Technology Center of Hangzhou Customs District

National dangerous chemicals testing key laboratory (Hangzhou)

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正本/ORIGIN

No：TCH26000827

Date：2026-01-27

ZAIQ-RF(HH)-01-19

Safety Data Sheet

扫描查看在线报告

Applicant name：SolaX Power Network Technology (Zhejiang) Co., Ltd.

Product Name: Lithium ion Rechargeable Battery Module TB-HS51 51.2V 100Ah 5.12kWh

Date of issue: 2026-01-27

Edit institution: Technology Center of Hangzhou Customs District

Approver：

Note: 1. Unless other wise stated, this test report is only responsible for the sample(s).
2. This test report can not be reproduced,except in full,without prior written permission of the lab.

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DECLARATION

The result in this test report is only valid for the tested samples.

This report is invalid without authorized signature or the stamp of this organization.

If there is any dissidence to the test data, the entrusting party shall apply for retesting within 15 days upon receiving this report (Some special item can not be retested).The former tested samples will be used as the retested ones. If the retest results are the same as the former ones, the retest fee will be paid by the entrusting party.

This report shall be used in integrity. This organization will not be responsible for any misleading caused by the content of this report.

1. Identification

Product Identifier

Product Name	Lithium ion Rechargeable Battery Module TB-HS51 51.2V 100Ah 5.12kWh
Product Model	TB-HS51 51.2V 100Ah 5.12kWh
CAS No.	Not applicable
EC No.	Not applicable
Chemical Name	None

Recommended use of the chemical and restrictions on use

Relevant identified uses	Energy storage
Uses advised against	Please consult manufacturer.

Details of manufacturer or importer

Manufacturer Name	SolaX Power Network Technology (Zhejiang) Co., Ltd.
Address	No.278, Shizhu Road, Chengnan Sub-district, Tonglu County, Hangzhou, Zhejiang, China 311500
Phone Number	+86-0571-56260011
Fax Number	None
E-mail	jason.shen@solaxpower.com
Emergency phone number	+86-0571-56260011
Importer Name	SolaX Power Aus Pty Ltd
Address	21 Nicholas Dr, Dandenong South VIC 3175
Phone Number	+61-1300476529
Fax Number	None
Website	au.solaxpower.com
E-mail	service@solaxpower.com.au

Emergency phone number

Emergency phone number	+61-1300476529 or Call your nearest poison control centre

2. Hazard(s) identification

Hazard classification according to WHS

The product meets the definition of "article". In the Globally Harmonized system of Classification and Labeling of Chemicals (GHS), the "articles" defined by the US Occupational Safety and Health Administration "Hazard Communication Standard" (29 CFR 1910.1200) or similar definitions do not fall within the scope of this system. [Rev. 11 (2025) Part 1.3.2.1.1]. According to GHS system (11th revised edition), not classified as a hazardous chemical.

Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable
Hazard statements	Not applicable
Precautionary statements	
Prevention	Not applicable
Response	Not applicable

Storage	Not applicable
Disposal	Not applicable
Primary routes(s) of entry	Substances in batteries may affect human health through inhalation, ingestion, skin contact and eye contact. Improper handling or use can cause soil/water pollution.
Other hazards	No data available.

3. Composition and information on ingredients

☐**Substances**
√**Mixtures**
Component Information

Component	**CAS number**	**EINECS number**	**Mass(%wt)**
Lithium Iron Phosphate	15365-14-7	604-917-2	38.8
Graphite	7782-42-5	231-955-3	19.4
Aluminum Alloy	——	——	7.2
Copper Foil	7440-50-8	231-159-6	6.7
Ethylence carbonate (EC)	96-49-1	202-510-0	5.6
Dimethyl carbonate (DMC)	616-38-6	210-478-4	5.6
Ethyl methyl carbonate (EMC)	623-53-0	433-480-9	4.6
Aluminum Foil	7429-90-5	231-072-3	4.2
Lithium hexafluorophosphate	21324-40-3	244-334-7	2.3
Separator	9003-07-0	618-352-4	2.2
Styrene-butadiene rubber (SBR)	9003-55-8	618-370-2	0.8
Poly (vinylidene fluoride)(PVDF)	24937-79-9	607-458-6	0.8
Carbon black	1333-86-4	215-609-9	0.4

Note:1. Unless a component presents a severe hazard, it does not need to be considered in the SDS if the concentration is less than 1%.

4. First aid measures

Description of necessary first aid measures

General advice	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination. Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
After inhalation	Move to fresh air. Oxygen or artificial respiration if needed. Get immediate medical attention.
After skin contact	In case of contact with substances in the battery, immediately flush skin thoroughly with soap and plenty of water. Remove and isolate contaminated clothing and shoes. If irritation persists, get medical attention immediately. For minor skin

	contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.
After eye contact	In case of contact with substances in the battery, immediately flush eyes with plenty of water for at least 15 minutes. Assure adequate flushing of the eyes by separating the eyelids with fingers. Get medical attention immediately.
After ingestion	Rinse mouth. Do not induce vomiting without medical advice. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Loosen tight clothing such as a collar, tie, belt or waistband. Do not use mouth-to-mouth method if victim ingested the substance. Seek immediate medical attention.

Most important symptoms/effects, acute and delayed

Please see section 11.

Medical attention and special treatment

Treat symptomatically.

Symptoms may be delayed.

5. Firefighting measures

Suitable extinguishing equipment

Suitable extinguishing agents	Water (cooling), use a HFC (hydrofluorocarbon) clean-agent fire extinguisher or alcohol resistant foam fire extinguishers. Heptafluoropropane and perfluorohexanone have better extinguishing effects.
Unsuitable extinguishing agents	No information available.

Specific hazards arising from the substance or mixture

Cell may vent when subjected to excessive heat-exposing battery contents.

May expansion or decompose explosively when heated or involved in fire. Can be released in case of fire: carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen fluoride, hydrogen cyanide, benzene, toluene, methane, lithium oxide fumes, phosphorus oxides, irritating and toxic fumes and gases.

Special protective equipment and precautions for firefighters

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask, insulating gloves, insulating boots, etc.

Fight fire from a safe distance, with adequate cover.

Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases.

Use personal protective equipment, avoid skin and eye contact or inhalation of vapors.

Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental precautions

Prevent further leakage or spillage if safe to do so.
Do not allow material to be released to the environment without proper governmental permits.

Methods and materials for containment and cleaning up

If batteries show signs of leaking, avoid skin or eye contact with the material leaking from the battery.
Cut off the source of the leak as much as possible. Keep leaks in a ventilated place.
Isolation of contaminated areas and restrictions on access.
It is recommended that emergency personnel wear dust masks and rubber gloves.
Collect the spill with a clean shovel and place it in a clean, dry, loosely closed container and move the container away from the leak.
Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

Other information

See Section 7 for information on safe handling.
See section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

7. Handling and storage

Precautions for safe handling

Information for safe handling	Operators should be trained and strictly abide by the operating procedures. It is recommended that operators wear general protective clothing and safety gloves. Provide ventilation systems and equipment in the workplace. Such batteries must be packed in inner packages in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits. Avoid mechanical or electrical abuse. More than a momentary short circuit will generally reduce the battery service life. Avoid reversing battery polarity within the battery assembly. In case of a battery unintentionally be crushed, rubber gloves must be used to handle all battery components. Avoid contact with eyes, skin. Avoid inhalation.
Information about protection against explosions and fires	Avoid mechanical and electrical abuse. Do not short circuit or install incorrectly. Keep away from fire, heat source and direct sunlight. Smoking is strictly prohibited in the workplace. Batteries may explode or cause burns if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions.

Conditions for safe storage, including any incompatibilities

Conditions for safe storage	Store in a cool, dry and well-ventilated place. Keep away from fire, heat source and direct sunlight. Avoid mechanical or electrical abuse. Such batteries must be packed in inner packages in such a manner as to effectively prevent short circuits and to prevent

	movement which could lead to short circuits.
Incompatible materials	Materials to Avoid: strong oxidizing agents, corrosives, flammables, explosive material, harmful substances, foodstuff containers.

Other information

The storage area shall be equipped with corresponding types and quantities of fire-fighting equipment, emergency treatment equipment and appropriate materials for leakage.

8. Exposure controls and personal protection

Control parameters

Limit Values for Exposure

Component	**CAS number**	**ACGIH TLV-TWA** (mg/m^3)	**ACGIH TLV-STEL** (mg/m^3)	**NIOSH REL-TWA** (mg/m^3)	**NIOSH REL-STEL** (mg/m^3)	**Aust-ralia Eight hours**(mg/m^3)
Lithium iron Phosphate	15365-14-7	N.E.	N.E.	N.E.	N.E.	N.E.
Graphite	7782-42-5	2	N.E.	2.5	N.E.	3(4)
Copper Foil	7440-50-8	0.2	N.E.	1	N.E.	0.2
Ethylence carbonate (EC)	96-49-1	N.E.	N.E.	N.E.	N.E.	N.E.
Dimethyl carbonate (DMC)	616-38-6	N.E.	N.E.	N.E.	N.E.	N.E.
Ethyl methyl carbonate (EMC)	623-53-0	N.E.	N.E.	N.E.	N.E.	N.E.
Aluminum Foil	7429-90-5	1	N.E.	10 (total) 5 (resp)	N.E.	10
Lithium hexafluorophosphate	21324-40-3	N.E.	N.E.	N.E.	N.E.	N.E.
Separator	9003-07-0	N.E.	N.E.	N.E.	N.E.	N.E.
Styrene-butadiene rubber (SBR)	9003-55-8	N.E.	N.E.	N.E.	N.E.	N.E.
Poly (vinylidene fluoride) (PVDF)	24937-79-9	N.E.	N.E.	N.E.	N.E.	N.E.
Carbon black	1333-86-4	3	N.E.	3.5	N.E.	3

Biological limit values	No relevant regulations.
Monitoring methods	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. GBZ/T 300 series standard Determination of toxic substances in workplace air.

Engineering controls

Ensure adequate ventilation, especially in confined areas.
Ensure that eyewash stations and safety showers are close to the workstation location.
Set up emergency exit and necessary risk-elimination area.
Handle in accordance with good industrial hygiene and safety practice.

No smoking, drinking and eating at working site.

Personal protective equipment (PPE)

General requirement	Personal protection is recommended for venting battery: respiratory protection, protective gloves, protective clothing and safety glass with side shields.
Respiratory protection	Respiratory protection is not necessary under conditions of normal use. If exposure limits are exceeded or if irritation or other symptoms are experienced, wear dust proof mask or gas defence mask.
Hands protection	Not necessary under conditions of normal use.
Eye and Face protection	In general situation, eye protection is not needed. In the production process, when contacting with vapour or dust, tightly fitting safety goggles.
Skin and body protection	In general situation, skin and body protection are not needed, choose body protection according to the amount and concentration of the dangerous substance at the work place.

Note: 1. N.E. means not established.

9.Physical and chemical properties

General information

Physical state	Lithium ion Rechargeable Battery Pack, with a white prismatic appearance. Size (L*W*H), 600*376*168 (mm) Weight, 46.914 kg
Colour	See physical state
Odour	No pungent odour
Odour threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Boiling point or initial boiling point and boiling range	No data available
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	No data available
Vapour pressure	Not applicable
Relative vapour density (air=1)	Not applicable
Density and/or relative density	No data available
Solubility	No data available
Partition coefficient:	No data available

n-octanol/water (log value)	
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	Not applicable
Particle characteristics	No data available

10. Stability and reactivity

Reactivity	No data available.
Chemical stability	This is a stable product under recommended operation and storage conditions.
Possibility of hazardous reactions	No polymerization.
Conditions to avoid	Fire source, heating source, disassemble, external short circuit, crushes, deformation, high temperature, direct sunlight, high humidity, immerse in water or overcharge, etc.
Incompatible materials	Explosives, flammables, strong oxidants and corrosives. If leaked, forbidden to contact with strong oxidizing agents, mineral acids, strong alkalis, etc.
Hazardous decomposition products	May include metal oxides, carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen fluoride, hydrogen cyanide, benzene, toluene, methane, phosphorus oxides and other toxic smoke and gas.

11.Toxicological information

Information on toxicological effects

Acute Toxicity	
Ethylene carbonate (CAS 96-49-1)	LD50 (Oral, rat) 500.1mg/kg (estimate) LC50 (Inhalation, rat) N/A LD50 (Dermal, rabbit) N/A
Lithium hexafluorophosphate (CAS 21324-40-3)	LD50 (Oral, rat) >50-300 mg/kg LC50 (Inhalation, rat) N/A LD50 (Dermal, rabbit) N/A
Skin corrosion/Irritation	Lithium hexafluorophosphate (CAS 21324-40-3): Causes skin corrosion.
Serious eye damage/irritation	Ethylene carbonate (CAS 96-49-1): Causes eye irritation. Lithium hexafluorophosphate (CAS 21324-40-3): Causes serious eye damage.
Respiratory or skin sensitization	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
STOT-single exposure	Not classified

STOT-repeated exposure	Ethylene carbonate (CAS 96-49-1): May causes damage to organs through prolonged or repeated exposure. Lithium hexafluorophosphate (CAS 21324-40-3): Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	Not classified
Chronic Effects	Not classified
Further Information	In the event of exposure to internal contents, moderate or severe irritation, burning and dryness of the skin may occur, and may damage the nerves of the target organs. No detailed toxicological study.

12. Ecological information

Ecotoxicity

Aquatic Toxicity

Graphite (CAS 7782-42-5)

Test & Species

96 Hr LC50 fish: 100 mg/L

48 Hr EC50 Daphnia: N/A

72 Hr EC50 Algae: N/A

Aluminum Foil (CAS 7429-90-5)

Test & Species

96 Hr LC50 fish: 1.55 mg/L

48 Hr EC50 Daphnia: N/A

72 Hr EC50 Algae: N/A

Copper Foil (CAS 7440-50-8)

Test & Species

96 Hr LC50 fish: 0.665 mg/L

48 Hr EC50 Daphnia: 0.02 mg/L

72 Hr EC50 Algae: N/A

Persistence and degradability	High persistence (water/soil/air): Ethyl methyl carbonate (EMC), Ethylence carbonate (EC), Dimethyl carbonate (DMC). Low persistence (water/soil/air): Graphite, Separator, Poly (vinylidene fluoride) (PVDF).
Bioaccumulative potential	Ethyl methyl carbonate (EMC): Log Kow 0.7247 (Low) Ethylence carbonate (EC): Log Kow -0.3388 (Low) Dimethyl carbonate (DMC): Log Kow 1.21 (Low) Separator: Log Kow 1.6783 (Low) Poly (vinylidene fluoride) (PVDF): Log Kow 1.24 (Low)
Mobility in soil	Ethyl methyl carbonate (EMC): Koc 9.168 (Low) Ethylence carbonate (EC): Koc 15.22 (Low) Dimethyl carbonate (DMC): Koc 8.254 (Low) Separator: Koc 23.74 (Low) Poly (vinylidene fluoride) (PVDF): Koc 35.04 (Low)
Results of PBT and vPvB assessment	According to (EC) No 1907/2006, the ingredients of the sample were not found in the assessment results.
Other adverse effects	Improper handling or use can cause soil/water pollution.

13. Disposal considerations

General information

Contact a qualified professional waste disposal service to dispose of this material.
Dispose of in accordance with local environmental regulations or local authority requirements.
Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.

14. Transport information

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG)

UN Number	UN 3480
Proper Shipping Name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Class/Division	Class 9 Miscellaneous Dangerous Substances and Articles
Package Group	The completed package must meet the Packing Group II performance requirements.
Subsidiary risk	None
labeling pictogram	
	Note: The sample is rechargeable Lithium-ion battery pack with a Watt-hour rating in excess of 100wh, which contains 16 series cells, and passed the tests required by UN 38.3. Samples do not equipped with battery overcharge protection, are only designed as a component in another battery or equipment which affords such protection. Cells and batteries incorporate a safety venting device. Cells and batteries are properly protected to prevent short circuits, and have a high quality management programme can be transported as mentioned above.
Additional information	According to 2.9.4 (g) of ADG (Edition 7.9, 2024), except for button cells installed in equipment (including circuit boards), manufacturers and subsequent distributors of cells or batteries manufactured after 30 June 2003 shall make available the test summary as specified in the Manual of Tests and Criteria, Part III, sub-section 38.3, paragraph 38.3.5.
Maritime transport IMDG-Code	Being same with ADG Marine pollutant (Yes/No): No EmS No.: F-A, S-I Each package must be labeled with the Class 9 Lithium Battery hazard label (Model No.9A ,5.2.2.2.2 in IMDG Code). According to 2.9.4.7 of IMDG Code (2024 Edition), except for

	button cells installed in equipment (including circuit boards), manufacturers and subsequent distributors of cells or batteries manufactured after 30 June 2003 shall make available the test summary as specified in the Manual of Tests and Criteria, Part III, sub-section 38.3, paragraph 38.3.5.
Road transport ADR	Being same with ADG Each package must be labeled with the Class 9 Lithium Battery hazard label (Model No.9A ,5.2.2.2.2 in ADR 2025 edition.). According to 2.2.9.1.7.1 (g) of ADR (2025 Edition), except for button cells installed in equipment (including circuit boards), Manufacturers and subsequent distributors of cells or batteries manufactured after 30 June 2003 shall make available the test summary as specified in the Manual of Tests and Criteria, Part III, sub-section 38.3, paragraph 38.3.5.

15. Regulatory information

European/International Regulations

OSHA:	Hazardous by definition of Hazard Communication Standard (29CFR 1910.1200).
EINECS Status:	The main components of this chemical (except Lithium iron Phosphate, Aluminum Alloy, Separator, Ethyl methyl carbonate (EMC), Poly (vinylidene fluoride)(PVDF), Styrene-butadiene rubber (SBR)) are included in EINECS inventory. Aluminum Alloy information is unknown.
EPA TSCA Status:	The main components of this chemical (except Aluminum Alloy) are included in TSCA inventory. Aluminum Alloy information is unknown.
Canadian DSL/NDSL (Domestic Substances List/ Non-domestic Substances List):	The main components of this chemical (except Aluminum Alloy) are included in DSL / NDSL. Aluminum Alloy information is unknown.
Australian Inventory of Industrial Chemicals (AIICS)	The main components of this chemical (except Lithium Iron Phosphate, Aluminum Alloy, Ethyl methyl carbonate (EMC),) are included in AIICS. Aluminum Alloy information is unknown.
HMIS (Hazardous Material Identification System Ratings):	Health: 1 Flammability: 0 Physical hazard: 0 Personal protection: F (4. Severe Hazard; 3. Serious Hazard; 2. Moderate Hazard; 1. Slight Hazard; 0. Minimal Hazard)
WHMIS (Canadian Workplace Hazardous Material Identification System Ratings):	B6 (Aluminum Foil), B4, D2B (Copper Foil), B2 (Dimethyl carbonate (DMC)), D2B (Ethylene carbonate (EC)), B4, D2A (Carbon black), D1A, D2B, E (Lithium hexafluorophosphate).
List of dangerous	UN Number: UN3480, Shipping Name: LITHIUM ION

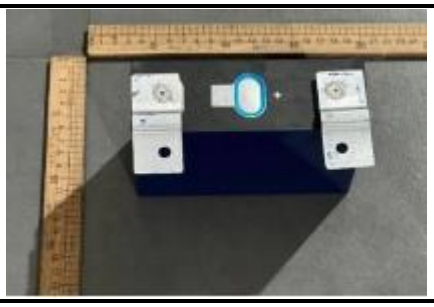
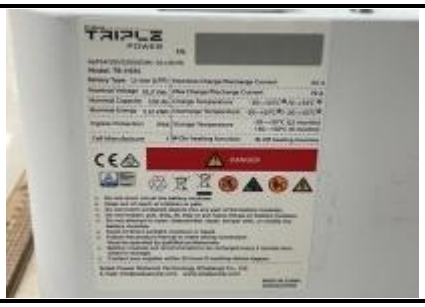
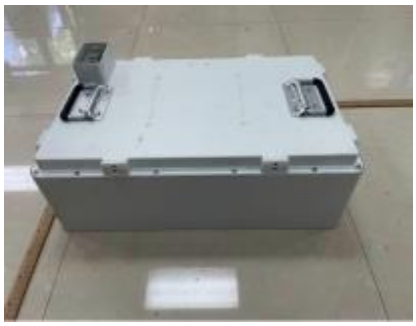
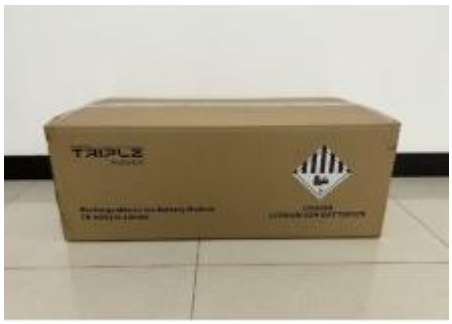
goods (GB 12268-2025)	BATTERIES, Class or Division: 9, Packing Group: —. The recommended packaging category is PG II. Lithium cells and batteries listed in this report are of the types proven to meet the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.

16. other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Abbreviations and acronyms	ADG: Australian Code for the Transport of Dangerous Goods by Road & Rail ADR: Agreement Concerning the International Carriage of Dangerous Goods by Road IMDG: International Maritime Dangerous Goods Code IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA) ICAO-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air by the "International Civil Aviation Organization" (ICAO) EINECS: European Inventory of Existing Commercial Chemical Substances CAS: Chemical Abstracts Service LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent EC50: Effective concentration, 50 percent
Creation Date	2026/01/27
Revision Date	2026/01/27
Update and Revise	Original edition
Edit Standard	*WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements* *Preparation of safety data sheets for hazardous chemicals Code of Practice*
Revised Institution	Technology Center of Hangzhou Customs District

Attachment: Sample Photos

Inner Cell (CB56/3.2V 100Ah 320Wh)	Nameplate
	
Battery (Lithium ion Rechargeable Battery Module TB-HS51 51.2V 100Ah 5.12kWh)	
	
Package Photos provided by the Applicant	
	

***** End of Report *****