Container Temperature Study

and
Critical Cargo Information Exchange

Contents

Lithium Batteries Non-DG 35℃

Risk of Thermal Runaway

Lithium Battery Temperature Effects:

Temperature Range	Performance Impact	Recommendati
-20˚C to 0˚C (-4˚F to 32˚F)	Electrolyte freezing, significant capacity loss	Avoid usage; co insulation or wa
15˚C to 35˚C (59˚F to 95˚F)	Optimal performance, maximum efficiency	Best for usage a charging.
35˚C to 60˚C (95˚F to 140˚F)	Overheating, reduced lifespan, risk of thermal runaway	Use cooling syst manage temper
Above 60˚C (140˚F)	Severe degradation, high safety risk	Avoid at all cost proper ventilati

- For more container fire case information, please check with the CINS
- https://www.cinsnet.com/
- T: +44 (0)20 8390 0000
- E: secretary@cinsnet.com

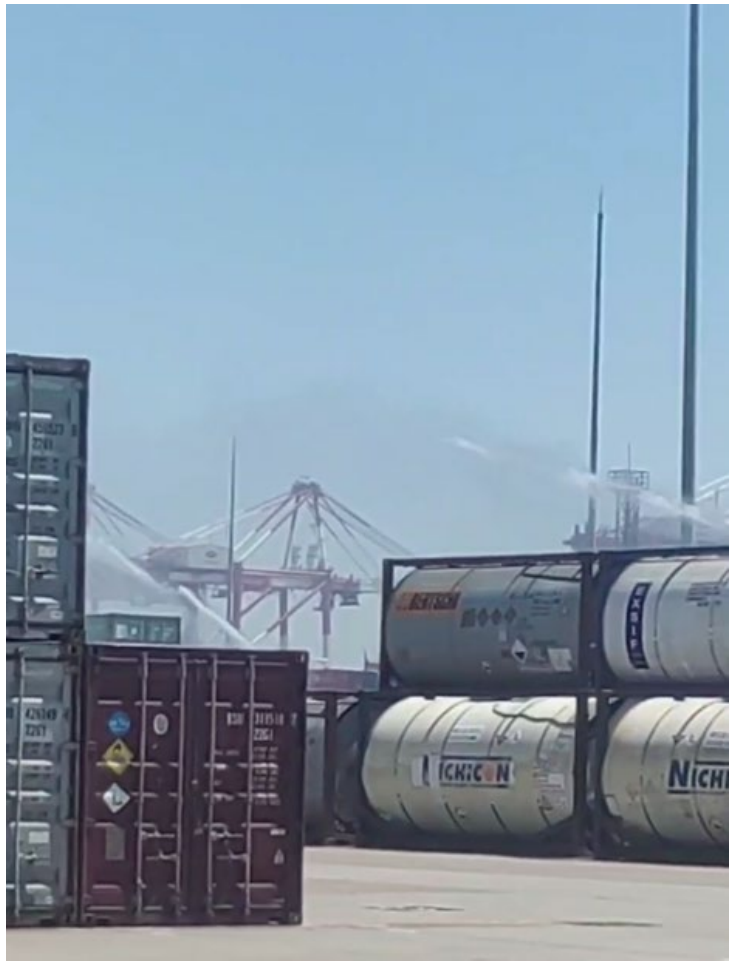
Cocoa Butter - Non-DG

35℃

Melting Point

Shanghai, Aug. 2, 2024

Shanghai Container Terminal's water sprinkler system were activated for cooling the critical cargo once the air temperature reached **35** degrees Celsius (℃) threshold

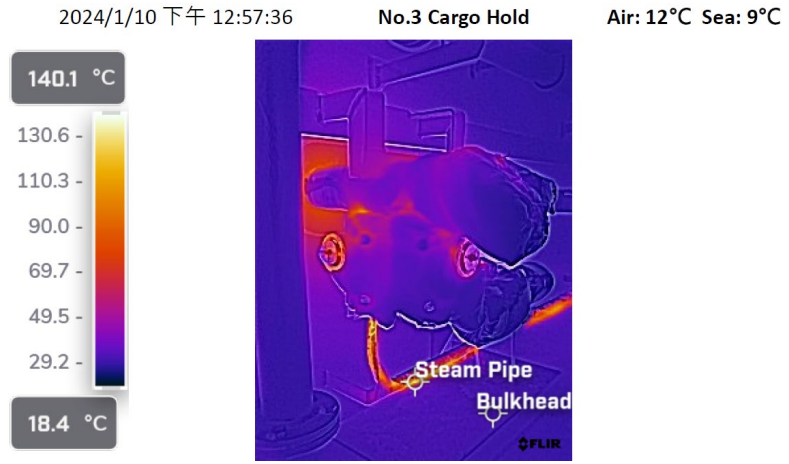


(the) **heated ship structures, where the surface temperature is liable to exceed**

55℃

to be stowed at least **2.4 m** from….

Examples of heated structures are steam pipes, heating coils, top or side walls of heated fuel and cargo tanks, and bulkheads of machinery spaces.

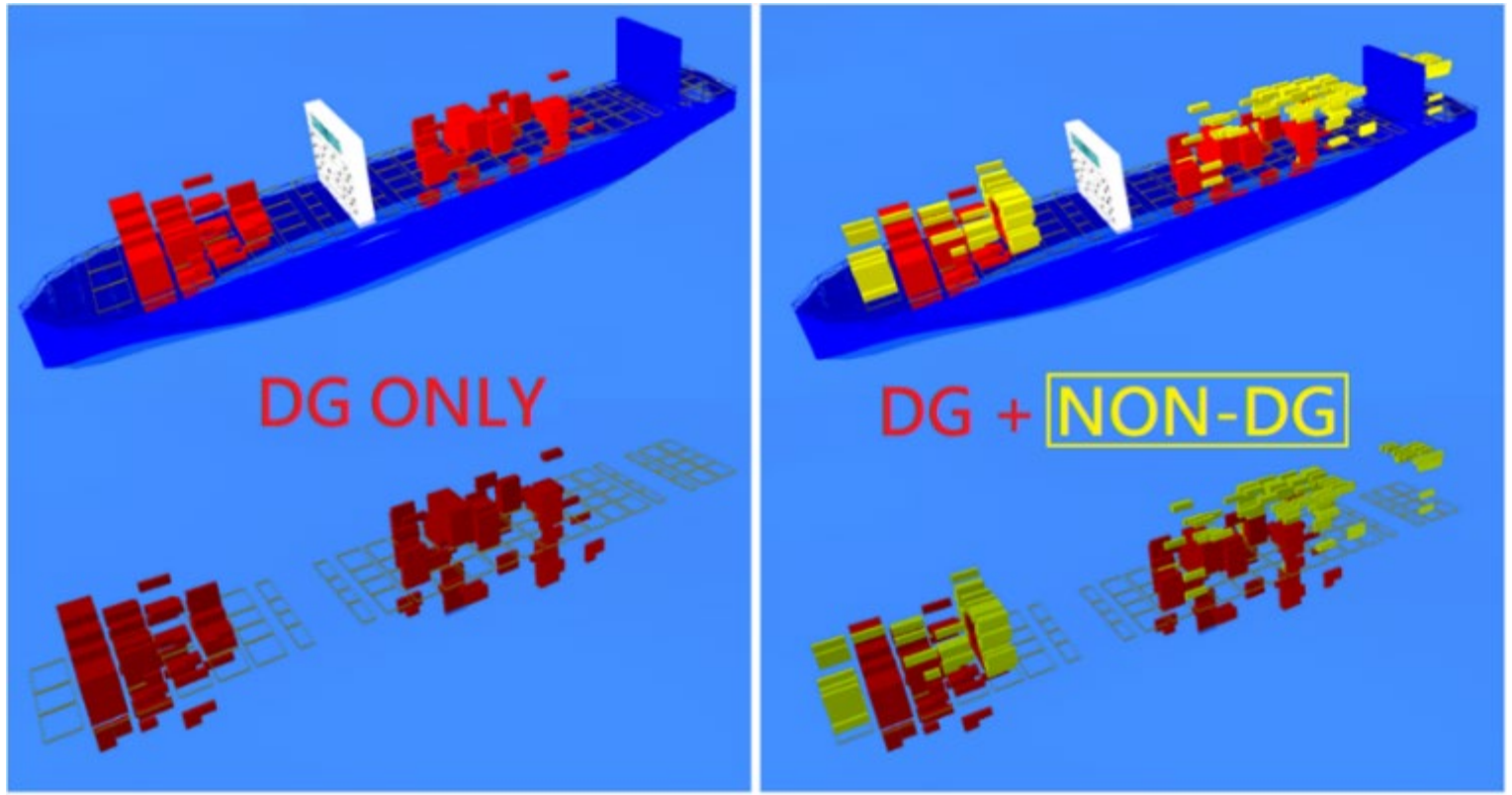


IMDG Code

7.1.2 Definitions – protected from sources of heat

1. The Fire Risk and The Information Exchange

How can a better information exchange among stakeholders help mitigate the container fire risk?



2. Two Keystones
(1) The Temperature (2) The SMDG

version 2025-01-08

SMDG Attribute code list

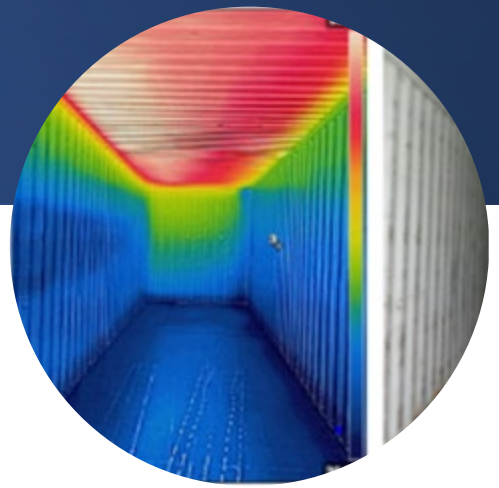
Definition: These codes define properties or status of a specific transport equipment (container).
They are NOT an instruction, although they may require certain activities.

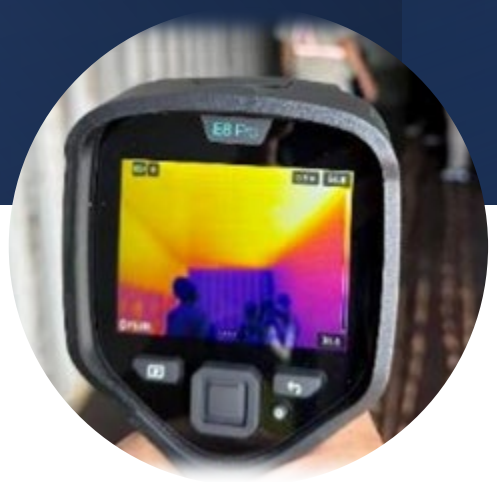
DE 1131= **ATTRIBUTES**

Examples:
ATT+2++SMC:ATTRIBUTES:309' (if ATT segment is available)
FTX+ACF++SMC:ATTRIBUTES:309' (D.00B and later)
FTX+ACF++SMC:ATT:306 (before D.00B)

Code	Name	Category	Description	last change	valid from	valid until
HEI	Prepared for hides	STATUS	Prepared for hides	2022-12-16	2020-10-15	
HSR	High sensitive reefer	STATUS	High sensitive reefer cargo		2020-10-15	
HVD	Heavy Duty	PROPERTY	ISO: 30.480 kg, HVO: 32.500 kg	2024-04-10	2024-04-10	
HVR	High Value Reefer	STATUS	Examples: Blood Plasma or Pharmaceuticals (value > 500k $)	2022-12-16	2022-12-16	
ICL	Prepared for ICL standard	STATUS	Prepared for ICL standard, ICL: Institute of International Container Lessors		2020-10-15	
LBU	Bundled equipment	STATUS	Multiple pieces of equipment in one stowage position (e.g. flat racks) *If container numbers are known, then the segments EQD and FQA are required*	2022-12-16	2020-10-15	
LIB	Lithium batteries (non-DG)	STATUS	Contains Lithium batteries (non-DG)	2022-12-16	2022-12-16	
LIO	Lithium Ion batteries (non-DG)	STATUS	Contains Lithium Ion batteries (non-DG)	2022-12-16	2022-12-16	

3. The Temperature Study



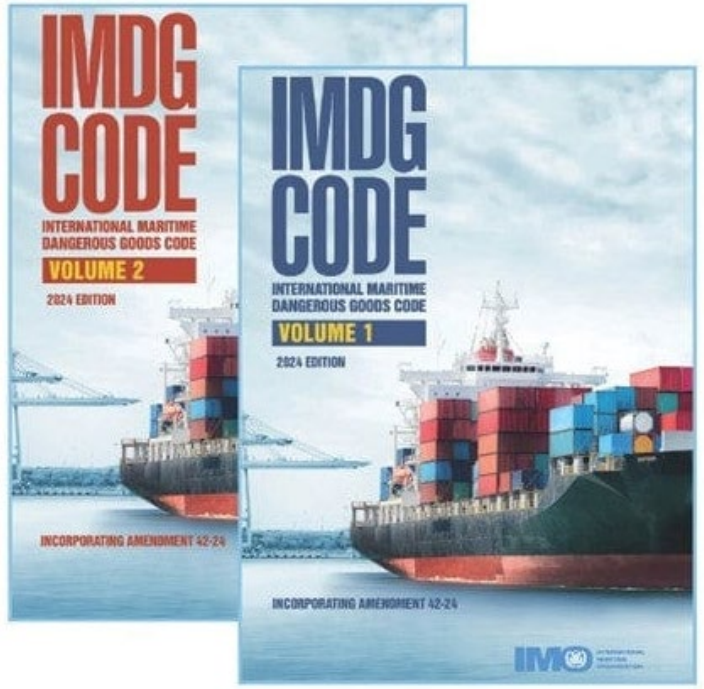


IMDG Code

Definition of "Protected from sources of heat":

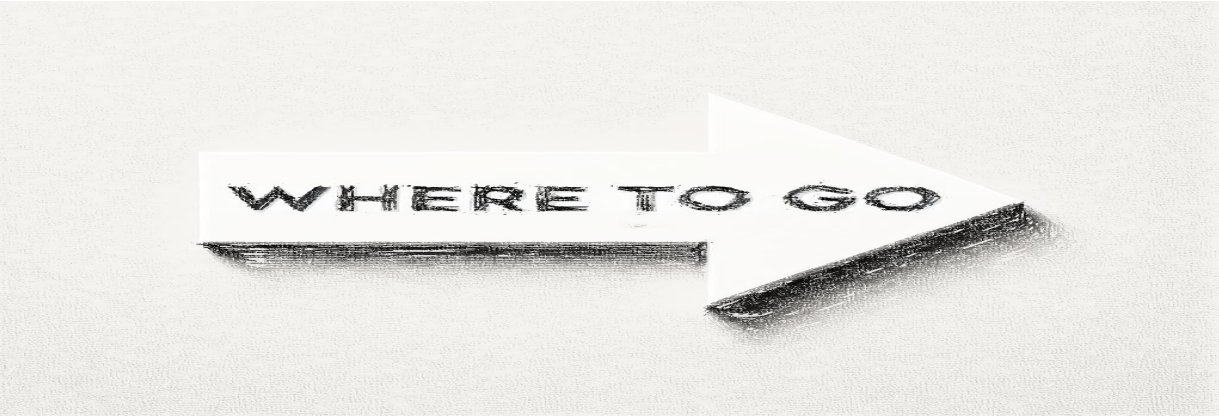
55℃ is the threshold

Direct Sunlight



Critical Cargo

Assumption of threshold 35 ℃



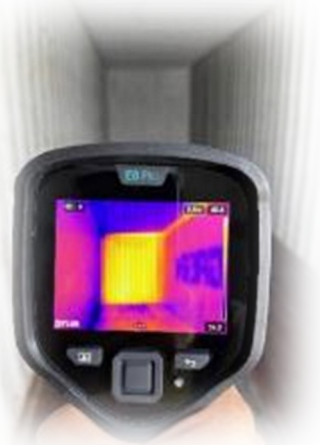
Main purpose:

- Taking precautions
- Understand the effects of sunlight
- Tackle the container fire risk

Settings & Findings

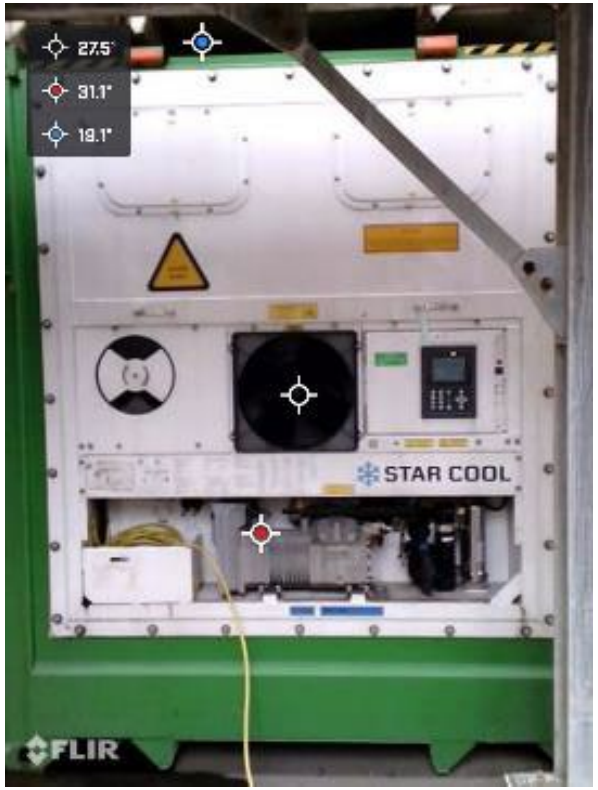
Tools – for the accuracy of data

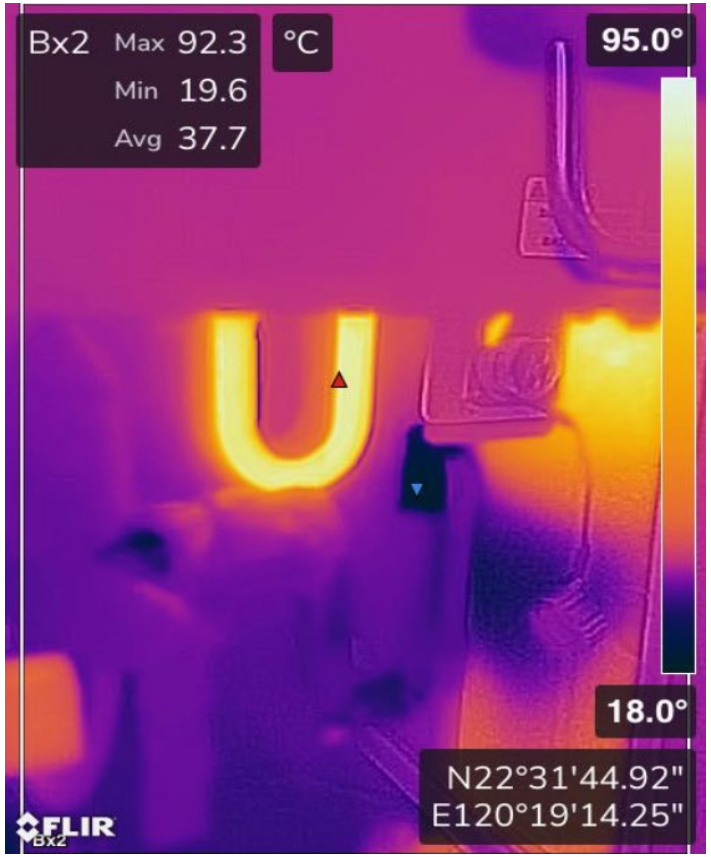
- TIC (Thermal Image Camera)
- Weather data logger
- Portable Weather Station



TIC – Scanning Reefer Container

Thermal image camera with 2 degrees accuracy.





Temperature Data Loggers

Device Name	Green 03
Device Model and Serial Number	Kestrel D2 AG, 2981040
Snapshot Name	Snapshot - Sep 6, 2024 11:41:38
Time	Sep 6, 2024 / 11:41:38
Location Description	
Location Address	
Location Coordinates	
Notes	Enter Notes

Snapshot Statistics

	Units	Value
Temperature	°C	44.6
Heat Index	°C	65.1
Relative Humidity	%	43.8
Dew Point	°C	29.5
Temperature Humidity Index (NRC)		95.5
Temperature Humidity Index (Yousef)		96.5

Snapshot Pictures

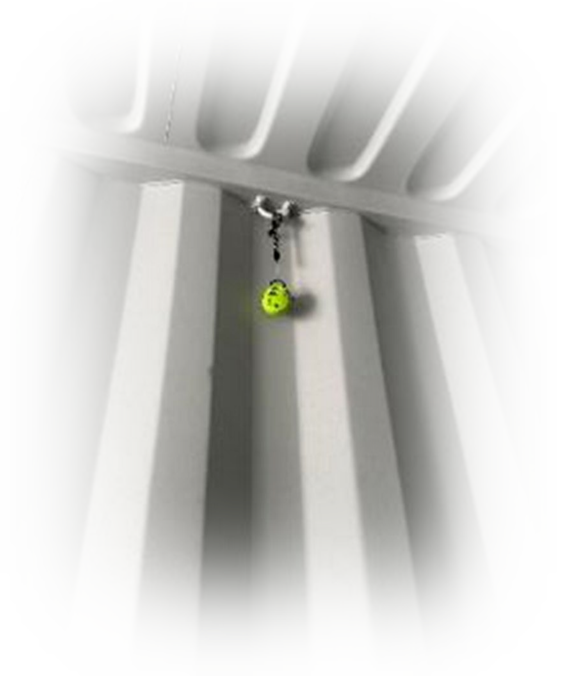
261° 西

Device Name	YS002 D3 FIRE
Device Model and Serial Number	Kestrel D3 FIRE, 2888301
Snapshot Name	Snapshot - Aug 16, 2024 15:30:14
Time	Aug 16, 2024 / 15:30:14
Location Description	
Location Address	24941
Location Coordinates	(25.1606740, 121.3808004)
Notes	Aug. 16, Kestrel Drop

Snapshot Statistics

	Units	Value
Temperature	°C	33.1
Heat Index	°C	40.0
Relative Humidity	%	57.6
Station Pressure	mb	1004.8
Dew Point	°C	23.6
Wet Bulb Temp	°C	26.0

Snapshot Pictures



Portable Weather Station

Device Name	YS WEATHER - 2991551
Device Model and Serial Number	5500L, 2991551
Session Name	Session - Sep 19, 2024 10:40:10
Start	Sep 19, 2024 / 10:40:10
End	Sep 19, 2024 / 10:50:59
Duration	00:10:49
Logging Rate	0 seconds
Location Description	
Location Address	
Location Coordinates	
Notes	

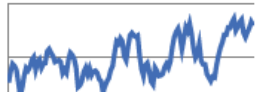
Session Statistics

	Units	Avg	Min	Max	Standard Deviation
Temperature	°C	32.9	31.6	34.2	0.65
Heat Index	°C	44.5	40.5	48.3	1.92
Relative Humidity	%	71.5	69.1	75.0	1.28
Wind Speed	km/h	7.8	1.9	14.6	0.77
Station Pressure	mb	1004.3	1004.2	1004.4	0.05
Dew Point	°C	27.1	25.9	28.5	0.59
Altitude	m	72	71	73	0.41
Density Altitude	m	854	800	906	26.02
Barometric Pressure	mb	1004.3	1004.2	1004.4	0.05
Compass Magnetic Direction	Deg	187	145	223	15.93
Compass True Direction	Deg	187	145	223	15.93
Crosswind	km/h	2.1	0.0	8.4	0.51
Headwind	km/h	-7.4	-13.0	-1.9	0.68
Wind Chill	°C	32.9	31.6	34.2	0.65
Wet Bulb Temp	°C	28.4	27.2	29.6	0.56

Session Graphs

Temperature

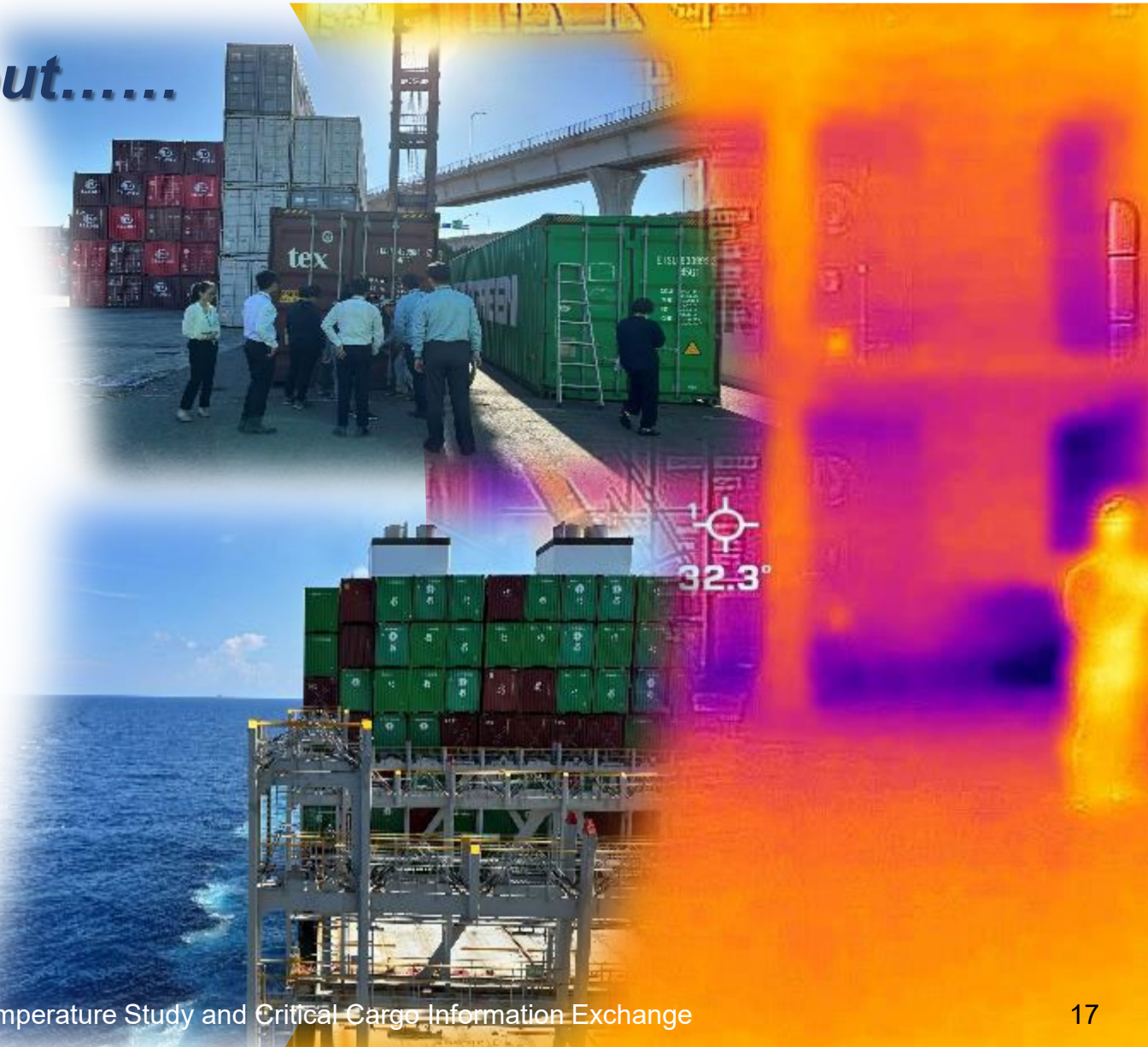
Max 34.2°C
Avg 32.9°C
Min 31.6°C



28 surveys – from Aug. 20, 2023 through Feb. 21, 2025

28 surveys were carried out……

- Land
  - Marine Terminal
  - Inland Depot
- Sea
  - Ocean Going Vessels
  - Intra-Asia Ships
- Ship
  - On Deck
  - In Cargo Hold
- Container
  - General
  - RF
  - Different color-coating



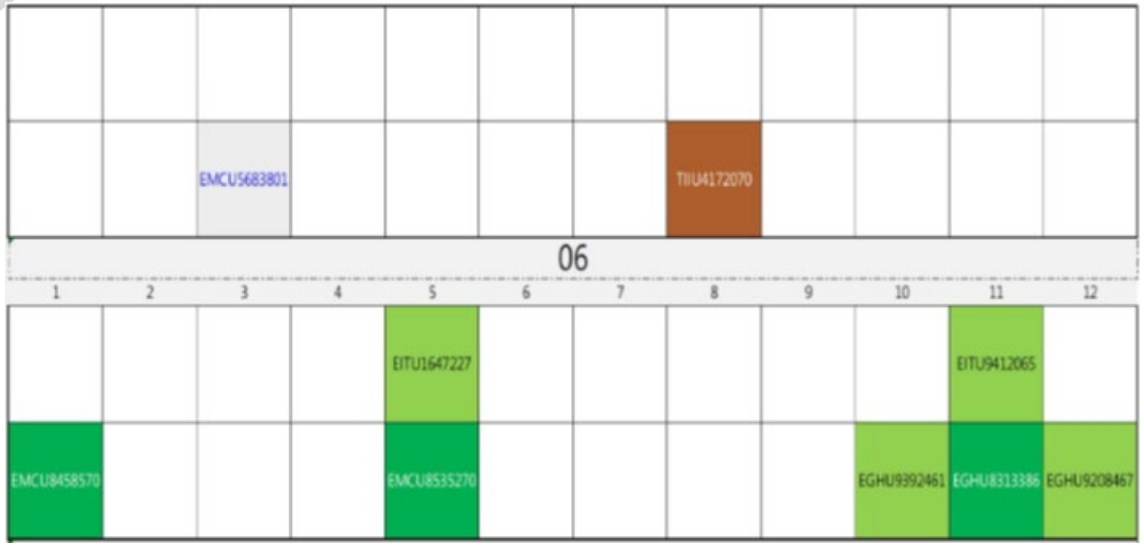
1. Land – RF & different color coating containers at Depot

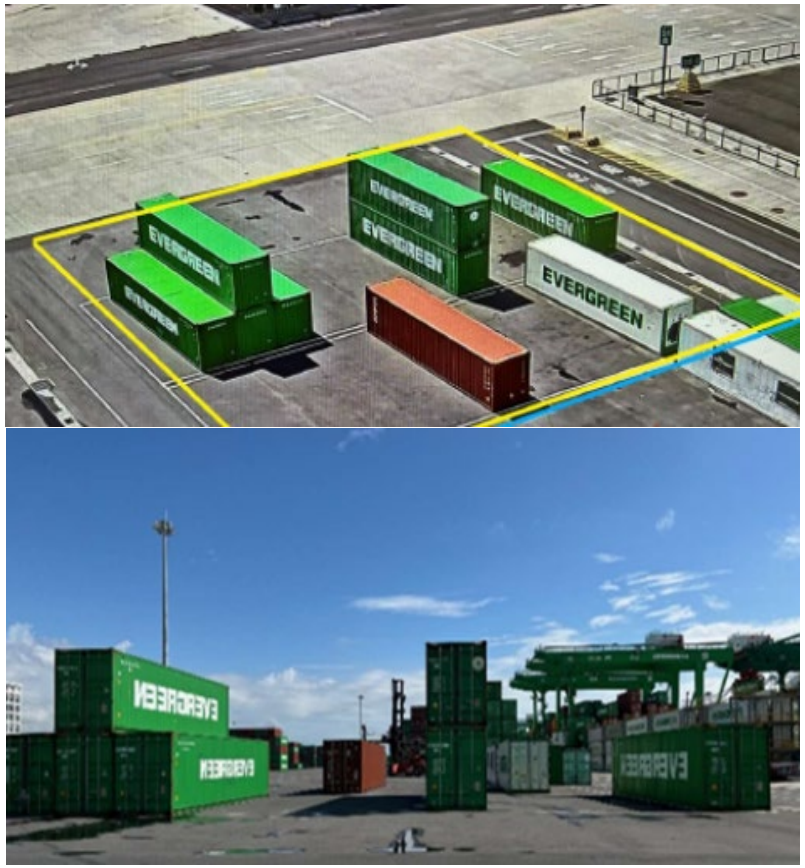
Temperature readings inside different-colored coating containers
maroon, green, and white reefer units
1530, Sep. 4 – 1145, Sep. 6, 2024

Evergreen Marine Corp. (Taiwan) Ltd.

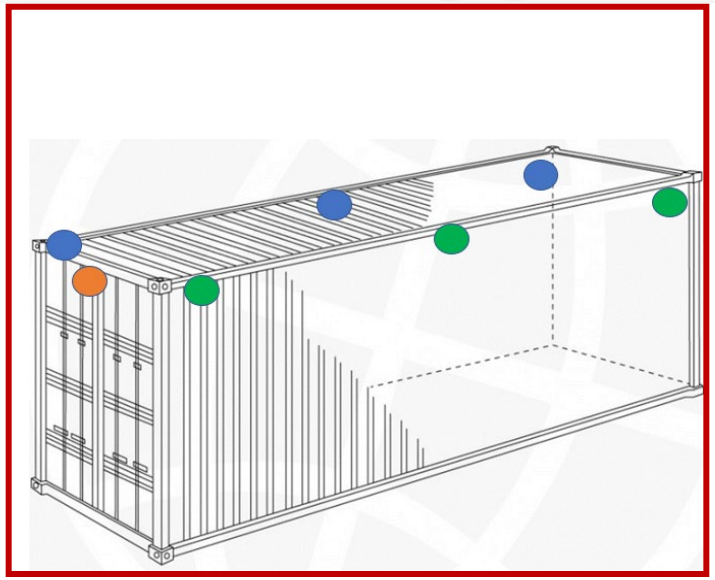
觀測時間(day)	測站氣壓(hPa)	海平面氣壓(hPa)	測站最高氣壓(hPa)	測站最高氣壓時間(LST)	測站最低氣壓(hPa)	測站最低氣壓時間(LST)	氣溫(℃)	最高氣溫(℃)	最高氣溫時間(LST)	最低氣溫(℃)	最低氣溫時間(LST)	露點溫度(℃)	相對濕度(%)	風速(m/s)	風向(360degree)
ObsTime	StnPres	SeaPres	StnPresMax	StnPresMaxTime	StnPresMin	StnPresMinTime	Temperature	T Max	T Max Time	T Min	T Min Time	Td dew point	RH	WS	WD
2024-9-5	999.9	1002.3	1002.3	22:12	998.3	1:49	31.1	35.2	12:46	27.1	5:02	24.9	70	2.3	90
最大瞬間風(m/s)	最大瞬間風風向(360degree)	最大瞬間風風速時間(LST)	降水量(mm)	日照時數(hour)	日照率(%)	全天空日射量(MJ/m²)	能見度(km)	總雲量(0~10)	地溫0cm	地溫5cm	地溫10cm	地溫20cm	地溫30cm	地溫50cm	地溫100cm
WSGust	WDGust	WGustTime	Precp	SunShine	SunshineRate	GloblRad	VisbMean	CloudAmount	TxSoil0cm	TxSoil5cm	TxSoil10cm	TxSoil20cm	TxSoil30cm	TxSoil50cm	TxSoil100cm
9.2	100	0:05	0	9	72.5	21.6	25	4.6	31.1	31.1	30.7	30.5	31.3	30.6	29.8

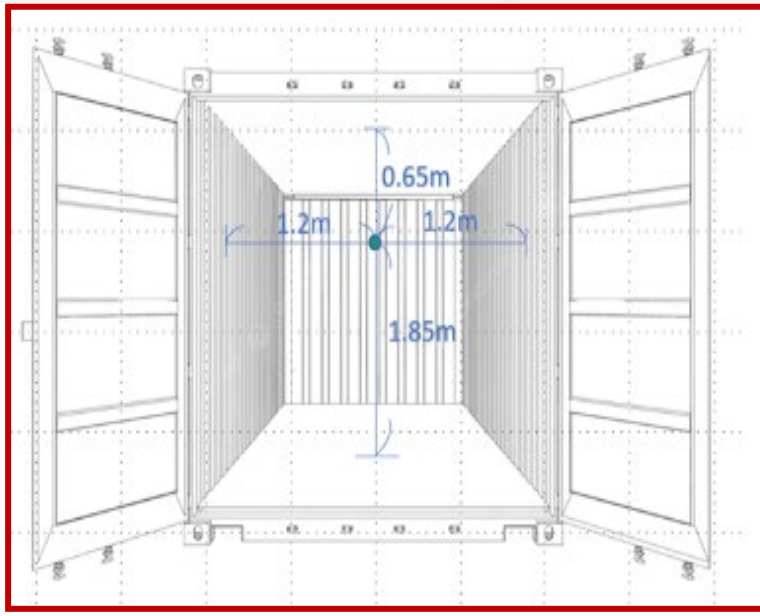
2. Land - Various Stowage Scenarios

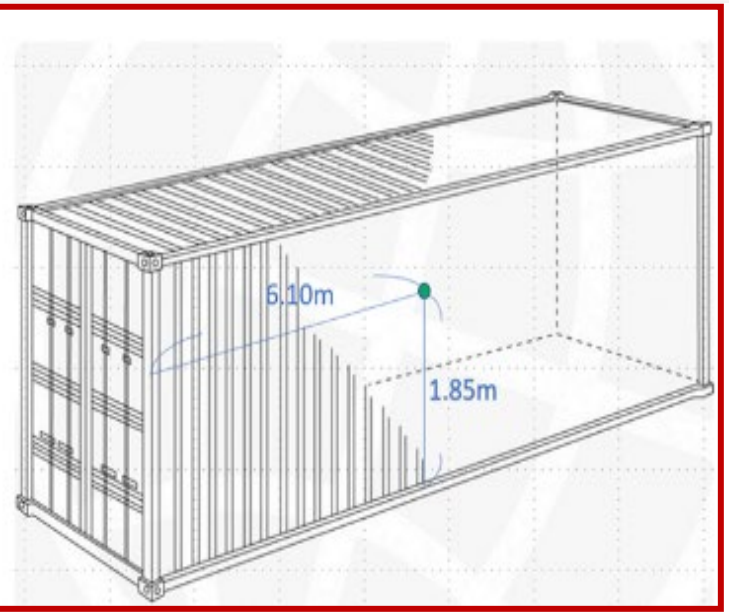




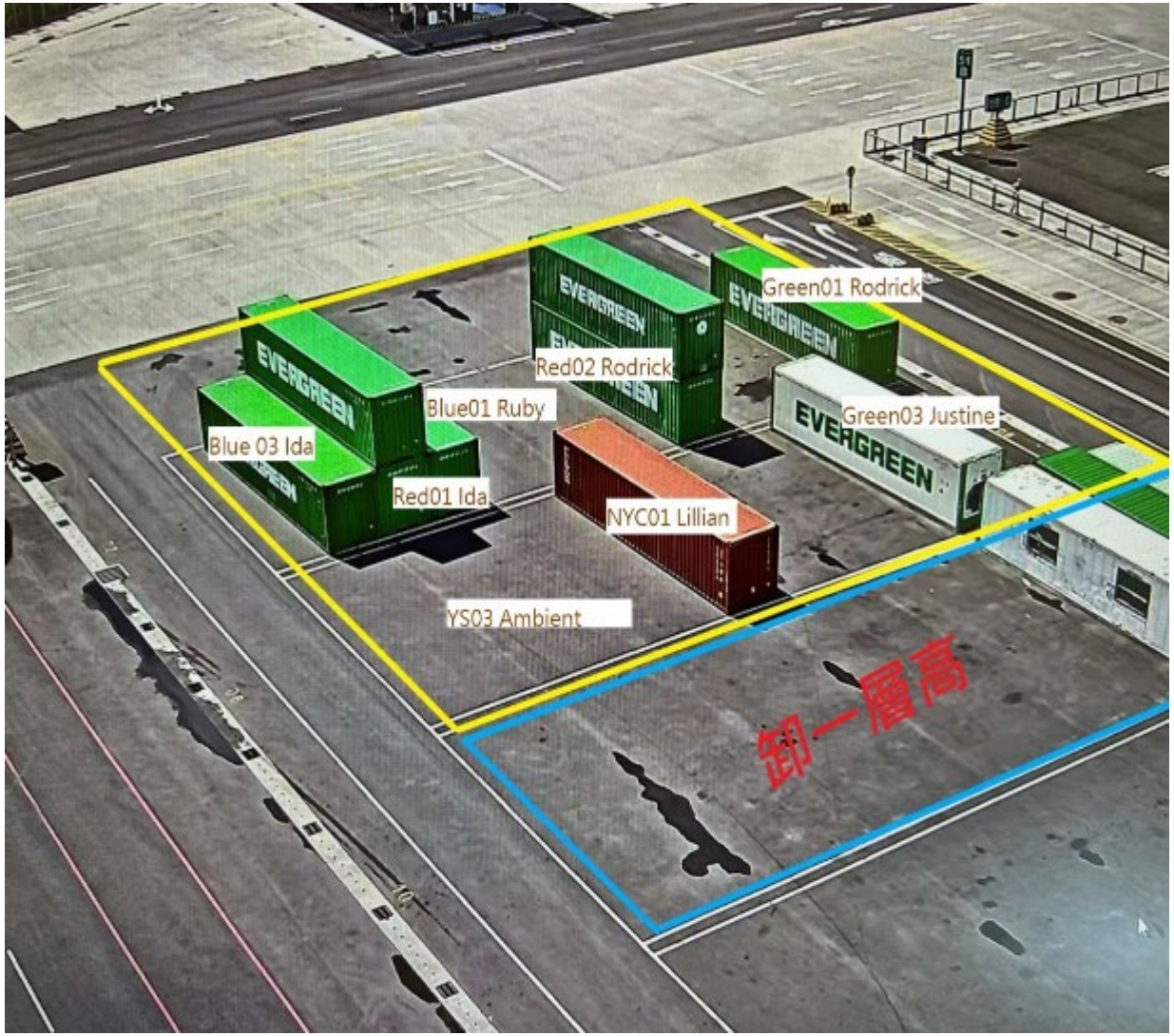
Data Loggers Positioning

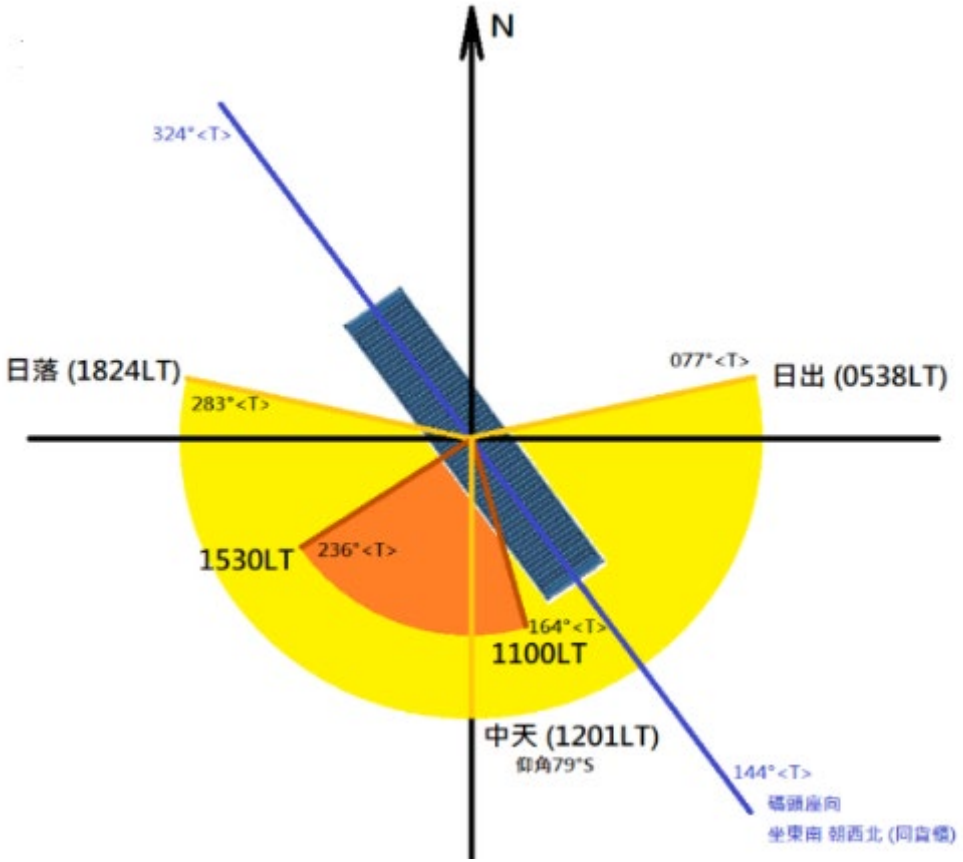






Data acquired



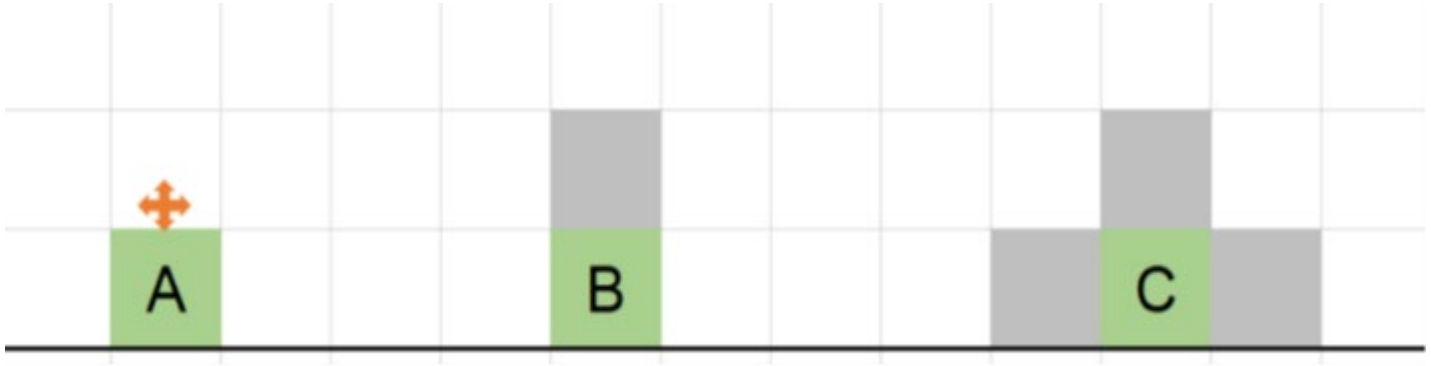


Data acquired

Device Name	YS WEATHER - 2991551
Device Model and Serial Number	5500L, 2991551
Snapshot Name	Snapshot - Sep 27, 2024 15:05:14
Time	Sep 27, 2024 / 15:05:14
Location Description	
Location Address	台灣高雄市小港區洲櫃路 21號
Location Coordinates	(22.5343573, 120.3244946)
Notes	Enter Notes

Snapshot Statistics

	Units	Value
Temperature	°C	31.0
Heat Index	°C	38.8
Relative Humidity	%	72.5
Wind Speed	km/h	19.0
Station Pressure	mb	1006.6
Dew Point	°C	25.4
Altitude	m	53
Density Altitude	m	753
Barometric Pressure	mb	1006.6
Compass Magnetic Direction	Deg	231
Compass True Direction	Deg	231
Crosswind	km/h	14.8
Headwind	km/h	-12.0
Wind Chill	°C	30.9
Wet Bulb Temp	°C	26.8

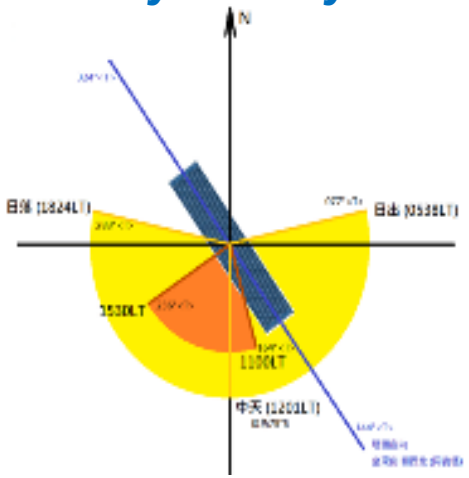


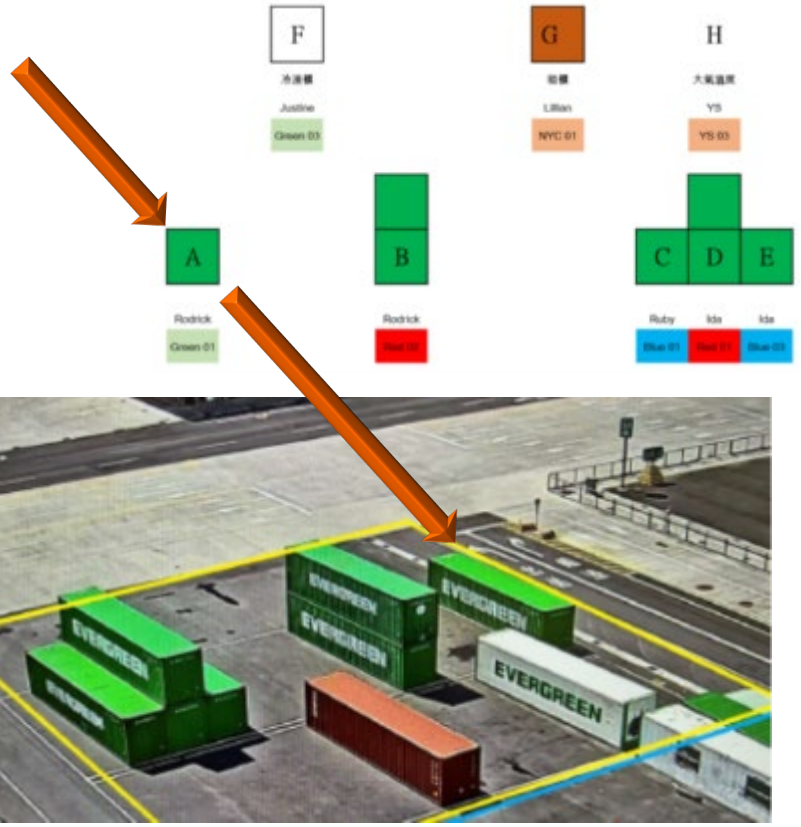
Sep 27, 2024
05:38 Sunrise
15:00 Took readings by TIC (abt 9hrs aft sunrise)
Temperature 31.0 ℃
Wind Speed 19.0 km/h
The sky had between 3/8 – 5/8 cloud cover (partly cloudy)

Data acquired

Green, unprotected, outside / inside / air
57.7℃ / 61.7℃ / 31.0℃

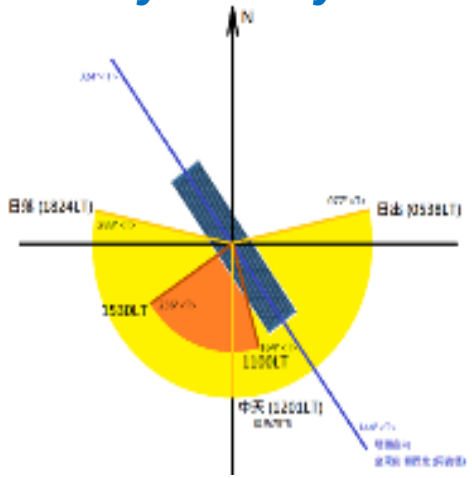
15:00 Local Time
Air Temp. 31.0 ℃
Wind Spd 19.0 km/h
Partly Cloudy



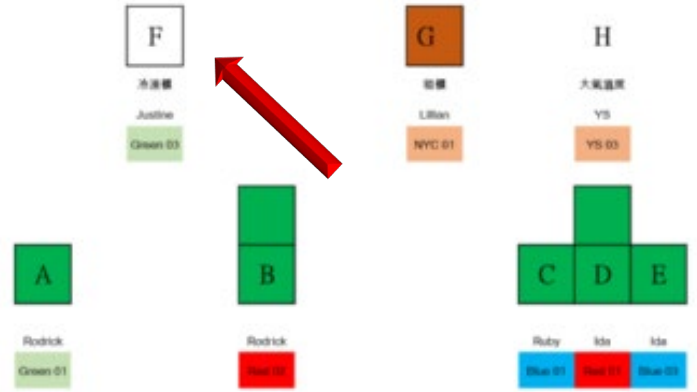


Data acquired

15:00 Local Time
Air Temp. 31.0 ℃
Wind Spd 19.0 km/h
Partly Cloudy

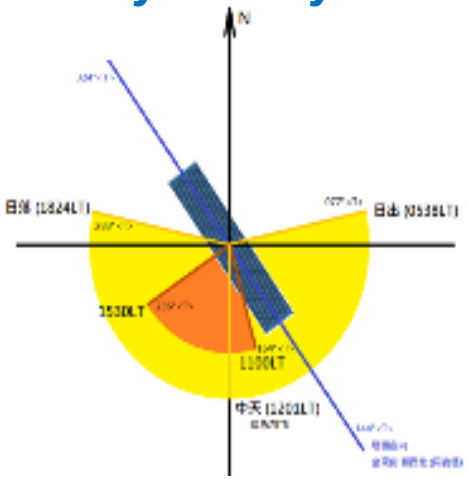


Reefer, unprotected , outside / inside / air
65.6 ℃ / 38.1℃ / 31.0℃

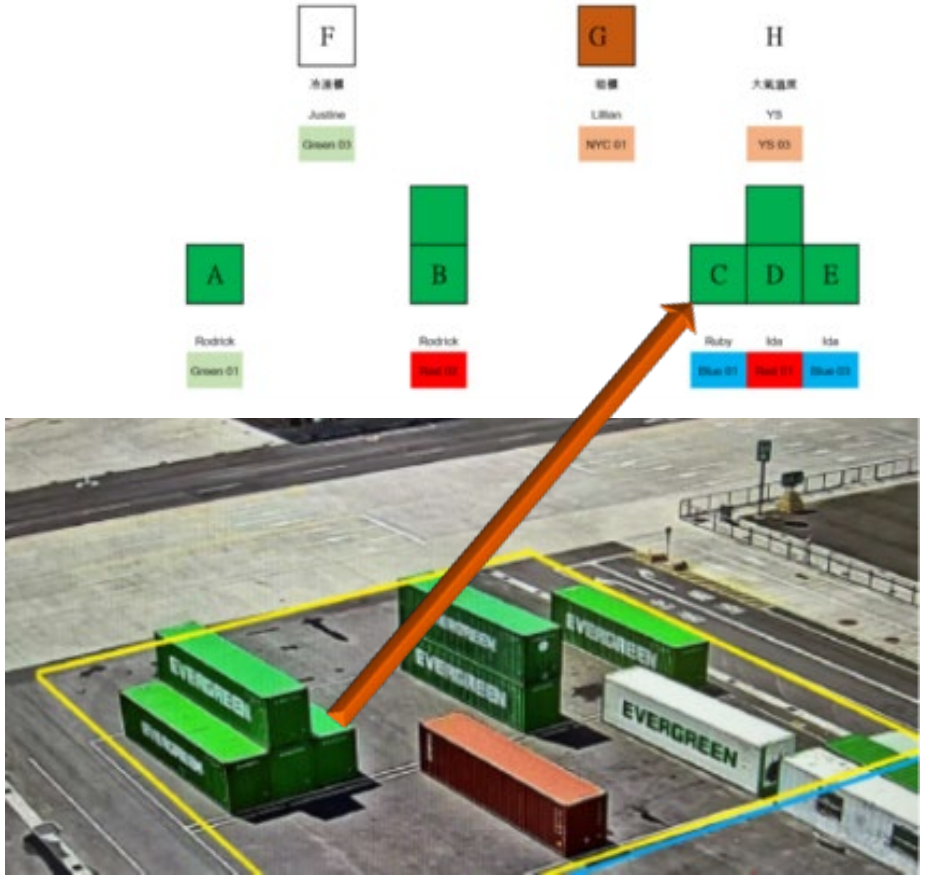


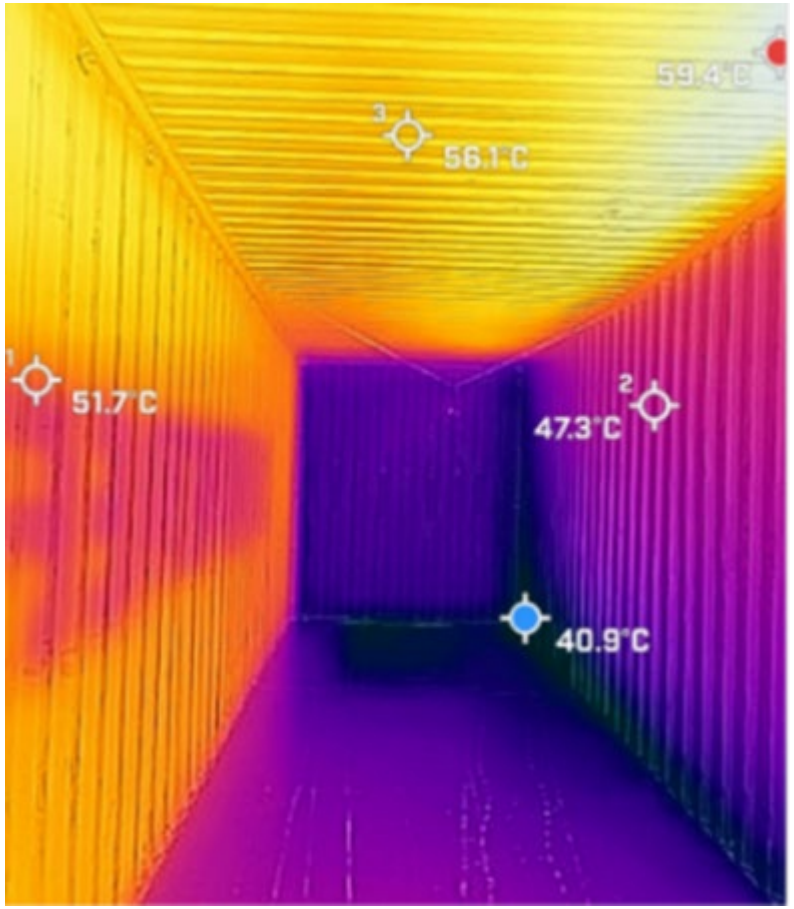
Data acquired

15:00 Local Time
Air Temp. 31.0 ℃
Wind Spd 19.0 km/h
Partly Cloudy



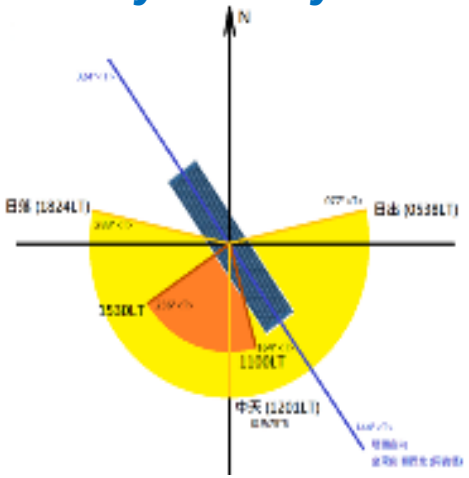
right wall shaded, outside / inside / air
54.1℃ / 59.4℃ / 31.0℃



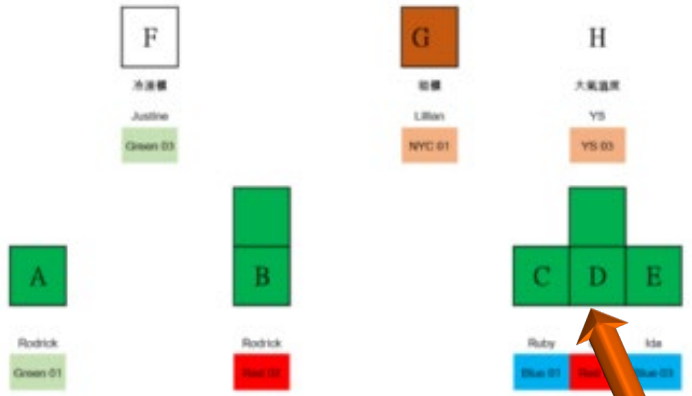


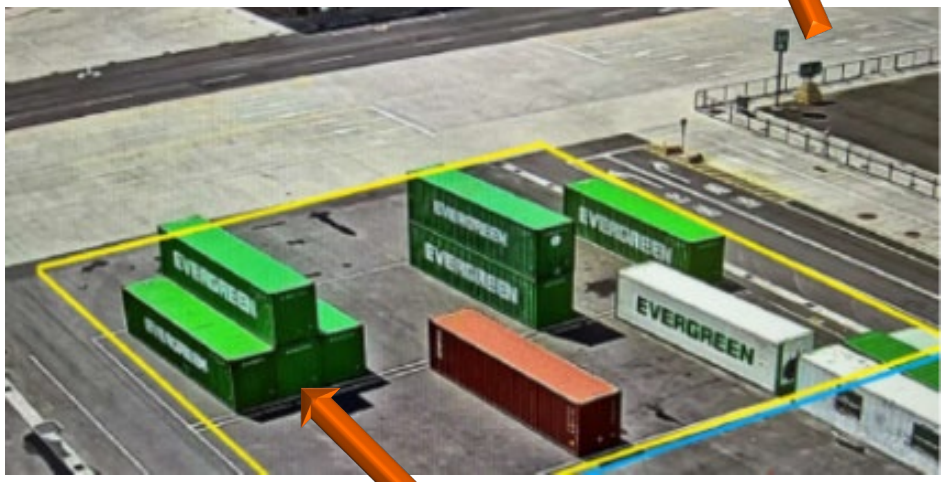
Data acquired

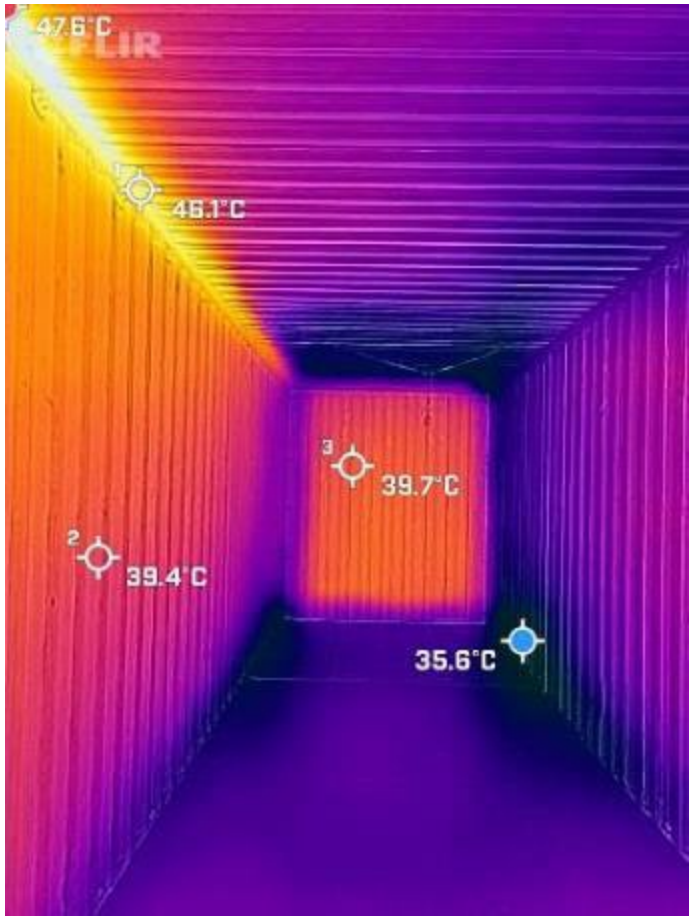
15:00 Local Time
Air Temp. 31.0 ℃
Wind Spd 19.0 km/h
Partly Cloudy

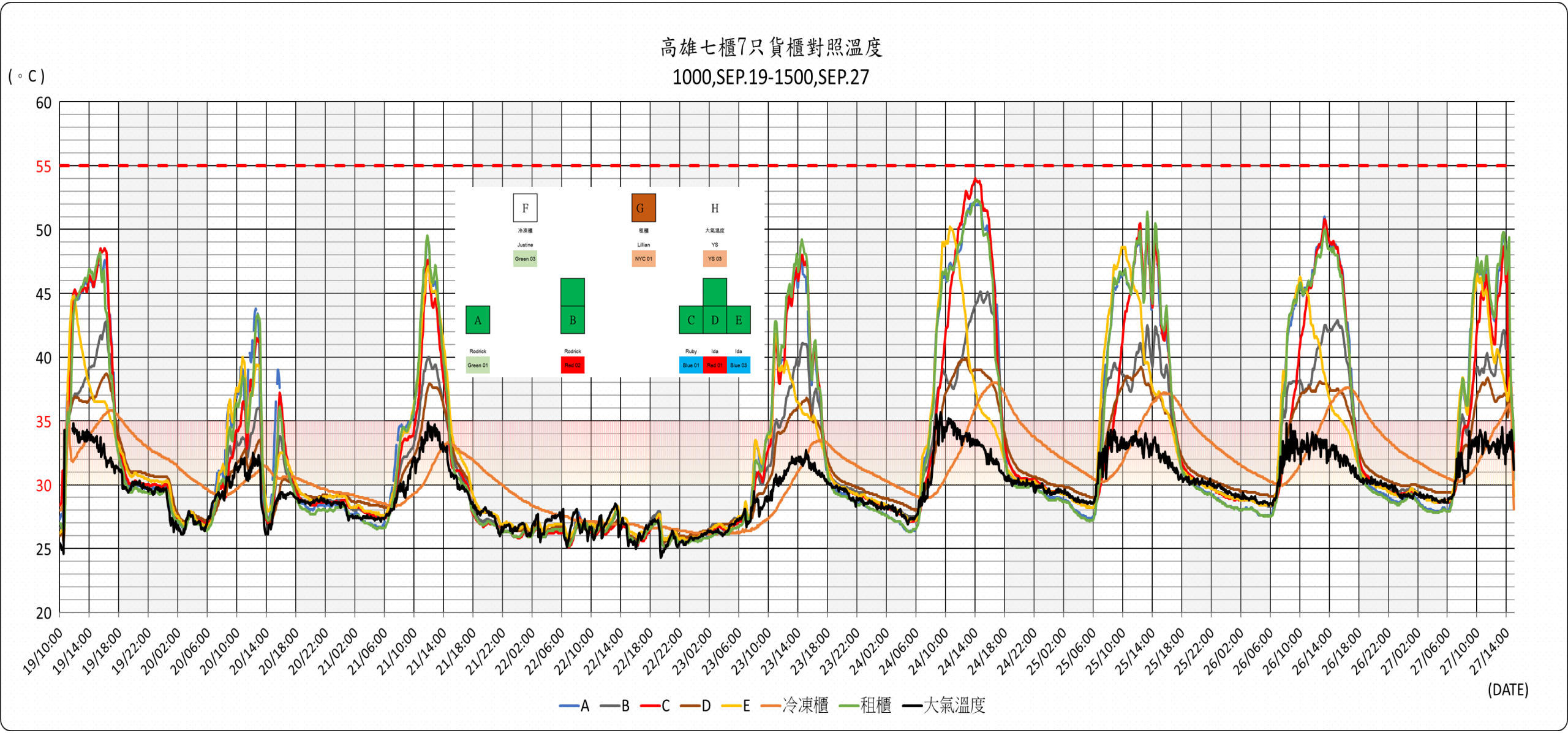


top, left & right protected, outside / inside / air
49.1℃ / 47.6℃ / 31.0℃








高雄七櫃7只貨櫃對照溫度
1000,SEP.19-1500,SEP.27
(◦C)
60
55
50
45
40
35
30
25
20
F
冷凍櫃
Justine
Green 03
G
租櫃
Lillian
NYC 01
H
大氣溫度
YS
YS 03
A
Rodrick
Green 01
B
Rodrick
Red 02
C
Ruby
Blue 01
D
Ida
Red 01
E
Ida
Blue 03
19/10:00
19/14:00
19/18:00
19/22:00
20/02:00
20/06:00
20/10:00
20/14:00
20/18:00
20/22:00
21/02:00
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25/18:00
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26/10:00
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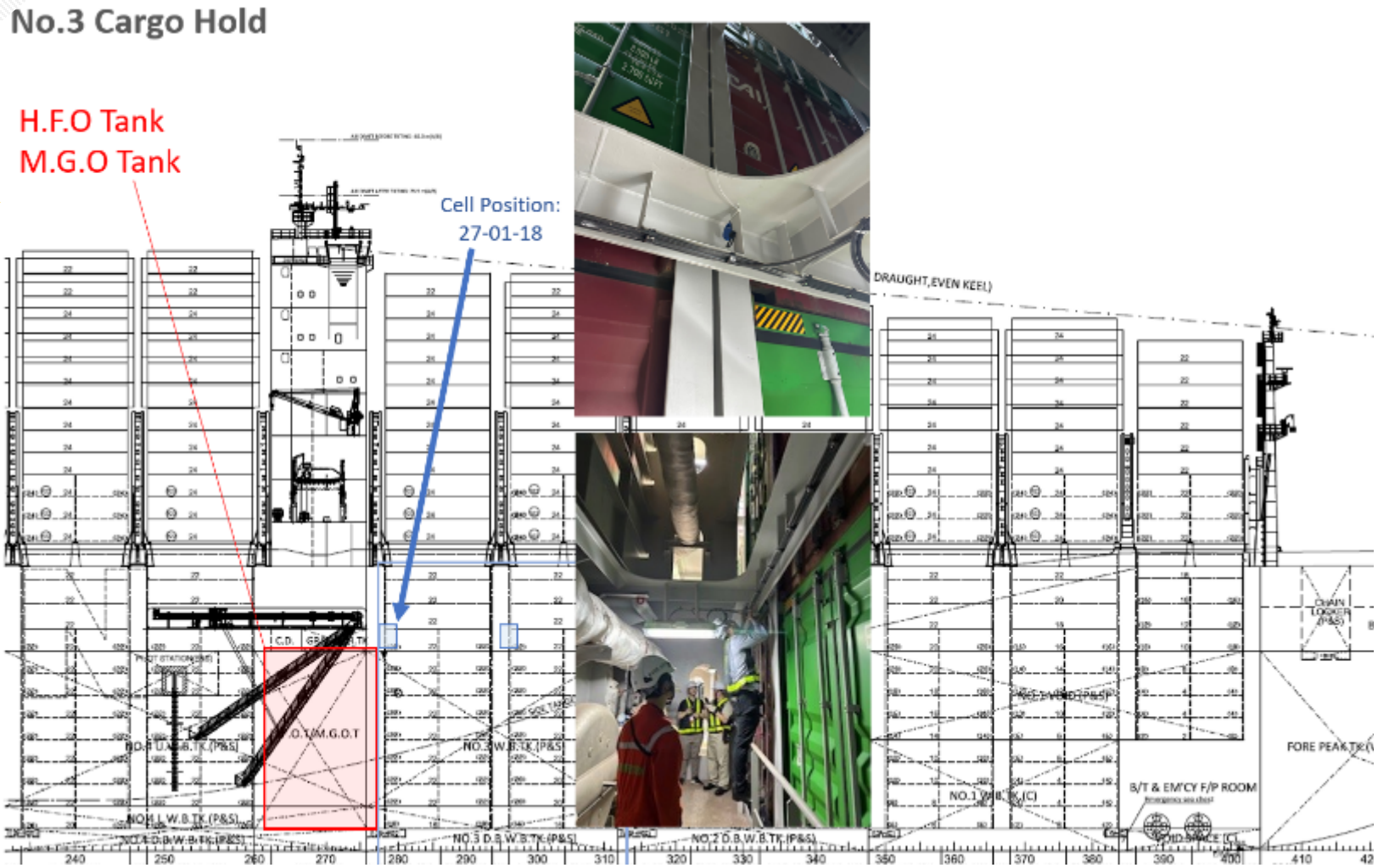
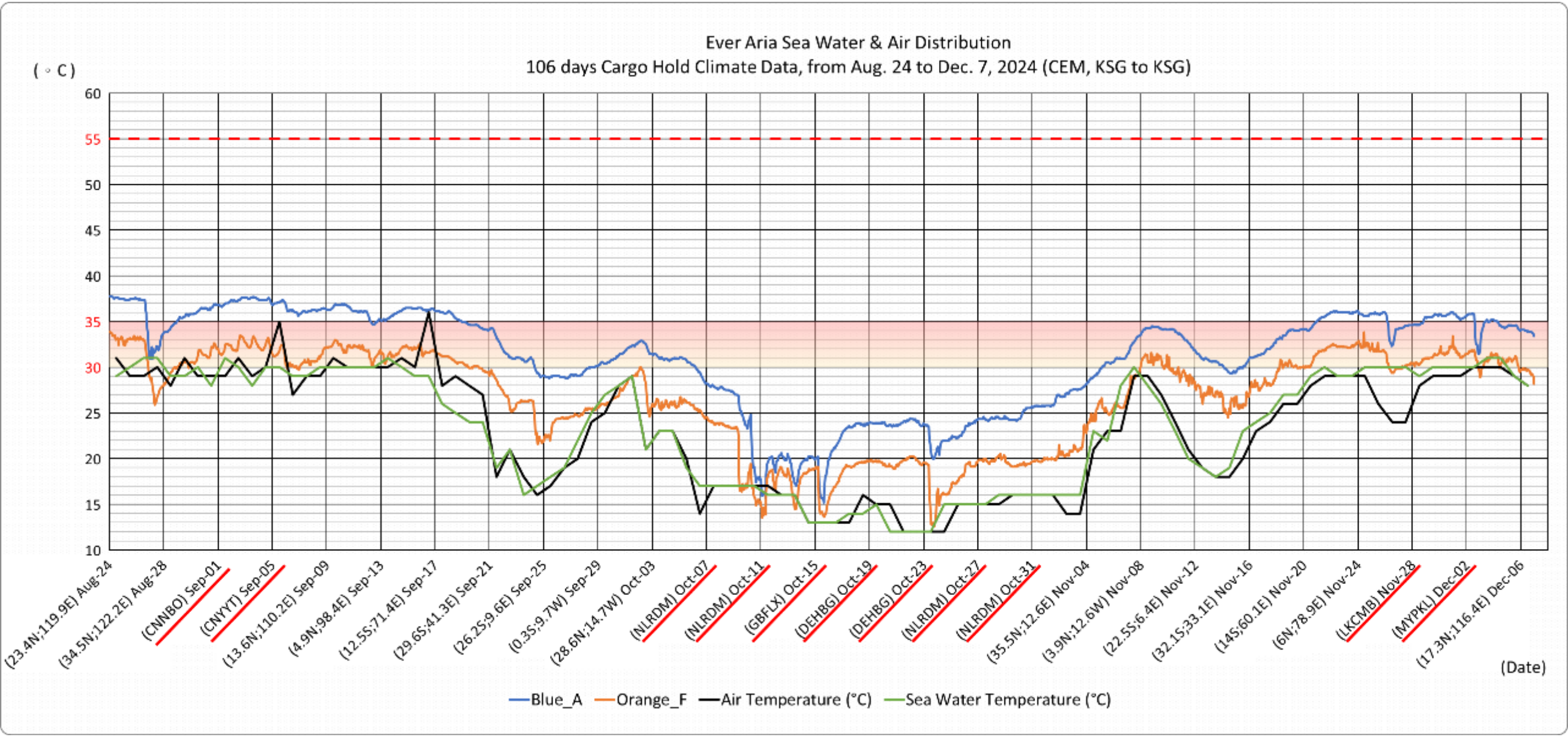
26/18:00
26/22:00
27/02:00
27/06:00
27/10:00
27/14:00
(DATE)
A
B
C
D
E
冷凍櫃
租櫃
大氣溫度

3. Sea – 24K VESSEL (Far East - Europe)




07-Oct-24-NLRDM ECT DELTA
05-Oct-24
04-Oct-24
03-Oct-24
02-Oct-24
01-Oct-24
30-Sep-24
29-Sep-24
28-Sep-24
27-Sep-24
26-Sep-24
25-Sep-24
23-Sep-24
21-Sep-24
20-Sep-24
19-Sep-24
18-Sep-24
17-Sep-24
16-Sep-24
15-Sep-24
11-Sep-24-SGSGP
10-Sep-24
09-Sep-24
24-Aug-24-TWKSG
02-Sep-24-TWTPE
29-Aug-24-CNSHG
26-Aug-24-CNQND
Vilnius
Moscow
Ulaanbaatar
Bishkek
Rome
Tehran
Kabul
Muscat
Hanoi
Sana
Niamey
N' Djamena
Kampala
Jakarta
Dili
Sea of Azov
Arabian Sea
Molucca Sea
Arafura Sea
East China Sea
British Indian Ocean
Juan De Nova Island
Christmas Island
30° 0 W
0° 0W
30° 0 E
60° 0 E
90° 0 E
120° 0 E
30° 0 N
0° 0 N
30° 0 S


30° 0 W
0° 0W
30° 0 E
60° 0 E
90° 0 E
120° 0 E
30° 0 N
0° 0 N
Oslo
Estonia
Riga
Denmark
Moscow
19-Oct-24-DEHBG
Ireland
02-Nov-24
France
Austria
Moldova
Kazakhstan
Ulaanbaatar
Sea of Azov
03-Nov-24
Mongolia
Rome
Uzbekistan
Bishkek
Portugal
Greece
Turkey
Armenia
Tajikistan
North Korea
Japan Sea
04-Nov-24
Tehran
Yellow Sea
東京
Cyprus
Kabul
Tunisia
China
Morocco
Israel
Amakusa-Nada
Iran
Kuwait
Pakistan
Nepal
05-Nov-24
Algeria
East China Sea
Western Sahara
Libya
Qatar
Egypt
Muscat
India
Bangladesh
07-Dec-24-TWKSG
Saudi Arabia
Hanoi
06-Nov-24
06-Dec-24
Niger
Chad
Arabian Sea
Cape Verde
Eritrea
Sana
Thailand
Niamey
N' Djamena
05-Dec-24
07-Nov-24
Togo
Ethiopia
Sri
25-Nov-24-LKCMB
Sierra Leone
Cameroon
Pacific Islands (Palau
08-Nov-24
02-Dec-24-MTPKL
Uganda
Molucca Sea
Kampala
Sao Tome and Principe
09-Nov-24
22-Nov-24
Indonesia
Zaire
Tanzania
Jakarta
Indonesia
10-Nov-24
British
Territory
21-Nov-24
Dili
Christmas Island
Arafura Sea
Angola
Comoros
11-Nov-24
20-Nov-24
Juan De Nova Island
Namibia
19-Nov-24
Port-Louis
12-Nov-24
Botswana
Madaga
18-Nov-24
Australia
13-Nov-24
17-Nov-24
South Africa
14-Nov-24

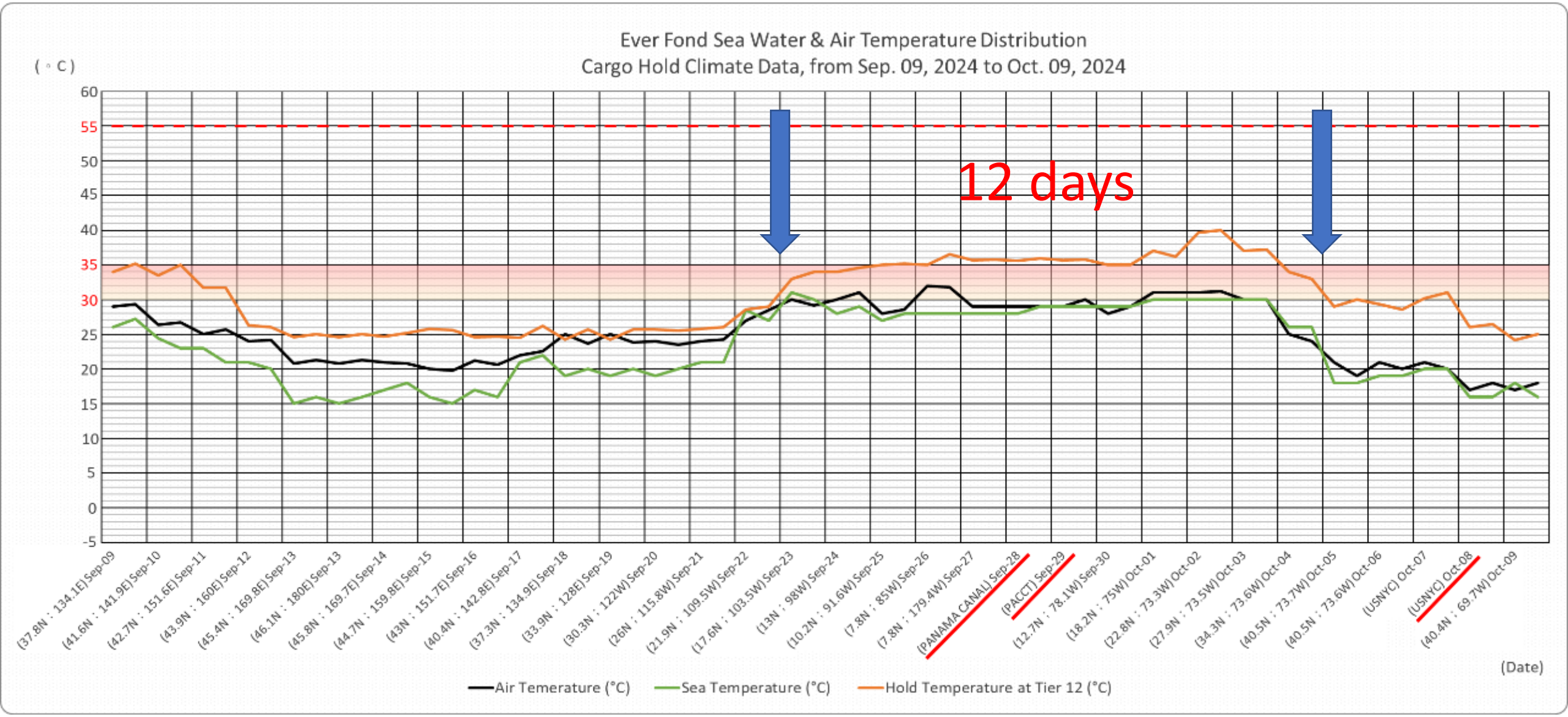

Ever Aria Sea Water & Air Distribution
106 days Cargo Hold Climate Data, from Aug. 24 to Dec. 7, 2024 (CEM, KSG to KSG)
(◦ C)
60
55
50
45
40
35
30
25
20
15
10
(23.4N;119.9E) Aug-24
(34.5N;122.2E) Aug-28
(CNNBO) Sep-01
(CNYYT) Sep-05
(13.6N;110.2E) Sep-09
(4.9N;98.4E) Sep-13
(12.5S;71.4E) Sep-17
(29.6S;41.3E) Sep-21
(26.2S;9.6E) Sep-25
(0.3S;9.7W) Sep-29
(28.6N;14.7W) Oct-03
(NLRDM) Oct-07
(NLRDM) Oct-11
(GBFLX) Oct-15
(DEHBG) Oct-19
(DEHBG) Oct-23
(NLRDM) Oct-27
(NLRDM) Oct-31
(35.5N;12.6E) Nov-04
(3.9N;12.6W) Nov-08
(22.5S;6.4E) Nov-12
(32.1S;33.1E) Nov-16
(14S;60.1E) Nov-20
(6N;78.9E) Nov-24
(LKCMB) Nov-28
(MYPKL) Dec-02
(17.3N;116.4E) Dec-06
(Date)
Blue_A
Orange_F
Air Temperature (°C)
Sea Water Temperature (°C)

4. Sea – 12K VESSEL (Far East – US East)

C. H. No. 07 Temperature Measurements

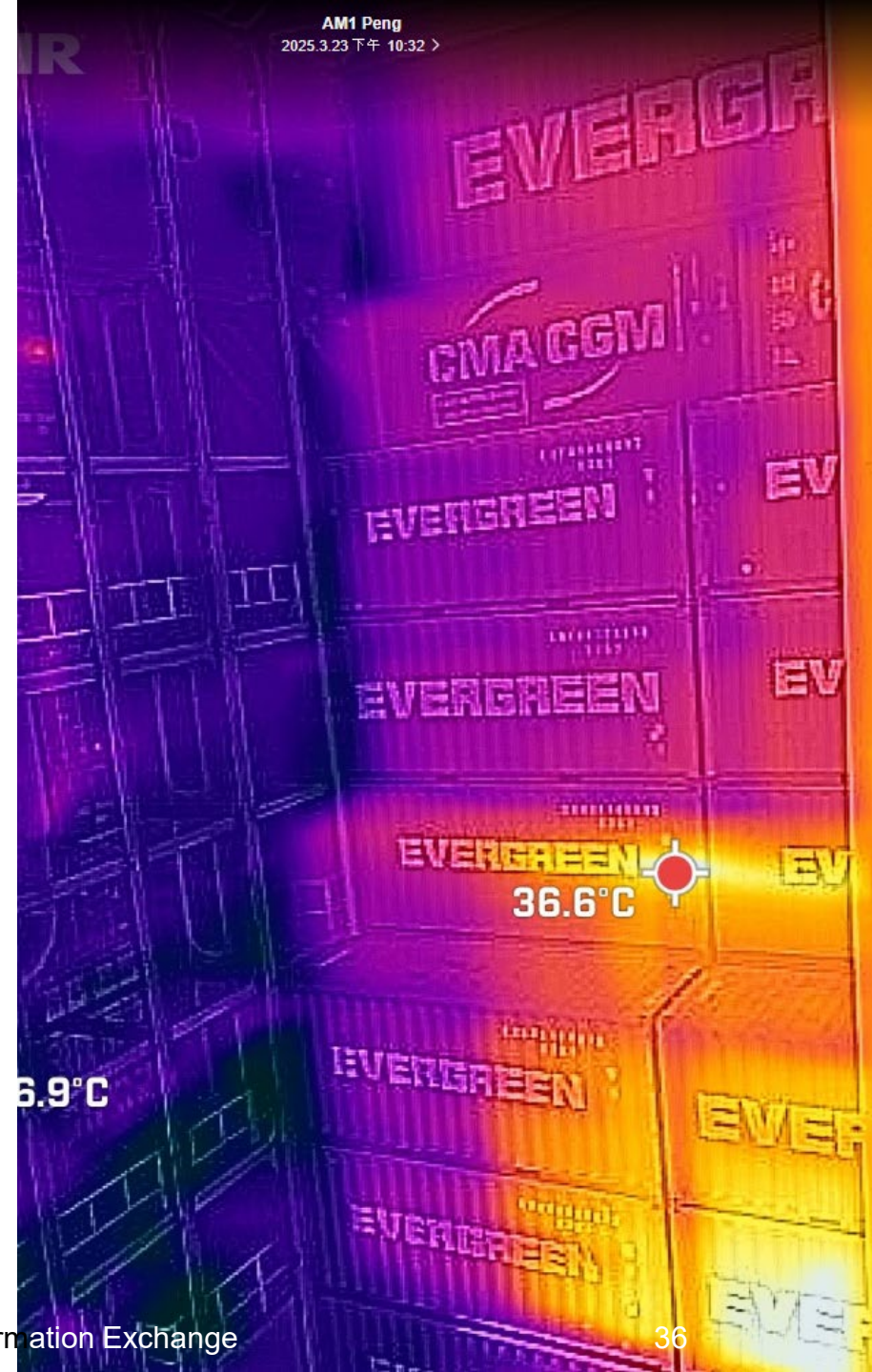
ate	2D	Noon Position	Time	Air Temperature (°C)	Sea Temperature (°C)	Hold Temperature at Tier 12 (°C)	Ambient Temperature EMCU5751172 (°C)	Ambient Temperature EMCU5503469 (°C)
.024/9/9	9	7° 46.6' N, 134° 03.7	08:00	29	26	34	33.4	31.2
			16:00	30.3	27.2	35.2	33.7	31.4
2024/9/10	9	1° 37.9' N, 141° 54.5'	08:00	26.4	24.4	33.5	33	32
			16:00	26.7	23	35	33.5	31.9
2024/9/11	9	2° 41.8' N, 151° 35.2'	08:00	25	23	31.7	30	28.8
			16:00	25.7	21	31.7	30.3	28.5
2024/9/12	12	3° 58.6' N, 160° 02.4'	08:00	24	21	26.3	25.1	24.4
			16:00	24.2	20	26	24	23.8
2024/9/13	12	5° 25.7' N, 169° 45.8'	08:00	20.8	15	24.6	22.8	22.9
			16:00	21.3	16	25	23.9	22.9
2024/9/13	12	6° 04.7' N, 179° 57.6'	08:00	20.8	15	24.6	22.8	22.9
			16:00	21.3	16	25	23.9	22.9
2024/9/14	12	5° 49.9' N, 169° 43.1'	08:00	21	17	24.7	26.2	24.6
			16:00	20.8	18	25.2	26	25.8
2024/9/15	12	4° 40.9' N, 159° 50.6'	08:00	20	16	25.8	24.9	24.3
			16:00	19.8	15	25.6	24.8	24.5
2024/9/16	-9	3° 01.9' N, 151° 39.6'	08:00	21.2	17	24.6	23.7	22.5
			16:00	20.6	16	24.7	24	22.7
2024/9/17	-8	0° 25.4' N, 142° 48.4'	08:00	22	21	24.5	25.4	24.3
			16:00	22.6	22	26.2	24.6	24
2024/9/18	-8	7° 15.8' N, 134° 53.0'	08:00	25	19	24.3	24.5	23.2
			16:00	23.7	20	25.7	24.8	23.6


EVER FOND 1177-015E
09-Sep-24
10-Sep-24
11-Sep-24
13-Sep-24
13-Sep-24-2
14-Sep-24
15-Sep-24
16-Sep-24
17-Sep-24
18-Sep-24
19-Sep-24
20-Sep-24
21-Sep-24
22-Sep-24
23-Sep-24
24-Sep-24
25-Sep-24
29-Sep-24-Colon
30-Sep-24
01-Oct-24
02-Oct-24
03-Oct-24
04-Oct-24
08-Oct-24-New York
PACIFIC OCEAN
North Korea
South Korea
Japan
東京
Yellow Sea
East China Sea
Midway Islands
Wake Island
Johnston Atoll
Northern Mariana Islands
Guam
Manila
Palikir
Marshall Islands
Bairiki
Howland Island
Kiribati
Pacific Islands (Palau)
Mexico
Guatemala
Cuba
Bahamas
Jamaica
Panama
Colombia
Venezuela
Caracas
United States
Great Salt Lake
Lake Michigan
Lake Superior
Lake Ontario
Lake Erie
Ottawa
Washington
Bermuda


Ever Fond Sea Water & Air Temperature Distribution
Cargo Hold Climate Data, from Sep. 09, 2024 to Oct. 09, 2024
(◦ C)
60
55
50
45
40
35
30
25
20
15
10
5
0
-5
12 days
(37.8N : 134.1E) Sep-09
(41.6N : 141.9E) Sep-10
(42.7N : 151.6E) Sep-11
(43.9N : 160E) Sep-12
(45.4N : 169.8E) Sep-13
(46.1N : 180E) Sep-13
(45.8N : 169.7E) Sep-14
(44.7N : 159.8E) Sep-15
(43N : 151.7E) Sep-16
(40.4N : 142.8E) Sep-17
(37.3N : 134.9E) Sep-18
(33.9N : 128E) Sep-19
(30.3N : 122W) Sep-20
(26N : 115.8W) Sep-21
(21.9N : 109.5W) Sep-22
(17.6N : 103.5W) Sep-23
(13N : 98W) Sep-24
(10.2N : 91.6W) Sep-25
(7.8N : 85W) Sep-26
(7.8N : 179.4W) Sep-27
(PANAMA CANAL) Sep-28
(PACCT) Sep-29
(12.7N : 78.1W) Sep-30
(18.2N : 75W) Oct-01
(22.8N : 73.3W) Oct-02
(27.9N : 73.5W) Oct-03
(34.3N : 73.6W) Oct-04
(40.5N : 73.7W) Oct-05
(40.5N : 73.6W) Oct-06
(USNYC) Oct-07
(USNYC) Oct-08
(40.4N : 69.7W) Oct-09
(Date)
Air Temerature (°C)
Sea Temperature (°C)
Hold Temperature at Tier 12 (°C)

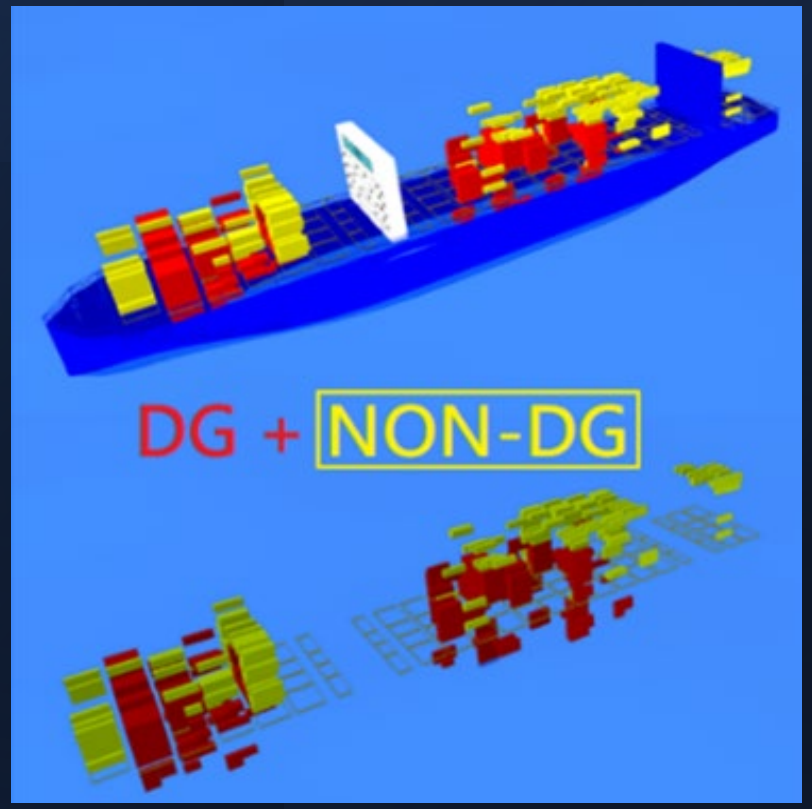
Few Notes...

- Suppose the contents of those containers, which are temperature-sensitive and critical to fire risk, are visually identifiable on the individual stakeholder’s software. In that case, it will help the parties involved make safer stowage arrangements and facilitate better container fire management.
- Other than container type, the external climate, the geographic location, and the seasons are crucial factors affecting the container's internal temperature.
- Many aspects must be carefully reviewed before determining the stowage of critical cargo on or under deck of a ship. However, the study suggests that the cargo hold temperature may stay over 35 C for days or weeks, subject to the itinerary; this additional factor requires attention.

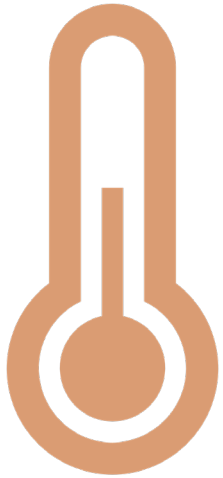


Recaps

Visualization helps Fire Prevention



Temperature and Information Exchange



35°C

Critical Cargo

55°C

IMDG Code

Sea

On Deck

In Hold

Land

Terminal

Depot

4. SMDG

SMDG Attribute code list

(https://smdg.org -> SMDG CODE LISTS)

SMDG HANDLING, STOWINS, ATTRIBUTES CODE LISTS

SMDG E.V. > DOCUMENTS > SMDG CODE LISTS > SMDG HANDLING, STOWINS, ATTRIBUTES CODE LISTS

In order to allow for a clear interpretation of coded instructions, SMDG decided to maintain separate code lists for **handling, stowage instruction, and attributes of transport equipment and stowage locations.** The definition of these code lists is described in a single Excel workbook with separate tabs explaining the usage of these code lists and the definition of each code list.

Download workbook (version 08. Jan. 2025)

S M D G

version 2025-01-08

SMDG Attribute code list

Definition:

These codes define properties or status of a specific transport equipment (container).

They are NOT an instruction, although they may require certain activities.

DE 1131= **ATTRIBUTES**

Examples:

ATT+27++SMC:ATTRIBUTES:306' (if ATT segment is available)
FTX+ACF++SMC:ATTRIBUTES:306' (D.00B and later)
FTX+ACF++SMC:ATT:306' (before D.00B)

Code	*Name*	*Category*	*Description*
LIB	Lithium batteries (non-DG)	STATUS	Contains Lithium batteries (non-DG)
LIO	Lithium Ion batteries (non-DG)	STATUS	Contains Lithium Ion batteries (non-DG)

SMDG - Attribute code

LIB

(Lithium Batteries (non-DG))

COB

(Cocoa Butter and Cocoa Beans)

LIO

(Lithium Ion Batteries (non-DG))

Segment: FTX Free Text — **COPARN (00B)**
Position: 0680
Group: Segment Group 13 (Equipment Details) Mandatory
Level: 2
Usage: Conditional (Optional)
Max Use: 9
Purpose: A segment to specify processable supplementary information associated with the container, such as: loading instructions (seagoing vessel) special instructions (related to inland transport) - container order information (conditions to be checked) - remarks
Comments:
Notes: *Sample segment :*
FTX+AAA+++CHOCOLATES'
FTX+OSI++040'
FTX+ABS++SM1:ZZZ:SMD'

Data Element Summary

	Data Element	Component Element	Name		Attributes
M	4451		TEXT SUBJECT CODE QUALIFIER		M 1 an..3
			AAA	*Goods description*	
			AAI	*General information*	
			ABS	*Additional conditions*	
			ACF	*Additional attribute information*	
			ADZ	*CSC (Container Safety Convention) plate information*	
			DAR	*Damage remarks*	
			INV	*Invoice instruction*	
			LOI	*Loading instruction*	
			OSI	*Other service information*	
			SIN	*Special instructions*	

CODECO (00B)

Segment: FTX Free Text
Position: 0460
Group: Segment Group 10 (Equipment Details) Mandatory
Level: 2
Usage: Conditional (Optional)
Max Use: 99
Purpose: A segment to specify processable supplementary information associated with the container, such as: - damage remarks
Comments:
Notes: *Sample segment :*
FTX+AAA+++CHOCOLATES'
FTX+ABS++SM1:ZZZ:SMD'

Data Element Summary

	Data Element	Component Element	Name		Attributes
M	4451		TEXT SUBJECT CODE QUALIFIER		M 1 an..3
			AAA	*Goods description*	
			AAI	*General information*	
			ABS	*Additional conditions*	
			ACF	*Additional attribute information*	
			ADZ	*CSC (Container Safety Convention) plate information*	
			DAR	*Damage remarks*	
			INV	*Invoice instruction*	
			LOI	*Loading instruction*	
			OSI	*Other service information*	
			SIN	*Special instructions*	

The latest version (version 00B) of COPARN. CODECO. COARRI

FTX+ACF segment for Attribute information

Segment: FTX Free Text — **COARRI (00B)**
Position: 0350
Group: Segment Group 6 (Equipment Details) Conditional (Required)
Level: 2
Usage: Conditional (Optional)
Max Use: 9
Purpose: A segment to specify supplementary information related to the equipment, such as: - blockade reason - government inspection service - container loading remarks - container remarks - container order information - additional remarks concerning the container - container safety convention plate - continuous examination program (ACEP)
Comments:
Notes: *Sample segment :*
FTX+AAA+++FLOWERBULBS'
FTX+OSI++040'

Data Element Summary

	Data Element	Component Element	Name		Attributes
	4451		TEXT SUBJECT CODE QUALIFIER		M 1 an..3
			AAA	*Goods description*	
			AAI	*General information*	
			ABS	*Additional conditions*	
			ACF	*Additional attribute information*	
			ADZ	*CSC (Container Safety Convention) plate information*	
			DAR	*Damage remarks*	
			INV	*Invoice instruction*	
			LOI	*Loading instruction*	
			OSI	*Other service information*	
			SIN	*Special instructions*	

New DGS group

BAPLIE (version 3)

- Objectives
  - Fully identify DG items according to IMDG Code
  - Special cases like LQ (Limited Quantities) and CFR49 cargo now covered
  - Deal with release frequency of new IMDG amendments problem: time-consuming directory updates
  - Harmonized solution (PROTECT, IFTDGN, etc.)
- Approach
  - Use ATT segment for missing attributes (do not use FTX for key data)
  - Use SMDG maintained codes list for new attribute types
  - Provide MEA segment for quantitative attributes
  - Add contact information

The latest BAPLIE version (version 3.1.1).

ATT segment for Attribute information

BAPLIE
(version 3.1.1)

Group: DGS **Segment Group 11: Dangerous Goods**
Position: 00440
Group: Segment Group 7 (Equipment Details) Conditional (Dependent)
Level: 3
Usage: Conditional (Optional)
Max Use: 999
Purpose: A group of segments providing dangerous goods information related to a unit of equipment or uncontainerised cargo including official hazard identification and emergency contact information.

Segment Summary

User Attribute	Pos. No.	Seg. ID	Name	Req. Des.	Max. Use	Group: Repeat
M	00450	DGS	Dangerous Goods	M	1	
O	00460	ATT	Attribute	C	9	
O	00470	MEA	Measurements	C	9	
O	00480	FTX	Free Text	C	9	
	00490		Segment Group 12: Contact Information	C		9

Container Information Flow

Carrier
(Box Operator)

Shipper

Booking Desk

Provide Non-DG information

COPRAR
(Cargo Booking Forecast)

COPARN
(Container pre-Announcement and Release Notice)

COPRAR
(Container Discharge and Loading List)

Carrier
(Vessel Operator)

Terminal

BAPLIE
(Bayplan Message)

Non-DG

Add ATTRIBUTE code on EDI Message. Let stakeholders can identify it's a Critical Cargo easily.

Ex: FTX+ACF++LIB:ATTRIBUTES:306'

LIB (Lithium Batteries, non-DG)

COARRI
(Container Discharge and Loading Confirmation)

CODECO
(Container Delivery Confirmation – Gate Moves)

BAPLIE (Bayplan Message)

Implement ATTRIBUTE code on each EDI Message

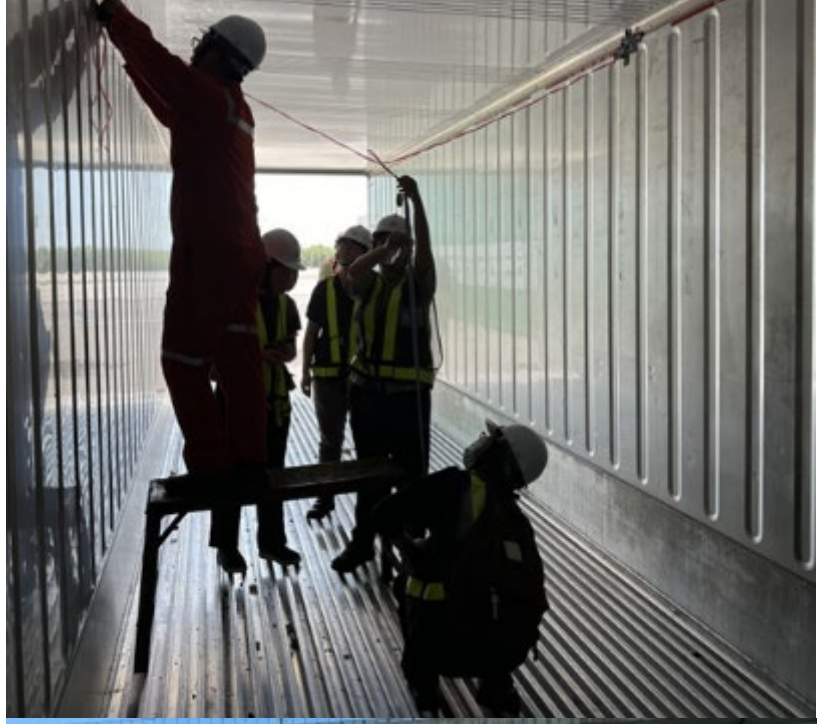
(COPARN. COPRAR. COARRI. CODECO and BAPLIE) .

Let all stakeholders -
Carriers (Vessel Operator <-> Box Operator) .
Terminal and Vessel (Ship)... can pay more attention on the Critical Cargo easily.

5. On-going Tasks

1. **The Temperature Study**
   - Analyzing the collected data
   - Conducting more surveys
   - Sharing

2. **The Container Message Information Exchange**
   - SMDG Attribute Code List



6. A Safer Environment

Thank you!