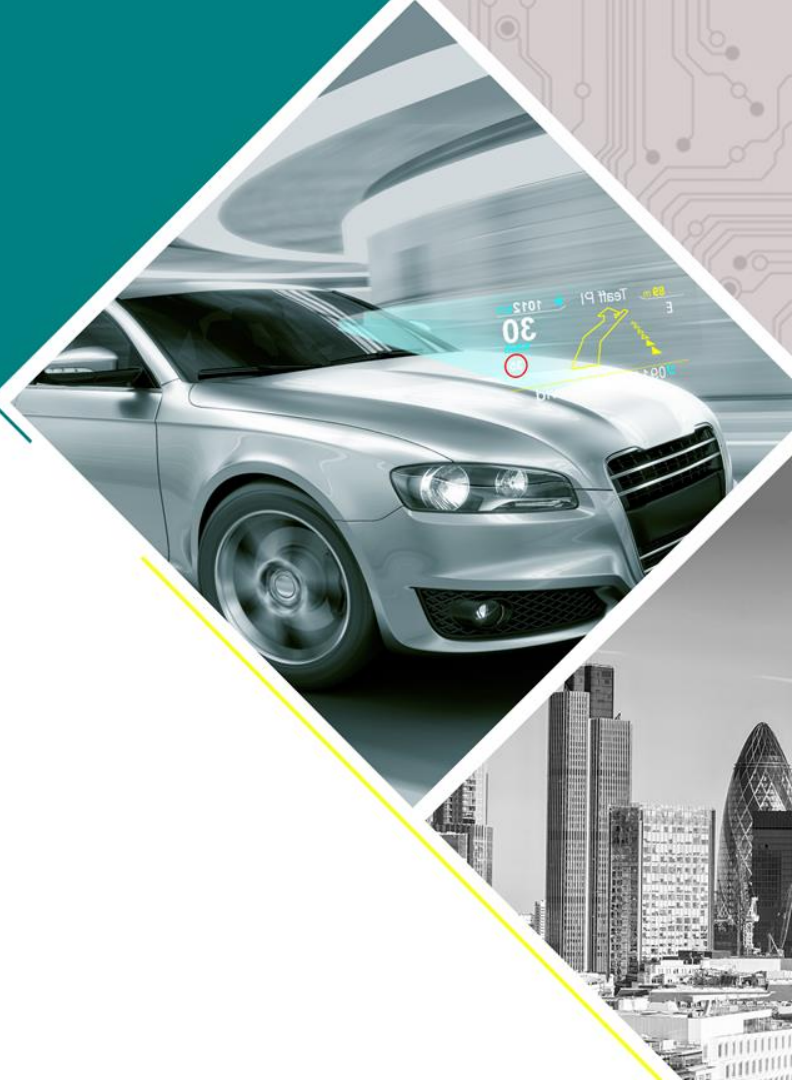




# E-LEAD ELECTRONIC CO., LTD.

Speaker : Rofic Ko

Spokesman / Vice President of Administration Division



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# What is “Tier One” in Automotive Electronics

- In automotive supply chain, the suppliers which communicate and cooperate directly with car factories to develop new model and offer parts directly to car factories when the car is in mass production are called Tier One. The suppliers which produce parts for car but assembly in other Tier One suppliers to provide to car factories are called Tier Two, Tier Three.....
- An average gasoline-powered vehicle is composed of over 30,000 components, which are assembled into more than 8,000 assemblies to create a complete vehicle. °
- An electric vehicle requires approximately 60% of the components compared to a gasoline-powered vehicle, totaling over 20,000 parts that are assembled into 5,000 assemblies.
- Managing the automotive supply chain is a massive undertaking, and reliable Tier One suppliers are key to determining success or failure.



# What is “Tier One” in Automotive Electronics

- General industrial quality standards is based on **3 sigma**, which means yield rate of 99.7% (0.3% defective rate).
- The **6 sigma** implemented in the automotive industry means yield rate of 99.99966% is equivalent to a defect rate of 3.4 parts per million (PPM)
- In general industries, the yield rate is calculated in %, while in the automotive industry, the yield rate is measured in PPM.
- Assuming each part has a defect rate of 3.4 PPM, the overall defect rate for the entire vehicle is 10%.  
Assuming each component has a defect rate of 3.4 PPM, the overall defect rate for the entire vehicle is 3%
- Automotive electronic components normally cannot achieve a defect rate of 3.4 PPM. The general standards usually range from 80 to 150 PPM, but it is still a significant challenge.

## What is Six-Sigma



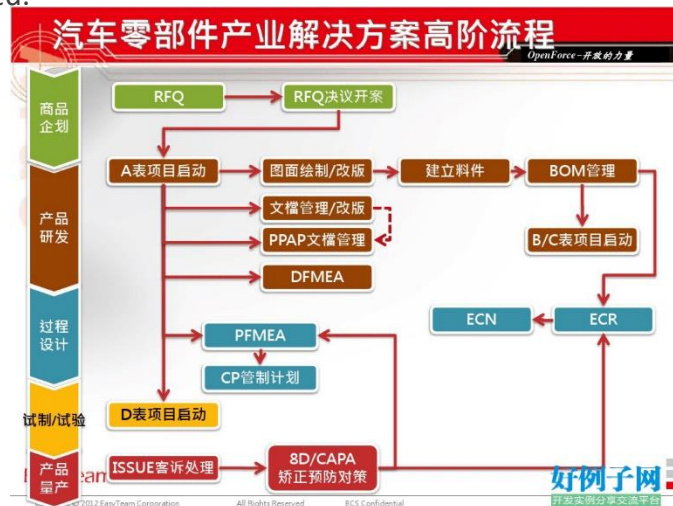
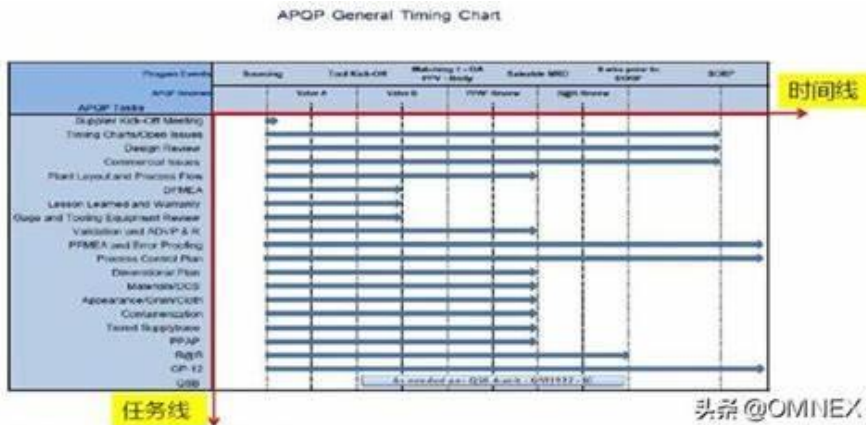
# What is “Tier One” in Automotive Electronics

- Cars serve as means of transportation, so when they experience faults that require repair, the entire vehicle needs to be brought to the workshop. The owner's daily life is seriously impacted during the repair period.
- If the faults affect safety, it could potentially life-threatening.
- Mass defects can result in the recall of even millions of vehicles, leading to astonishing financial losses.
- Automotive components that with quality issues or shortages can cause assembly lines to halt, resulting in minute-by-minute losses (approximately TWD 8,000/min).



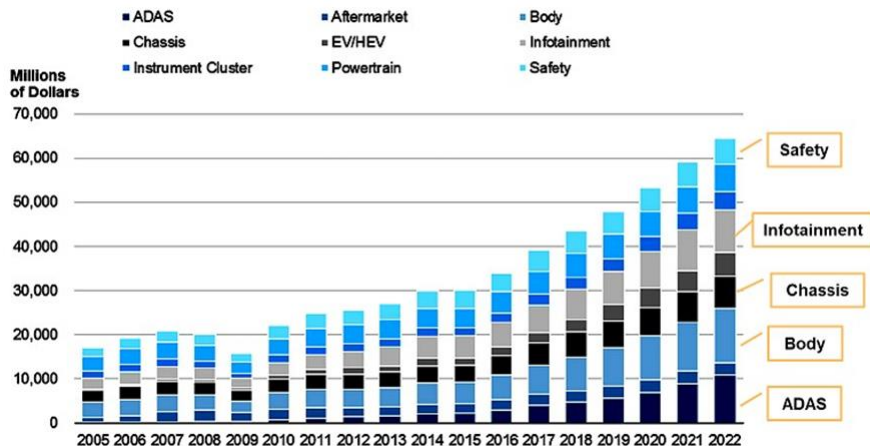
# What is “Tier One” in Automotive Electronics

- The lifecycle of a vehicle is approximately 5 to 7 years, and the planning of facelift design is initiated as soon as a vehicle starts selling.
- Vehicle design is a collaborative effort among suppliers. As a Tier One supplier, it is essential to possess innovative and rigorous design verification ability.
- Automotive components not only need to fulfill functional requirements but also comply with numerous specifications, such as EMI, EMS, ESD, input/output compatibility, temperature resistance, impact resistance, vibration resistance, aging resistance, sunlight resistance, odorlessness, noiselessness...  
All of these aspects require qualified laboratory reports, incurring significant costs.
- The development process of automotive components follows APQP process, starting from QFD to trial run. Each step involves planning, analysis, simulation, risk assessment, countermeasure evaluation, compatibility assessment with other components, design, meetings, reports... Each step should be recorded.

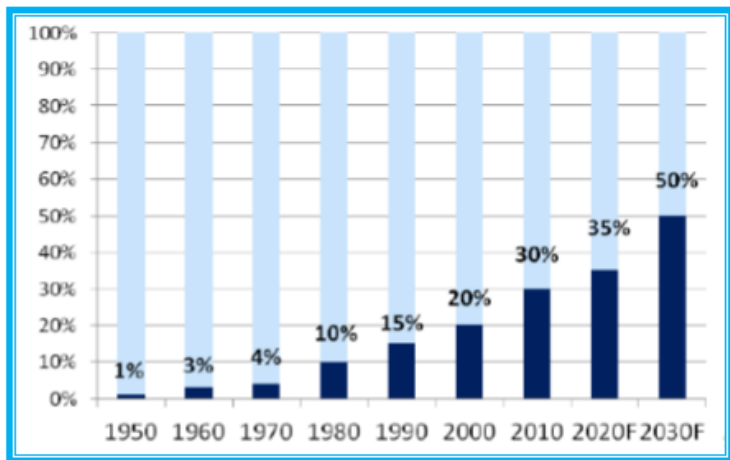


# Growing Proportion of Automotive Electronics

- With the increasing of automotive electrification and the growing integration of smart technologies, automobiles can now be categorized as electronic products.



車用電子佔汽車成本的比重趨勢



資料來源：IEA；整理：投資家日報

# Highly challenging in being a Tier One Supplier

- Due to the significant role of automotive component quality and supply in the operations of car manufacturers, the selection of Tier One suppliers is done with great caution, particularly when it comes to electronic components.
- Automotive electronics functions are complex and rapidly changing, making them a key focus for vehicle redesign and updates. Factors such as a supplier's design technology, collaborative abilities, production control, cost reduction, problem-solving and response speed, after-sales support... are all crucial considerations in the selection process.
- In Taiwan, due to the absence of automobile manufacturers, there are only a few Tier One automotive electronic suppliers. Especially for suppliers of components with complex system functionalities, which are even rarer to find.





# Basic Requirements as Tier One

- Various system certifications

ISO 9001, IATF 16949, FORD Q1, VDA 6.3, ISO 26262, ASIL, ASPICE, AUTOSAR, TISAX, ISO 14001, ISO 45001 ....



- Individual approval from car manufacturers

- Collaboration capabilities with car manufacturers



# Category of Automotive Electronics



1

## 3E in EV

- Power Electronics
- Motor Drive System
- Electronic Control

Compare to wireless communication endurance of Mobile phone



2

## ADAS and Auto-Pilot

- Safe Operation
- Reach Destination

Compare to computing and processing capabilities of Mobile phone



3

## Smart Cockpit

- Driving Information
- Interaction
- User Experience

Compare to user interface of Mobile phone

# Category 1. 3E in EV



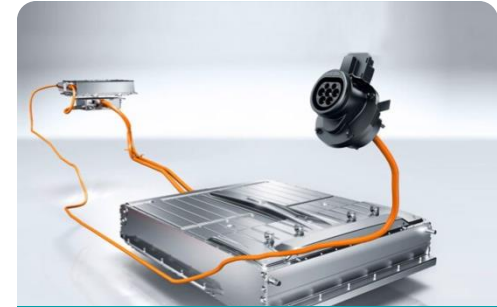
## Power Electronics

- Lithium-ion battery
- Hydrogen Energy-Fuel Cell



## Motor Drive System

- Motor
- Reduction Gear



## Electronic Control

- Power Output and Speed Control
- Charging
- Regenerative braking

# Category 2. ADAS and Auto Pilot



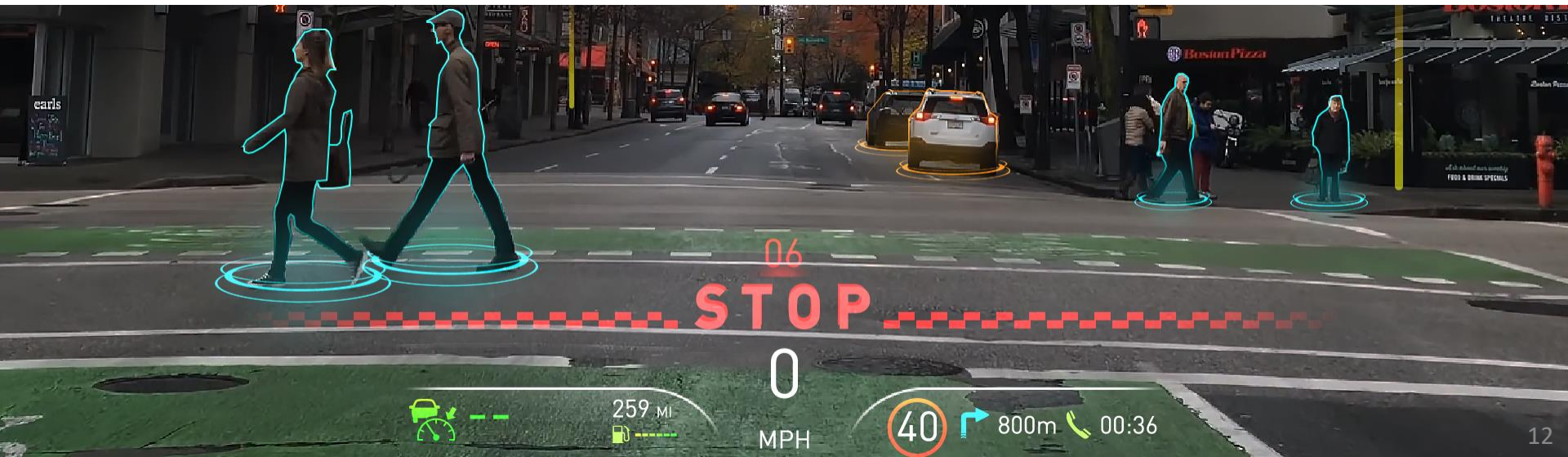
Route Planning and Navigation



LDW / FCW  
BSD / Parking Sensor / CCD



L1-L5 Auto-Pilot



# Category 3. Smart Cockpit (E-LEAD Focus Areas)



## Driving Assistance

- Digital Cluster
- HUD
- DMS
- E-Mirror
- Dashboard



## Entertainment

- RSE
- Passenger Seat Entertainment
- DA



## Virtual Assistant

- VPA
- Driver's Personal Secretary

# Tier One (E-Lead) Introduction-Factory



**Changhua Factory**  
Changhua county  
Changhua city



**Chuansing Industrial Park HQ**  
Changhua county  
Shengang township



**Suzhou Subsidiary**  
Jiangsu, China

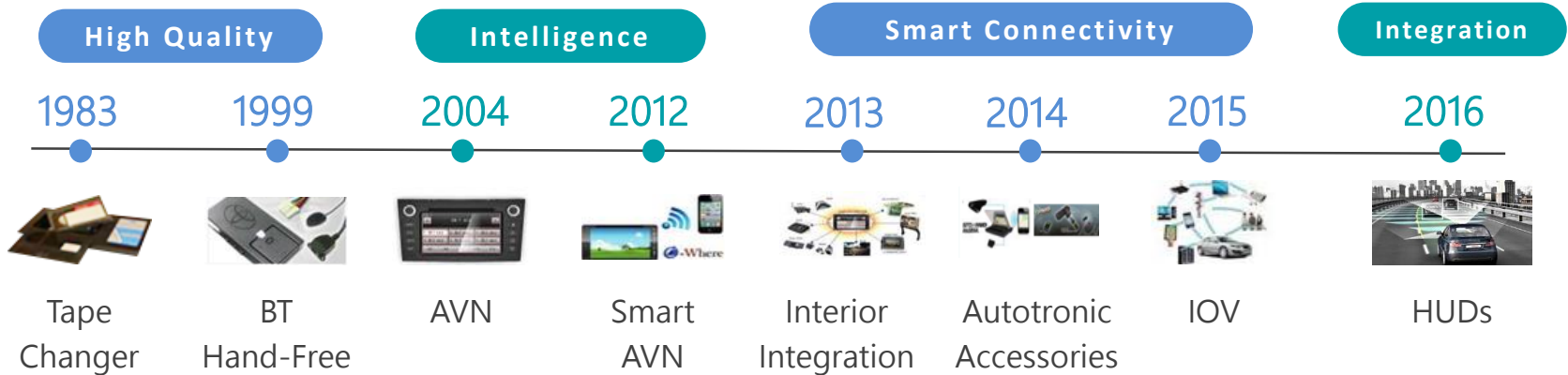


**Thailand Subsidiary**  
Bangkok, Thailand



**Chuansing Industrial Park 2<sup>nd</sup> Plant**  
Changhua county  
Shengang township

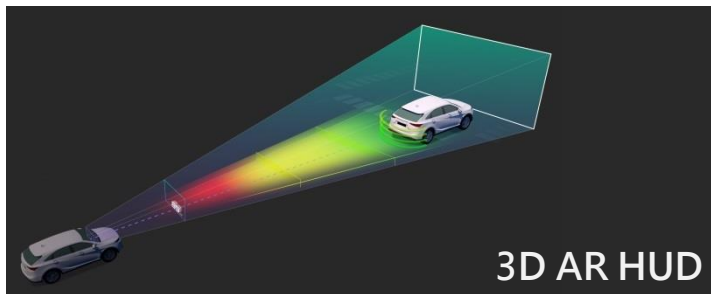
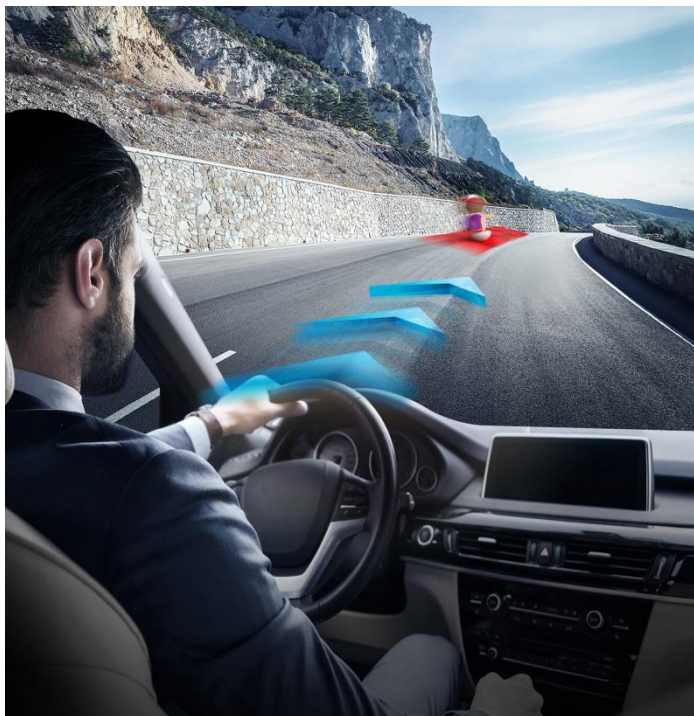
# Tier One (E-Lead) Introduction- E-lead Product Development Process



## ADAS

- Image Recognition
- Related
- Millimeter-wave
- Radar
- Big Data Correction

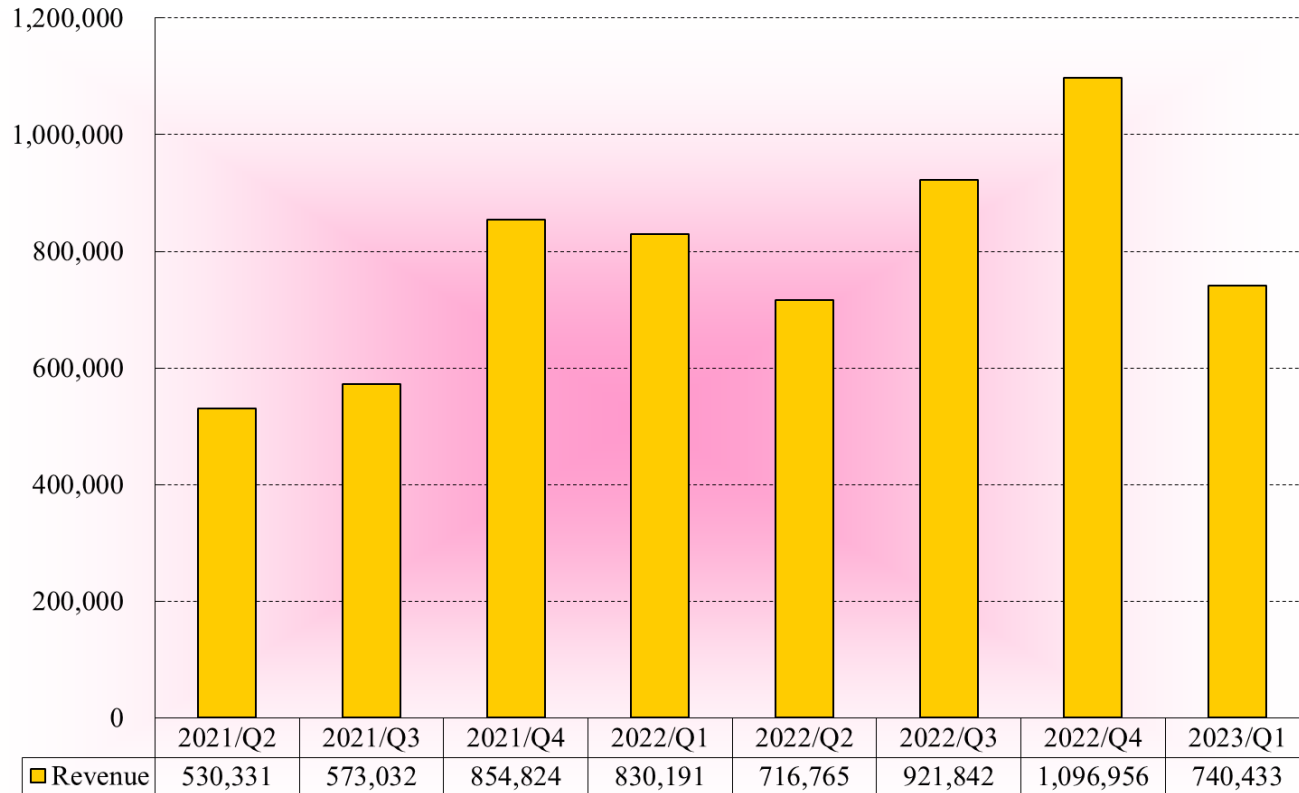
# Category 3. E-LEAD 3D AR HUD



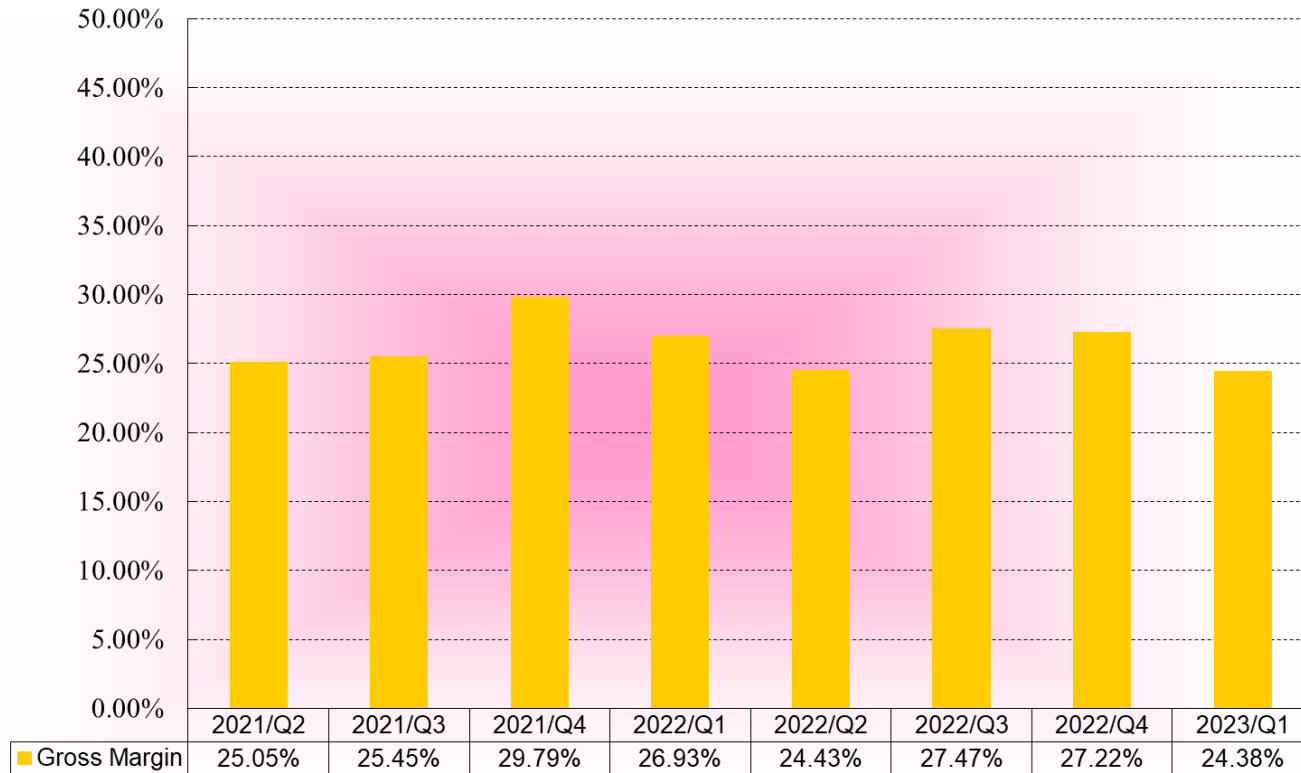


# Financial Status – Revenue

In NT Thousand



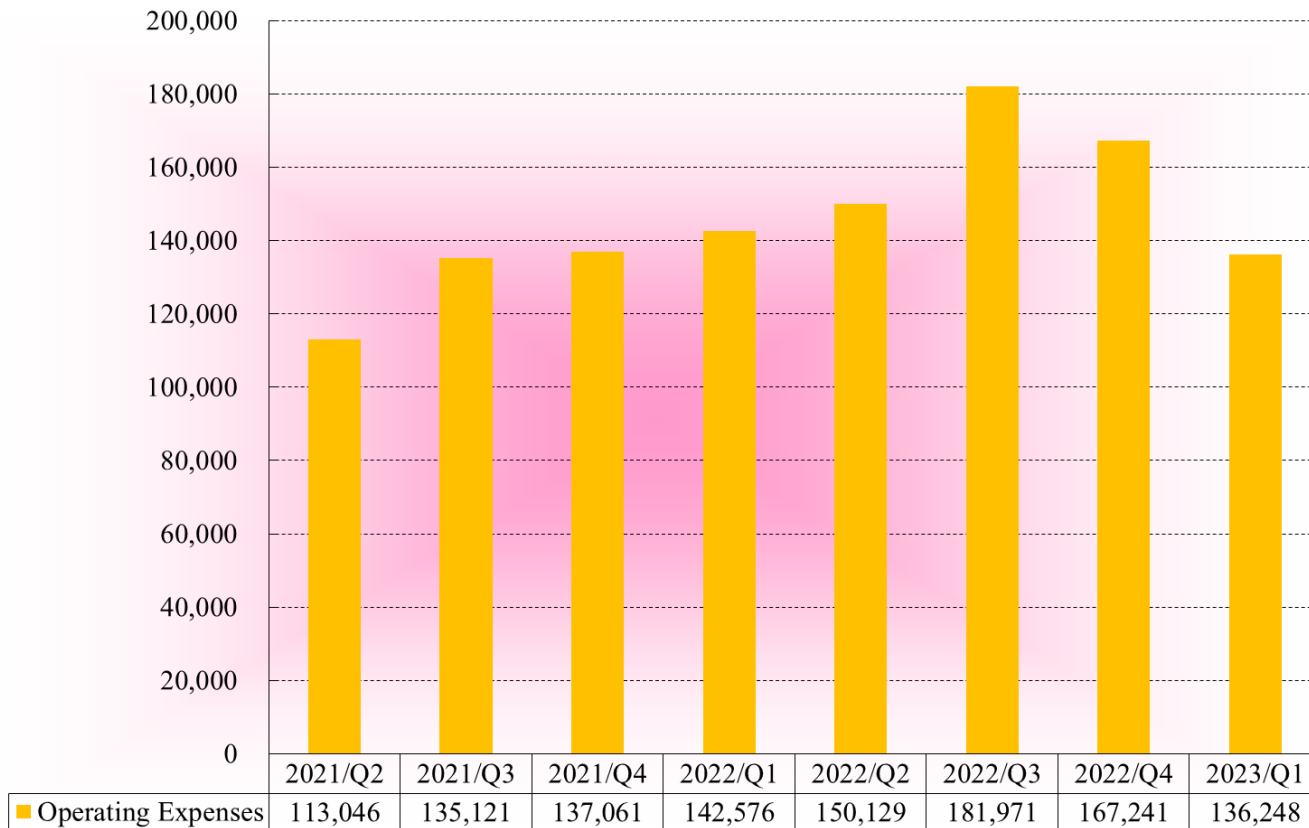
# Financial Status – Gross Margin



# Financial Status—Operating Expenses

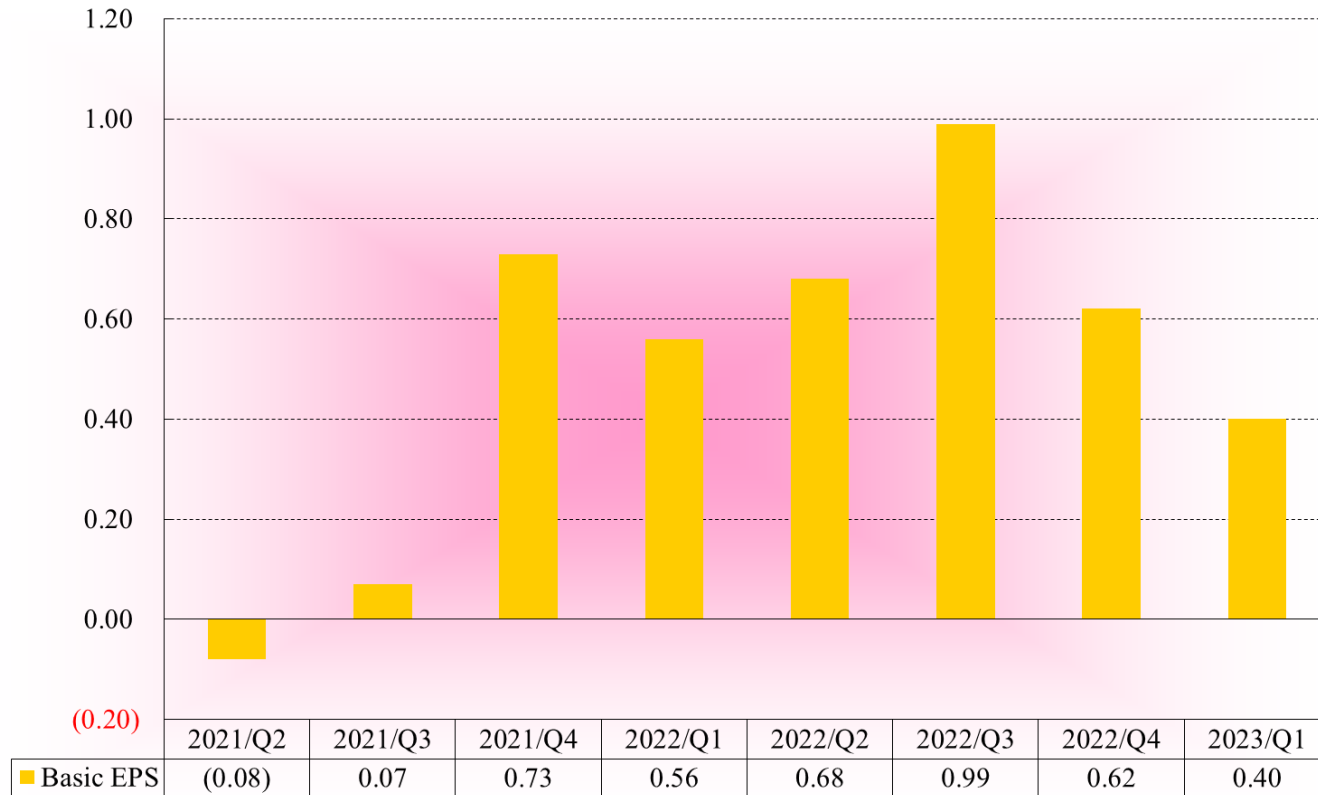


In NT Thousand



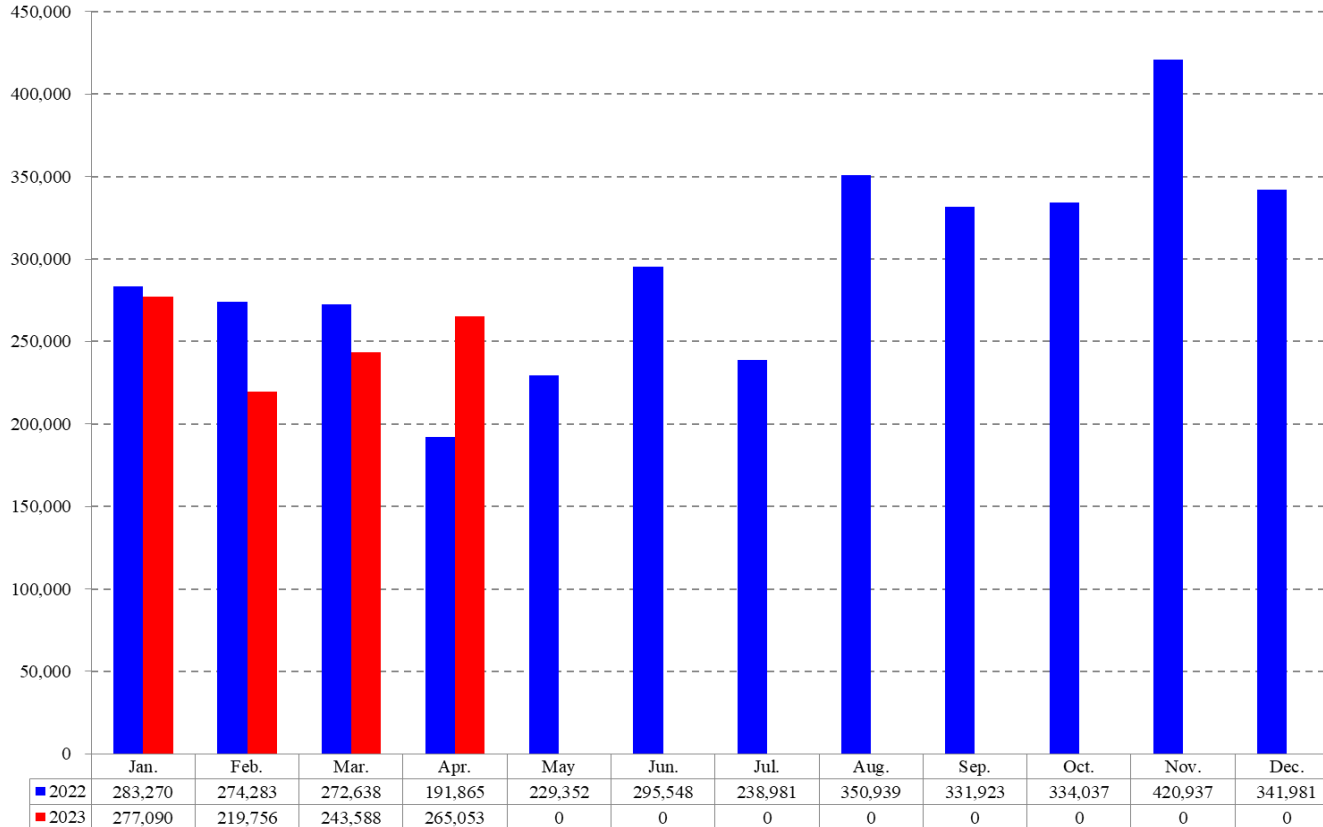
# Financial Status – Basic EPS

In NT Dollars



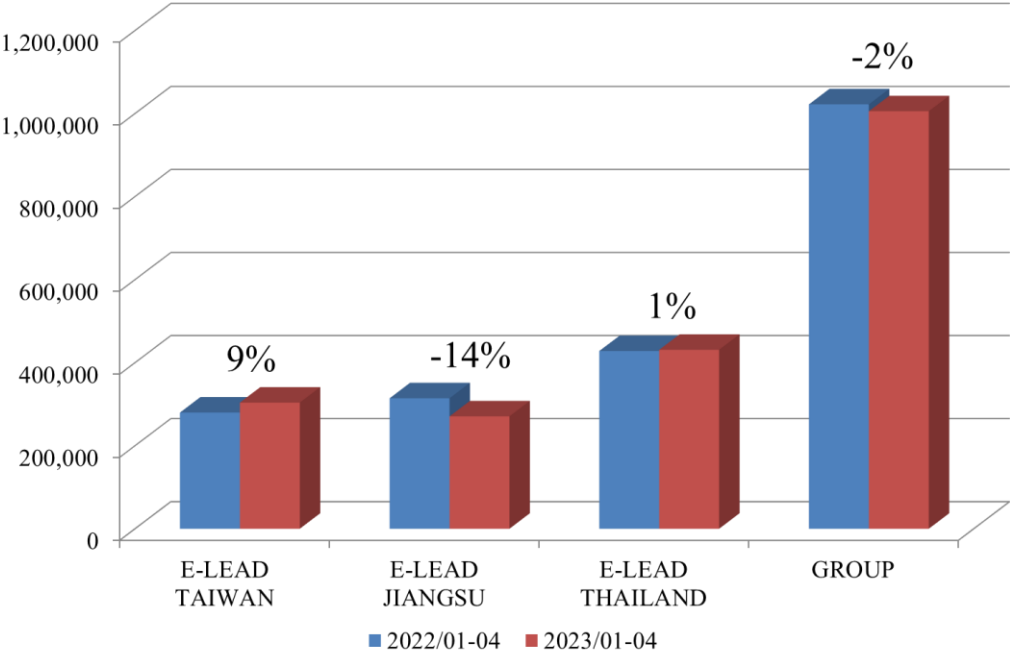
# Revenue

In NT Thousands



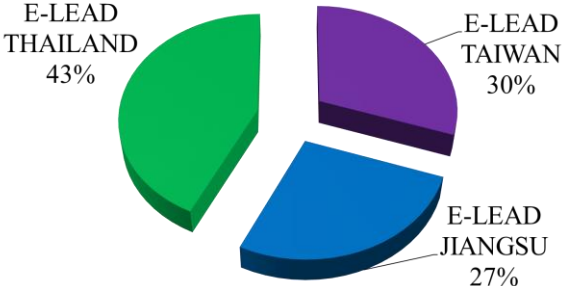
# Revenue By BU

## TREND

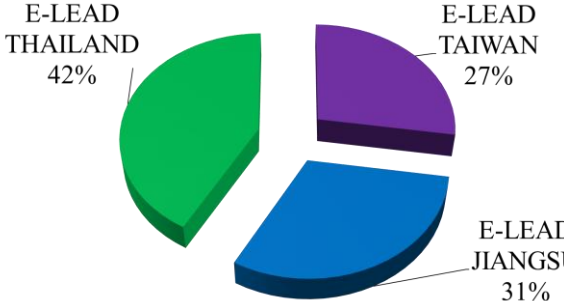


## RATIO

2023/01-04 REVENUE BY BU

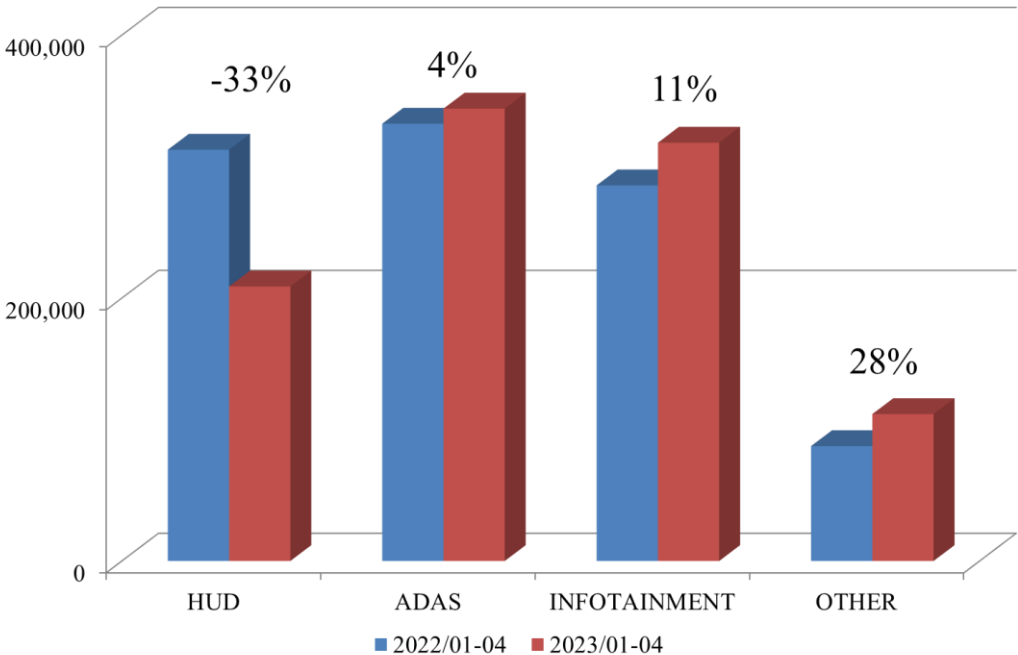


2022/01-04 REVENUE BY BU

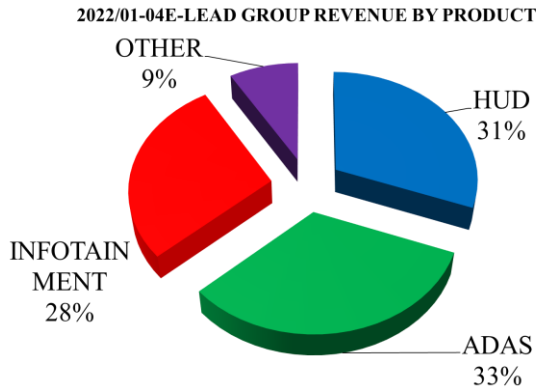
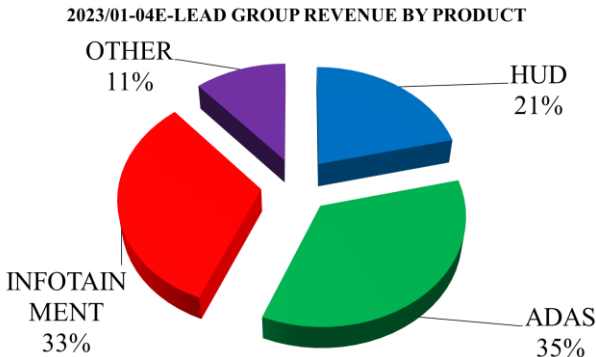


# GROUP Sales Portfolio

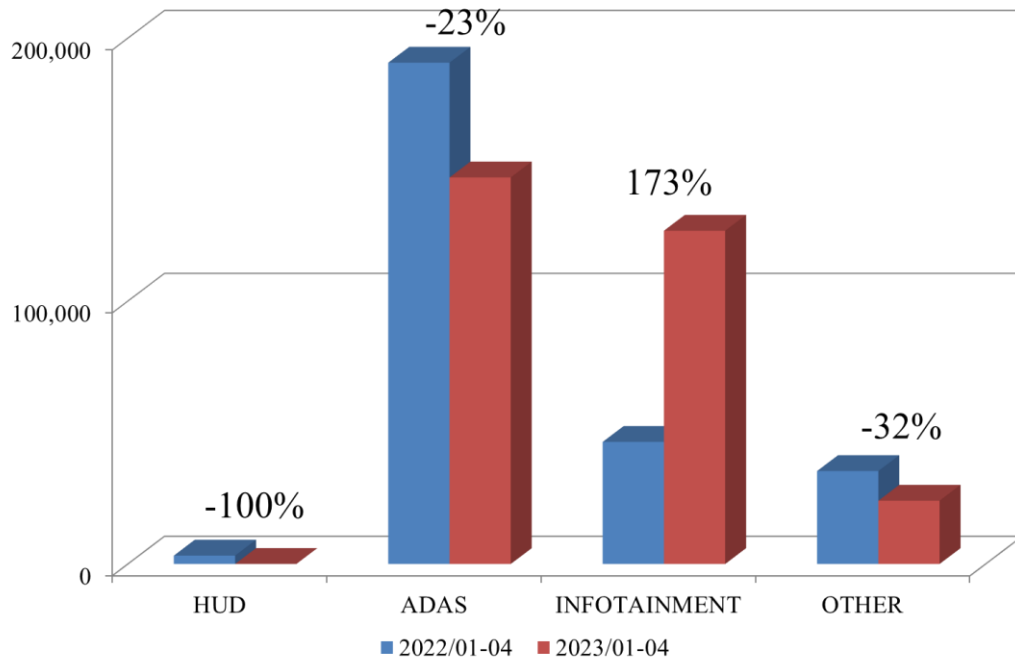
## TREND



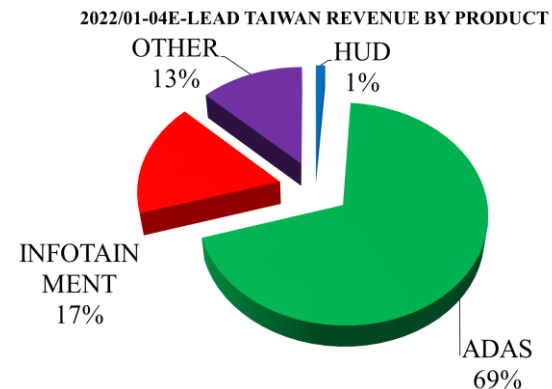
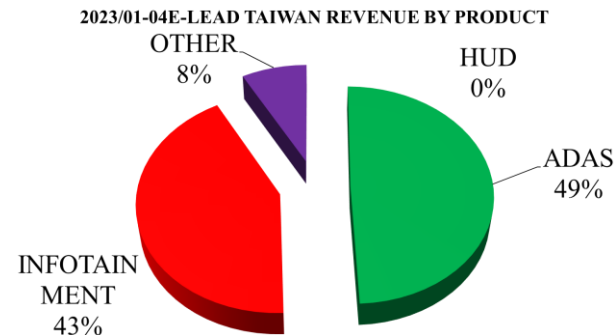
## RATIO



## TREND



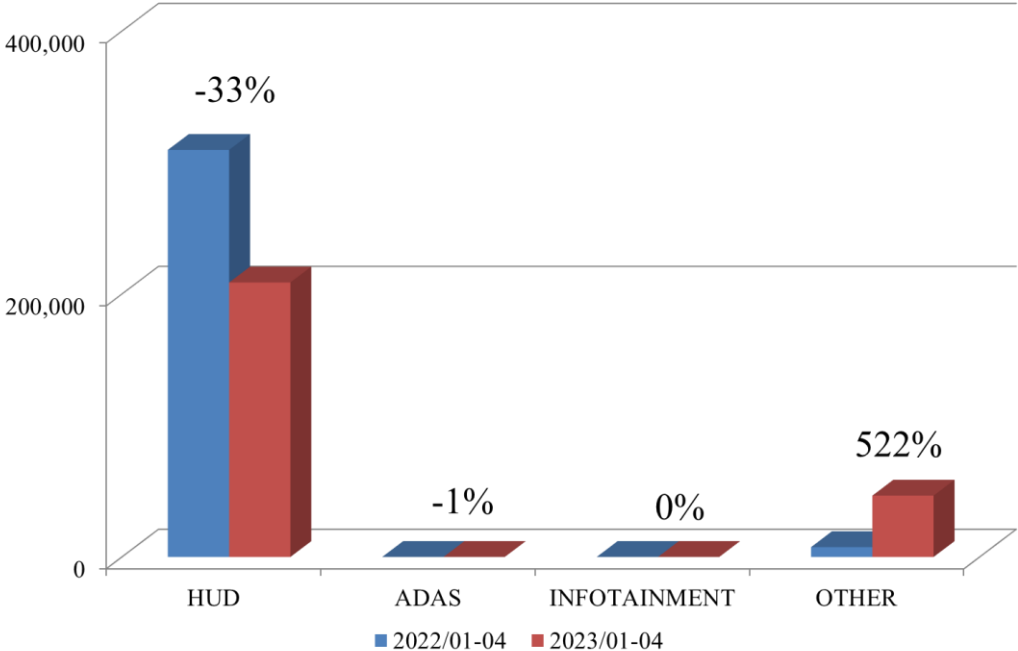
## RATIO



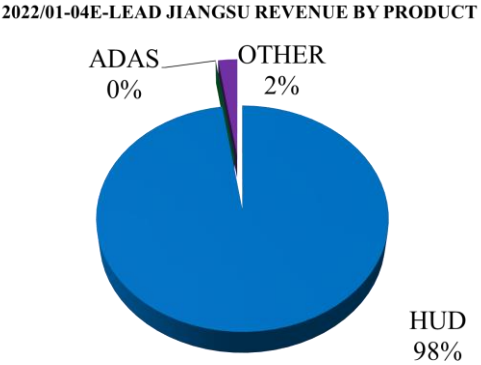
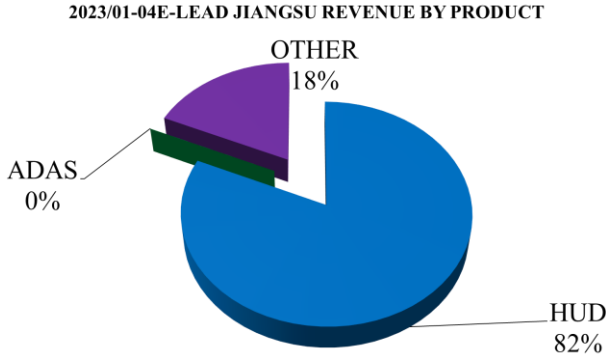


# E-LEAD JIANGSU Sales Portfolio

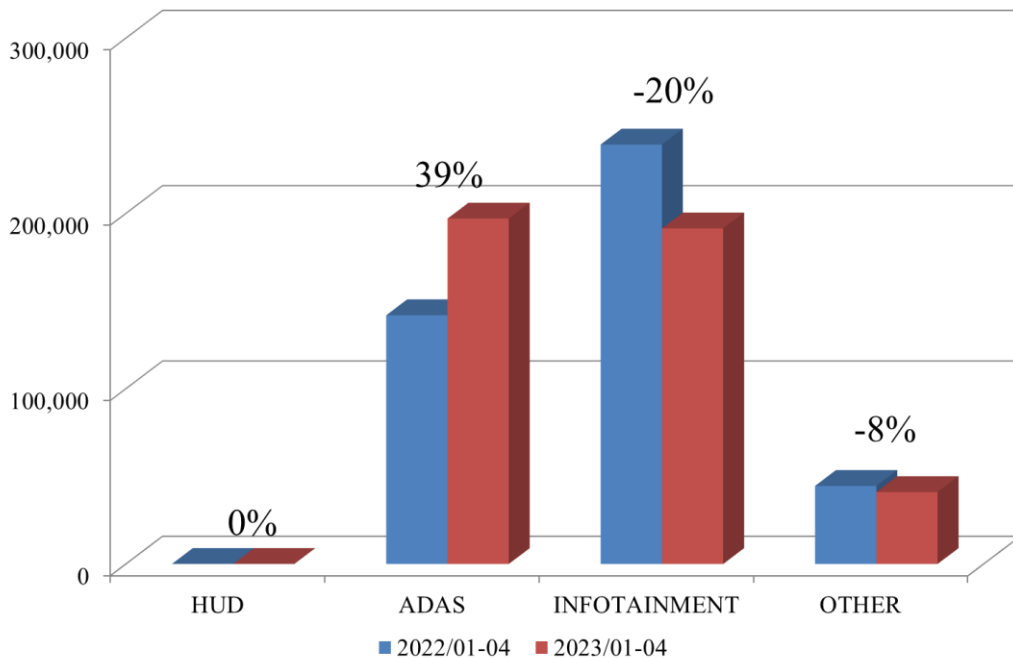
## TREND



## RATIO

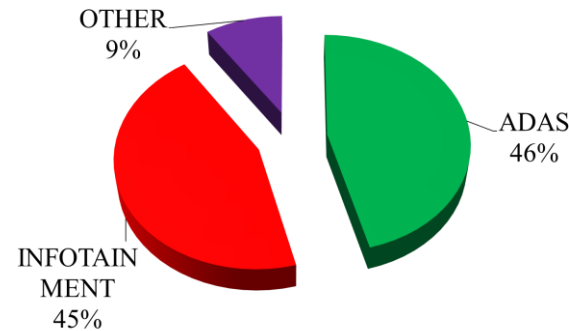


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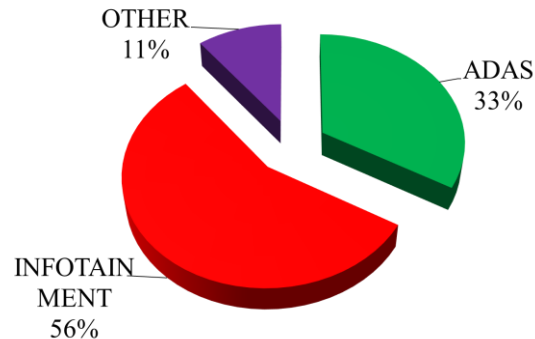


## RATIO

2023/01-04E-LEAD THAILAND REVENUE BY PRODUCT



2022/01-04E-LEAD THAILAND REVENUE BY PRODUCT





**THANK YOU**