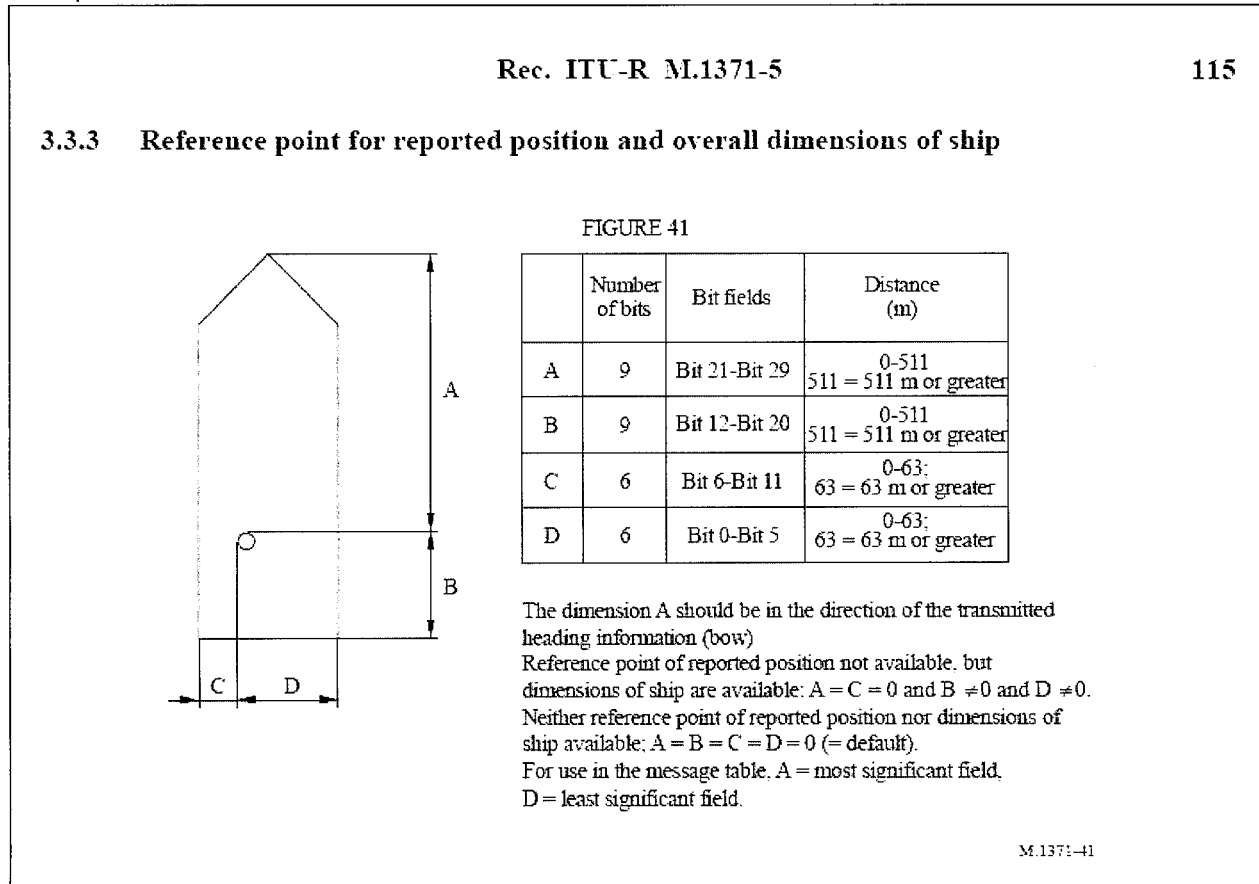


- 1) https://www.itu.int/dms_pubrec/itu-r/rec/m/R-REC-M.1371-5-201402-I!!PDF-E.pdf

Excerpt:



- 2) USCG also provides an AIS Encoding Guide - <http://www.navcen.uscg.gov/pdf/AIS/AISGuide.pdf>

Here's the Carla Maersk AIS data (provided by USCG) from a few minutes prior to the collision:

```
\g:1-3-9952,n:10617,s:D08MN-HG-  
BAYBS1,c:1425921903*39\\xs:rOSCArchive,xc:1425921903*51\!SAVDM,2,1,6,B,53A77R02;tRtu`L;;20nuB0<58h  
60I4E9<f2221I1bb@@4oI0IPCE@FH0PFH,0*25  
\g:2-3-9952,n:10618*1D\!SAVDM,2,2,6,B,88888888880,2*3B
```

Here's the same data, with USCG data tags removed:

```
!SAVDM,2,1,6,B,53A77R02;tRtu`L;;20nuB0<58h60I4E9<f2221I1bb@@4oI0IPCE@FH0PFH,0*25  
!SAVDM,2,2,6,B,88888888880,2*3B
```

Decoding those two lines of data confirms that Carla Maersk was broadcasting incorrect antenna reference position values.

Jones Rob

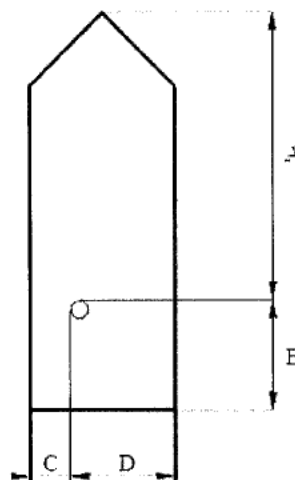
From: Bowling Larry
Sent: Tuesday, March 15, 2016 8:24 AM
To: Mansell Douglas; Ehlers Andrew; Jones Rob; Turrell Morgan
Subject: CARLA MAERSK AIS ANTENNAE POSITION TODAY. STILL SHOWING 13 METERS FROM THE BOW.

M/T CARLA MAERSK OZGB2

Details

Name: M/T CARLA MAERSK
MMSI: 219269000
IMO Number: 9171503
Call Sign: OZGB2
Type of ship: Tanker
Cargo Type: CDC - Category B
Activity: Towing
Navigational Status: At anchor
Rate of Turn: 0 °/minute
Speed Over Ground: 0.1 knots
Latitude: 22° 16' 57.47" N
Longitude: 114° 14' 51.88" E
Course Over Ground: 222.3 °
True Heading: 64 °
Type of electronic fixing device: GPS
Estimated Time of Arrival: 2016-03-14 01:30 EDT
Maximum Present Static Draught: 7.1 meters
Vessel Length: 183 meters
Vessel Beam: 32 meters
Destination: HONG KONG
Last Updated: 2016-03-13 20:02 EDT

Reference Point for reported position and Dimensions of Ship:



Vessel Dimension A: 13 meters
Vessel Dimension B: 170 meters
Vessel Dimension C: 16 meters
Vessel Dimension D: 16 meters

FYI...

Douglas Mansell
NTSB / RE-40
202-314-6634

The PPU uses AIS data. Carla Maersk was broadcasting an inaccurate AIS antenna location. The standard format for characterizing overall ship dimensions in AIS are defined in the following reference. The standard defines four dimensions – 'A' through 'D' – that represent the dimensions from Bow, Stern, Port, and Starboard.

Message 5: Ship static and voyage related data

ISAVDM,2,1,0,B,53A77R02:IRuL:20mIB0:53h60:4E9:022:1H5a0@450PCE@FH0PFH,0*23
ISAVDM,2,2,0,B,5DhH8888880,2*6C

Parm#	Parameter	Value	Description
01	Message ID	5	
02	Repeat indicator	0	No repeat (default)
03	User ID (MMSI)	219269000	
04	AIS version indicator	0	
05	IMO number	9171503	
06	Call sign	OZGB2	
07	Name	M/T CARLA MAERSK	
08	Type of ship & cargo	89	Tanker. No additional information
09	Ship dimensions	A=13,B=170,C=16,D=16	
10	Type of EPFD	1	GPS
11	ETA Month	3	
12	ETA Day	15	
13	ETA Hour	20	
14	ETA Minute	0	
15	Max. static draught	10.2	
16	Destination	AMUAY BAY USA	
17	DTE (availability)	0	DTE available
18	Spare	0	

Number of messages processed = 1

Number of checksum failure sentences = 0



4.3 GPS antenna locations

Investigators measured the location of the AIS GPS antennae aboard the both vessels and reviewed the antenna drawings to ascertain their relative positions on the vessels.

4.3.1 Conti Peridot AIS GPS: 162.98 meters from bow, 7.92 meters right of centerline, 20.33 meters above WL, draft 9.243 meters.

4.3.2 Carla Maersk AIS GPS: 156.16 meters from bow, 7.32 meters right of centerline, 26.90 meters above WL, draft 10.2 meters.

