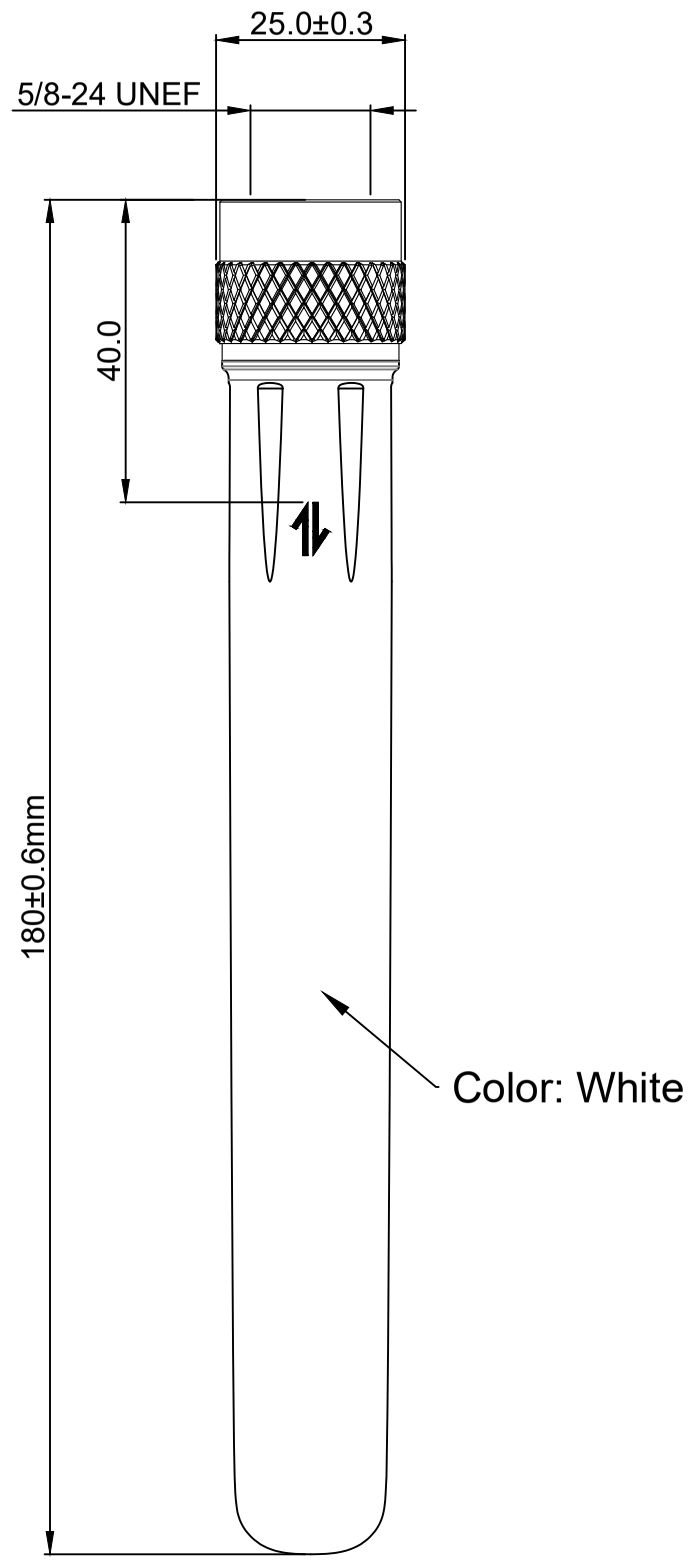
WNC
啓碁科技股份有限公司

Parts Specification Cover

Customer	**Wistron Neweb Corporation**
WNC P/N	**08.21030.003**
Supplier	**GTT**
Brand	
Supplier P/N	**103DG00000130**
Revision	**X1**

MFG	ADDRESS	TEL
Site 1 : Factory Name **Site 2 :** Factory Name **Site 3 :** Factory Name		

approval	reviewer	prepared
Mark	supplier	YW



Electrical Specification			
Frequency Range	2400MHz~2500MHz	5150MHz - 5850MHz	5925MHz - 7125MHz
Polarization	Linear, Vertical		
HPBW-Horizontal	360		
HPBW-Vertical	90		
Peak Gain	4 dBi Max.	7 dBi Max.	7.5 dBi Max.
Efficiency	65% Min.	70% Min.	64% Min.
VSWR	2.0 Max.:1		
Impedance	50 Ohms		
Connector	N plug		

Environmental & Mechanical Characteristics	
Temperature	-40°Cto 70°C
Humidity	95% @ 55°C
Radome color	White
Radome material	ASA
Weight	60gw
Dimensions	ϕ 25 x 180mm

REACH

RoHS

UNLESS OTHERWISE SPECIFIED
TOLERANCE :
ANGLES : ±2°
X.X ±0.3
X.XX ±0.15
DO NOT SCALE DRAWING

Grand-Tek Technology 榮昌科技股份有限公司
GRAND-TEK TECHNOLOGY CO., LTD.

Designed BY	YW	TITLE Antenna,WiFi 6E,Dual Band			G00140
DRAWN BY	Gene				
CHECKED BY	Eric	SIZE A3	UNIT mm	PART NO. 08.21030.003	REV. X1
APPROVED BY	Mark	SCALE 1:1	THIRD ANGLE PROJECTION		PAGE 1 OF 1
Type No.	-	ITEM NO. 103DG00000130			DATE 2022-08-01

1. Identification of the substance/mixture and of the company/undertaking

Product identifier

Trade name: Luran® S AMS Natural

This safety data sheet pertains to the following products:
Luran® S 778T Q42 NR
Luran® S 778T Q443 NR
Luran® S 778T Q495 NR
Luran® S 778T Q496 NR
Luran® S 778T UV NR
Luran® S 778T UV SPL

Relevant identified uses of the substance or mixture and uses advised against

General use: Polymer
Basic material for chemical industry processing

Details of the supplier of the safety data sheet

Company name: INEOS Styrolution APAC Pte Ltd.
Street/POB-No.: 111 Somerset Road
Postal Code, city: #08-01/02 TripleOne Somerset, SG
Singapore 238164
WWW: www.styrolution.com
E-mail: INSTY.asia@ineos.com
Telephone: +65 6933 8350
Telefax: +65 6933 8355
Department responsible for information:
Infopoint, Telephone: + 65 (0) 6933 - 8372
E-mail: INSTY.asia@ineos.com

Emergency telephone number

Telephone: +86 512 8090 3042 (Country); + 65 3158 1074 (regional)

2. Hazards identification

Classification of the substance or mixture

GHS classification

This mixture is classified as not hazardous.

Label elements

Hazard statements: not applicable

Precautionary statements: not applicable

Other hazards

Dust: Can cause skin, eye and respiratory tract irritation.
May cause allergic reactions in already sensitized persons.

The melted product can cause severe burns.
Swallowing may cause gastrointestinal irritation and pain of guts.

3. Composition/information on ingredients

Mixtures

Chemical characterisation: Polymer mixture:
CAS No. 25747-74-4 alpha-methylstyrene acrylonitrile copolymer
CAS No. 26299-47-8 Butyl acrylate-styrene-acrylonitrile copolymer

Hazardous ingredients:

CAS No.	Designation	Content	Classification
CAS 52829-07-9	Bis(2,2,6,6-Tetramethyl-4-piperidyl)sebacate	< 1 %	Eye Dam. 1. Aquatic Acute 1 (M-factor = 1). Aquatic Chronic 2.

Additional information: The substances are encapsulated in a polymer and are therefore not bioavailable.

4. First aid measures

In case of inhalation: Provide fresh air. Put victim at rest and keep warm. seek medical attention

Following skin contact: The melted product can cause severe burns.
Do not remove the product from the skin without medical assistance.
After contact with molten product, cool skin area rapidly with cold water. Consult physician.

After eye contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Consult an eye specialist in the event of irritation.

After swallowing: Rinse mouth with water.
Drink one or two glasses of water.
Never give an unconscious person anything through the mouth. seek medical attention

Most important symptoms and effects, both acute and delayed

Dust: Skin irritation, eye irritations and redness

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. Firefighting measures

Extinguishing media

Suitable extinguishing media:
Water spray jet, foam, extinguishing powder, carbon dioxide.

Extinguishing media which must not be used for safety reasons:
Full water jet

Special hazards arising from the substance or mixture

In case of fire may be liberated: Smoke, hydrogen cyanide, carbon monoxide and carbon dioxide (CO2).
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.

Advice for firefighters

Special protective equipment for firefighters:
Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information: Do not allow fire water to penetrate into surface or ground water. Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation.
Wear personal protection equipment. Do not breathe dust.

Environmental precautions

Do not allow to penetrate into soil, waterbodies or drains.

Methods and material for containment and cleaning up

Avoid generation of dust. Remove all sources of ignition.
Take up mechanically. Collect in closed containers for disposal.

Additional information: Special danger of slipping by leaking/spilling product.

7. Handling and storage

Precautions for safe handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed. Do not breathe dust.
In the case of the formation of dust: Withdraw by suction.
Molten material: Avoid contact with the substance.

Precautions against fire and explosion:
Take precautionary measures against static discharges. Keep away from sources of ignition. Use grounding equipment. Use explosion-proof equipment and non-sparking tools/utensils. Avoid open flames.
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.

Storage

Requirements for storerooms and containers:
Store in a well-ventilated place. Keep container tightly closed.
Protect against heat /sun rays.

Further details: Special danger of slipping by leaking/spilling product.

8. Exposure controls/personal protection

Control parameters

Additional information: The product contains very low levels of residual monomers and process chemicals (styrene, ethylbenzene, Butyl acrylate, alpha-Methylstyrene and acrylonitrile) that may be evolved during thermal processing, along with possible decomposition products. As the identity and levels of these impurities evolved will depend upon the processing conditions (temperature etc.) it is the responsibility of the user to determine the adequacy of any protection or safety measures.

Exposure controls

Provide good ventilation in the work area. Additional controls are not normally necessary when handling the polymer.

Thermal extrusion: Provide local exhaust ventilation to ensure that the workplace exposure limit is not exceeded.
Use of respiratory protection may be necessary during maintenance activities.
See also information in chapter 7, section storage.

Personal protection equipment

Occupational exposure controls

Respiratory protection: Respiratory protection must be worn whenever the WEL levels have been exceeded.
Use filter type A-P2 according to EN 14387.

Hand protection: Protective gloves according to EN 374.
Protective gloves made of fabric or leather.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

In case of melting: Impervious heat protective gloves according to EN 407
Glove material: Leather
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection: Tightly sealed goggles according to EN 166.

Body protection: Wear suitable protective clothing. Boots or safety shoes.

General protection and hygiene measures:
Molten material: Avoid contact with skin.
Avoid breathing dust and vapours. Keep away from sources of ignition.
Wash hands before breaks and after work.

In case of dust formation: Particular danger of slipping on spilled product on the ground.

Environmental exposure controls

Do not allow to penetrate into soil, waterbodies or drains.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance: Physical state at 20 °C and 101.3 kPa: solid
Form: granulate
Colour: colourless

Odour: weak, characteristic

Odour threshold: No data available

pH: Not applicable

Melting point/freezing point:	> 100 °C (DIN EN ISO 306)
Initial boiling point and boiling range:	No data available
Flash point/flash point range:	Not applicable
Evaporation rate:	No data available
Flammability:	Not highly flammable.
Explosion limits:	No data available
Vapour pressure:	No data available
Vapour density:	No data available
Density:	at 20 °C: approx. 1.07 g/cm³ (DIN 53479)
Water solubility:	insoluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not self-igniting
Thermal decomposition:	approx. 320 °C

Additional information

Viscosity:	No data available
Explosive properties:	In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.
Ignition temperature:	(DIN 51794)
Bulk density:	at 20 °C: approx. 600 kg/m³ (DIN 53466)

10. Stability and reactivity

Reactivity: No hazardous reaction when handled and stored according to provisions.

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions:
In case of dust formation (Fine dust): Danger of dust explosion

Conditions to avoid: Keep away from sources of ignition and heat.
Avoid dust formation.

Incompatible materials: Strong oxidizing agents

Hazardous decomposition products:
When greatly overheated, material may release hazardous decomposition products: Hydrogen cyanide, monomers, hydrocarbons, gases/vapours, cyclic low molecular weight oligomers, carbon monoxide and carbon dioxide.

Thermal decomposition: approx. 320 °C

11. Toxicological information

Information on toxicological effects

Toxicological effects:

Acute toxicity (oral): Lack of data.
Acute toxicity (dermal): Lack of data.
Acute toxicity (inhalative): Lack of data.
Skin corrosion/irritation: Lack of data.
Serious eye damage/irritation: Lack of data.
Sensitisation to the respiratory tract: Lack of data. Not to be expected
Skin sensitisation: Lack of data. Not to be expected
Germ cell mutagenicity/Genotoxicity: Lack of data. Not to be expected
Carcinogenicity: Lack of data. Not to be expected
Reproductive toxicity: Lack of data. Not to be expected
Effects on or via lactation: Lack of data.
Specific target organ toxicity (single exposure): Lack of data.
Specific target organ toxicity (repeated exposure): Lack of data.
Aspiration hazard: Lack of data.

Other information: When handled appropiately, even after long years of experience with this product, no adverse health effects are known.

Symptoms

Dust: Can cause skin, eye and respiratory tract irritation.
The melted product can cause severe burns.
Thermal treatment, Processing: Irritating to eyes, respiratory system and skin.
In case of ingestion: Swallowing may cause gastrointestinal irritation and pain of guts.

12. Ecological information

Toxicity

Aquatic toxicity: Information about Bis(2,2,6,6-Tetramethyl-4-piperidyl)sebacate: Very toxic to aquatic life with long lasting effects.
Algae toxicity:
EC50 Pseudokirchneriella subcapitata (green algae): 0.705 mg/L/72h (OECD 201)
Daphnia toxicity:
EC50 Daphnia magna (Big water flea): 8.58 mg/L/48h (OECD 202)
NOEC Daphnia magna (Big water flea): 0.23 mg/L/21d (OECD 211)
Fish toxicity:
LC50 Lepomis macrochirus (bluegill): 4.4 mg/L/96h (OECD 203)
Bacterial toxicity:
IC50 activated sludge: >100 mg/L/3 h (OECD 209)

Effects in sewage plants: In sewage treatment plants it may be separated mechanically.

Persistence and degradability

Further details: Biodegradation: Product is not readily biodegradable.
The product is likely to persist in the environment.

Mobility in soil

No data available

Additional ecological information

General information: Do not allow to enter into ground-water, surface water or drains.

13. Disposal considerations

Waste treatment methods

Product

Recommendation: With due observance of the regulations laid down by the local authorities, this must be brought to a suitable incineration plant/waste disposal site.

Package

Recommendation: Dispose of waste according to applicable legislation.
Non-contaminated packages may be recycled.

14. Transport information

UN number

ADR/RID, IMDG, IATA-DGR:

not applicable

Sea transport (IMDG)

Proper shipping name: Not restricted
Marine pollutant: no

Air transport (IATA)

Proper shipping name: Not restricted

Further information

No dangerous good in sense of these transport regulations.

15. Regulatory information

National regulations - Korea

Industrial Safety and Health Act

not applicable

Chemicals Control Act not applicable

National regulations - Japan

Fire Service Act: Designated flammable goods

Further regulations, limitations and legal requirements

No data available

16. Other information

Abbreviations and acronyms:

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
OEL: Occupational Exposure Limit Value
AS/NZS: Australian Standards/New Zealand Standards
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
CLP: Classification, Labelling and Packaging
DMEL: Derived minimal effect level
DNEL: Derived no-effect level
EC50: Effective Concentration 50%
EC: European Community
EN: European Standard
MFSU: Manufacture, formulation, supply and use
IATA: International Air Transport Association
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50: Inhibition Concentration 50%
IMDG Code: International Maritime Dangerous Goods Code
LC50: Median lethal concentration
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
M-factor: Multiplication factor
NOEC: No Observed Effect Concentration
OEL: Occupational Exposure Limit Value
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
TLV: Threshold Limit Value
vPvB: Very persistent and very bioaccumulative
WEL: Workplace Exposure Limit

Reason of change: Changes in section 8: Occupational exposure limit values
General revision

Date of first version: 8/5/2013

Department issuing data sheet

Contact person: see section 1: Department responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.

INEOS Styrolution APAC Pte Ltd.

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#14-16/21 TripleOne Somerset
238164, Singapore

ineos-styrolution.com
INSTY.asia@ineos.com

Absence declaration – RoHS and WEEE Directives

Products: Luran® S grades
Version 1.0
Date: 4 Mach 2020

We hereby declare that regarding the composition of the products manufactured and identified as:

Luran® S 757G, Luran® S 757R, Luran® S 776S, Luran® S 776SE,Luran® S 777K, Luran® S 778T, Luran® S 797S, Luran® S 797SE, Luran® S 757RE, Luran® S 777T

EU-Directive 2011/65/EU (replacing directive 2002/95/EC) and including all amendments through 2015/863/EU on Restriction of Hazardous Substances in electrical and electronic equipment ("RoHS Directive")

Please be advised that we have reviewed the RoHS directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011, in particular Annex II thereof, restricting certain substances to be below tolerable concentrations. This Annex II of the RoHS Directive was lastly amended by Commission Delegated Directive (EU) 2015/863. Based on the information available to us from our raw material suppliers, the current products referred to above do not contain as intentional additives any of the below referenced materials as referenced in the subject EU directive. To the best of our knowledge, none of these materials are generated during production.

Therefore, the requirements regarding the absence of substances listed in Annex II of EU-Directive 2011/65/EU are fulfilled.

- Cadmium and its compounds
- Hexavalent chromium compounds
- Mercury and its compounds
- Lead and its compounds
- Polybrominated diphenyl ethers (PBDEs)
- Polybrominated biphenyls (PBBs)
- Bis(2-ethylhexyl) phthalate (DEHP)
- Butyl benzyl phthalate (BBP)
- Dibutyl phthalate (DBP)
- Diisobutyl phthalate (DIBP)

Therefore we can confirm that PRODUCT Luran® S grades as listed above will not contain these substances above the threshold limits of 0.01% by weight for Cadmium and 0.1% by weight for Lead, Mercury, Chromium-VI, Polybrominated Biphenyls (PBB), Polybrominated Diphenylethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP).

EU-Directive 2012/19/EU on Waste Electrical and Electronic Equipment ("WEEE Directive", previously 2002/96/EC, recasted)

The information above refers to the state of the laws at the date of issue. This confirmation expires after 12 months or in the case of regulatory changes. When new statements are published on the internet portal, the former statements automatically become void. In your own interest please regularly check the information on the internet portal.
It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed. The statement provided is exclusively for our customers and respective competent authorities. It is not intended for publication either in printed or electronic form (e.g. via Internet) by others. Thus, neither partial nor full publication is allowed without written permission.

INEOS Styrolution APAC Pte Ltd.
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Singapore
Phone: +65 69338350
Email: INSTY.info@ineos.com
ineos-styrolution.com

The EU-Directive 2012/19/EU, amended last by Directive (EU) 2018/849 of the European Parliament and of the Council of 30 May 2018, defines the recovery of waste electrical and electronic equipment. Therefore, we as raw material supplier cannot provide a statement of compliance, because this is dependent on the final article. We have examined the WEEE directive and as far as we can determine, the only requirement that would apply to INEOS Styrolution is to disclose the presence of brominated flame retardants (see Annex VII of the directive). We can state that INEOS Styrolution does not deliberately add any brominated flame retardants to its PRODUCT Luran® S grades nor are they present to the best of our knowledge, in any of the raw materials used to manufacture these grades.

For notice:
Many substances are ubiquitous. The observance of all these substances is not part of our ongoing production control. In view of the many factors that may effect processing and application of our products, these data do not relieve processor from carrying out own investigations and tests neither do these data imply any guarantee for certain properties nor the suitability of the product for a specific purpose. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

Please note that this declaration covers all the above mentioned products regardless of their additive packages, and is only valid for prime products manufactured within the Asia Pacific Region.

INEOS Styrolution APAC Pte Ltd

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WiFi-6E Dual Band Antenna

2400~2500MHz / 5150~5850MHz / 5925~7125MHz

RevX3

GTT P/N: 103DG00000130

✓ RF Specification

• Frequency Range:	2400~2500 MHz / 5150~5850MHz / 5925~7125 MHz
• Polarization:	Linear
• HPBW / Horizontal:	360°
• HPBW / Vertical:	45°
• Peak Gain:	2.4 dBi / 5.6 dBi / 7.6 dBi max.
• VSWR:	2.0 typ.
• Power Handing:	2W(cw)
• Impedance:	50 Ohms
• Connector:	N Plug

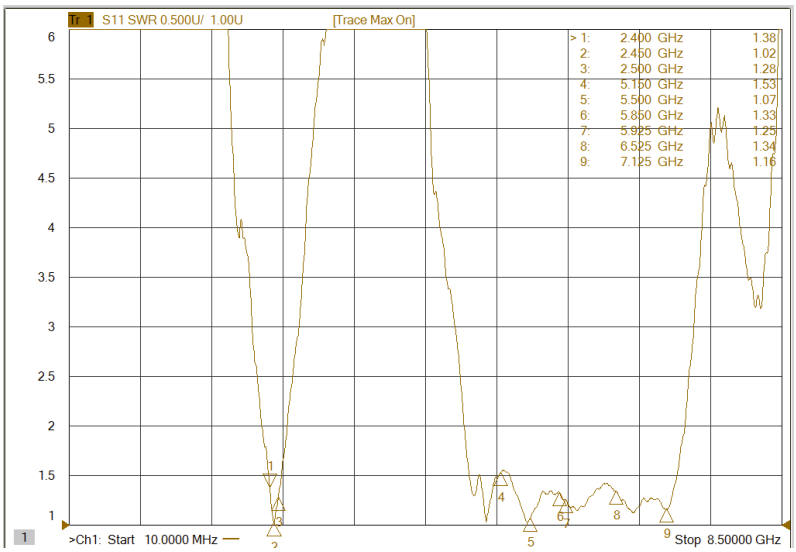
• Environmental & Mechanical Characteristics

- Temperature: -40℃ to +70℃
- Humidity: 95% @55℃
- Waterproof Rating: IPX7
- Antenna Housing Color: White
- Antenna Housing Material: ASA UV Resistance
- Dimensions: 180mm(L)x25mm(OD)

Performance Summary

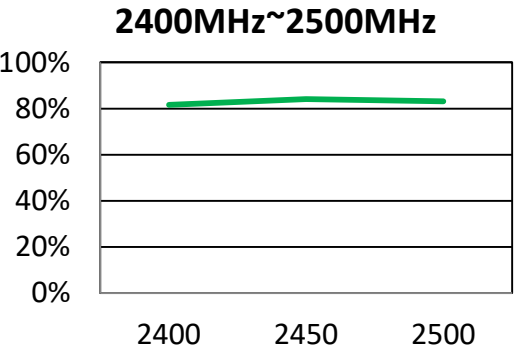
VSWR

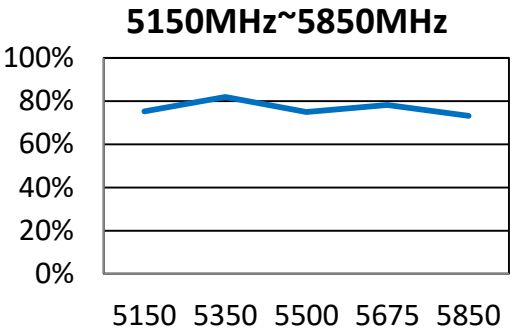
Frequency(MHz)	2400~2500	5150~5850	5925~7125
VSWR	2.0 typ.		2.5 typ.

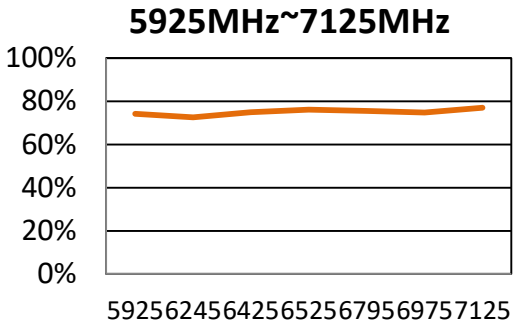


Gain Table

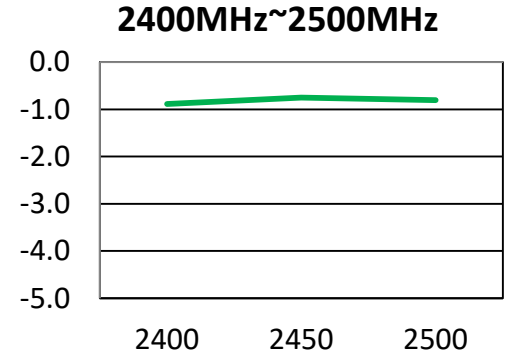
EFFICIENCY

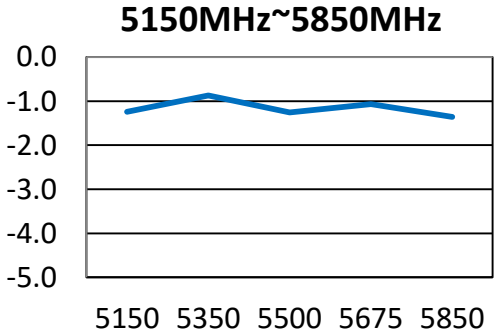


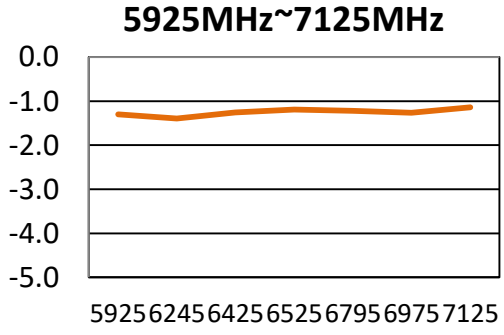




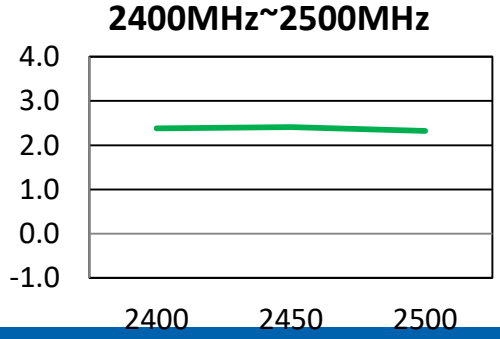
Average Gain

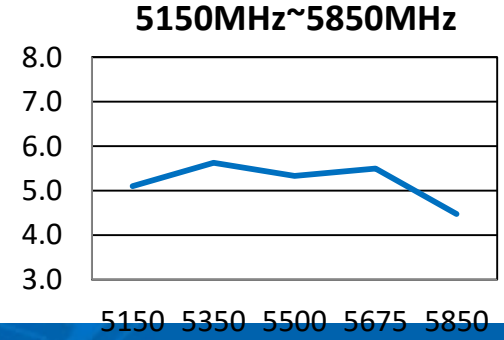


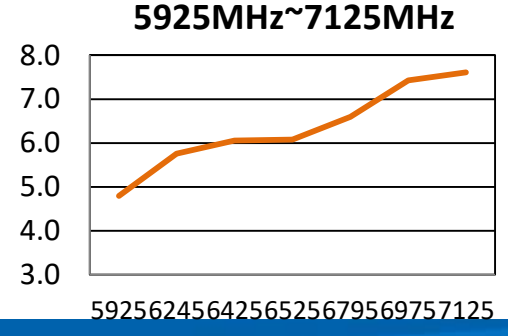




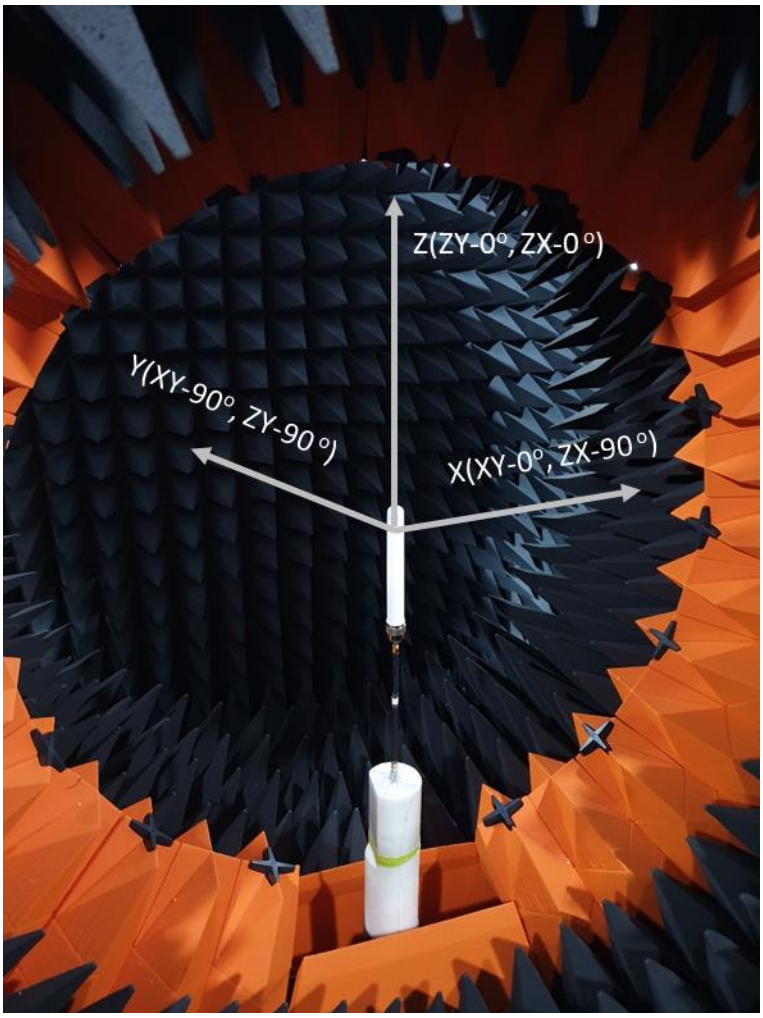
Peak Gain







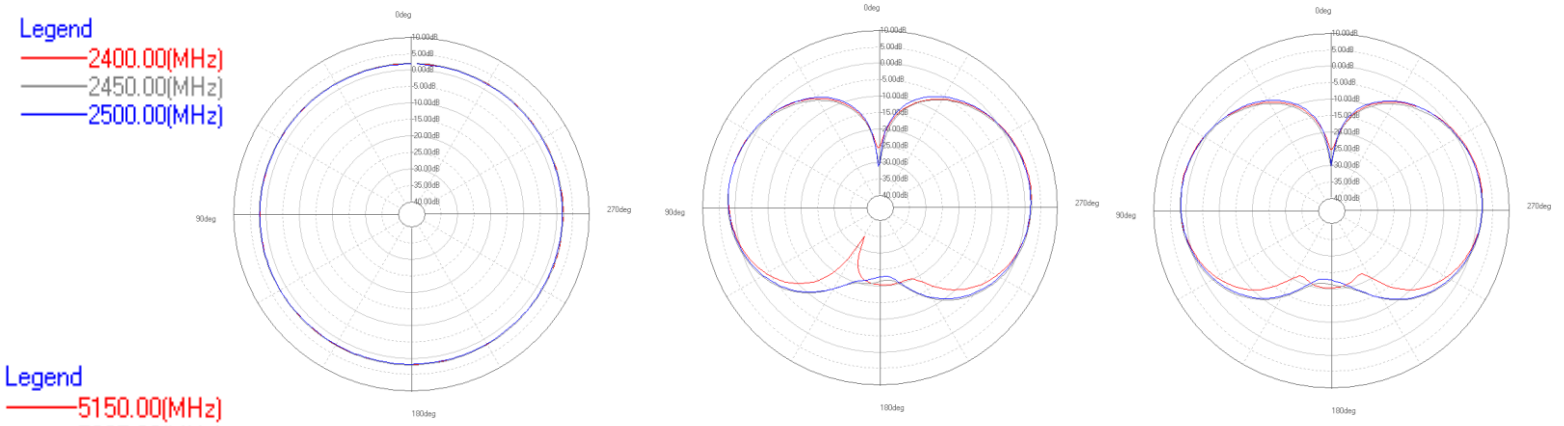
Antenna Testing Setup and Orientation

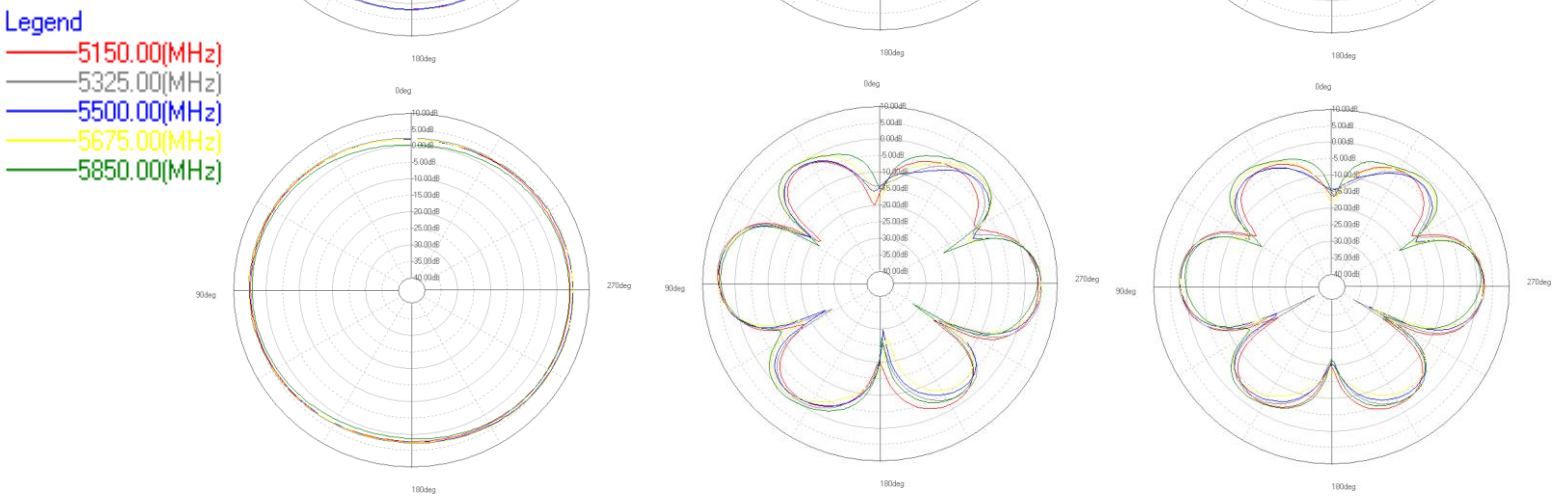


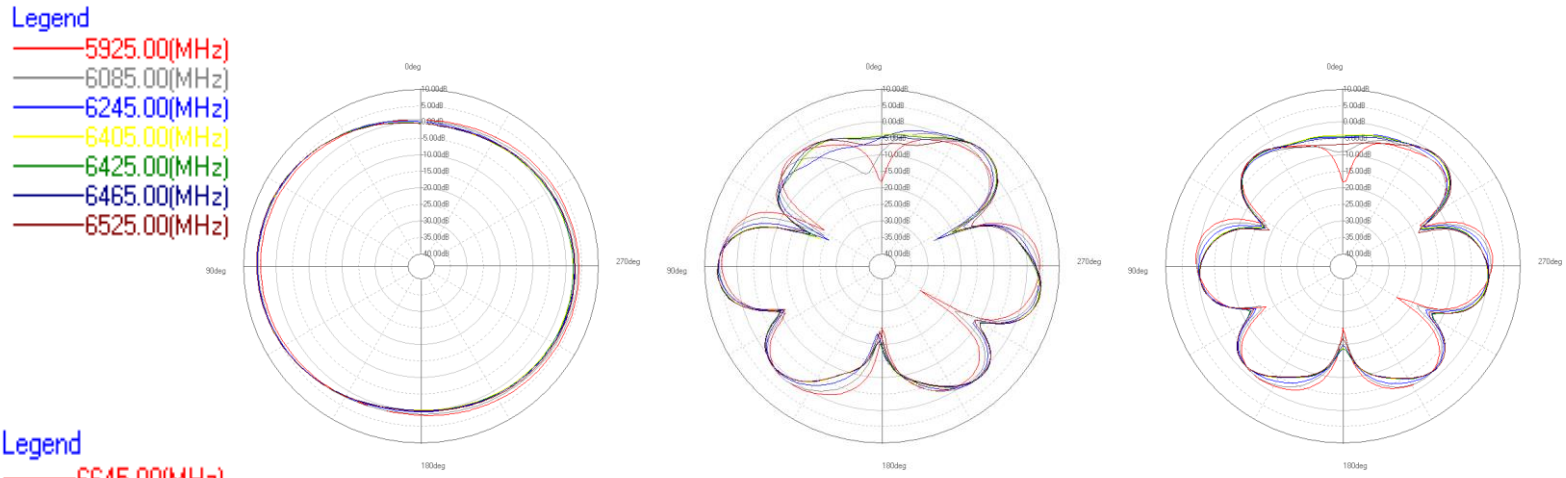
3D OTA Chamber-SATIMO Starlab® 2019

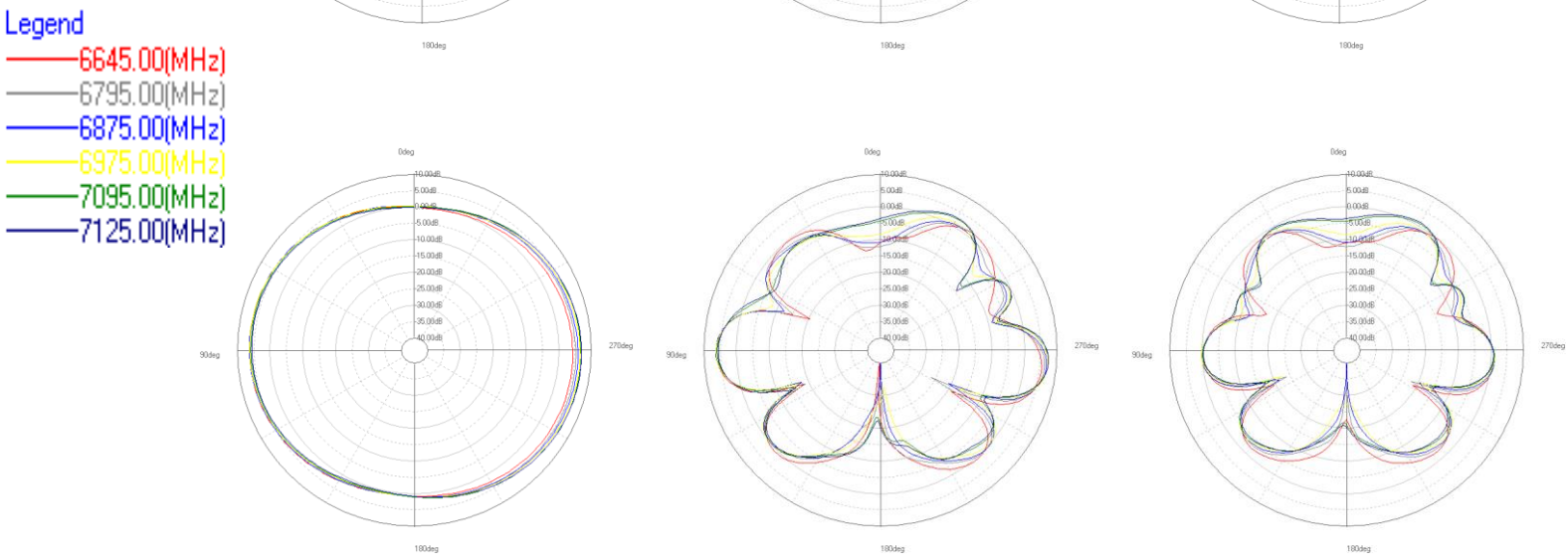
Radiation Pattern

XY-plane YZ-plane ZX-plane

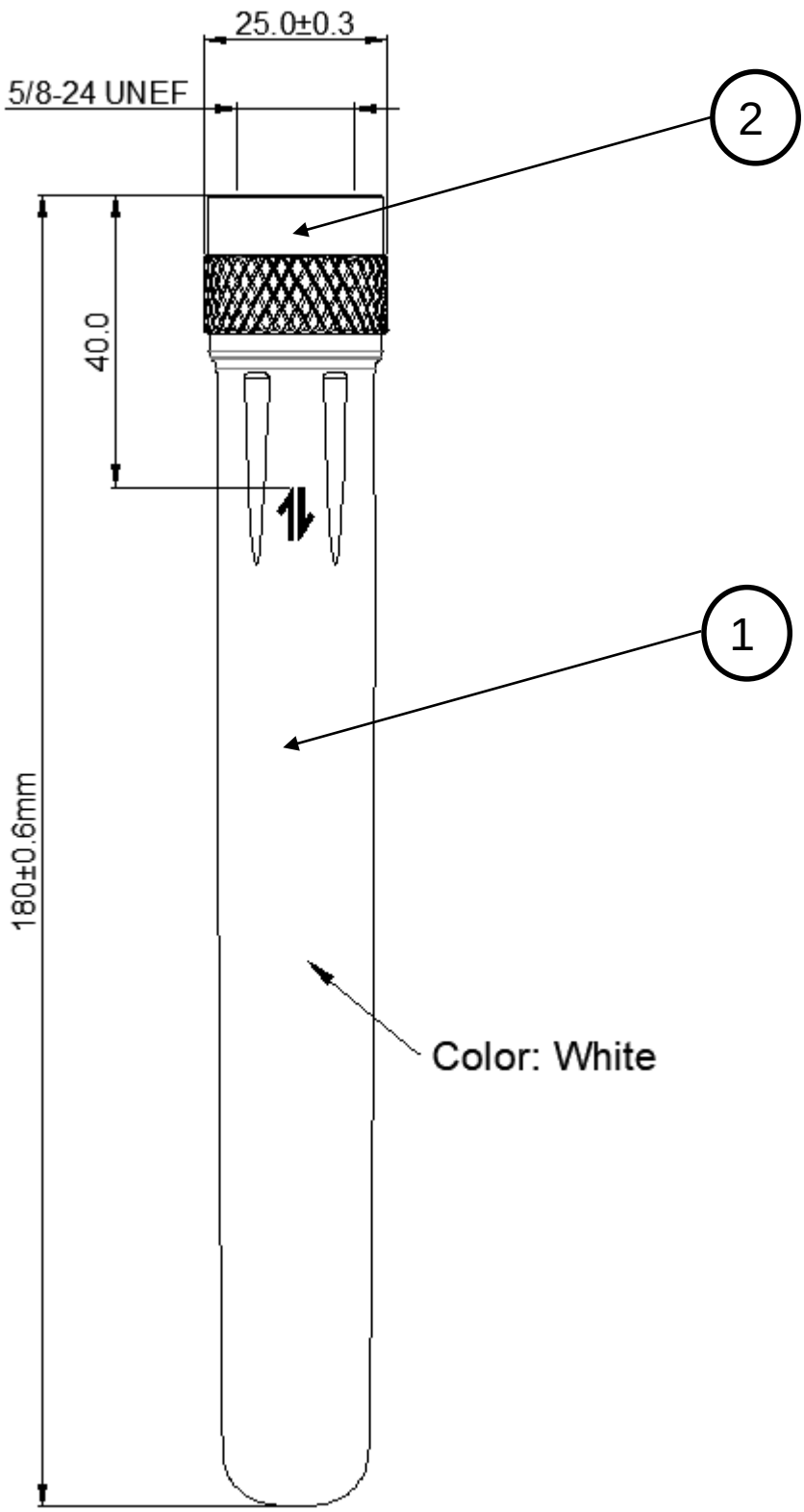








Installation Guide



1. Antenna TOP Cover, ASA UV Resistance
2. N Straight Plug For Edge Mount Robust Antenna