WELCOME TO NEWEB VIETNAM

Sep. 2023

WNC Wistron NeWeb Corp.

□ Normal □ Internal Use ■ Confidential □ Restricted Confidential

Attendees

MikroTik		WNC	
Position	**Name**	**Position**	**Name**
Head of Factory support department	Mr. Andris Jaunzeikers	Head of Business Unit II	Mr. MengChung Tsai
Factory support software development team leader	Mr. Gints Rošāns	Technical manager	Mr. Zee Wu
Factory support mechatronics engineer team leader	Mr. Aldis Priedeslaipa	Account manager	Ms. Carol Kao
Electronics Engineer	Mr. Oskars Purpišs	MFG II Center Director	Mr. Sam HH Lin
Electronics Engineer	Mr Vadims Novaks	QA Sec. Supervisor	Ms. Laura Pei
Mechanics Engineer	Mr. Ēriks Voits	QA Sec. Supervisor	Ms. Sarah Zheng
		MPM Dept. Manager	Mr. Kenny Teng
		MPM Engineer	Mr. David Ruan
		MPM Engineer	Ms. Eden Lu
		PE Sec. Supervisor	Mr. Jonathan Pei

Agenda

Date: 2023/11/09. Time: 8:30~16:00. Meeting room F1-1F 1-1				
Date	Time		Topic	Owner
11/09	8:40	9:20	WNC factory introduction	Kenny/David
	9:40	11:50	Factory tour: IQC → SMT → QE → ATP → warehouse	Marco/Terry/ Boris/Kenny/David/
	12:00	13:15	Lunch time	
	13:30	15:30	▪ Option: 13:30-14:30 –ATP →warehouse ▪ Agenda review	MengChung/Zee/Kenny and team
	15:30	~	Close meeting	

NEWEB Vietnam Company Profile

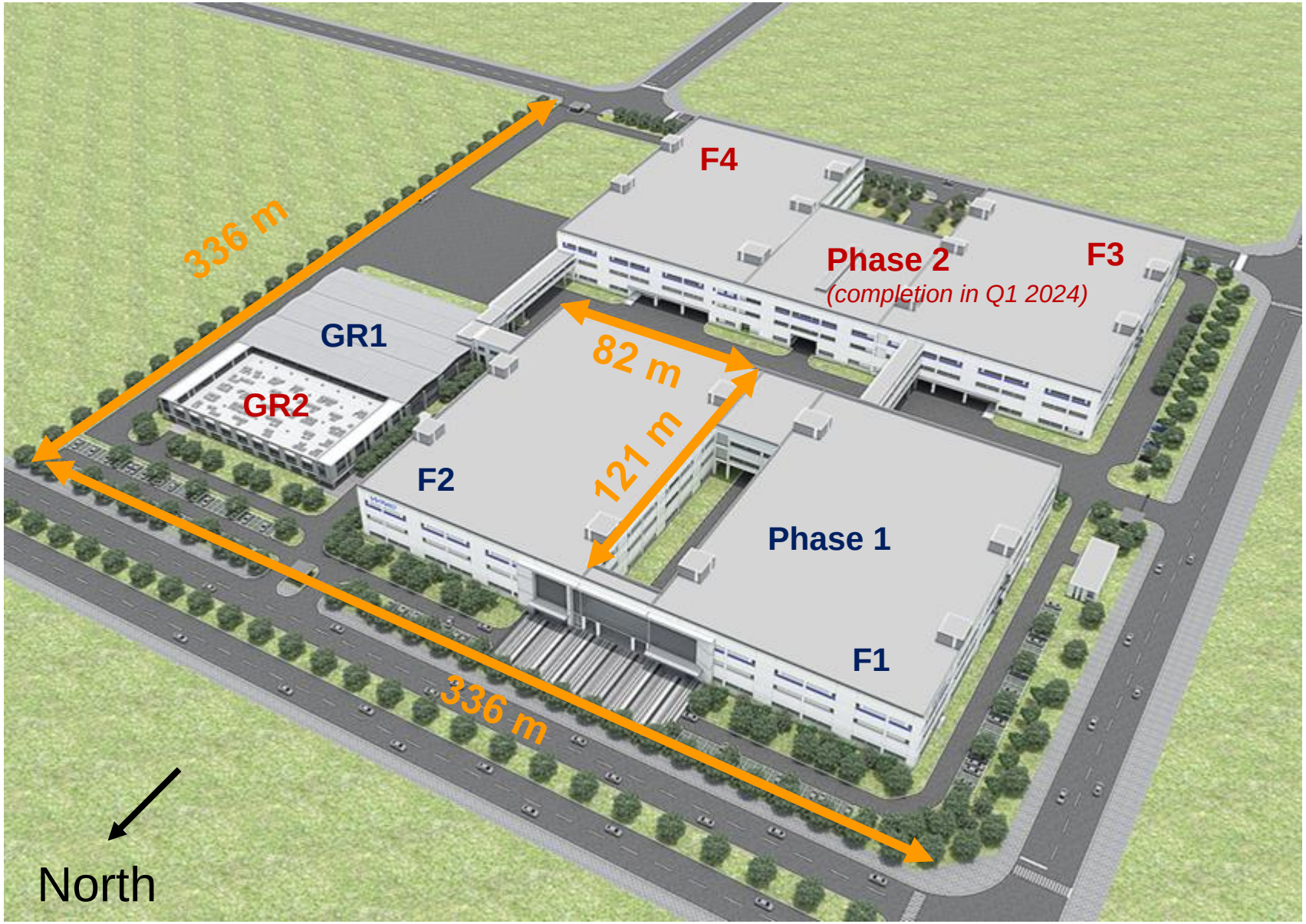
NEWEB Vietnam Phase 1 and 2 Sites

Noi Bai Airport

45 miles/70 Km

Hanoi

25 miles/40 Km



Hai Phong Port

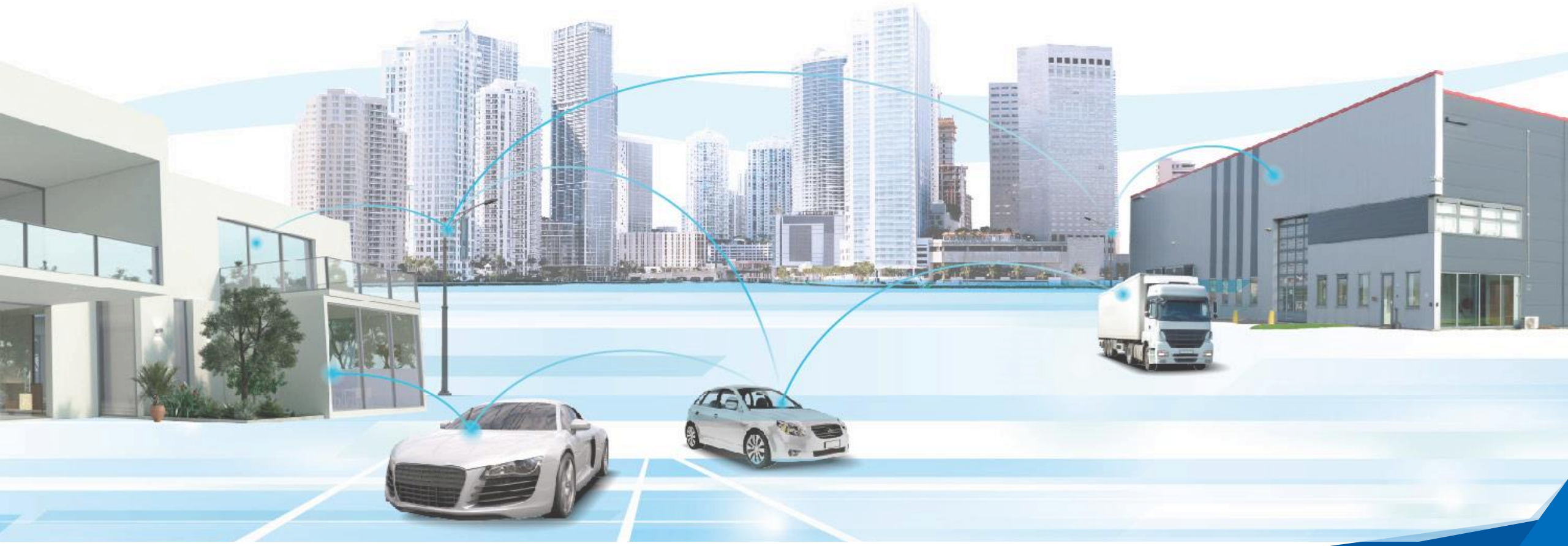
56 miles/90 Km

NEWEB Vietnam Manufacturing Introduction

- **NEWEB Vietnam Briefing**
  - Company Mission
  - Manufacturing Organization
- Manufacturing Resources
- Quality Assurance System Introduction

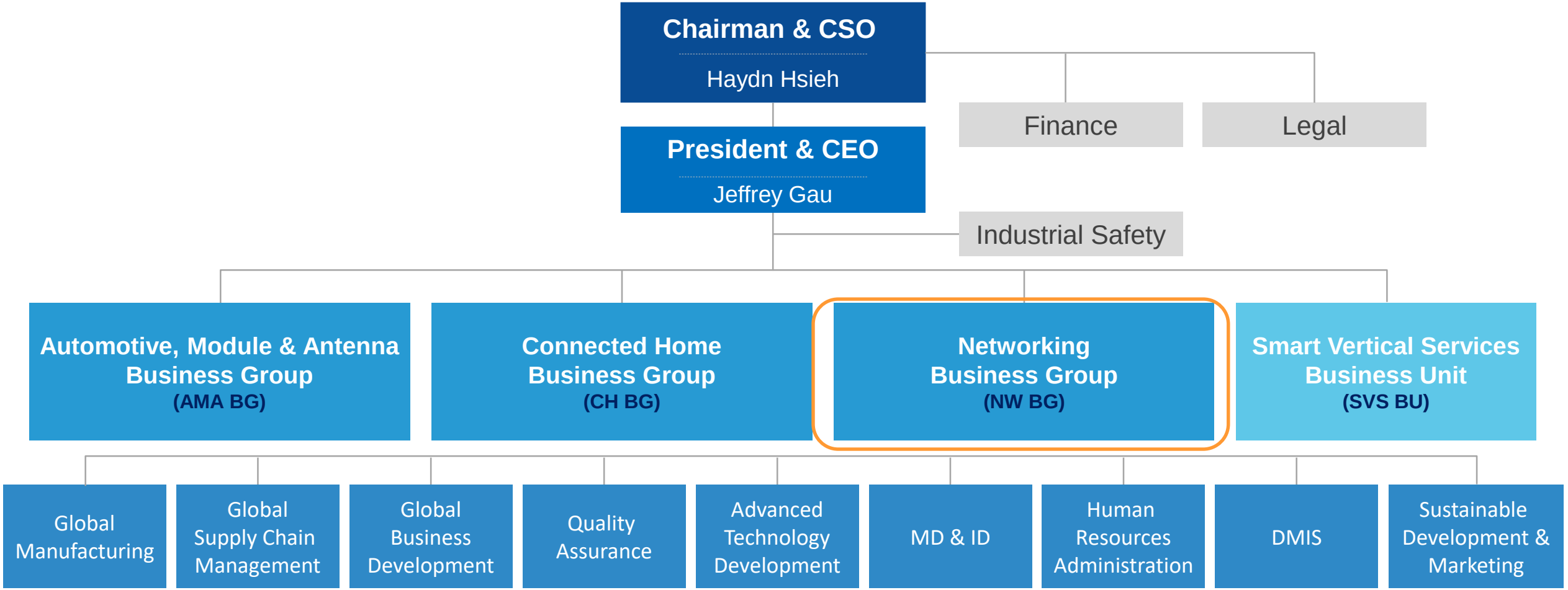
Mission Statement

Outstanding production quality and highly efficient manufacturing processes that ensure all customer requirements are met.

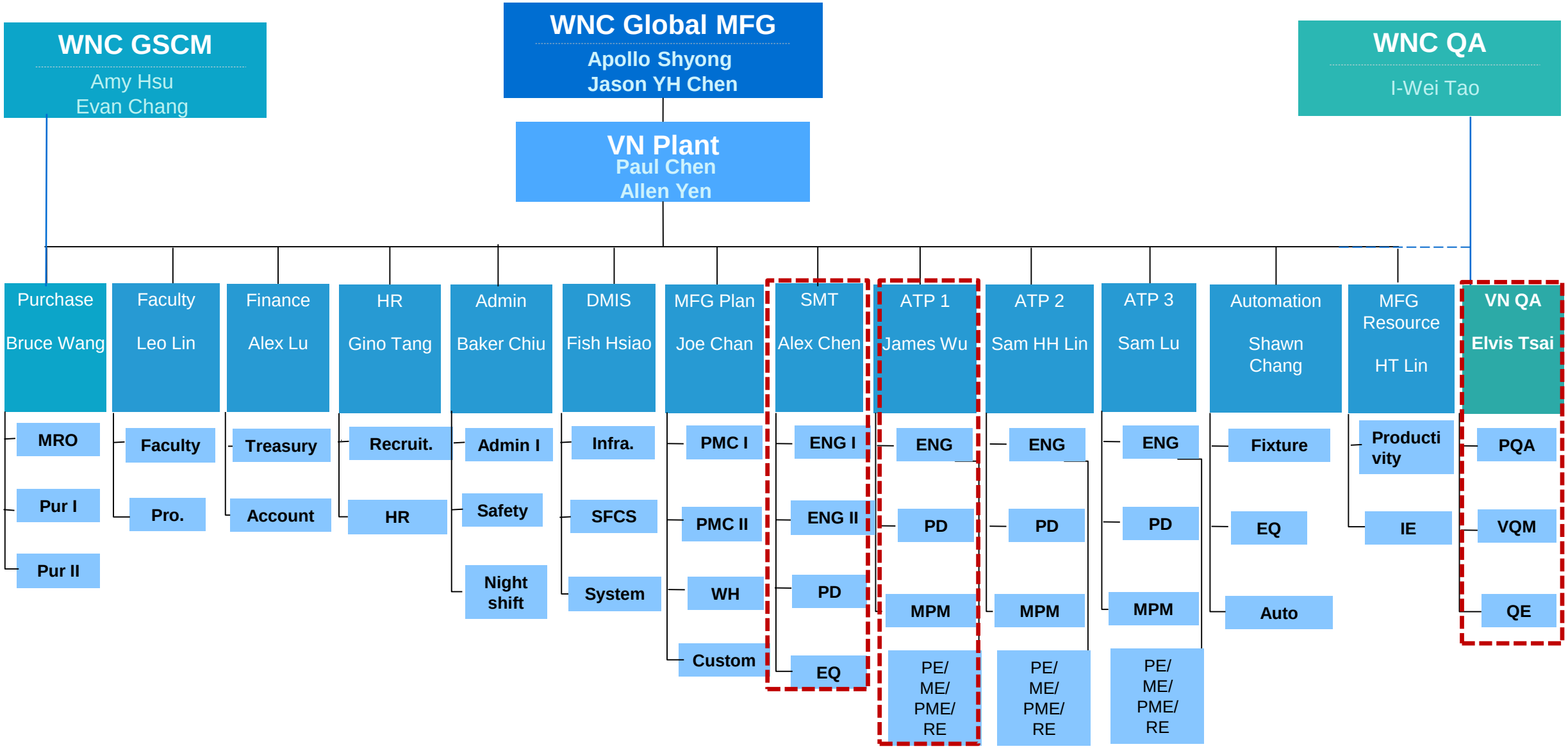


WNC Corporate Structure

- ✓ Dedicated BGs/BUs for each product line
- ✓ Comprehensive function teams for BG/BU support



NEWEB Vietnam Organization



NEWEB Vietnam Manufacturing Introduction

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  - Company Mission
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WNC Global Manufacturing Sites Overview

Wistron NeWeb (Kunshan)
57,096 m²

WebCom Communication (Kunshan)
28,380 m²

WNC (Kunshan)
46,377 m²

Kunshan, China

Hsinchu, Taiwan

Tainan, Taiwan

Ha Nam, Vietnam

Hsinchu Site (HQ)
68,147 m²

Brazil Site
(Manufacturing partner)
10,000 m²

Manaus, Brazil

New

Tainan Site 89,000 m²
Opening: Q4 2022

New

(NVNM)

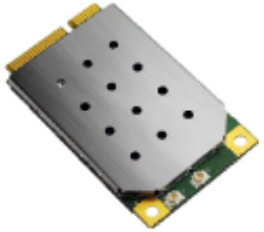
Total floor space 59,040 m²
Production space 24,000 m²
Employee 2,300

NEWEB Vietnam (Phase 1)
Phase 2 (F3, F4 building – In progress)

NEWEB Vietnam Manufacturing Resources

Product Types

AP Router

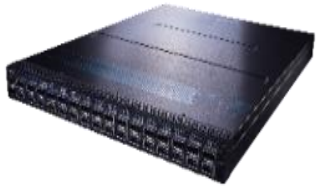

5G/LTE Module

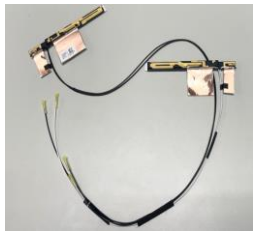
Smart Home Control Hub

STB

Smart Lock

GPS Tracker


Switch


Antenna

Space

Production Area & Warehouse
In-used: 19,696 m^2
Maximum: 33,000 m^2

Total Floor Space: 59,040 m^2

Production Capacity

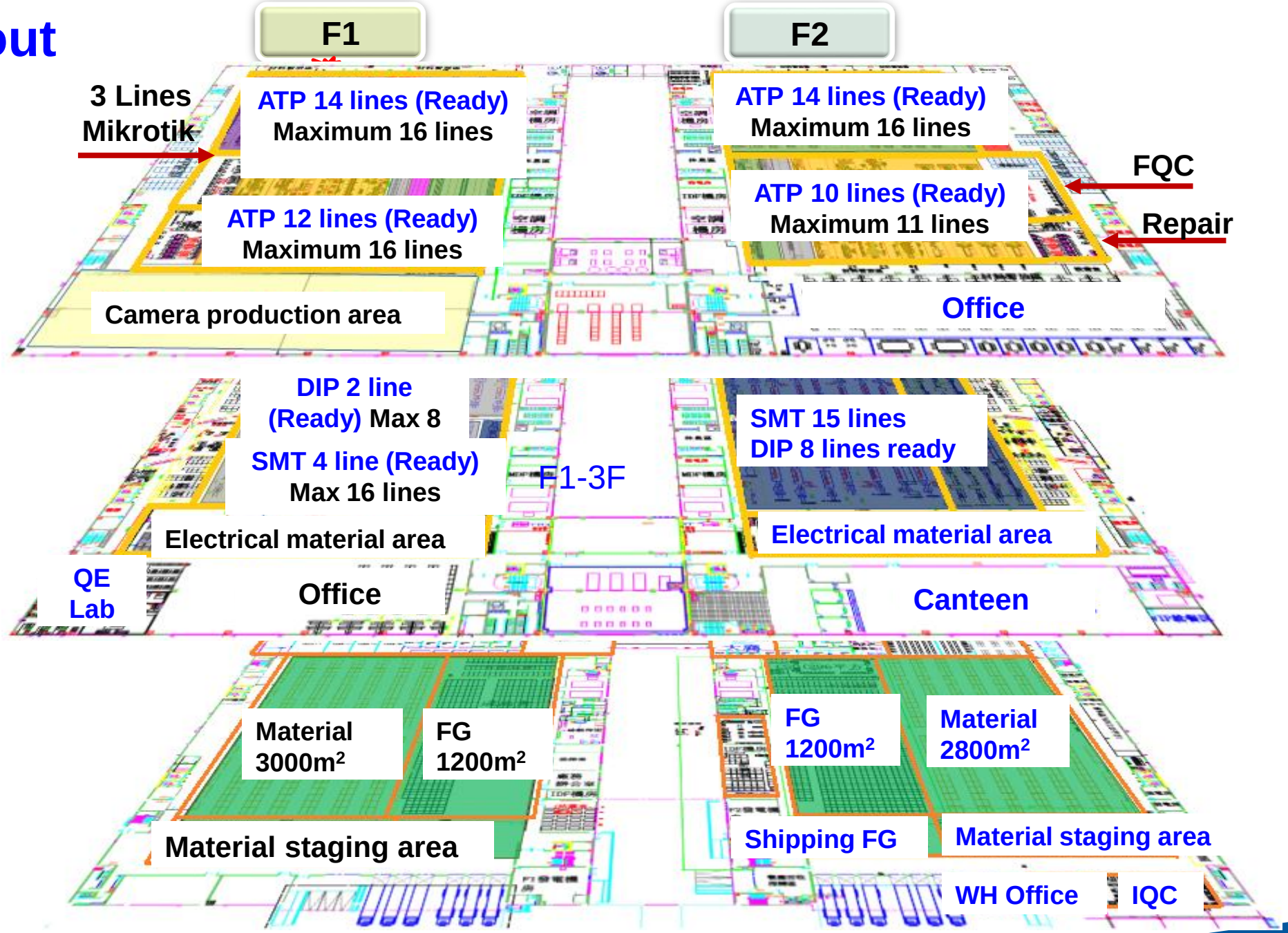
Device
Maximum: 2,560 Kpcs / month

Certificate

ISO 9001	ISO 14001
TL 9000	ISO 45001
ANSI/ESD S20.20	FSC™ Chain-of-Custody
ISO/IEC 27001	ISO 14064 *New*
ISO 50001 *New*	QC 080000 *New*

NEWEB Vietnam Manufacturing Location

VN Layout


F1
F2
3F
ATP
3 Lines
Mikrotik
ATP 14 lines (Ready)
Maximum 16 lines
ATP 14 lines (Ready)
Maximum 16 lines
FQC
ATP 10 lines (Ready)
Maximum 11 lines
Repair
ATP 12 lines (Ready)
Maximum 16 lines
Camera production area
Office
2F
SMT/DIP
DIP 2 line
(Ready) Max 8
SMT 4 line (Ready)
Max 16 lines
F1-3F
SMT 15 lines
DIP 8 lines ready
Electrical material area
Electrical material area
QE
Lab
Office
Canteen
1F
WareHouse
Material
3000m2
FG
1200m2
FG
1200m2
Material
2800m2
Material staging area
Shipping FG
Material staging area
WH Office
IQC

SMT Equipment Specifications

Printing | SPI | Mounter | AOI | Mounter | Reflow | AOI | Wave soldering

Manufacturer: TRI
Model: TR7007SII PLUS * 1

- Accuracy: X,Y 1 µm; Z 1 µm
- Resolution: 10 µm
- PCB size: 50 mm × 50 mm to 510 mm × 460 mm
- Inspection type: high, area, volume, offset, bridge

Manufacturer: GKG
Model: G++ * 1

- Print speed: 2 mm/sec to 300mm/sec
- Machine Alignment Capability: >1.33 cpk
- PCB size: 50 mm (X) x 50 mm (Y) to 510 mm (X) x 510 mm (Y)
- PCB thickness: 0.4 mm to 6 mm
- Print speed: 10 ~ 200 mm/sec
- Air consumption: 5 L/min
- Print accuracy: ±18 um@6σ cpk>2

Manufacturer: TRI
Model: TR7600SIII *1

- Accuracy: 10 um
- Speed: 60 mm^2/s
- PCB size: 50 mm x 50 mm to 510 mm x 610 mm
- Missing, tombstone, bill boarding, polarity, rotation, shift, wrong marking (OCV), defective, upside down, lifted component, extra component.

Manufacturer: Panasonic
Model: CM-WX (NM-EJM90)

- Accuracy:±25 um/chip (cpk≥1)
- PCB size: 50 mm × 50 mm to 750 mm × 610 mm
- Component size range: 01005 chip: 0.4 mm (L) × 0.2 mm (W) to 32 mm (L) x 32 mm (W)
- Speed: 0.084 s/chip

Manufacturer: Sonic
Model: K2-1003N *1

- Temperature accuracy: ± 0.75 °C
- PCB size: 500 mm X 700 mm
- For material type: 01005 chips BGA QFP CSP
- Max temperature: 350°C
- Nitrogen System: All Zone Nitrogen Filling

Manufacturer: Panasonic
Model: NPM-WX (NM-EJM90)

- Accuracy: ±20 um/QFP (cpk≥1.33)
- PCB size: 50 mm × 50 mm to 750 mm × 610 mm
- Component size range: 0603(Chip)~120 mm (L) x 90 mm (W) x 40 mm (T)
- Speed: 0.383 s/chip, 0.567 s/QFP
- Single tray 0.493 s/QFP Feeder

Manufacturer: JT
Model: JT-180653120THL0 *1

- Maximum belt speed: 1,800 mm/min.
- Wave type: main wave & chip wave
- Solid Angle: adjustable 4º ~ 7º
- Solid temp.: Room temp. to 300°C

Manufacturer: Parmi
Model: Xceed L *1

- Accuracy: 14 µm
- Scan Speed: sq. > 60 mm^2/s
- PCB size: 50 mm × 50 mm to 510 mm × 510 mm
- Missing, tombstoning, bill boarding, polarity, rotation, shift, wrong marking (OCV), defective, upside down, lifted component, extra component
- Test PCBA Thickness (mm) 0.5 mm to 5 mm
- X – Y Axis GR&R < 5%

NEWEB Vietnam Manufacturing (SMT + DIP)

19 lines of SMT and 10 lines of DIP are ready.(photo of the scene for SMT)

NEWEB Vietnam Manufacturing – ATP Line

- 50 ATP lines (Assembly/Testing/Packing)

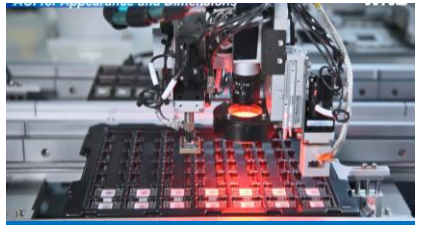
Continuous Investment In Automation

WNC has implemented standardized production processes and modularized equipment in its automation design to create highly flexible production lines that can meet different customer needs

1. WNC has developed standardized, automated modules for material loading & offloading, testing, labeling, and AOI.
2. Each WNC production site designs and manufactures (via CNC machining) their own fixtures.
3. Over 500 robot arms are used on WNC production lines.
4. Software simulation and real-world production experience are used when building production lines.
5. The module, antenna and router production lines are fully automated.

Examples of automated stations

AMR + automated material loading



Automated optical positioning & inspection

Automated labeling

Automated testing

WNC's automated production stations/lines

Individual automated stations

Hybrid lines

Fully automated CIM lines

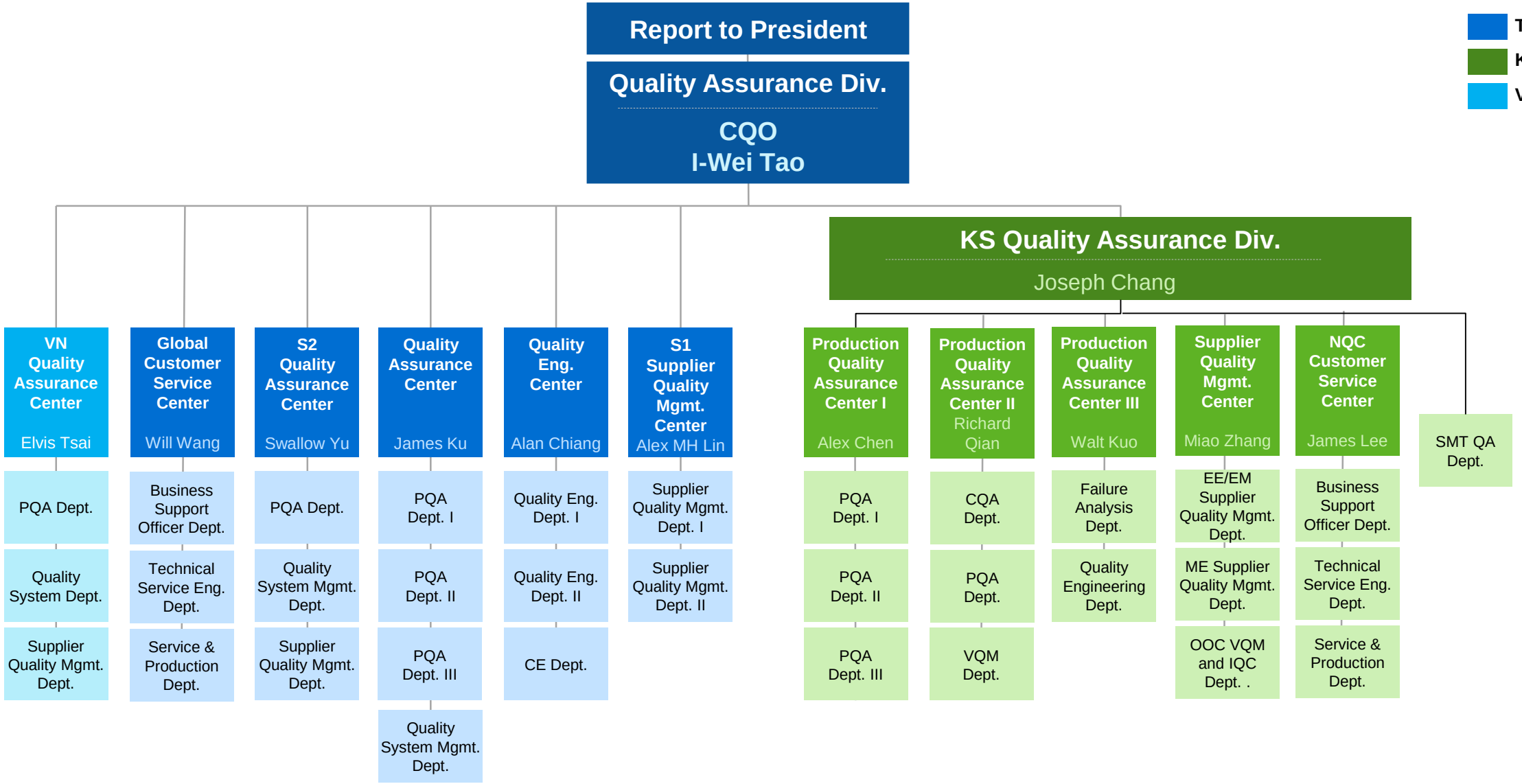
NEWEB Vietnam Manufacturing Introduction

- NEWEB Vietnam Briefing
- Manufacturing Resources
- Quality Assurance System Introduction
- Material Supply Chain

Contents

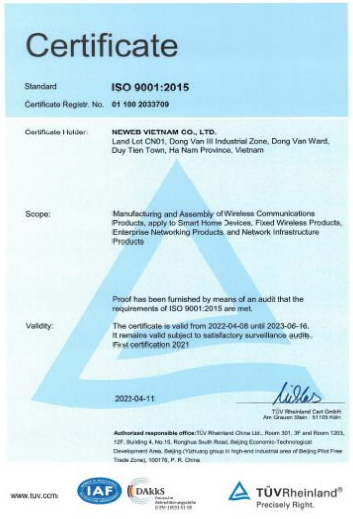
- WNC Quality Organization
- Quality Certifications
- QE Lab Capability

Quality Organization



Quality Control Introduction (Video)

VN ISO Cert.


Certificate

Standard ISO 9001:2015

Certificate Registr. No. 01 100 2033709

Certificate Holder: NEWEB VIETNAM CO., LTD.
Land Lot CN01, Dong Van III Industrial Zone, Dong Van Ward, Duy Tien Town, Ha Nam Province, Vietnam

Scope: Manufacturing and Assembly of Wireless Communications Products, apply to Smart Home Devices, Fixed Wireless Products, Enterprise Networking Products, and Network Infrastructure Products

Proof has been furnished by means of an audit that the requirements of ISO 9001:2015 are met.

Validity: The certificate is valid from 2022-04-08 until 2023-06-16.
It remains valid subject to satisfactory surveillance audits.
First certification 2021

2023-04-11

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

Authorized responsible office: TÜV Rheinland China Ltd., Room 301, 3F and Room 1203, 12F, Building 4, No.15, Ronghua South Road, Beijing Economic-Technological Development Area, Beijing (Yizhuang group in high-end industrial area of Beijing Pilot Free Trade Zone), 100176, P. R. China

www.tuv.com

ISO 9001
2023.6.17-2026.6.16

Certificate

Standard GB/T 19001-2016 / ISO 9001:2015 / TL 9000-H R6.3/R5.7

Certificate Registr. No. 17 201 1733447/07

Certificate Holder: NEWEB VIETNAM CO., LTD.
Land Lot CN01, Dong Van III Industrial Zone, Dong Van Ward, Duy Tien Town, Ha Nam Province, Vietnam

Scope: Contracted Manufacturing and Sales of STB, Router and VoLTE

Proof has been furnished by means of an audit that the requirements of GB/T 19001:2016 / ISO 9001:2015 / TL 9000-H R6.3/R5.7 are met.

Certificate Registration No. TL6780

Product Category-Code	Product Category-Description
7.7.4	Electromechanical Assembly

Validity: The certificate is valid in conjunction with the main certificate from 2023-07-06 until 2026-06-16.
It remains valid subject to satisfactory surveillance audits.

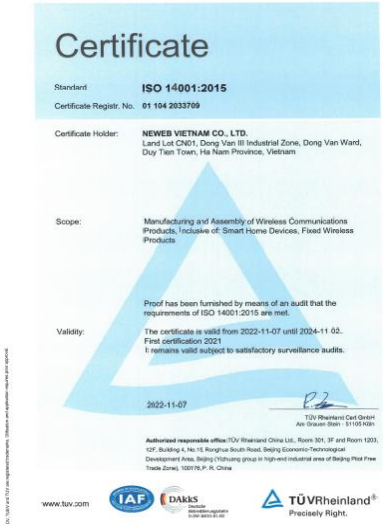
This certificate information can be searched on CNCA official website http://www.cnca.gov.cn

2023-07-06

TÜV Rheinland (China) Ltd.
Room 301, 3F and Room 1203, 12F, Building 4, No.15, Ronghua South Road, Beijing Economic-Technological Development Area, Beijing (Yizhuang group in high-end industrial area of Beijing Pilot Free Trade Zone), 100176, P. R. China

www.tuv.com

TL 9000
2023.7.6-2026.6.16


Certificate

Standard ISO 14001:2015

Certificate Registr. No. 01 104 2033709

Certificate Holder: NEWEB VIETNAM CO., LTD.
Land Lot CN01, Dong Van III Industrial Zone, Dong Van Ward, Duy Tien Town, Ha Nam Province, Vietnam

Scope: Manufacturing and Assembly of Wireless Communications Products, Inclusive of: Smart Home Devices, Fixed Wireless Products

Proof has been furnished by means of an audit that the requirements of ISO 14001:2015 are met.

Validity: The certificate is valid from 2022-11-07 until 2024-11-02.
First certification 2021
It remains valid subject to satisfactory surveillance audits.

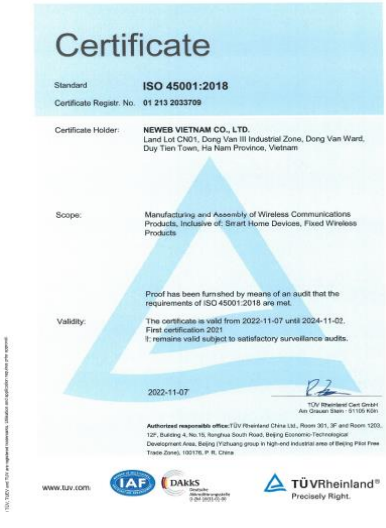
2022-11-07

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

Authorized responsible office: TÜV Rheinland China Ltd., Room 301, 3F and Room 1203, 12F, Building 4, No.15, Ronghua South Road, Beijing Economic-Technological Development Area, Beijing (Yizhuang group in high-end industrial area of Beijing Pilot Free Trade Zone), 100176, P. R. China

www.tuv.com

ISO14001
2021.11.3- 2024.11.2


Certificate

Standard ISO 45001:2018

Certificate Registr. No. 01 213 2033709

Certificate Holder: NEWEB VIETNAM CO., LTD.
Land Lot CN01, Dong Van III Industrial Zone, Dong Van Ward, Duy Tien Town, Ha Nam Province, Vietnam

Scope: Manufacturing and Assembly of Wireless Communications Products, Inclusive of: Smart Home Devices, Fixed Wireless Products

Proof has been furnished by means of an audit that the requirements of ISO 45001:2018 are met.

Validity: The certificate is valid from 2022-11-07 until 2024-11-02.
First certification 2021
It remains valid subject to satisfactory surveillance audits.

2022-11-07

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

Authorized responsible office: TÜV Rheinland China Ltd., Room 301, 3F and Room 1203, 12F, Building 4, No.15, Ronghua South Road, Beijing Economic-Technological Development Area, Beijing (Yizhuang group in high-end industrial area of Beijing Pilot Free Trade Zone), 100176, P. R. China

www.tuv.com

ISO45001
2021.11.3- 2024.11.2

bsi.

Certificate of Registration

ELECTROSTATIC DISCHARGE CONTROL - ANSI/ESD S20.20-2014

This is to certify that: NEWEB VIETNAM CO., LTD
Land Lot CN01,
Dong Van III Industrial Zone,
Dong Van Ward, Duy Tien Town,
Ha Nam Province,
Vietnam

Holds Certificate No: ESD 763308

and operates an Electrostatic Discharge Control system which complies with the requirements for ANSI/ESD S20.20 -2014 standard for the following scope:

Manufacturing and Assembly of Wireless Communications products, Inclusive of: Smart Home Devices, Fixed Wireless Products.

For and on behalf of BSI:

Carlos Pitanga, Chief Operating Officer Assurance – Americas

Original Registration Date: 2022-03-01
Latest Revision Date: 2022-03-02

Effective Date: 2022-03-01
Expiry Date: 2023-02-28

Page: 1 of 1

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ANSI/ESD S20.20
2023.03.01-2024.02.28

IEC IECQ

IEC QUALITY ASSESSMENT SYSTEM (IECQ) covering Electronic Components, Assemblies, Related Materials and Processes

IECQ Certificate of Conformity
Hazardous Substance Process Management

IECQ Certificate No.: IECQ-H TUVRTW 11.0008-08 Issue No.: 1 Status: Current
Additional Site to Certification: IECQ-H TUVRTW 11.0008 Originally Issued: 2011/06/30
Supersedes: Issue Date: 2023/07/24 Site Added: 2023/07/24
CB Reference No.: 01 HSPM 1633208/08 Expiration: 2026/06/29

Applicable to:
- European Directive 2011/65/EU ("RoHS – Restriction of the use Of certain Hazardous Substances") in electrical and electronic equipment. Including all published amendments
- Customer specified requirements

NEWEB VIETNAM CO., LTD.
Land Lot CN01, Dong Van III Industrial Zone, Dong Van Ward, Duy Tien Town, Ha Nam Province, Vietnam

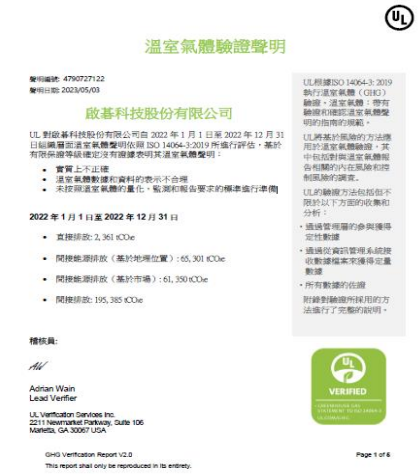
The organization has developed and implemented Hazardous Substance Process Management procedures and related processes which have been assessed and found to comply with the applicable requirements for IECQ HSPM organization approval which is in accordance with the Basic Rules IECQ 01 and Rules of Procedure IECQ 03-5 "IECQ Hazardous Substances Process Management" of the IEC Quality Assessment System for Electronic Components (IECQ), and with respect to the IECQ Specification:
- IECQ QC 080000:2017 - Hazardous Substance Process Management System Requirements

This Certificate is applicable to all electronic components, assemblies, related materials and processes for the following scope of activities:
Manufacturing and Assembly of Wireless Communications Products, apply to : Smart Home Devices, Fixed Wireless Products, Enterprise Networking Products and Network Infrastructure Products

Issued by the Certification Body: TÜV Rheinland Taiwan Ltd.
11F., No.758, Sec. 4, Bade Rd., Songshan Dist., Taipei 105 Taiwan
Authorized person: Ryan C. C. Hsiang

TÜVRheinland® Precisely Right.

QC 080000
2023.7.24-2025.6.29


UL

溫室氣體驗證聲明

聲明編號: 479072712
聲明日期: 2023/05/03

啟基科技股份有限公司

UL 對啟基科技股份有限公司自 2022 年 1 月 1 日至 2022 年 12 月 31 日組織層面溫室氣體聲明依照 ISO 14064-3:2019 所進行評估，基於有限保證等級確定沒有證據表明其溫室氣體聲明：
- 實質上不正確
- 溫室氣體數據和資料的表示不合理
- 未按照溫室氣體的量化、監測和報告要求的標準進行準備

2022 年 1 月 1 日至 2022 年 12 月 31 日
- 直接排放: 2, 361 tCOe
- 間接能源排放（基於地理位置）: 65, 301 tCOe
- 間接能源排放（基於市場）: 61, 350 tCOe
- 間接排放: 195, 385 tCOe

UL 根據 ISO 14064-3: 2019 執行溫室氣體（GHG）驗證，溫室氣體：帶有驗證和確認溫室氣體聲明的指南的規範，

UL 將基於風險的方法應用於溫室氣體驗證，其中包括對與溫室氣體報告相關的內在風險和控制風險的調查。

UL 的驗證方法包括但不限於以下方面的收集和分析：
- 通過管理層的參與獲得定性數據
- 通過收集訓練管理系統獲收數據檔案來獲得定量數據
- 所有數據的佐證

附錄對驗證所採用的方法進行了完整的說明。

稽核員:

Adrian Wain
Lead Verifier

UL Verification Services Inc.
2211 Newmarket Parkway, Suite 106
Marietta, GA 30067 USA

VERIFIED

GHG Verification Report V2.0
This report shall only be reproduced in its entirety.

Page 1 of 6

ISO 14064 (New)
2023.5.3-/

bsi.

Certificate of Registration

ENERGY MANAGEMENT SYSTEM - ISO 50001:2018

This is to certify that: NEWEB VIETNAM CO., LTD
Land Lot CN01,
Dong Van III Industrial Zone,
Dong Van Ward, Duy Tien Town,
Ha Nam Province,
Vietnam

Holds Certificate Number: ENMS 784591

and operates an Energy Management System which complies with the requirements of ISO 50001:2018 for the following scope:

Manufacturing and Assembly of Wireless Communications Products, apply to Smart Home Devices, Fixed Wireless Products, Enterprise Networking Products, and Network Infrastructure Products.

For and on behalf of BSI:
Michael Lam
Managing Director Assurance, APAC

On behalf of BSI Vietnam:
Le Duyen Anh
Managing Director Vietnam

Original Registration Date: 2023-05-24
Latest Revision Date: 2023-05-24

Effective Date: 2023-05-24
Expiry Date: 2026-05-23

Page: 1 of 1

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ISO 50001 (New)
2023.05.24-2026.05.23

DIN CERTCO

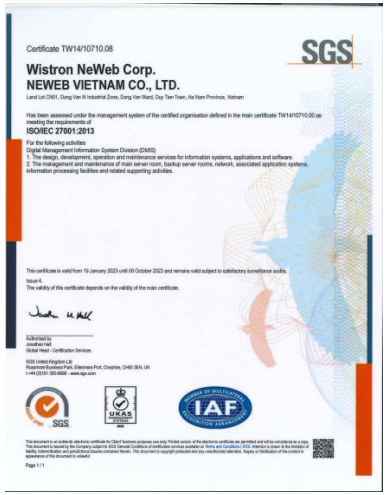
CERTIFICATE

Certificate-Holder	NEWEB VIET NAM CO., LTD. Land Lot CN01, Dong Van III Industrial zone, Dong Van Ward 018216 Duy Tien Town, Ha Nam Province Vietnam
System	FSC - Chain of Custody
Standard	FSC-STD-40-004
Testing-basis	Certification Scheme FSC - Chain of Custody (2022-01)
FSC-Control-System	Transfer System
Status of Material	FSC Mix / FSC Recycled / FSC 100 %
Registration No.	TUVDC-COC-101280
Edition(s)	1. Issue
Valid until	2028-02-06
Remark(s)	The validity of this certificate as well as further details regarding the certification scope shall be verified on www.info.fsc.org. This certificate is property of DIN CERTCO GmbH. Certificates and their copies must be returned immediately upon request of DIN CERTCO GmbH. This certificate itself does not constitute evidence that a particular product supplied by the certificate holder is FSC certified (or FSC Controlled Wood). Products offered, shipped or sold by the certificate holder can only be considered covered by the scope of this certificate when the required FSC claim is clearly stated on invoices and shipping documents. See annex for further information.

TÜVRheinland® DIN CERTCO Precisely Right.

Dipl.-Biol. Katharina Vehring, M. Eng.
Certifier

FSC CoC
2023.2.7-2028.2.6


Certificate TW14/10710.08

SGS

Wistron NeWeb Corp.
NEWEB VIETNAM CO., LTD.
Land Lot CN01, Dong Van III Industrial Zone, Dong Van Ward, Duy Tien Town, Ha Nam Province, Vietnam

Has been assessed under the management system of the certified organisation defined in the main certificate TW14/10710.00 as meeting the requirements of
ISO/IEC 27001:2013

For the following activities
Digital Management Information System Division (DMIS)
1. The design, development, operation and maintenance services for information systems, applications and software.
2. The management and maintenance of main server room, backup server rooms, network, associated application systems, information processing facilities and related supporting activities.

This certificate is valid from 19 January 2023 until 09 October 2023 and remains valid subject to satisfactory surveillance audits.

Issue 4.
The validity of this certificate depends on the validity of the main certificate.

Authorised by
Jonathan Hall
Global Head - Certification Services

SGS United Kingdom Ltd
Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN, UK
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UKAS IAF

ISO 27001
2023.1.19-2023.10.6

IQC Equipment Status (1/3)

2.5D OMM

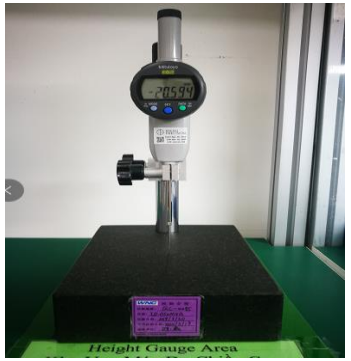
Manufacturer: DELI
Type: SMU-5650LA
Function: Size Measurement

LCR METER

Manufacturer: WAYNE KERR
Type: 6500P
Function:
Measure the value of EE components

HEIGHT GAUGE

Manufacturer: MITUTOYO
Type: ID-C150MXB
Function:
Measure specific dimensions



XRF TESTER

Manufacturer: SKYRAY
Type: EDX2800B
Function:
Rohs + Halogen Tester

HI-POT

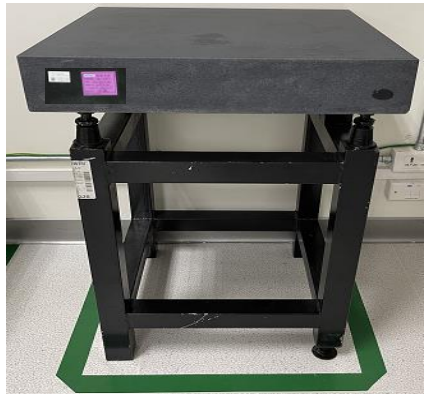
Manufacturer: GWINSTEK
Type: GPT-9801
Function:
High Voltage-Pressure Test

MULTIPLE METER

Manufacturer: FLUKE
Type: 115C
Function: Circuit Measurement

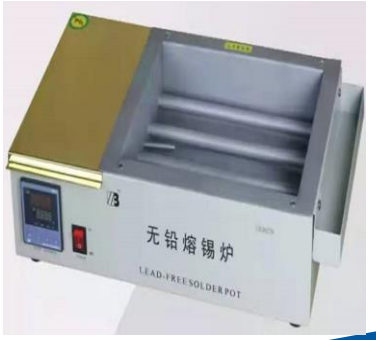
MARBLE PLATFORM

Manufacturer: XIN XING
Type: 750*750*150
Function: Mechanical Flatness Test



SOLDERING POT

Manufacturer: Zheng Bang
Type: ZB3025B
Function: Material Soldering Testing



IQC Equipment Status (2/3)

HI-SPEED BATTERY METER

Manufacturer: HE PU
Type: HP3563
Function: Check Resistance in Battery

AUDIO SWEEPER

Manufacturer: SUNLILAB
Type: 7116C
Function: Noise

POWER SUPPLY

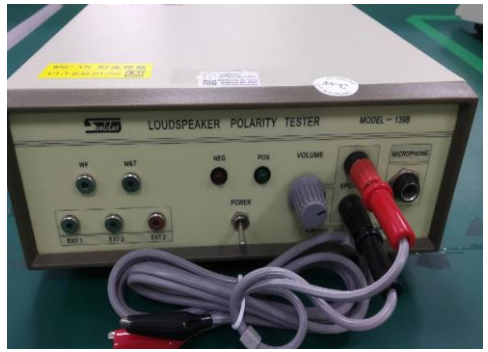
Manufacturer: GWINSTEK
Type: PSP-405
Function: Programmable Power supply

DC LOW RESISTANCE TESTER

Manufacturer: HUI GAO
Type: HG-2511
Function: Digital DC Low Resistance Test

LOUDSPEAKER POLARITY TESTER

Manufacturer: SUNLILAB
Type: 139B
Function: Loudspeaker polarity Tester



DIGITAL OSCILLOSCOPE

Manufacturer: TEKTRONIX
Type: TBS 1000C
Function: Digital Oscilloscope

PUSH-PULL TESTING MACHINE

Manufacturer: HANDPI
Type: MY-DA-500
Function: Push-Pull Force Test

FILM THICKNESS TESTER

Manufacturer: SKYRAY
Type: Thick800A
Function: coating thickness measurement

IQC Equipment Status (3/3)

GLOSS METER

Manufacturer: DONG RU
Type: DR60A
Function: Gloss Measurement

MOISTURE METER

Manufacturer: SUNLILAB
Type: WM510
Function: Moisture Measurement

DIGITAL MICROMETER

Manufacturer: MITUTOYO
Type: MDC-25PX 293-240-30
Function: Size Measurement

Film/Coating Thickness Gauge

Manufacturer: Smart Sensor
Type: AR932
Function: Thickness measurement

CROSS-CUT TESTER

Manufacturer: HUA GUO
Type: QFH-HG600
Function: Adhesion Test

DIGITAL LUX METER

Manufacturer: SMART SENSOR
Type: AS823
Function: Brightness Measurement

MOISTURE-PROOF CABINET

Manufacturer: MEI YANG
Type: HC-315
Function: Keep EE Materials Dry

STATIC ELECTRICITY METER

Manufacturer: STATICIDE
Type: Model 800
Function: Impedance Testing

QE Lab Reliability Test Capability-Equipment(1/3)

Climatic Environment Test Room

Programmable Temp. / Humidity Chamber
Temp. range:-70℃~150℃
Humi.Range:10%~98%
Temp. Gradient: 2℃/Min
Q'ty: 7 sets

Thermal Shock Chamber
Temp. range:-70℃~200℃
Transfer time < 5min
Q'ty: 2 sets

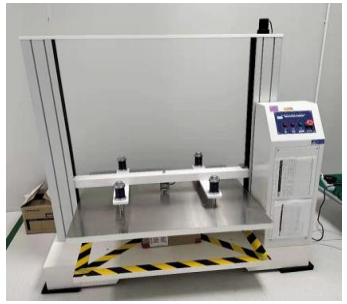
Rapid Temperature change chamber.
range: -70℃~150℃
Transfer time < 5min
Q'ty: 1 set

High Temp. Oven
Temp. range:
Ambient temp.+10 ℃~ 200℃
Q'ty:1 set

ESD Test Room

ESD Tester
Input voltage: 2-30 (KV)
Specifications capacitive resistor: 330Ω / 150pF
Q'ty:1 set

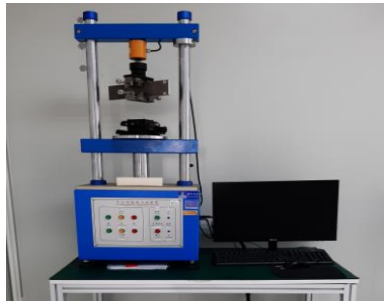
Dynamical / Mechanical Environment Test Room



Servo driven compression tester
Q'ty:1 set

Automatic displacement curve tester
Q'ty:1 set

Abrasion tester
Q'ty:1 set



Automatic insertion force tester
Q'ty:1 set

Salt Spray Test Room

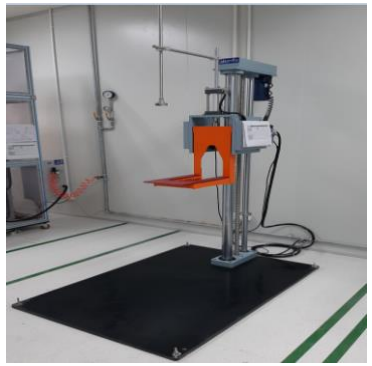
Salt-spray Tester
Saturate Air Temp.25 ℃~ 63℃
Salt water tank temp.25℃~ 50℃
Chamber Temp.25℃~ 50℃
Q'ty:1 set

QE Lab Reliability Test Capability-Equipment(2/3)

Dynamical / Mechanical Environment Test Room

Single Drop tester
- Max payload: (**Five Kilograms**) 5kg
- Height range: (**From One hundred to Two thousand** mm) 100~2000 mm

Q'ty:1 set



Packing Drop tester
- Height range: (**From three hundred to one thousand and five hundred** mm) 300 mm~1500mm
- Max payload: (**Eighty five kilograms**) 85kg

Q'ty:1 set

Vibration tester
- Acceleration Max: (**One hundred G**) 100 G
- Frequency Range: (**From five to Three Thousand Hz**) 5~3000 Hz

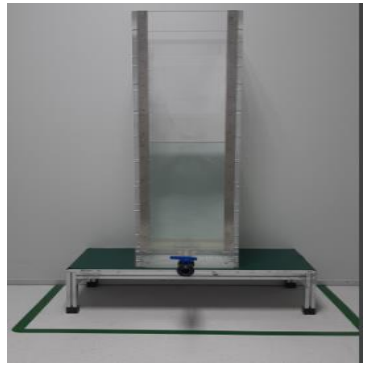
Q'ty:1 set

Button Life Tester- GM-5630
AC220V50Hz/300W
- Speed input mode: rotary knob

Test speed: 0-300rpm is adjustable
Motor: AC speed governor motor
Platform size: 870 * 530 * 800mm
Power supply: 1,220V, 6A, or specified
Weight: approximately 100kg

Q'ty:1 set

Climatic Test Room

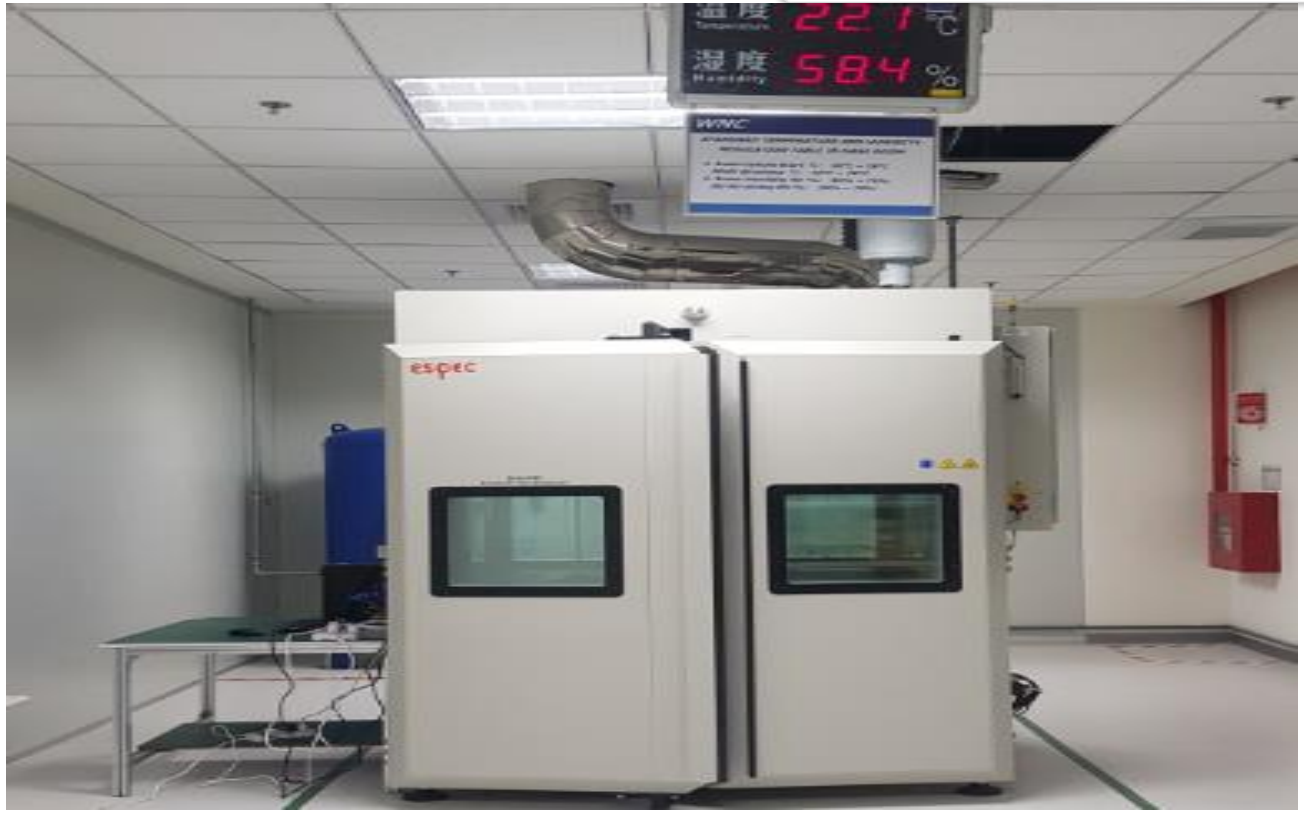


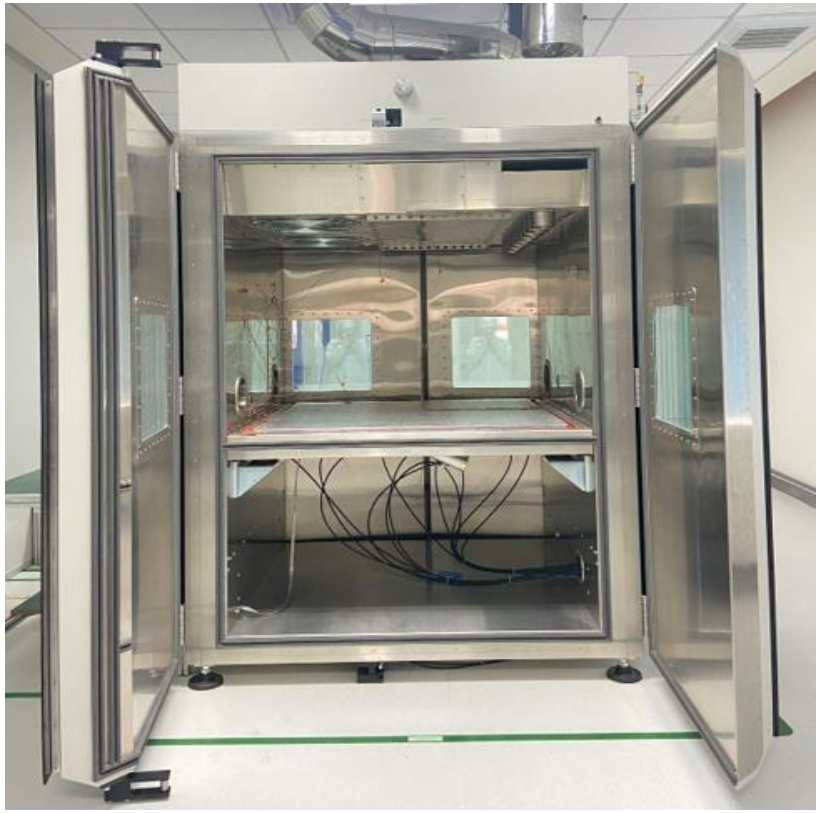
Equipment: Water tank
Type: Water tank
Tank capacity: 200 liters
Material: Acrylic
Thickness: 20mm
Height: 1500mm
Width: 420 mm
Net weight: 85kg
Waterproof vs Water-Resistant)
Water-Resistant
(IPX1 – IPX6)
Waterproof
IPX7 – IPX9K

Q'ty:1 set

QE Lab Reliability Test Capability-Equipment(3/3)

HASA test room





This system is designed specifically for the task of performing Highly Accelerated Stress Screening (HASS) and Highly Accelerated Life Test (HALT) on large products. Its 48” x 48” vibration table is capable of supporting hundreds of pounds of products, fixturing and mounts at two different heights. ESPEC’s Qualmark T4.0 provides optimal thermal and vibration performance to drive out failures fast, yet is amazingly quiet.

1. Acceleration 5 – 75 gRMS （10HZ-5000HZ）
2. Temp Range +200°C to -100°C(+392°F to -148°F)
3. Thermal Ramp Rate 70°C/min
4. Power 380V / 3Φ 50Hz / 100A Requirements (Service Rating)
5.Sound 73 dBA at 50 gRMS (at 1 meter)

3rd Party Test Chamber

IMV

1. VIBRATION TEST (Conbined with TEMPERATURE & HUMIDITY TEST)

Sine vibration	IEC60068-2-6, JIS D 1601, JASO D0001
Random vibration	IEC60068-2-64, ISO16750-3, MIL-STD-810G
Shock wave	IEC60068-2-17, MIL-STD-810G

2. TEMPERATURE TEST

Low & High temperature	IEC 60068-2-1, IEC 60068-2-2
Temperature cycle	IEC 60068-2-14, MIL-STD-202F method102A
Temperature & Humidity	IEC 60068-2-2, IEC 60068-2-30

3. THERMAL SHOCK TEST

Thermal shock cycle	IEC 60068-2-14（Na）, MIL-STD-883, MIL-STD-202

4. WATER TIGHTNESS TEST

Ready to Water Shower IPX1, IPX2, Water Immersion IPX7

To be installed Water Jet tightness, Water Splay

Line tour

WNC

Wistron NeWeb Corp.