

Section four. Processing of mini-packets

14 Reception of mini-packets

14.1 Control of reception of mini-packets

NOTE. Controls are related to the state of the node (ready or busy), and to the filtering of input mini-packets on the basis of their contents (destination node address, source node address and type bits) under the control of the DTE.

14.1.1 Basic Class nodes

14.1.1.1 Basic Class nodes shall have the following control functions:

- (a) the READY/BUSY control, as specified in 14.1.3;
- (b) the SOURCE SELECTOR control, as specified in 14.1.4;
- (c) at the option of the implementor, the LOG RECEPTION control, as specified in 14.1.7; if this control is not implemented, then the node shall function as specified for the OFF state of this control;
- (d) at the option of the implementor, the BROADCAST RECEPTION control, as specified in 14.1.8; if this control is not implemented, then the node shall function as specified for the OFF state of this control.

14.1.1.2 Basic Class nodes shall function as follows for the controls not applicable to the Basic Class:

- (a) the SOURCE SELECT/REJECT control: the node shall function as specified for the SELECT state of this control in 14.1.5;
- (b) the TYPE SELECT/REJECT control: the node shall function as specified for the OFF state of this control in 14.1.6.

14.1.2 Enhanced Class nodes. Enhanced Class nodes shall have the following control functions:

- (a) the READY/BUSY control, as specified in 14.1.3;
- (b) the SOURCE SELECTOR control, as specified in 14.1.4;
- (c) the SOURCE SELECT/REJECT control as specified in 14.1.5;
- (d) the TYPE SELECT/REJECT control as specified in 14.1.6;
- (e) the BROADCAST RECEPTION control as specified in 14.1.8;
- (f) at the option of the implementor, the LOG RECEPTION control, as specified in 14.1.7; if this control is not implemented, then the node shall function as specified for the OFF state of this control.

14.1.3 READY/BUSY control. This control shall:

- (a) have two states: READY, in which the node can accept mini-packets, and BUSY, in which the node cannot accept mini-packets;
- (b) be set to READY by the node upon enablement, and when set by the DTE to READY (using Registers Rx.BG or Rx.G, see 17.4.8 and 17.4.9);

NOTE. Rx.BG sets the node to READY only when the mini-packet data octet being read is the highest numbered data octet.

(c) be set to BUSY by the node when a mini-packet is accepted (see 14.2).

14.1.4 SOURCE SELECTOR control. This control shall:

- (a) be capable of being set to just one value at a time, for all values in the range 0 to 255;
- (b) be set to 0 by the node upon enablement, and thereafter be under the control of the DTE (using Write Register 0, SSR, see 18.4.2).

NOTE. The value 0 means 'none'; the value 255 means 'any'; values from 1 to 254 identify a particular source that is to be selected or rejected depending on the state of the SELECT/REJECT control. For the effect, see 14.1.7.

14.1.5 SOURCE SELECT/REJECT control. This control shall:

- (a) when the source selector is within the range 1 to 254, have two states, SELECT, in which a particular source identified by the source selector is selected and all others rejected, and REJECT, in which a particular source node address identified by the source selector is rejected and all others selected;
- (b) when the source selector is set to address 0, have two states: SELECT, in which no legal source address is acceptable (except monitor error logging messages when logging reception is enabled), and REJECT, in which all sources are acceptable.
- (c) have no effect when:
 - (1) the source selector is set to 255 ('any');
 - (2) the input mini-packet has a source node address 255 (which is an illegal source address);
 - (3) the input mini-packet destination address is 0 or 255 (messages to logging station and broadcast messages respectively);
- (d) be set to SELECT by the node upon enablement, and thereafter be under the control of the DTE (using RSS of Write Register 4, Rx.CR, see 18.4.4).

14.1.6 TYPE SELECT/REJECT control. This control shall:

- (a) have three states:
 - (1) OFF, in which the node rejects no mini-packets on the basis of the values of the type bits;
 - (2) SELECT, in which the only mini-packets that can be SELECTED are those having both Type Bit A and Type Bit B set to the same values as those of the TYPE BIT MASK set by the DTE;
 - (3) REJECT, in which the only mini-packets that can be SELECTED are those having one or both Type Bits set to values different from those of the TYPE BIT MASK set by the DTE;
- (b) be set to OFF by the node upon enablement, and thereafter be under the control of the DTE (using CTP and ROT for setting the state and MTPA and MTPB to set the TYPE BIT MASK, all of Write Register 8, XCR, see 18.4.8).

14.1.7 LOG RECEPTION control. This control shall:

- (a) have two states: ON, in which mini-packets with destination node address 0 (error message mini-packets) can be received and made available to the DTE for recording, and OFF, in which they cannot be received;
- (b) be set to OFF by the node upon node enablement;
- (c) if set to ON by the DTE (using LGE of Write Register 4, Rx.CR, see 18.4.4), remain on until the node is disabled.

14.1.8 BROADCAST RECEPTION control. This control shall:

- (a) have two states: ON, in which broadcast mini-packets identified by destination node address 255 can be received, and OFF, in which they cannot be received;
- (b) in Basic Class nodes, be set by an operator control;
- (c) in Enhanced Class nodes, be set by the node to OFF upon node enablement, and thereafter as set by the DTE (using BCE of Write Register 4, Rx.CR, see 18.4.4).

14.2 Action on full mini-packets addressed to the node

14.2.1 SELECTED and NOT SELECTED mini-packets. The mini-packet shall be SELECTED unless any one or more of the conditions (a) to (d) apply, in which case it shall be NOT SELECTED:

- (a) the SOURCE SELECTOR is set to a value in the range 1 to 254 that is the same as the source node address in the mini-packet, while the SOURCE SELECT/REJECT control is set to REJECT (see note 1);
- (b) the SOURCE SELECTOR is set to a value in the range 0 to 254 that is not the same as the source node address in the mini-packet, while the SOURCE SELECT/REJECT control is set to SELECT;
- (c) Type Bits A and B do not match the TYPE BIT MASK, while the TYPE SELECT/REJECT control is set to SELECT (see note 1);
- (d) Type Bits A and B match the TYPE BIT MASK, while the TYPE SELECT/REJECT control is set to REJECT (see note 1).

NOTE 1. Conditions (a), (c) and (d) do not apply to Basic Class nodes.

NOTE 2. Source node address 255 is an illegal address for nodes.

NOTE 3. The monitor uses source address 0 for error logging messages sent only to destination 0.

NOTE 4. When the SOURCE SELECTOR is set to 255, all mini-packets addressed to node will be SELECTED unless they are NOT SELECTED because of the value of the type bits.

NOTE 5. When TYPE SELECT/REJECT is OFF, all mini-packets will be SELECTED unless NOT SELECTED because of the source.

14.2.2 Action on SELECTED mini-packets

14.2.2.1 When the mini-packet is SELECTED according to 14.2.1 and the READY/BUSY status is READY:

- (a) information regarding the mini-packet shall be made available to the DTE at the node interface as specified in 14.5;
- (b) the node status shall be set to BUSY;

(c) the mini-packet shall be output with the response bits set to ACCEPTED and the parity bit set to even parity.

14.2.2.2 When the mini-packet is SELECTED according to 14.2.1 and the READY/BUSY status is BUSY:

- (a) the mini-packet shall be output with the response bits set to BUSY and the parity bit set to even parity;
- (b) information regarding the mini-packet shall not be made available to the DTE.

14.2.3 Action on NOT SELECTED mini-packets. If the mini-packet is NOT SELECTED according to 14.2.1:

- (a) the mini-packet shall be output with the response bits set to NOT SELECTED and the parity bit set to even parity;
- (b) the information that a mini-packet has been marked NOT SELECTED shall be made available to the DTE as specified in 17.4.6 (RRJ of Read Register 4, Rx.SR);
- (c) no other information regarding the mini-packet shall be made available to the DTE.

14.3 Actions on mini-packets with destination node address 0 (error messages)

14.3.1 When the LOG RECEPTION control is ON and the READY/BUSY state is READY, the node shall make information regarding the mini-packet available to the DTE as specified in 14.5.

14.3.2 When the LOG RECEPTION control is OFF or the READY/BUSY state is BUSY the node shall not make information regarding the mini-packet available to the DTE.

14.3.3 The mini-packet shall be output with the response bits unchanged and the parity bit set to even parity.

NOTE 1. Basic Class nodes function always as for the OFF state of the LOG RECEPTION control.

NOTE 2. In hardware generated error messages the initial value of the response bits is BUSY (both ZERO), not IGNORED (both ONE). Only DTE generated messages to the logging station via the normal node/DTE interface of another node will carry initial values of ONES.

NOTE 3. The setting of the SOURCE SELECTOR, SOURCE SELECT/REJECT, and TYPE SELECT/REJECT controls, and the source node address and Type Bits in the mini-packet, have no effect on these requirements.

14.4 Action on mini-packets with destination address 255 (broadcast mini-packets)**14.4.1 BROADCAST RECEPTION control OFF**

14.4.1.1 Information regarding the mini-packet shall not be made available to the DTE.

14.4.1.2 The node shall output the mini-packet with response bits unchanged and the parity bit set to even parity.

14.4.2 BROADCAST RECEPTION control ON

14.4.2.1 The action of the node shall depend on whether the node is READY or BUSY.

Table 5. Setting of response bit in broadcast mini-packets

Response in input mini-packet:	IGNORED	NOT SELECTED (see note)	ACCEPTED	BUSY
Response bits A, B:	1,1	1,0	0,1	0,0
Node response	Modified response put into output mini-packet			
IGNORED	IGNORED	(NOT SELECTED)	ACCEPTED	BUSY
ACCEPTED	ACCEPTED	(BUSY)	ACCEPTED	BUSY
BUSY	BUSY	(BUSY)	BUSY	BUSY
NOTE. NOT SELECTED is an illegal response to broadcast mini-packets and should only result from errors.				

14.4.2.2 If the READY/BUSY state is READY:

- (a) information regarding the mini-packet shall be made available to the DTE as specified in 14.5;
- (b) the node status shall be changed to BUSY;
- (c) the mini-packet shall be output with the response bits set for a node response of ACCEPTED modified as specified in 14.4.3 and the parity bit set to even parity.

14.4.2.3 If the READY/BUSY status is BUSY:

- (a) information regarding the mini-packet shall not be made available to the DTE;
- (b) the mini-packet shall be output with the response bits set for a node response of BUSY and the parity bit set to even parity.

14.4.3 *Setting of response bits in broadcast mini-packets.*

The receiver section in nodes can only change response bits in input mini-packets from ONE to ZERO in the output mini-packet, but not ZERO to ONE (see table 5).

14.5 Making information available to DTE

When 14.2 to 14.4 require that information regarding received mini-packets be made available to the DTE, the means shall be as specified in (a) to (e), in accordance with the detailed specifications given in section five.

NOTE. In accordance with section five, when the means is a control line, the node is required to set the line without any action from the DTE (though DTE actions such as disabling the node may interrupt the node action); when the means is a read register, the node is not required to take any action unless or until the DTE reads that register.

- (a) arrival of mini-packet: RDN:N (see 16.5.4) and RDN of Rx.SR (see 17.4.6);
- (b) destination node address: this information is not explicitly made available to the DTE, but is implied by the status of RINT:N, and BPR or LOG of Rx.SR (see 17.4.6) which indicate when the input mini-packet has a destination address other than this node address, and further distinguish which of the two alternatives it is, either 0 or 255.
- (c) source node address: Rx.SRC (see 17.4.3);
- (d) data octets: Rx.B and Rx.BG (see 17.4.7 and 17.4.8);

- (e) type bits: RTPA:N and RTPB:N (see 16.5.7 and 16.5.8), and RTPA and RTPB of XSR (see 17.4.10).

15 Transmission of mini-packets**15.1** Control of transmission

15.1.1 *General.* The node shall have the control functions specified in 15.1.2 to 15.1.5; they shall be implemented in accordance with the detailed requirements specified in section three and section five.

15.1.2 *TRANSMISSION DONE control.* This control shall:

- (a) have two states:

TRANSMISSION IN PROGRESS, in which the node is waiting to transmit a mini-packet, waiting for the mini-packet to return, or waiting for a specified delay before notifying the DTE of the return of the mini-packet, and cannot accept a further transmit command; and

TRANSMISSION DONE at other times;

- (b) be set by the node to TRANSMISSION DONE upon enablement, and after any required back-off delay following the return of a transmitted mini-packet (see 15.2.3) or DTE transmitter reset command (using TRST of Rx.CR, see 18.4.4);

- (c) be set by the DTE to TRANSMISSION IN PROGRESS by the transmit command (see 15.1.4).

15.1.3 *Mini-packet contents controls*

15.1.3.1 The contents of mini-packets to be transmitted shall be controlled by the DTE as follows:

- (a) destination node address: Tx.DST (see 18.4.3);
- (b) data octets: Tx.B and Tx.BG (see 18.4.5 and 18.4.6), and TRST of Rx.CR (see 18.4.4);
- (c) type bits: TTPA and TTPB of XCR (see 18.4.8).

15.1.3.2 The node shall ignore these controls while in the TRANSMISSION IN PROGRESS state.

15.1.3.3 Other mini-packet contents shall not be under the command of the DTE.

15.1.4 Transmit command controls

15.1.4.1 The action of transmitting mini-packets shall be controlled by the DTE as follows:

- (a) transmit command: Tx.G (see 18.4.7), and Tx.BG when the data octet being written is the highest numbered mini-packet data octet (see 18.4.6);
- (b) retransmit on busy: AUTO-RETRY ON BUSY (see 15.1.5);
- (c) transmitter reset: TRST of Rx.CR (see 18.4.4).

15.1.4.2 The node shall ignore transmit commands Tx.BG and Tx.G while in the TRANSMISSION IN PROGRESS state.

15.1.5 AUTO-RETRY ON BUSY

15.1.5.1 The node shall implement the AUTO-RETRY ON BUSY control, as specified in 15.1.5.2 and 15.1.5.3.

15.1.5.2 This control shall:

- (a) have two states:
 - ON, in which returning mini-packets with response BUSY are automatically retransmitted by the node, without a further transmit command from the DTE, until one of the events specified in 15.1.5.3 occurs; and
 - OFF, in which no automatic retransmission is made;
- (b) be set by the node to OFF upon node enablement if the node is enabled by TEST:N;
- (c) be set by the node according to the value of RTRY of Write Register 4, Rx.CR (see 18.4.4) for every occurrence of Rx.CR that causes the node to become or remain enabled.

15.1.5.3 When AUTO-RETRY ON BUSY is ON, automatic retransmission shall continue for a mini-packet returning with response BUSY until the first occurrence of any of the following:

- (a) the mini-packet returns with a status other than BUSY;
- (b) the check specified in 15.2.4(d) detects an error in the returned mini-packet;
- (c) the DTE issues a transmit reset (TRST), while RTRY and NEN are re-affirmed;
- (d) AUTO-RETRY ON BUSY is set to OFF, while NEN is re-affirmed;
- (e) the node is disabled, in which case AUTO-RETRY ON BUSY shall also be set to OFF.

NOTE. Items (a) to (c) stop retransmission of the mini-packet, but leave AUTO-RETRY ON BUSY set to ON, so that unless set to OFF by the DTE it will cause retransmission of subsequently transmitted mini-packets which return with response BUSY.

15.1.6 TRANSMISSION RESET. See 15.4.

15.2 Normal transmission

15.2.1 Transmit command. When the DTE has issued a transmit command (see 15.1.4) while the node is in the

TRANSMISSION DONE state (see 15.1.2) the node shall process the command as specified in 15.2.2 to 15.2.5, unless the transmission process is interrupted by a transmission reset (see 15.3).

15.2.2 Transmission procedure

15.2.2.1 The node state shall change to TRANSMISSION IN PROGRESS (see TDN:N, 16.5.3).

15.2.2.2 The first slot that contains an empty input mini-packet, that is not required for the transmission of an error message (see clause 13), and that is not the slot immediately following a slot containing a returned mini-packet, shall be used for a transmitted mini-packet.

15.2.2.3 When the transmitted mini-packet is output, the node shall set control line TCLK:N inactive (see 16.5.5).

15.2.3 Transmitted mini-packet contents. The mini-packet shall be transmitted with:

- (a) the leader bit set to ONE;
- (b) the full/empty bit set to ONE;
- (c) the monitor pass bit set to ONE;
- (d) the destination address set to the last value set by the DTE, or undefined if the DTE has set no value since enablement;
- (e) the source node address set to the node's own address;
- (f) the data octets set to the values last set by the DTE, or undefined if the DTE has set no values since enablement;
- (g) the type bits set to the values last set by the DTE, or undefined if the DTE has set no values since enablement;
- (h) the response bits set to IGNORED;
- (i) the parity bits set to even parity.

15.2.4 Action on returning mini-packet. When the returning mini-packet as defined by 11.2 is the input mini-packet it shall be processed by the node as specified in (a) to (j):

- (a) set the full/empty bit to EMPTY;
- (b) set the parity bit to even parity;
- (c) output the mini-packet;
- (d) check the returned packet for corruption of the full/empty bit, source node address, destination node address, data octets and type bits; at the option of the implementor, this shall be either by a parity check over all of these taken together or by a bit-by-bit comparison of each;
- (e) if corruption is detected transmission comparison error shall be notified to the DTE without back-off delay;

NOTE. This check does not involve the parity of the mini-packet as a whole, which is ignored for the purposes of this requirement.

- (f) the response shall be determined from the response bits in the returned mini-packet for all mini-packets except those which the node has transmitted to itself, in which case the response shall be that to which the node as recipient sets the response bits, not that contained in the input mini-packet;

NOTE. In the case of a node transmitting to itself, reception and check on returning mini-packets happen at the same time. The returning mini-packet will therefore be the input mini-packet, whose response bits will still be set to IGNORED. The receiver section of the node gives a normal response marking to both the output mini-packet and the transmit section of the node. However IGNORED is not a valid response to mini-packets addressed to self.

- (g) if the response is ACCEPTED, the response shall be made available to the DTE without back-off delay;
- (h) if the response is IGNORED or NOT SELECTED, the response shall be made available to the DTE only after the back-off delay specified in 15.2.5.1;
- (i) if the response is BUSY and AUTO-RETRY ON BUSY is OFF, the response shall be made available to the DTE only after the back-off delay specified in 15.2.5.1;
- (j) if the response is BUSY, if AUTO-RETRY ON BUSY is ON, and if no transmission comparison error occurred, the node shall again output the transmitted mini-packet as specified in 15.2.2 and 15.2.3, after the back-off delay specified in 15.2.5.1 or 15.2.5.2.

15.2.5 Back off delay

15.2.5.1 The back-off delay referred to in 15.2.4(h) and (i) shall be either:

- (a) until after the next passage of the gap immediately preceded by an empty slot; or
- (b) as (a) if the previous transmitted or retransmitted mini-packet had a response of ACCEPTED or a transmit comparison error was detected, and until after the fifteenth passage of the gap immediately preceded by an empty slot otherwise.

15.2.5.2 The back-off delay referred to in 15.2.4(j) shall be either:

- (a) as 15.2.5.1(b); or
- (b) until one empty slot has passed for the first retransmission, until two empty slots for the second retransmission, until three empty slots for the third retransmission, until four empty slots for the fourth retransmission, and until 15 empty slots for subsequent retransmissions.

15.2.5.3 The node shall not return to the TRANSMISSION DONE state or transmit any further mini-packets, whether automatically for auto-retry on busy or under the command of the DTE, until the expiry of any back-off delay.

15.3 Making information available to the DTE

When 15.2 requires that information regarding transmitted mini-packets be made available to the DTE, the means shall be as specified in (a) to (e), in accordance with the detailed specifications given in section five:

NOTE. In accordance with section five, when the means is a control line, the node is required to set the line without any action from the DTE (though DTE actions such as disabling the node may interrupt the node action); when the means is a read register, the node is not required to take any action unless or until the DTE reads that register.

- (a) transmission done: TDN:N (see 16.5.3) and TDN of Tx.SR (see 17.3.4);
- (b) transmit comparison error: TER:N (see 16.5.6), TER and TCE of Tx.SR (see 17.4.5);
- (c) response ACCEPTED: TER:N (see 16.5.6), TER and TAC of Tx.SR (see 17.4.5);
- (d) response IGNORED: TER:N (see 16.5.6), TER and TIG of Tx.SR (see 17.4.5);
- (e) response NOT SELECTED: TER:N (see 16.5.6), TER and TUS of Tx.SR (see 17.4.5);
- (f) response BUSY, AUTO-RETRY ON BUSY OFF: TER:N (see 16.5.6), TER and TBY of Tx.SR (see 17.4.5);
- (g) response BUSY, AUTO-RETRY ON BUSY ON: TCLK:N (see 16.5.5).

15.4 Interrupted transmission

If a transmission reset (see 18.4.4(d)) occurs after a transmit command and before the return of the mini-packet, the node shall act as follows:

- (a) the node shall complete the current transmission attempt if the mini-packet is in flight, before returning to the transmission done state;
- (b) on return to the transmission done state, TER:N and TER shall be inactive, even if conditions would otherwise require them to be active.

Section five. Functions at node/DTE interface

16 Node/DTE interface lines

16.1 Line logical states

16.1.1 Lines whose identifier has the suffix 'P' shall be logically active in the electrical high state, and shall be logically inactive in the electrical low state.

16.1.2 Lines whose identifier has the suffix 'N' shall be logically active in the electrical low state, and shall be logically inactive in the electrical high state.

NOTE 1. The electrical characteristics relating to the high and low states are specified in 6.4.

NOTE 2. Where the logical states equate to binary ONE and ZERO, the active state is ONE and the inactive state is ZERO.

16.2 A0:P to A3:P: Register address lines

16.2.1 The register address lines are set by the DTE as the binary representation of a register address; the active state of the line shall represent a ONE bit, and the inactive state a ZERO bit; the bits shall be in ascending order of significance with the least significant bit on A0:P.

16.2.2 When control line RD:N is active and address is a read register address; while enabled, the node shall then perform the actions specified in clause 17 for the read register that is addressed; while disabled, it shall perform those specified in clause 19.

16.2.3 When control line WT:N is active the address is a write register address; while enabled, the node shall then perform the actions specified in clause 18 for the write register that is addressed; while disabled, it shall perform those specified in clause 19.

NOTE 1. In order to preserve consistency with the specification of requirements for the DTE and with established slotted ring terminology, the term 'read' refers to the process of the DTE reading from the node, and the term 'write' refers to the process of the DTE writing to the node, i.e. they are the reverse of the function as seen from the node.

NOTE 2. The action of the node is undefined when both RD:N and WT:N are active at the same time.

16.3 D0:P to D7:P: Data lines

16.3.1 For read registers, the allocation of data lines shall be as specified in table 6. While enabled, the node shall set the data lines as specified for each register in clause 17; while disabled, it shall act as specified in 19.2.

16.3.2 For write registers, the allocation of data lines shall be as specified in table 7; the data lines are set by the DTE. While enabled, the node shall act on the data as specified for each register in clause 18; while disabled, it shall act as specified in 19.2.

16.3.3 For read registers 0, 1, 2, 5, 6, 9 and 10, and write registers 0, 1, 5 and 6, the setting of the data lines represents an octet; the active state of a line shall represent a ONE bit, and the inactive state a ZERO bit.

16.4 Control lines set by the DTE

16.4.1 *RD:N: Node read strobe.* See 17.2 and 17.3.

16.4.2 *WT:N: Node write strobe.* See 18.2 and 18.3.

16.4.3 *TEST:N: Node enable override signal.* Implementation of the functions for this line are optional. If implemented, the requirements of clause 19 shall be met. If not implemented, the node shall not use this line for any other purpose, and shall behave as though the line were inactive when the DTE sets the line active.

16.5 Control lines set by the node

16.5.1 *General.* When the node is disabled, the node shall set these lines as specified in 19.2.1. When the node becomes enabled, it shall set the lines as specified in 19.4; thereafter while enabled the node shall set the lines as specified in 16.5.2 to 16.5.9.

16.5.2 *ACK:N: Node read or write acknowledge.* The node shall set ACK:N as specified in 17.2, 17.3, 17.5, 18.2, 18.3 and 18.5.

16.5.3 *TDN:N: Transmission done.* The node shall set this line as follows.

NOTE. The active state of this line corresponds to the TRANSMISSION DONE state of the node, and the inactive state the TRANSMISSION IN PROGRESS state.

(a) When a transmitted mini-packet returns with response ACCEPTED or TRANSMIT COMPARISON ERROR is detected, the node shall set TDN:N active. TDN:N shall be set active within a time such that if the DTE commands the transmission of another mini-packet within 3 μ s of TDN:N going active, that mini-packet will go into the next but one slot after the slot in which the first mini-packet returned, if the next but one slot is available (i.e. it is empty and no PERR message is awaiting transmission).

(b) When a transmitted mini-packet returns with response NOT SELECTED or IGNORED in the absence of TRANSMIT COMPARISON ERROR the node shall keep TDN:N inactive until any back-off delay required by 15.2 has expired, and then set it active within the time specified in (a) counting from the empty slot that ends back-off delay instead of the returning mini-packet.

(c) When a transmitted mini-packet returns with response BUSY in the absence of TRANSMIT COMPARISON ERROR, the node shall set TDN:N as specified in (b) for NOT SELECTED and IGNORED if AUTO-RETRY ON BUSY is OFF; if AUTO-RETRY ON BUSY is ON, the node shall keep TDN:N inactive until retransmission has ceased (see 15.1.5.3) and then set it active within the time specified in (a) counting from the empty slot that ends back-off delay instead of the returning mini-packet.

(d) The node shall set TDN:N inactive within 150 ns of WT:N going inactive when the DTE issues a transmit command using Tx.BG or Tx.G.

NOTE. Tx.BG is a transmit command only when the octet being written is the highest numbered octet in the mini-packet; hence for other octets written using Tx.BG the node does not set TDN:N inactive.

(e) The node shall set TDN:N active when a transmission reset occurs (see 15.4).