcation point		Steady 1008Hz	
XMT pair at demarcation point		Interrupted 1008Hz	Interrupted 1008Hz
NOTE: In 2W applications RCV OUT and XMT IN port utilize the same transmission pairs. Therefore, in 2W applications, interrupted 1008Hz will be present			

When tones are verified, press the TEST switch again (less than five seconds) to end the Wire Test Mode.
Verify FAIL/TEST LED is off
NOTE: If the TEST switch is not pressed, the Wire Test Mode automatically times out after one hour. Please also note that the Wire Test Mode can be released from the STC by sending 2713Hz for more than five seconds, 10 to 59 minutes after the Wire Test Mode is initially activated

3.	**Test Center's Procedures** Send 2713Hz to INTELIPORT via the RCV IN port for more than 30 seconds* Verify return of 1008Hz from INTELIPORT Remove 2713Hz. Command mode initiated Record level received at 1008Hz ***NOTE:** If 2713Hz is removed in less than 30 seconds, INTELIPORT enters loopback
4.	**TLP/DLP Toggle -** Perform this step only if aligning unit at data level. Unit is factory-conditioned for TLP mode From command mode, send 2804Hz. INTELIPORT toggles from TLP to DLP, corrects internal circuitry to accommodate the change, then returns to command mode. Toggling function is verified by monitoring 1008Hz level for a change of 13dB To toggle back to TLP mode, send 2804Hz while in command mode or return unit to idle (see note) ***NOTE:** INTELIPORT automatically returns to TLP mode each time unit returns to idle. Therefore, if testing or alignment is to be done at data level, STC must send 2804Hz to reset the DLP mode.
5.	**Remote (Manual) Alignment** - Aligns INTELIPORT From command mode (1008Hz present), send 1004Hz to INTELIPORT. INTELIPORT measures and stores level received then returns 2808Hz. Record level received at 2808Hz from INTELIPORT, then send 2804Hz to INTELIPORT. INTELIPORT measures and stores level received then returns 408Hz Record level received at 408Hz, then send 404Hz to INTELIPORT. INTELIPORT measures and stores level received then returns 1808Hz for 60 seconds. STC has option: **Perform 3-Tone Alignment -** Let the 1808Hz tone time out or send 1004Hz during the 60-second time frame to bypass the 60-second timer circuit. If 1808Hz tone times out or if 1004Hz is detected within 60 seconds, INTELIPORT aligns to three tones, returns a ramp-up or a ramp-down tone, then enters loopback. **Perform 4-Tone Alignment -** Record level received at 1808Hz, then send 1804Hz to INTELIPORT within the 60-second time frame. INTELIPORT aligns to four tones, returns a ramp-up or a ramp-down tone, then enters loopback. **Ramp-Up or Ramp-Down Tone -** A ramp-up tone (308Hz to 3008Hz in ascending order) indicates alignment is within the requirements of C5 conditioning. A ramp-down tone (3008Hz to 308Hz in descending order) indicates alignment is not within the requirements of C5 conditioning.

CONTINUED

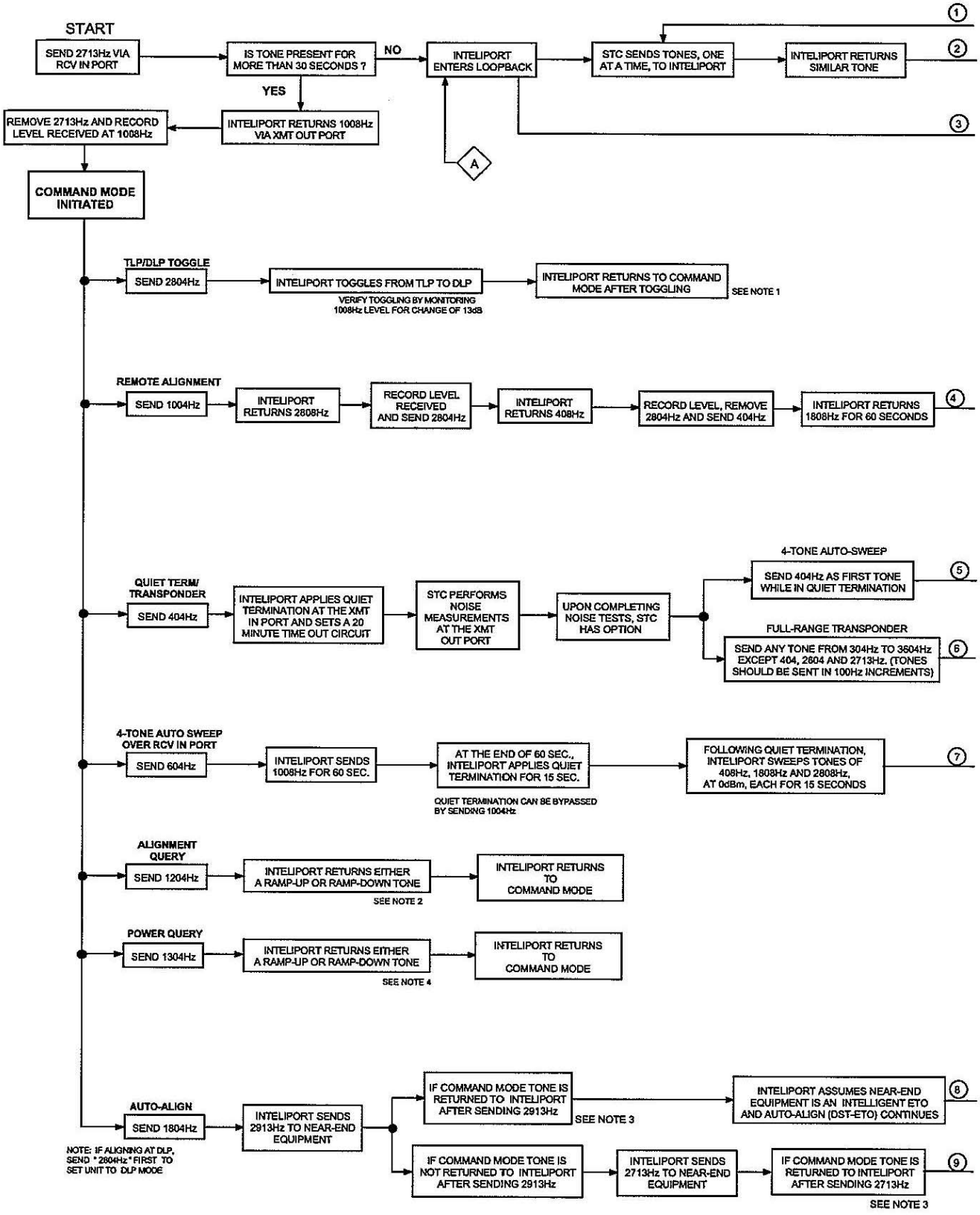
Table 3. Testing And Alignment Procedures (Con't)

STEP	ACTION
6.	**Loopback After Alignment** While in loopback, send tones, one at a time, to INTELIPORT. Upon detecting tone, INTELIPORT returns each tone received to the STC. STC should record the level of each tone returned by INTELIPORT. Upon completion, send 2713Hz for more than 0.9 seconds. INTELIPORT returns to idle upon detecting 2713Hz. **NOTE:** INTELIPORT automatically returns to idle after a 20-minute time frame.
7.	**Automatic Alignment -** Automatically aligns INTELIPORT with near-end Intelligent Equipment From command mode (1008Hz present), perform Step 4 (if required). From command mode, send 1804Hz to INTELIPORT. Upon detecting 1804Hz, INTELIPORT sends 2913Hz (over RCV IN port) to put near-end equipment into command mode. If command mode tone is detected from other end after sending 2913Hz, INTELIPORT assumes an Intelligent ETO is in place and continues alignment. If command mode tone is not received from other end after sending 2913Hz, INTELIPORT sends 2713Hz (over XMT OUT port). At this point, if command mode tone is detected from other end, INTELIPORT assumes an Intelligent DST is in place and continues alignment. Upon detecting command mode tone from the near-end equipment, tones of 1008Hz, 2808Hz, 408Hz, and 1808Hz are automatically sent and received between both units. Upon completion (approx. 2 to 3 minutes), INTELIPORT returns a ramp-up tone or a ramp-down tone indicating alignment results, sends either 2913Hz or 2713Hz (depending on the tone used to activate the near-end equipment), then returns to idle. Upon detecting the 2913Hz or 2713Hz, the near-end equipment also returns to idle. **NOTE:** Auto Align can also be performed from on-site by pressing the front-panel TEST switch - see below. **DST to ETO Alignment via TEST Switch -** If unit at other end is known to be an Intelligent ETO, press TEST switch for more than 5 seconds but less than 10 seconds. At this point, Auto-Align, as described above, takes place. **DST to DST Alignment via TEST Switch -** If unit at other end is known to be an Intelligent DST, press TEST switch for more than 10 seconds. At this point, Auto-Align, as described above, takes place.
8.	**Loopback From Idle State** Activated by sending 2713Hz for more than 1.5 seconds but less than 30 seconds*. *If 2713Hz is detected for more than 30 seconds, INTELIPORT enters command mode While in loopback, STC sends tones, one at a time, to INTELIPORT. Upon detecting tone, INTELIPORT returns each tone received to the STC. The STC should record the level of each tone returned by INTELIPORT. Upon completion, send 2713Hz for greater than 0.9 seconds. Upon detecting 2713Hz, INTELIPORT returns to idle. **NOTE:** INTELIPORT automatically returns to idle after a 20-minute time frame.
9.	**Alignment Query** Activated from command mode by sending 1204Hz . Upon detecting 1204Hz, INTELIPORT returns either a ramp-up tone if alignment is within C5 conditioning parameters or a ramp-down tone, if alignment could not be aligned to C5 conditioning. Following the ramp-up or ramp-down tone INTELIPORT returns to command mode.
10.	**Power Query** Activated from command mode by sending 1304Hz. Upon detecting 1304Hz, INTELIPORT returns ramp-up tone indicating power has not been interrupted since the last alignment or query or ramp-down tone indicating power has been interrupted. Following the ramp-up or ramp-down tone, INTELIPORT returns to command mode.

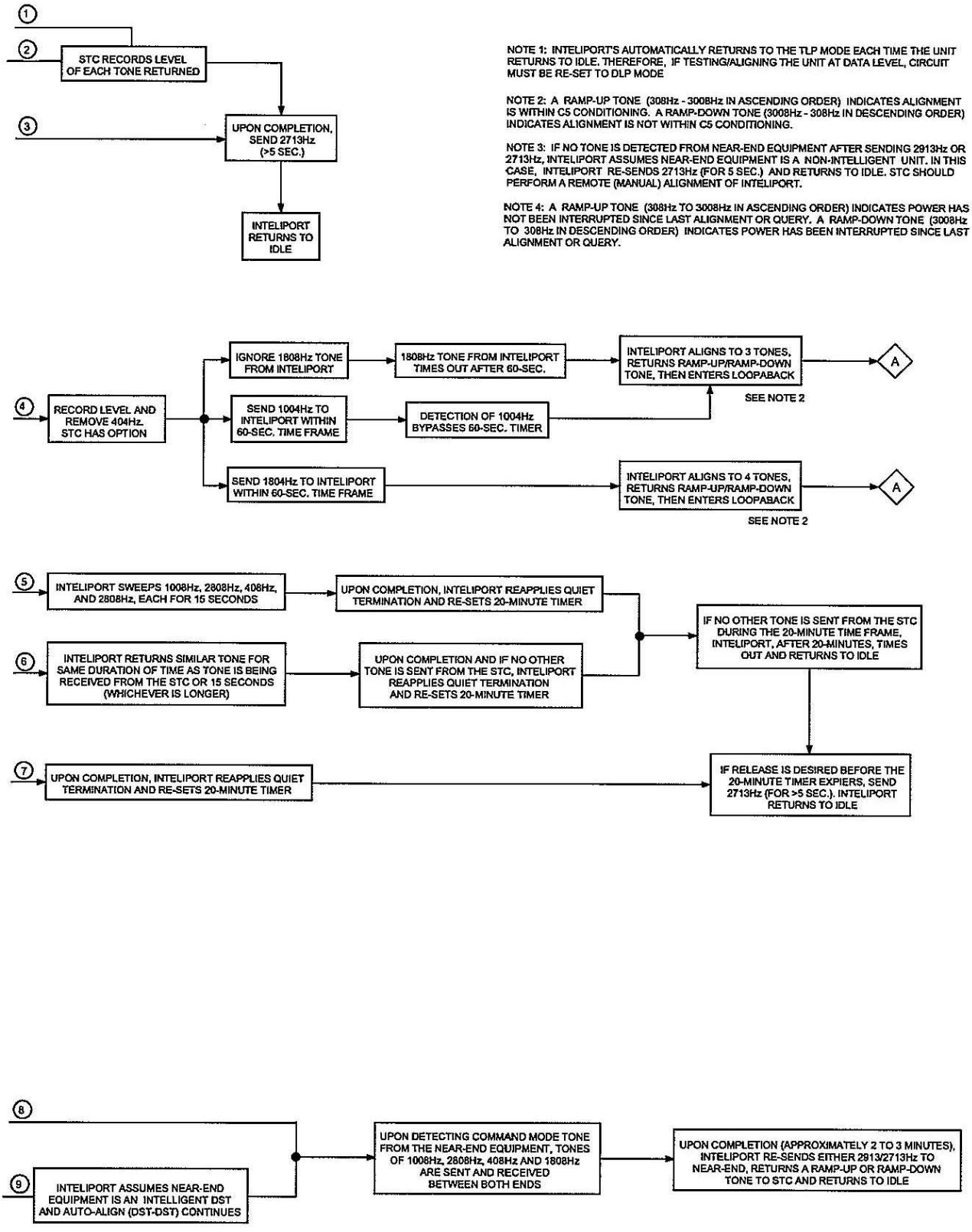
CONTINUED

Table 3. Testing And Alignment Procedures (Con't)

STEP	ACTION
11.	**Quiet Term/Transponder** From command mode, send 404Hz. INTELIPORT applies a quiet termination over the XMT IN port and sets 2-MIN timer. During quiet termination, STC performs noise measurements. **NOTE:** Quiet termination remains in effect for 20 minutes or until another tone is sent to INTELIPORT. If no tone is sent to INTELIPORT during the 20-minute time frame, INTELIPORT, after 20 minutes, times out and returns to idle. If release is desired before the 20 minute time out expires, send 2713Hz to INTELIPORT for greater than five seconds. **Transponder Operation -** 4-Tone Auto-Sweep - Activated from quiet termination mode only by sending 404Hz as the first tone. Upon detecting 404Hz, INTELIPORT sweeps 1008Hz, 2808Hz, 408Hz and 1808Hz, each for 15 seconds. Upon completion, INTELIPORT reapplies quiet termination and resets the 20-minute timeout circuit. Test can be restarted again while in quiet termination by sending another 404Hz. **Full-Range Transponder -** Activated from quiet termination only by sending any tone from 304Hz to 3604Hz (except 404Hz, 2604Hz and 2713Hz*). Upon detecting tone, INTELIPORT returns similar tone for the same duration of time tone is received from STC or 15 seconds (whichever is longer). STC should record the level of each tone returned by INTELIPORT. Also, tones being sent to INTELIPORT should be in increments of 100Hz. Following removal of the last tone from the STC and if no other tone is sent, INTELIPORT reapplies a quiet termination and resets the 20-minute timeout circuit. If no other tone is sent to INTELIPORT during the 20-minute time frame, INTELIPORT, after 20 minutes, times out and returns to idle. If release is desired before the 20-minute timeout circuit expires, send 2713Hz for longer than five seconds. ***NOTE:** If 404Hz is detected as the first tone, INTELIPORT activates the 4-Tone Auto-sweep Transponder. If 2604Hz is detected at any time, INTELIPORT returns to command mode. If 2713Hz is detected at any time, INTELIPORT returns to idle.
12.	**4-Tone Auto-Sweep (RCV IN Port) -** Provides quick level verification as INTELIPORT sweeps four tones over the Receive In port. From command mode, send 604Hz. Upon detecting 604Hz, INTELIPORT sends 1008Hz for 60 seconds followed by 15 seconds of quiet termination. At the end of this 15 seconds, INTELIPORT sweeps the tones of 408Hz, 1808Hz and 2808Hz at 0dBm. Each tone is applied for 15 seconds. At the end of the last tone, INTELIPORT returns to the command mode. **NOTE:** STC can bypass the 15-second quiet termination portion of the test and quickly enter the auto-sweep portion by sending 1004Hz for five seconds during quiet termination. Please also note that this test can be restarted while in command mode by sending another 604Hz.



SDS5486C (Issue 3) FLOWCHART



SDS5486C (Issue 3) FLOWCHART (CONT)

SDS5486C (Issue 3) ALIGNMENT AND REFERENCE CHART

A	B	C	D	*E	F	
FREQUENCY	ALIGNMENT LEVELS	LOOPBACK LEVELS	COLUMN C MINUS COLUMN B	COLUMN D PLUS -16	TRANSPONDER LEVELS (300Hz to 3600Hz	
					TONE	LEVEL
1008Hz						
2808Hz						
408Hz						
1808Hz						

*Column E equals the Customer's calculated RCV OUT

TEST CENTER'S PROCEDURES

1. Send 2713Hz (>30 sec.)* to INTELIPORT via the RCV IN port. Verify 1008Hz at +5dBm via XMT OUT port.
   *If tone is removed in less than 30 sec., INTELIPORT enters loopback.
   Record level received in Column B and remove 2713Hz. Command mode initiated.

2. INTELIPORT is set to align at TLP. If aligning at TLP, proceed to Step 3. If aligning at data level, send 2804Hz while in command mode. INTELIPORT toggles to accommodate the change then returns to command mode. If toggled to DLP mode, record the level received at 1008Hz in Column B.

3. **Remote Alignment**
   From command mode (1008Hz present), send 1004Hz.
   INTELIPORT returns 2808Hz.
   Record level received at 2808Hz, then send 2804Hz.
   INTELIPORT returns 408Hz.
   Record level received at 408Hz, then send 404Hz
   INTELIPORT returns 1808Hz for 60 seconds.
   3-Tone Align - Send 1004Hz to bypass 60 second timer or let 1808Hz tone time out.
   INTELIPORT aligns to 3 tones, returns ramp-up/ramp-down tone, then enters loopback.
   Proceed to Step 4.
   4-Tone Align - Send 1804Hz within 60 second time frame.
   INTELIPORT aligns to 4 tones, returns ramp-up/ramp-down tone, then enters loopback.
   Proceed to Step 4.

4. **Loopback -** While in loopback, send tones, one at a time and per chart above, to INTELIPORT.
   Record level of each tone as it is returned by INTELIPORT in the respective spaces of Column C.
   Upon completion, send 2713Hz (>0.9 sec.). INTELIPORT returns to idle.

5. Perform calculations for Column D and Column E.

6. **Quiet Term/Transponder - Optional Test**
   From command mode, send 404Hz. INTELIPORT applies quiet termination at XMT IN port and sets 20-minute timer.
   Perform noise measurements at XMT OUT port if desired.

   From quiet termination, send any tone from 304Hz to 3604Hz, except for tones close to 404Hz, 2604Hz and 2713Hz*.
   Record level of each tone returned by INTELIPORT
   Upon completion, send 2713Hz (>5 sec.). INTELIPORT returns to idle.

*If 404Hz is sent as first tone while in quiet termination, INTELIPORT activates 4-Tone Auto-Sweep. *If 2604Hz is sent at any time, INTELIPORT returns to command mode. *If 2713Hz is sent at any time, INTELIPORT returns to idle.

Testing is complete.