

MARINE ACCIDENT INVESTIGATION REPORT

December 8th, 2016

Adopted by the Japan Transport Safety Board

Member Kuniaki Shoji

Member Satoshi Kosuda

Member Mina Nemoto

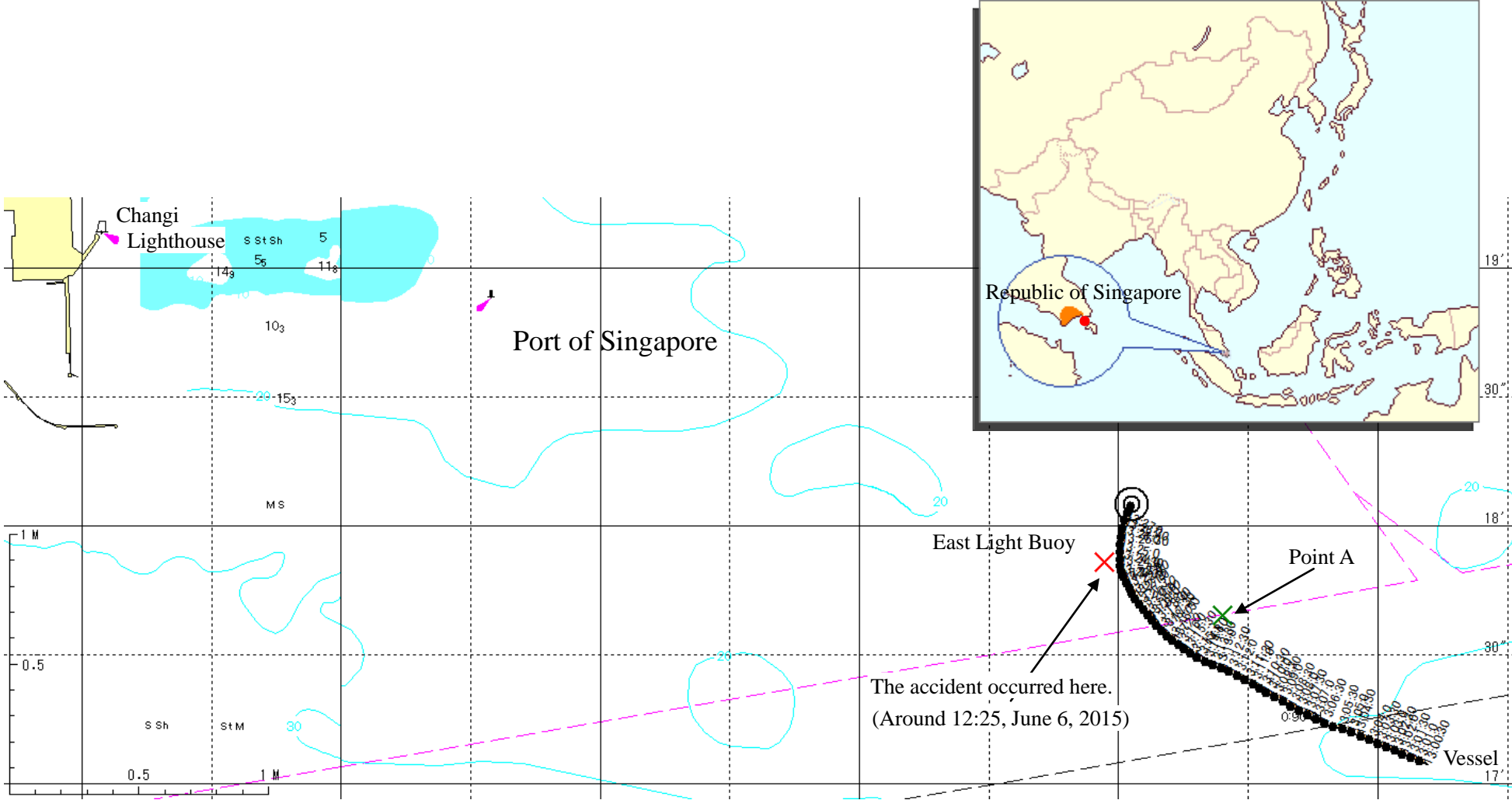
Accident Type	Contact (light buoy)
Date and Time	Approx. 13:25, June 6, 2015 (local time: Approx. 12:25, June 6, 2015)
Location	EASTERN BUOY in the Port of Singapore in the Republic of Singapore Around 289° true bearing, 4.1 M from Changi Lighthouse (Approximate position: 01°17.8' north latitude, 104°05.9' east longitude)
Summary of the Accident	Bulk cargo carrier SHIN HEIRYU contacted with a light buoy while sailing. SHIN HEIRYU suffered abrasions to its portside stern shell. The light buoy suffered dents to the body.
Process and Progress of the Investigation	The Japan Transport Safety Board appointed an investigator-in-charge from the Kobe Office to investigate this accident on June 10, 2015. One other local investigator was appointed at a later date. Comments on the report were invited from parties relevant to the cause of the accident. Comments on the report were requested from countries with substantial interest in the SHIN HEIRYU.
Factual Information Vessel type and name, gross tonnage: Vessel number, owner, etc.: L × B × D, hull material: Engine, output, date of launch, etc.:	Bulk cargo carrier SHIN HEIRYU, 102,207 tons 141370 (Vessel Number), 9271602 (IMO Number), Nippon Yusen Kabushiki Kaisha, NYK SHIPMANAGEMENT PTE LTD (Republic of Singapore, management company) 299.95 m × 50.00 m × 24.10 m, steel Diesel engine, 16,020 kw, April 4, 2003
Crew Information	Master (Nationality: the Republic of the Philippines): Male, 58 years old Endorsement attesting the recognition of certificate under STCW regulation I/10, Master (Issued in Japan) Date of Issue: March 27, 2015 (Valid until March 26, 2020)
Casualties, etc.	None.
Damage	The vessel suffered abrasions on its portside stern shell. The light buoy suffered dents to the body. The anchor chain was cut.

Weather and Sea Conditions	Weather conditions: Weather – Cloudy, Wind - East, Wind force – 2 Sea conditions: Sea – Calm
Events Leading to the Accident	<p>The Master was aboard the vessel with 21 other crewmembers (all nationals of the Republic of the Philippines). The Master conned the vessel with a second officer (“Officer A”) and also had an apprentice officer on watch and an able seaman at the steering. The Master, planning to head toward the east anchorage of the Port of Singapore where the vessel was scheduled for refueling after the pilot came on board, put the engine to slow astern and was sailing the vessel at the speed over the ground of approximately 4 knots (kn) in the direction of west-northwest.</p> <p>At approximately 12:04 on June 6, 2015 (local time, same shall apply hereunder), around the time when EASTERN BUOY (“East Light Buoy”) was seen approximately 1.3 M away in the starboard bow direction, Officer A spotted to the portside bow direction a pilot boat progressing toward the vessel. The Master gave the pilot instructions to set the course to 310° (true bearing, same shall apply hereunder) so that the vessel would head toward the point where a pilot was scheduled to come aboard (01°17.65’ north latitude, 104°06.40’ east latitude, hereinafter “Point A”).</p> <p>At approximately 12:11, the Master, recognizing that the vessel was situated to the southeast of Point A and that although the vessel was headed in the direction of approximately 310°, the course over the ground was approximately 300° and that the vessel was being drifted toward port, gave instructions to put the helm to hard starboard.</p> <p>Although the heading was changing, the vessel was not able to come near Point A and worse, actually passed it. The Master, deciding to turn the vessel around to return to Point A, gave consecutive instructions to set the heading to 000°, 010° and 030°, while giving instructions to repeat engine stop and dead slow astern as appropriate.</p> <p>At approximately 12:20, the Master received a report from Officer A that the East Light Buoy was at 3 point (33.75°) 3 cable (approximately 560 m) in the portside bow and at approximately 12:22 the Master received a further report from Officer A that the East Light Buoy was at 1.5 cable (approximately 280 m) abeam to portside and gave consecutive instructions to turn the helm to hard starboard, hard port, midship, starboard 10° and further to starboard 20°.</p> <p>At approximately 12:25, when the heading of the vessel was approximately 035°, the portside stern of the vessel contacted with the East Light Buoy.</p> <p>The pilot reported the occurrence of the accident to the Vessel Service Traffic Information Service (VTIS) via the VHF radio telephone (“VHF”) and was instructed by VTIS to head to the place where the vessel was</p>

	<p>scheduled to anchor. Subsequently, the damage was checked while the vessel was anchored and on June 7. The next day, the vessel departed the port.</p> <p>(Refer to Attached Figure 1 Track, Attached Figure 2 Track (magnified), Attached Table 1 VDR Record of the Vessel (Partial), Picture 1 VDR Record of the Radar Image)</p>
Other Items	<p>The vessel arrived at the port with all holds empty and had an approximate draught of 8.61 m forward and 8.68 m aft.</p> <p>At approximately 12:20, the Master, spotting a pilot boat astern that was sailing toward the vessel, and receiving via VHF a communication from the pilot that the pilot was coming aboard in a few minutes from the starboard side of the vessel, was maneuvering the vessel while maintaining its speed over the ground at 2 to 3 kn.</p> <p>The pilot came aboard at approximately 12:22 using the starboard side accommodation ladder and arrived on the bridge at approximately 12:26.</p> <p>Although the Master was aware that the ocean current was flowing to the southwest in the vicinity, he was not aware of that an extremely strong ocean current had formed in the vicinity of the East Light Buoy until he was so informed by the pilot who came on the bridge immediately after the accident.</p> <p>Based on the vessel radar information (heading, speed over the water, course over the ground, and speed over the ground), a wind tidal current of approximately 0.5 kn in the direction of approximately 210° at approximately 12:04, a wind tidal current of approximately 1.0 kn in the direction of approximately 225° at approximately 12:10, a wind tidal current of approximately 2.0 kn in the direction of approximately 280° at approximately 12:20, and a wind tidal current of approximately 2.5 kn in the direction of approximately 295° at approximately 12:22, were estimated.</p> <p>According to the SMS (Safety Management System) Manual established by the management company of the vessel, a bridge team meeting was supposed to be held prior to passing the Singapore Strait to discuss the conditions of tidal current and other relevant matters. However, no bridge team meeting was held for the vessel.</p>
<p>Analysis</p> <p>Involvement of the crew</p> <p>Involvement of the hull, engine etc.</p> <p>Involvement of the weather or sea conditions</p> <p>Results of analysis of the incident</p>	<p>Yes.</p> <p>No.</p> <p>Yes.</p> <p>It is probable that in the Port of Singapore, under east winds blowing with a wind force of 2 and the tidal current flowing southwest to northwest, the Master, while trying to turn the vessel starboard in order to head toward Point</p>

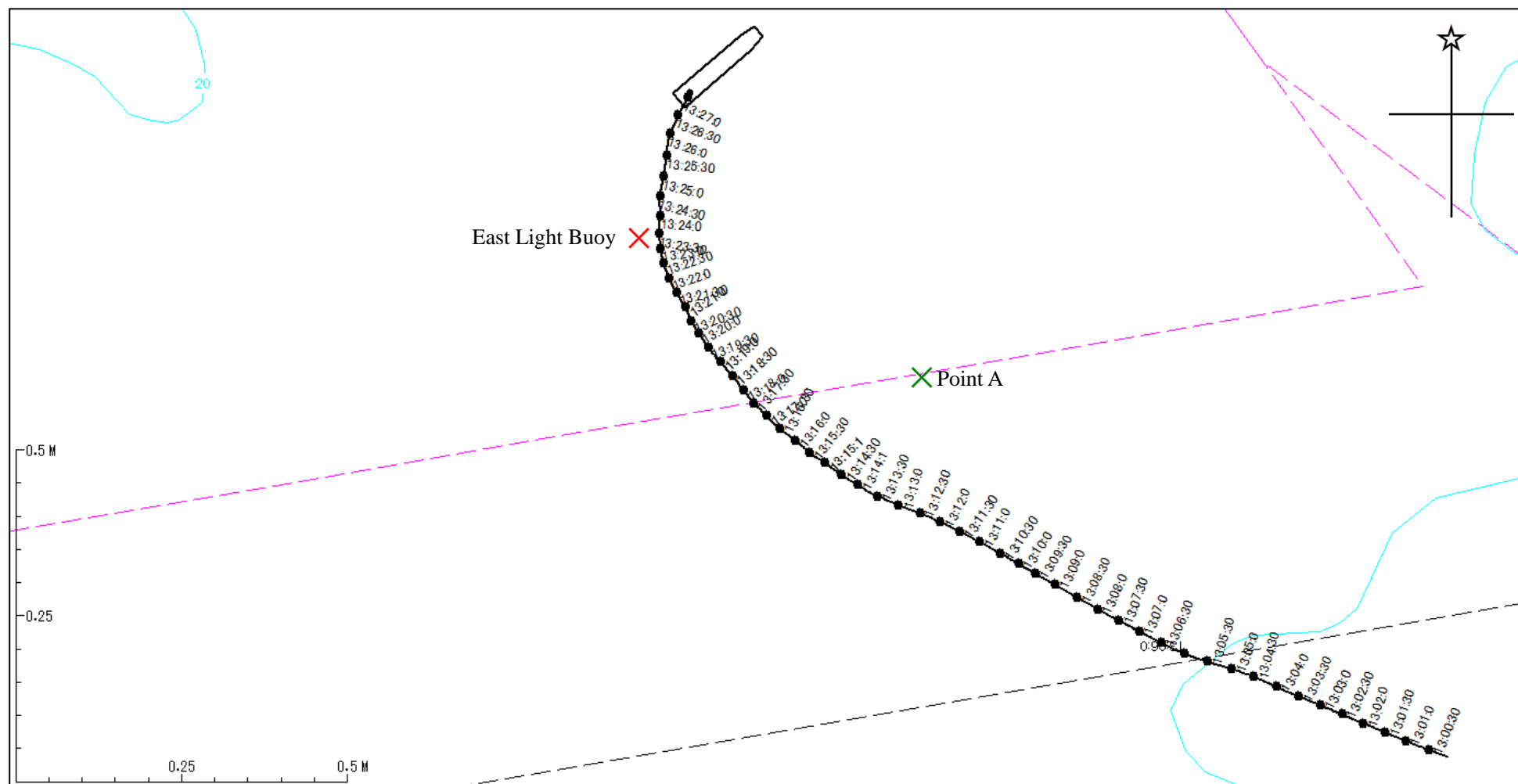
	<p>A, maneuvered the vessel without taking into consideration the effect of the tidal current as he did not know about the conditions of tidal current in the vicinity of Point A, causing the vessel to contact with the East Light Buoy.</p> <p>It is probable that the vessel drifted toward the East Light Buoy because, although the Master gave instructions to put the helm to hard starboard when he recognized that the vessel was drifting toward port, he needed to let the pilot come onboard, so he navigated the vessel with a speed over the water of approximately 3 kn.</p> <p>It is somewhat likely that had a bridge team meeting been held prior to passing the Singapore Strait, the Master would have understood the conditions of tidal current in the vicinity of Point A.</p>
Probable Causes	<p>It is probable that the accident occurred because, in the Port of Singapore, under east winds blowing with a wind force of 2 and the tidal current flowing southwest to northwest, the Master, while trying to turn the vessel starboard in order to head toward Point A, maneuvered the vessel without taking into consideration the effect of the tidal current as he did not know about the conditions of tidal current in the vicinity of Point A, causing the vessel to contact with the East Light Buoy.</p>
Actions Taken	<p>In order to prevent similar accidents from occurring, the following will be useful.</p> <ul style="list-style-type: none"> ▪ When there is a risk of being affected by a wind tidal current, the Master must pay attention to the course over the ground. ▪ The SMS Manual shall be strictly followed.

Attached Figure 1 Track



* Times indicated beside the track are Japan Standard Time. There is a difference of one hour between local time and Japan Standard Time.
The track indicated is for the period between 13:00 and 13:27 (local time: 12:00 to 12:27).

Attached Figure 2 Track (Magnified)



* Times indicated beside the track are Japan Standard Time. There is a difference of one hour between local time and Japan Standard Time.
 The track indicated is for the period between 13:00 and 13:27 (local time: 12:00 to 12:27).

Attached Table 1 VDR Record of the Vessel (Partial)

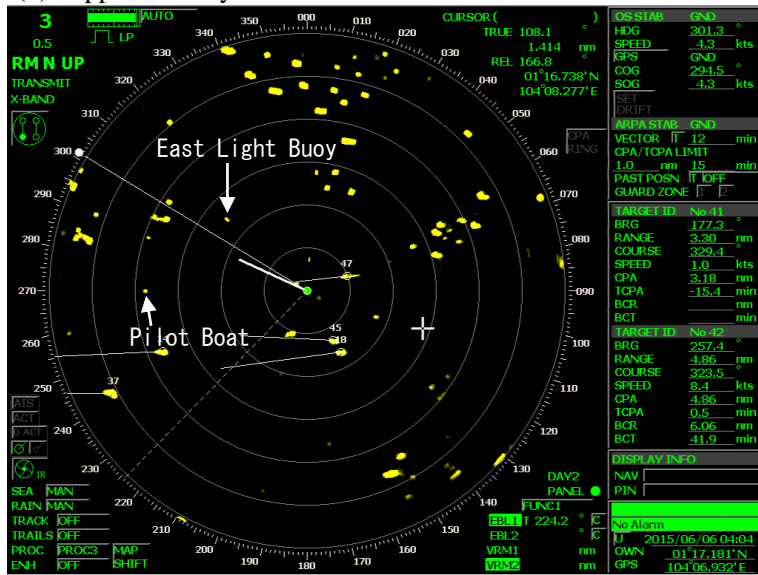
Time (Hours: Minutes: Seconds)	Vessel Position		Heading (°)	Speed over the water (kn)	Course over the ground (°)	Speed over the ground (kn)
	Degrees North (Latitude) (° -' -")	Degrees East (Longitude) (° -' -")				
13:00:01	01-17-04.4	104-07-11.7	302	3.2	291.0	4.3
13:05:00	01-17-12.4	104-06-52.0	304	4.2	287.9	4.5
13:10:00	01-17-22.0	104-06-32.7	311	3.9	300.1	4.0
13:15:01	01-17-31.1	104-06-15.3	339	2.9	304.8	3.5
13:20:00	01-17-42.9	104-06-03.9	010	2.2	328.4	2.9
13:20:30	01-17-44.1	104-06-03.2	011	2.1	332.0	2.7
13:21:00	01-17-45.3	104-06-02.6	013	2.1	332.3	2.8
13:21:30	01-17-46.6	104-06-01.9	017	2.0	330.0	3.0
13:22:00	01-17-47.9	104-06-01.1	023	2.0	330.8	3.1
13:22:30	01-17-49.3	104-06-00.7	026	2.0	341.8	2.7
13:23:00	01-17-50.6	104-06-00.4	028	2.0	350.7	2.7
13:23:30	01-17-52.1	104-06-00.3	029	2.3	358.1	2.8
13:24:00	01-17-53.6	104-06-00.3	031	2.7	000.0	3.2
13:24:30	01-17-55.4	104-06-00.3	035	2.9	001.5	3.5
13:25:00	01-17-57.2	104-06-00.6	037	3.2	010.5	3.7
13:25:05	01-17-57.4	104-06-00.7	037	3.2	010.1	3.7
13:25:10	01-17-57.7	104-06-00.7	038	3.2	009.5	3.8
13:25:15	01-17-58.1	104-06-00.8	039	3.3	008.8	3.9
13:25:20	01-17-58.4	104-06-00.8	040	3.3	008.5	3.9
13:25:25	01-17-58.8	104-06-00.9	040	3.4	008.1	4.0
13:25:30	01-17-59.1	104-06-00.9	042	3.4	007.9	4.1
13:25:35	01-17-59.5	104-06-00.9	043	3.5	007.8	4.2
13:25:40	01-17-59.8	104-06-01.0	044	3.5	008.2	4.2
13:25:45	01-18-00.2	104-06-01.0	045	3.5	009.1	4.2
13:25:50	01-18-00.5	104-06-01.1	045	3.5	010.7	4.2
13:25:55	01-18-00.8	104-06-01.2	046	3.4	013.6	4.0
13:26:00	01-18-01.1	104-06-01.3	046	3.4	016.7	3.9
13:26:10	01-18-01.7	104-06-01.5	047	3.4	020.2	3.8
13:26:20	01-18-02.3	104-06-01.7	047	3.3	023.3	3.7
13:26:30	01-18-02.8	104-06-02.0	048	3.3	025.2	3.6
13:26:40	01-18-03.4	104-06-02.3	048	3.2	026.1	3.5
13:26:50	01-18-03.9	104-06-02.5	048	3.2	027.0	3.4
13:27:00	01-18-04.4	104-06-02.8	049	3.1	027.2	3.3

* Times are indicated in Japan Standard Time. There is a difference of one hour between local time and Japan Standard Time.

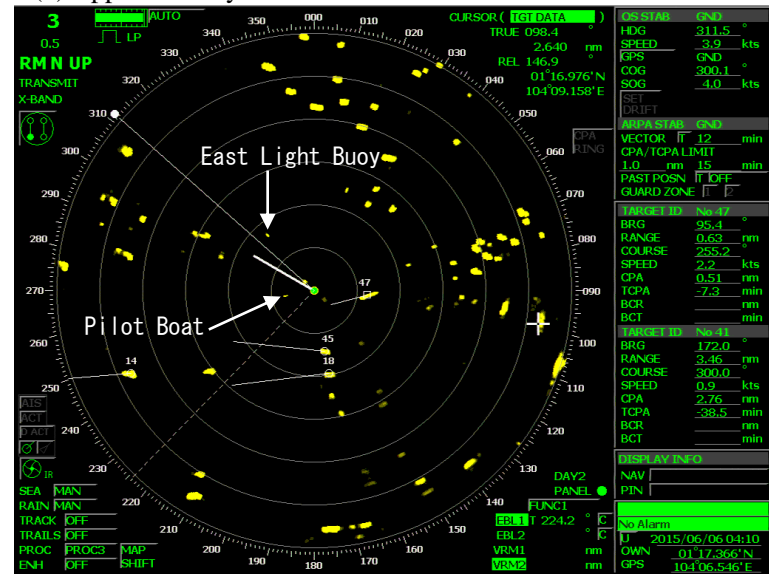
* Vessel position refers to the position of the GPS antenna installed above the bridge.

Picture 1 VDR Record of the Radar Image

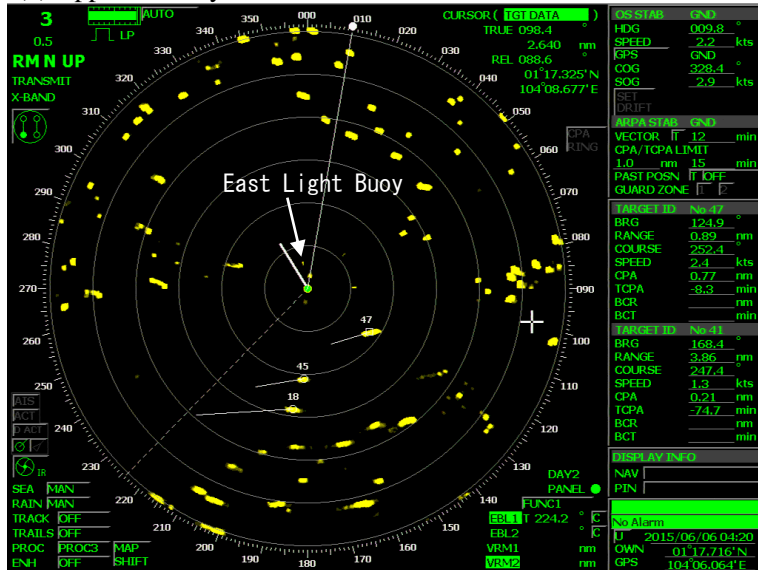
(1) Approximately 13:04



(2) Approximately 13:10



(3) Approximately 13:20



(4) Approximately 13:22

