Basic Initial Verification Verification Con Co	Number of bits in field: Itialization Complete Perify Node ID Number Addressed Perify Node ID Number Global Perified Node ID Number Potional Interaction Rejected Perminate Due to Error Potocol Support Inquiry Potocol Support Reply Pentify Consumer Ponsumer Range Identified Ponsumer Identified w validity unknown Ponsumer Identified as currently invalid Pentify Producer Poducer Range Identified Ponsumer Identified w validity unknown Ponsumer Identified as currently invalid Pentify Producer Poducer Range Identified Poducer Identified w validity unknown Poducer Identified as currently valid Poducer Identified as currently valid Poducer Identified as currently valid	15 14 Part Part Part	13 13 13 13 14 15 15 15 15 15 15 15	12 1: 11	1 10 10 10 10 10 10 10 10 10 10 10 10 10	5 8 4 4 11 3 5	11 12 4 3 Simple Protocol 1 1 0 0 1 0 1 0 1	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Modifier within 5	Full MTI (Hex) 16 0100 0488 0490		2 3 4		CAN 2 11 10 9 8 7 6 5 4 3 2 1 0 5 17 18 19 20 21 22 23 24 25 26 27 28 Source-alias 12	CAN Header (hex)	Data-Part {}= optional
Basic Veriverion Veriverion Veri Veri Veri Veri Veri Veri Veri Veri	erify Node ID Number Addressed erify Node ID Number Global erified Node ID Number cotional Interaction Rejected erminate Due to Error cotocol Support Inquiry cotocol Support Reply entify Consumer consumer Range Identified consumer Identified w validity unknown consumer Identified as currently valid consumer Identified (reserved) entify Producer coducer Range Identified coducer Identified w validity unknown coducer Identified as currently valid coducer Identified as currently valid coducer Identified as currently valid	Reserved	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Stream or Datagram	2 0 1 1 0 0 0 0 2 1 1 2	Type within priority (decimal) 5 8 4 4 11 3 5 1	Simple Protocol	1 Event#present	Modifier within Priority/Type	MTI (Hex) 16 0100 0488	T Priority T Frame-type	CAN Frame Type	CAN-MTI or Destination-alias ("Variable Part") (hex)	Source-alias	(hex)	{ } = optional
Basic Veri Veri Veri Veri Opti Term Protocol Support Protocol Con Con Con Ider Protocol Ider Ider Ider Ider Ider Ider Ider Ider	erify Node ID Number Addressed erify Node ID Number Global erified Node ID Number cotional Interaction Rejected erminate Due to Error cotocol Support Inquiry cotocol Support Reply entify Consumer consumer Range Identified consumer Identified w validity unknown consumer Identified as currently valid consumer Identified (reserved) entify Producer coducer Range Identified coducer Identified w validity unknown coducer Identified as currently valid coducer Identified as currently valid coducer Identified as currently valid	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 1 1 0 0 0 2 1 2	5 8 4 4 11 3 5	1 1 0 0 0 1 1 0 1 0 1 0 1	0 0 0 0 0 0 0	2	MTI (Hex) 16 0100 0488	1 1	Туре	Destination-alias ("Variable Part") (hex)		(hex)	{ } = optional
Basic Veri Veri Veri Veri Veri Veri Opti Term Protocol Support Protocol Con Con Con Ider Protocol Protocol Ider Ider Ider Ider Ider Ider Ider Ider	erify Node ID Number Addressed erify Node ID Number Global erified Node ID Number cotional Interaction Rejected erminate Due to Error cotocol Support Inquiry cotocol Support Reply entify Consumer consumer Range Identified consumer Identified w validity unknown consumer Identified as currently valid consumer Identified (reserved) entify Producer coducer Range Identified coducer Identified w validity unknown coducer Identified as currently valid coducer Identified as currently valid coducer Identified as currently valid	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 1 1 0 0 0 2 1	4 4 11 3 5	0 1 1 0 1 0 0 1 0 1	0 0 0 0 0		0100 0488		1				64
Basic Veriverion Veriverion Veri Veri Opti Term rotocol Support Iden Con Con Con Con Iden Proc Proc Proc Iden Iden Lean Proc Control Trac Control Trac Control Trac Control Trac Control Trac Control Con	erify Node ID Number Addressed erify Node ID Number Global erified Node ID Number otional Interaction Rejected erminate Due to Error otocol Support Inquiry rotocol Support Reply entify Consumer onsumer Range Identified onsumer Identified as currently valid onsumer Identified as currently invalid onsumer Identified (reserved) entify Producer oducer Range Identified oducer Identified w validity unknown oducer Identified as currently valid	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	1 1 0 0 0 2 1	4 4 11 3 5	0 1 1 0 1 0 0 1 0 1	0 0 0 0 0		0488	1 1		100	SSS		Full Source Node ID
Event change Production Produ	erified Node ID Number cotional Interaction Rejected erminate Due to Error cotocol Support Inquiry cotocol Support Reply entify Consumer consumer Range Identified consumer Identified w validity unknown consumer Identified as currently valid consumer Identified (reserved) entify Producer coducer Range Identified coducer Identified w validity unknown coducer Identified as currently valid	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 2 1	11 3 5 1	1 0 0 1 0 1	0 0		0490	1 1	1	488	SSS	[19488sss]	fddd
Event change Froct Con Con Con Con Con Con Con Con Ider Proc Proc Proc Ider Ider Ider Con Remote Button Ident Sim Data	ortional Interaction Rejected reminate Due to Error otocol Support Inquiry otocol Support Reply entify Consumer consumer Range Identified consumer Identified w validity unknown consumer Identified as currently valid consumer Identified as currently invalid consumer Identified (reserved) entify Producer coducer Range Identified coducer Identified w validity unknown coducer Identified as currently valid coducer Identified as currently valid coducer Identified as currently valid	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 2 1 2	3 5 1	0 1	0			1 1	1	490	SSS	[19490sss]	(F. II O
Term Protocol Support Iden Con Con Con Con Iden Protocol Prot Con Con Con Iden Prot Prot Iden Prot Prot Prot Iden Iden Iden Iden Iden Iden Iden Iden	erminate Due to Error rotocol Support Inquiry rotocol Support Reply rentify Consumer ronsumer Range Identified ronsumer Identified as currently valid ronsumer Identified as currently invalid ronsumer Identified (reserved) rentify Producer roducer Range Identified roducer Identified w validity unknown roducer Identified as currently valid roducer Identified as currently valid roducer Identified as currently valid	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0	0 2 1 2	5 1	0 1			0170	1 1	1	170 068	SSS SSS	[19170sss] [19068sss]	{Full Source Node ID} fddd, error, optional info
Event change From Process Event change From Process Ident Process Process Process Ident Process Remote Button Ident Sim Data Ident Sim Data	cotocol Support Reply entify Consumer consumer Range Identified consumer Identified w validity unknown consumer Identified as currently valid consumer Identified as currently invalid consumer Identified (reserved) entify Producer coducer Range Identified coducer Identified w validity unknown coducer Identified as currently valid coducer Identified as currently invalid	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0	0 0 0 0	1 2			0		00A8	1 1	1	0A8	SSS		fddd, error, optional info
Event change Proceution Ident Control	entify Consumer consumer Range Identified consumer Identified w validity unknown consumer Identified as currently valid consumer Identified as currently invalid consumer Identified (reserved) centify Producer coducer Range Identified coducer Identified w validity unknown coducer Identified as currently valid coducer Identified as currently valid	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0	0 0 0	2	10	0 1	0		0828	1 1	1	828	SSS	[19828sss]	fddd
Event cchange Event cchange Frod Prod Iden Iden Iden Iden Iden Iden Iden Ide	onsumer Range Identified onsumer Identified w validity unknown onsumer Identified as currently valid onsumer Identified as currently invalid onsumer Identified (reserved) entify Producer oducer Range Identified oducer Identified w validity unknown oducer Identified as currently valid oducer Identified as currently invalid	0 0 0 0 0 0 0 0 0 0	0 0 0	0		19 7	0 1	0		0668 08F4	1 1	1	668 8F4	SSS SSS		fddd, Protocol flags EventID
Event change Event change Frod Prod Prod Iden Iden Iden Iden Iden Iden Iden Ide	onsumer Identified w validity unknown onsumer Identified as currently valid onsumer Identified as currently invalid onsumer Identified (reserved) entify Producer oducer Range Identified oducer Identified w validity unknown oducer Identified as currently valid oducer Identified as currently invalid	0 0 0 0 0 0 0 0	0	-	1	5	0 0			04A4	1 1	1	4A4	SSS		EventID with mask
Event change Production Con Con Iden Production Control Traction Control Control	onsumer Identified as currently invalid onsumer Identified (reserved) entify Producer oducer Range Identified oducer Identified w validity unknown oducer Identified as currently valid oducer Identified as currently invalid	0 0 0 0 0 0	0	0	1	6	0 0	_		04C7	1 1	1	4C7	sss		EventID
Event xchange Process	entify Producer coducer Range Identified coducer Identified w validity unknown coducer Identified as currently valid coducer Identified as currently invalid	0 0	-	_	1	6	0 0	_		04C4	1 1	1	4C4	SSS		EventID
Event xchange Proceed	entify Producer oducer Range Identified oducer Identified w validity unknown oducer Identified as currently valid oducer Identified as currently invalid	0 0	0	_	1	6	0 0	_		04C5 04C6	1 1	1	4C5 4C6	SSS SSS		EventID EventID
raction Control Remote Button Remote Button Ident Sim Data	oducer Identified w validity unknown oducer Identified as currently valid oducer Identified as currently invalid		0	0	2	8	1 0) 1		0914	1 1	1	914	SSS	[19914sss]	EventID
Proceed Process Proces	oducer Identified as currently valid oducer Identified as currently invalid	-	0		1	9	0 0			0524	1 1	1	524	SSS		EventID with mask
Process Process Ident Ident Lean Process Traction Control Other Remote Button Ident Sim Data	oducer Identified as currently invalid	0 0			1	10 10	0 0			0547 0544	1 1	1	547 544	SSS SSS		EventID EventID
Iden Iden Iden Iden Iden Iden Iden Iden		0 0	-	-	1	10	0 0	_		0545	1 1	1	545	SSS		EventID
Iden Lean Proce Fraction Control Trac Other Remote Button Ident Sim Data	oducer Identified (reserved)	0 0	0	0	1	10	0 0		_	0546	1 1	1	546	sss		EventID
Traction Control Trac Other Xpre Remote Button Ren Ident Sim Data	entify Events Addressed	0 0	+		2	11	0 1			0968	1 1	1	968	SSS		fddd
Processing	entify Events Global earn Event	0 0	_	_	2	11 12	1 0	_		0970 0594	1 1	1	970 594	SSS SSS	[19970sss] [19594sss]	EventID
Other Xpre Remote Button Ren Ident Sim Data	oducer/Consumer Event Report	0 0	+ +	_	1	13	1 0			05B4	1 1	1	5B4	SSS		EventID
Other Xpre Remote Button Ren Ident Sim Data	action Control Command	0 0			1	15	0 1			05EA	1 1	1	5EA	SSS		fddd, data bytes
Remote Button Ren Ident Sim Data	action Control Reply	0 0	$\overline{}$	_	1	15 1	0 1	_		05E8 0820	1 1	1	5E8 820	SSS		fddd, data bytes
Button Ren Ident Sim Sim Data	emote Button Request	0 0	+	-	2	10	0 0			0948	1 1	1	948	SSS SSS	-	Xpressnet packet fddd, data bytes
Ident Sim	emote Button Reply	0 0	+	_	2	10	0 1			0949	1 1	1	949	sss		fddd, data bytes
Data	mple Node Ident Info Request	0 0	+ +	_	3	15	0 1	_		0DE8	1 1		DE8	SSS		fddd
1	mple Node Ident Info Reply atagram	0 0			2	16 2	0 1			0A08 1C48	1 1	1	A08	SSS	[19A08sss]	fddd, data bytes
	CAN-Datagram Content (one frame)		1 4 1	- 1	•	<u>-</u>	101.			1.0.0	1 1	2	ddd	SSS	[1Adddsss]	Data (0-8 bytes)
	CAN-Datagram Content (first frame)					"					1 1	3	ddd	SSS		Data (0-8 bytes)
	CAN-Datagram Content (middle frame)CAN-Datagram Content (last frame)					u u					1 1	5	ddd ddd	SSS SSS		Data (0-8 bytes) Data (0-8 bytes)
	atagram Received OK	0 0	0	0	2	17	0 1	0		0A28	1 1	1	A28	SSS		fddd
Data	atagram Rejected	0 0	_	_	2	18	+	_	_	0A48	1 1	1	A48	sss	[19A48sss]	fddd, error code
	ream Initiate Request	0 0			3	6	0 1	0		0CC8 0868	1 1	1	CC8	SSS	+	fddd, buffer size, srcSID
	ream Initiate Reply ream Data Send	0 0	+ +		3	28	-	0		1F88	1 1	7	868 ddd	SSS SSS		fddd, buffer size, srcSID Data (0-8 bytes)
	ream Data Proceed	0 0	+ +	_	2	4		0		0888	1 1	1	888	SSS		fddd, srcSID, dstSID
	ream Data Complete	0 0	+++	_	2	5	0 1			08A8	1 1	1	8A8	SSS		fddd, srcSID, dstSID, { lei
	ode number Allocate o Filtering	0 0	+	_	0	0 1	0 0			2000	1 1 1	1 1	900 920	999 999	[19000sss]	not carried on CAN (Still under discussion)
	eserved for MTI Expansion				0	0									[.552555]	A STATE OF S
	eserved for MTI Expansion			I	1	0										
	eserved for MTI Expansion eserved for MTI Expansion				3	0										
1103	eserved for WTT Expansion				3	0										
ragmented into	ams need to be fragmented and nto multiple CAN frames.			<u>,</u>	*								umns means that it is e, and should be checked.	f = Flags r r 0 0 r r 0 1 r r 1 0	Frame Only First Last	
Des Initi Eve	escription iitialization; Error handling vent transfer; Operation responses			Prior 0 1)				N Mes	sage T			<u> </u>	r r 1 1 1 r = Send 0,	Middle don't check.	
F	Operation requests; Bulk data transfer responses 2 Bulk data transfer requests 3						Tit	tle eserved		R R R 1 1	Type 0	Variable Part (binary) 0bxxxx xxxx xxxx	Source-alias (hex)			
Bul	ant data transfer requests							-	obal		1 1	1	0bmmmm mmmm 0 mmm	SSS		
	Descriptions Addressed							Ad	ldressed		1 1	1	0bmmmm mmmm 1mmm	SSS		
	II-MTI bit Description Datagram C										1 1	2	Obdddd dddd dddd	SSS		
14-15 Res 13 Spe							$-\parallel$		atagram atagram		1 1	3	Obdddd dddd dddd Obdddd dddd dddd	SSS SSS		
13 Special – Operationally special Datag 12 Stream or Datagram – used by Gateways as indication to fragment. Datag						 	т	Spaada adda dadd	1 000							
10-11 Priority – indicates gross priority of message.				`	ent		De	atagram	Last	1 1	5	Obdddd dddd dddd	sss			

OpenLCB MTI Definitions
This is for reference only, and the definitive definitions are in the Standards

4	Simple protocol – (unaddressed) messages to be received by 'simple' nodes.
3	Address present – this message has an address.
2	Event present – this message has an event#.
0-1	Modifier within modifier type – message specific extra information

r, R – reserved KEY
s, sss, ssss ssss – source alias
d, ddd, dddd dddd – destination alias x, xxx, xxxx xxxx xxxx – undefinied field

04/25/2013 07:22:30

OpenLCB MTI Definitions
This is for reference only, and the definitive definitions are in the Standards
04/25/13 07:05 AM

	Ger	neral		CAN			
		Full MTI (Hex)	Data		CAN Header (hex)	Data-Part { } = optional	
	Number of bits in field:	16	many		29	64	
Basic	Initialization Complete	0100	Source	Initialization Complete	[19100sss]	Full Source Node ID	
	Verify Node ID Number Addressed	0488	Destination, Source	Verify Node ID Number Addressed	[19488sss]	fddd	
	Verify Node ID Number Global	0490	Source	Verify Node ID Number Global	[19490sss]		
	Verified Node ID Number	0170	Source	Verified Node ID Number	[19170sss]	{Full Source Node ID}	
	Optional Interaction Rejected	0068	Destination, Source, error, optional	Optional Interaction Rejected	[19068sss]	fddd, error, optional info	
	Terminate Due to Error	00A8	Destination, Source, error, optional	Terminate Due to Error	[190A8sss]	fddd, error, optional info	
•	Protocol Support Inquiry	0828	Destination, Source	Protocol Support Inquiry	[19828sss]	fddd	
	Protocol Support Reply	0668	Destination, Source, Protocol flags	Protocol Support Reply	[19668sss]	fddd, Protocol flags	
	Identify Consumer	08F4	EventID, Source	Identify Consumer	[198F4sss]	EventID	
	Consumer Identify Range	04A4	EventID with Mask, Source	Consumer Identify Range	[194A4sss]	EventID with mask	
	Consumer Identified w validity unknown	04C7	EventID, Source	Consumer Identified w validity unknown	[194C7sss]	EventID	
	Consumer Identified as currently valid	04C4	EventID, Source	Consumer Identified as currently valid	[194C4sss]	EventID	
	Consumer Identified as currently invalid	04C5	EventID, Source	Consumer Identified as currently invalid	[194C5sss]	EventID	
	Consumer Identified (reserved)		EventID, Source	Consumer Identified (reserved)	[194C6sss]	EventID	
	Identify Producer	0914	EventID, Source	Identify Producer	[19914sss]	EventID	
Event	Producer Identify Range	0524	EventID with Mask, Source	Producer Identify Range	[19524sss]	EventID with mask	
	Producer Identified w validity unknown	0547	EventID, Source	Producer Identified w validity unknown	[19547sss]	EventID	
	Producer Identified as currently valid	0544	EventID, Source	Producer Identified as currently valid	[19544sss]	EventID	
	Producer Identified as currently invalid		EventID, Source	Producer Identified as currently invalid	[19545sss]	EventID	
	Producer Identified (reserved)		EventID, Source	Producer Identified (reserved)	[19546sss]	EventID	
	Identify Events Addressed		Destination, Source	Identify Events Addressed	[19968sss]	fddd	
	Identify Events Global		Source	Identify Events Global	[19970sss]		
	Learn Event		EventID, Source	Learn Event	[19594sss]	EventID	
	Producer/Consumer Event Report		EventID, Source	Producer/Consumer Event Report	[195B4sss]	EventID	
Other	Xpressnet		Source, Xpressnet packet	Xpressnet	[19820sss]	Xpressnet packet	
	Simple Node Ident Info Request		Destination, Source	Simple Node Ident Info Request	[19DE8sss]	fddd	
ldent	Simple Node Ident Info Reply		Destination, Source, Data bytes	Simple Node Ident Info Reply	[19A08sss]	fddd, data bytes	
	Cimple redd ident illio respiy	07100	Decimation, Course, Data Sylve	CAN-Datagram Content (one frame)	[1Adddsss]	Data (0-8 bytes)	
				CAN-Datagram Content (first frame)	[1Bdddsss]	Data (0-8 bytes)	
Datagram	Datagram Content		Destination, Source, Data bytes	CAN-Datagram Content (middle frame	[1Cdddsss]	Data (0-8 bytes)	
				CAN-Datagram Content (Inidate frame)	[1Ddddsss]	Data (0-8 bytes)	
	Datagram Received OK	0A28	Destination, Source	Datagram Received OK	[19A28sss]	fddd	
	Datagram Rejected		Destination, Source, Error code	Datagram Rejected	[19A48sss]	fddd, error code	
	Stream Initiate Request		Destination, Source, Error code Destination, Source, Buffer size	Stream Initiate Request	[19A46888]	fddd, buffer size, srcSID	
Stroom	Stream Initiate Reply	0868	Destination, Source, Buffer size	Stream Initiate Reply	[19868sss]	fddd, buffer size, srcSID	
	Stream Data Send			· ·		<u> </u>	
Stream		1F88	Destination, Source, Data bytes	Stream Data Brassed	[1Fdddsss]	Data (0-8 bytes)	
	Stream Data Proceed	0888	Destination, Source, ID	Stream Data Proceed	[19888sss]	fddd, srcSID, dstSID	
	Stream Data Complete	08A8	Destination, Source, ID, {len}	Stream Data Complete	[198A8sss]	fddd, srcSID, dstSID, { le	
Extra	Node number Allocate	2000	Source				
	No Filtering	2020	Source				