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## **INTRODUCTION**

**Active GPS L1 Receiver Antenna**

**CPG21M-GPS L1(SIRF-4)-6.1M-6PIN**

**Permanent Screws Mount (M16x1.5P)**

**Cable: Active GPS Receiver AWM 2464 300V 28AWG 6.1M (20")  
6 PIN (Molex)**

**Receiver Type : 48-channel L1 frequency, A/C code**

**Senityvuty (Autonomoue): -147dBm (acquisition)**

**-163dBm (Tracking)**



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## **1. NERAL DESCRIPTION**

<b>Model No</b>	<b>Products P/N</b>
<b>CPG21M-GPS L1(SiRF-4)-6.1M-6PIN</b>	<b>CPG21M-6.1M</b>

**Below is a table summarizing the Active GPS L1Receiver antenna design specification**

## **2.1 Active GPS L1Antenna Electrical Properties** **Receiver Performance Data**

Receiver Type	48-channel, L1 frequency, C/A code
Horizontal Position Accuracy	< 2.5m (Autonomous) (50% 24hr static, -130dBm)
Velocity Accuracy	<0.01 m/s (speed) <0.01° (heading) (50%@30m/s)
Time To First Fix Hot start Warm start Cold start	Autonomous <1sec <35sec <35sec (50% -130dBm)
Sensitivity (Autonomous)	-147dBm (acquisition) -163dBm (tracking)

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Update Rate	Default 1Hz, Max. 5Hz
Max. Altitude	<18,000 m (normal version) 80 km (high air version)
Max. Velocity	<1,852 km/hr or 1,000 knots
Protocol Support	NMEA v3.00 (default), OSP 38400bps N,8,1; GPRMC
SBAS Support	WAAS, EGNOS, MSAS, GAGAN
GNSS support	GPS, QZSS,
Dynamics	<4g

## **Electrical Data**

Power Supply	3.5 ~ 5.5 V
Power Consumption	30mA/average tracking
Backup Battery (V_BAT)	3.2~5.5V; 47uA
TTL I/O	$V_{IH} \geq 2.0V$ , $V_{IL} \leq 0.8V$ $V_{OH} \geq 2.4V$ , $V_{OL} \leq 0.4V$
Protocols	NMEA, OSP

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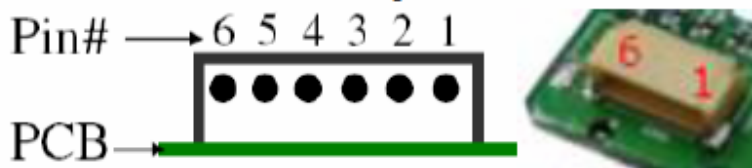
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## **Environmental Data**

Operating temperature	-40 ~ 85°C w/o battery, -20~60°C w/ battery
Storage temperature	-40 ~ 85°C w/o battery, -40~60°C w/ battery
Vibration	5Hz to 500Hz, 5g
Shock	Half sine 30g/11ms

## **6-pin Interface, pitch 1.0mm**



Pin	M	N	P	Q	R	T
1	GND	GND	GND	GND	GND	GND
2	VCC	VCC	VCC	VCC	VCC	VCC
3	1PPS	1PPS	1PPS	1PPS	-	TXD
4	RX	RXD	RX	RXD	RX	-
5	TX	TXD	TX	TXD	TX	-
6	V_BAT	V_BAT	-	-	-	RXD

Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	TXD/ 1PPS	TTL level serial data output/ Time Pulse Per Second	Output/ Output

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4	RX/ RXD	RS232 level serial data input/ TTL level serial data input	Input/ Input
5	TX/ TXD	RS232 level serial data output/ TTL level serial data output	Output/ Output
6	RXD/ V_BAT/ -	TTL level serial data input/ Backup power/ No connection	Input/ Input/ -

## **3.1 Active GPS L1 Antenna Mechanical Properties**

<b>Parameter</b>	<b>Description</b>
Antenna Mounting	Permanent screws mount (M16 x1.5P)
Waterproof	100 % waterproof.(IP66~IP67)
Antenna cable	AWM 2464 300V 28AWG
Antenna Cable Total Length	6100 mm ±50mm
Antenna Color	ABS (Black)
Connector	6PIN (Molex)
Operating Temperature Range	-30 °C~+75 °C
Storage Temperature Range	-40 °C~+80 °C

## **4. Antenna Appearance Size : Black Color**

**M16 x1.5P Slotted Net & Washer**

**Diameter : 54.7mm**

**Height : 26.3 mm**





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## 5.Appearance CPG21M-GPS L1-6.1M-6PIN

01	Top Plastic Shell	PC	Black	1
02	Base Housing	PC	Black	1
03	Rubber Adhesive	Rubber	Gray	1
04	Spring washer	Stainless steel		1
05	NUT M16 x1.5P	Stainless steel		1
06	E301305 28AWG 300V	PVC	Black	1
07	6PIN Molex		Black	1
08	Label GPS Receiver			1

**GPS RECEIVER w/SIRF-4 Antenna**  
**CPG21M-GPS L1 (SiRF4)-6.1M-6PIN(Molex)**

*GPS Smart Antenna Module SiRFstarIV*

RoHS Compliant

REAR VIEW

REAR VIEW

RECEIVER, GPS w/SIRF-4  
28AWG 300V

6100  
20 FT (+/-1 IN.)

Slotted  
M16X1.5 P

POWER GROUND 1  
SHIELD (SERIAL GND) 2  
GPS TXD1 3  
N/C 4  
5 VDC (POWER IN) 5  
GPS RXD1 6

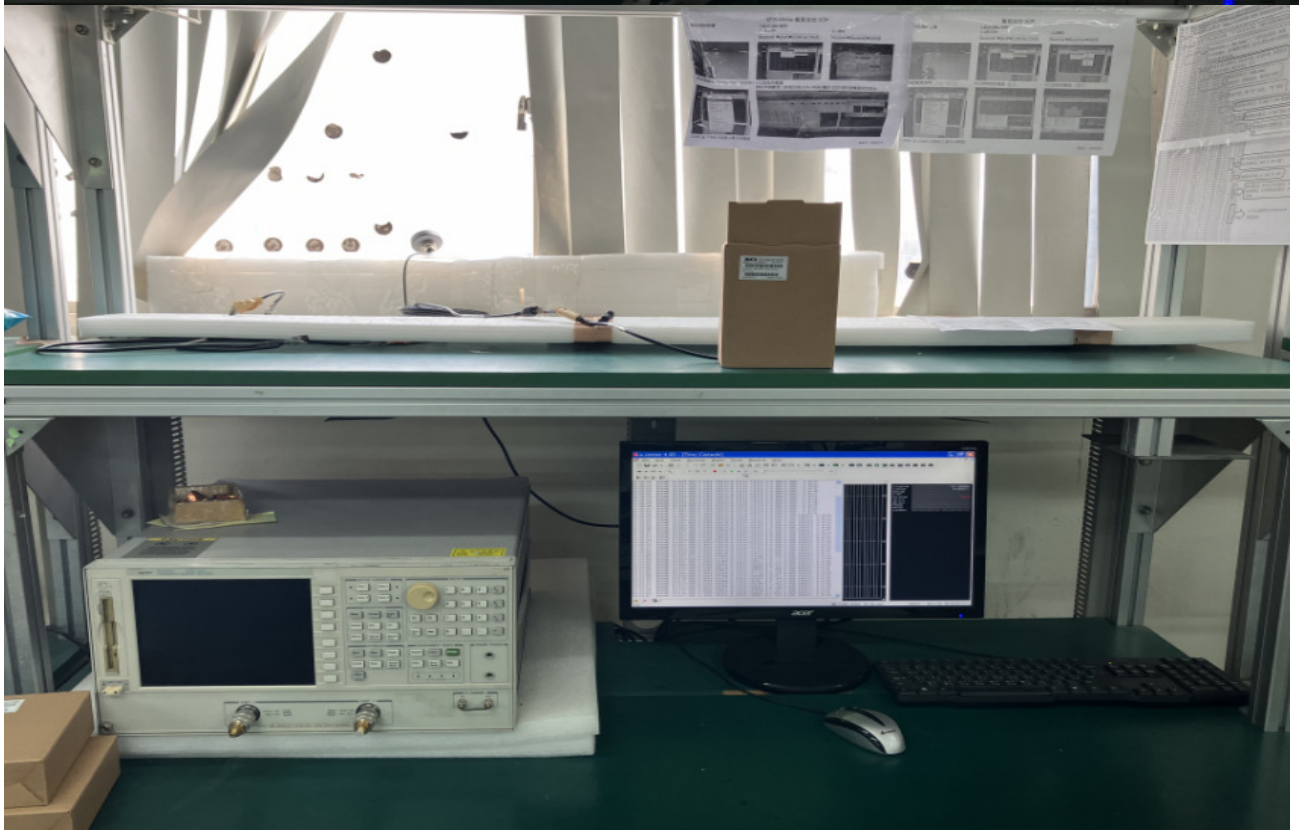
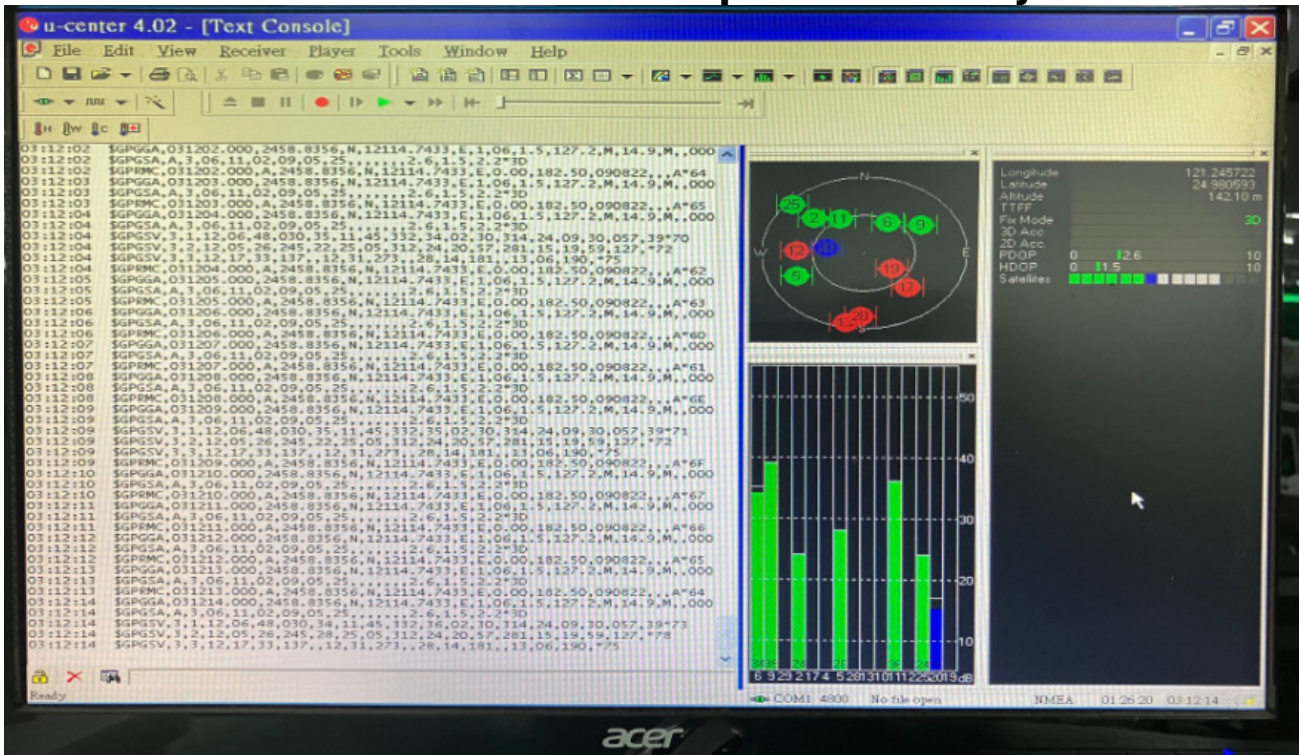
Protocol Support:  
NMEA v3.00, 38400 bps  
N, 8, 1, GPRMC

 Third angle projection <b>PROFESSOR</b> 普傑國際股份有限公司	CUSTOMER'S	MODEL	PARTS NUMBER	FREQUENCY	UNIT	SCALE	DATE	VERSION
	TOLERANCE	X. XX+0. 15	NAME	PARTS NUMBER	APPROVED	CHECKED	DRAWING	DESIGNED
SURFACE ROUGHNESS	$\frac{S}{\sqrt{V}}$	APPEARANCE		Jack			Jimmy	Jimmy



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## 6-1 Active GPS L1 Satellite reception intensity

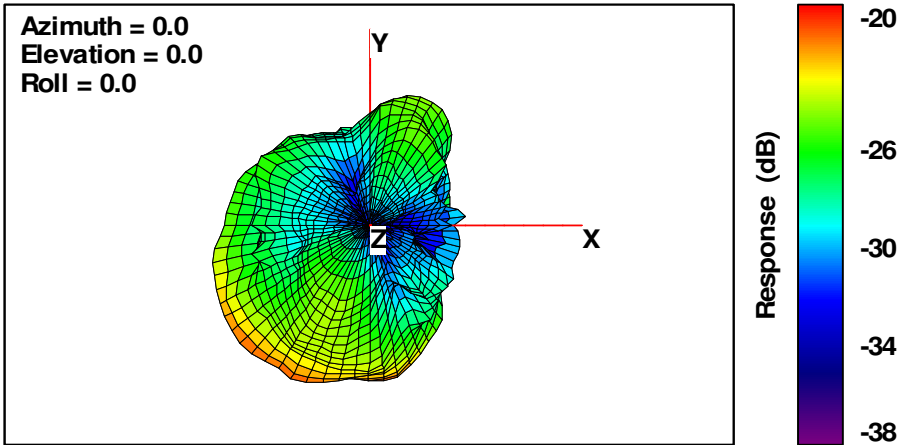


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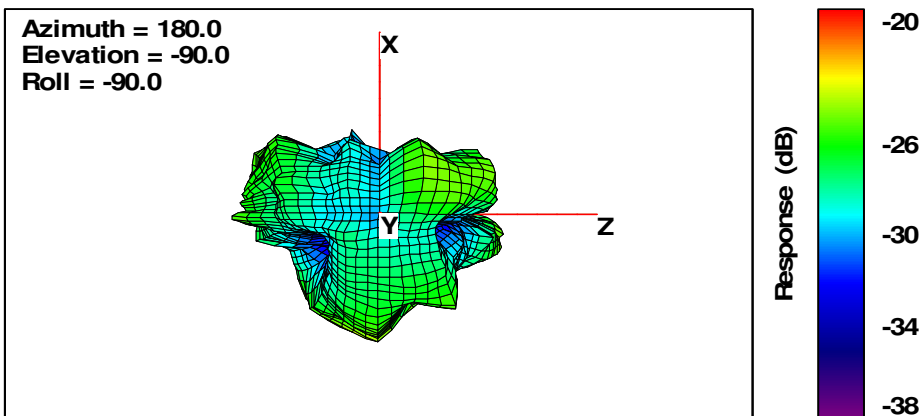
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## 7-1 GPS L1 RESPONSE (dB) 1575.42MHz

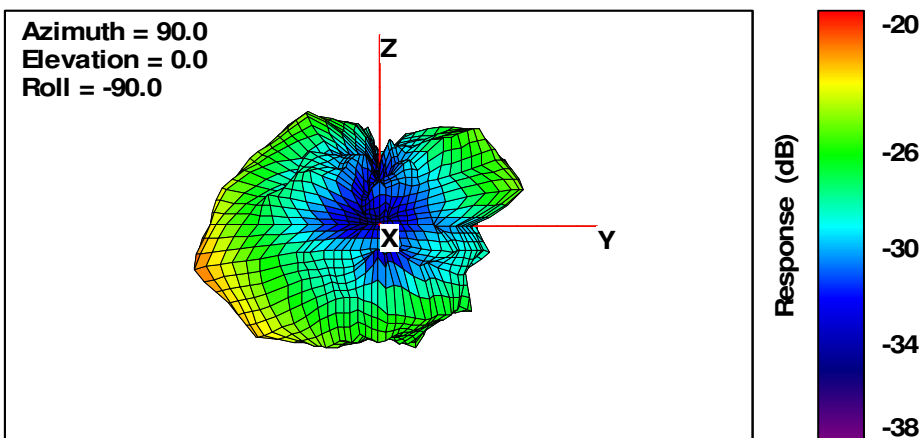
Total



Total



Total





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## 8-1 Active GPS L1 Satellite reception intensity CPG21M-GPS L1-6.1M-6PIN antenna actual test data (09-Aug-2022)

普傑國際股份有限公司

FQC 檢驗紀錄表

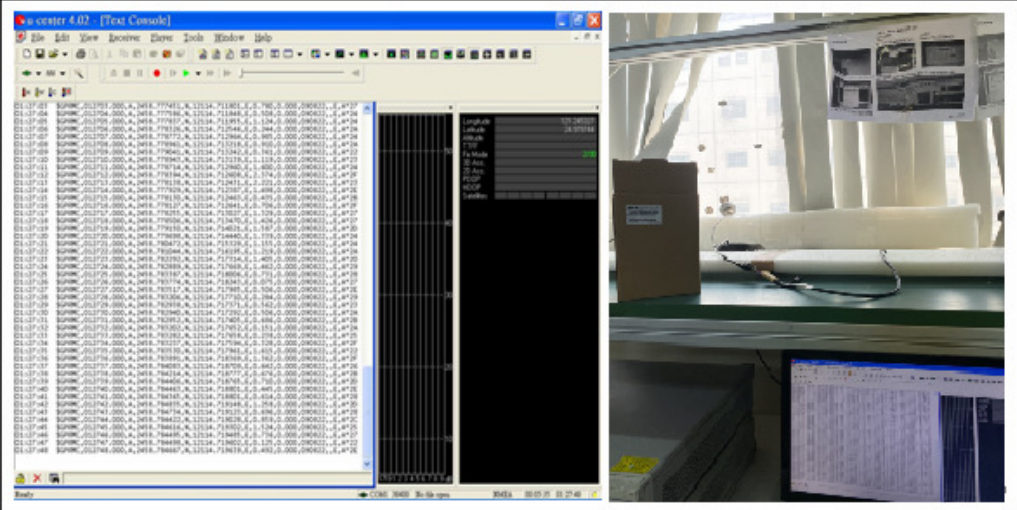
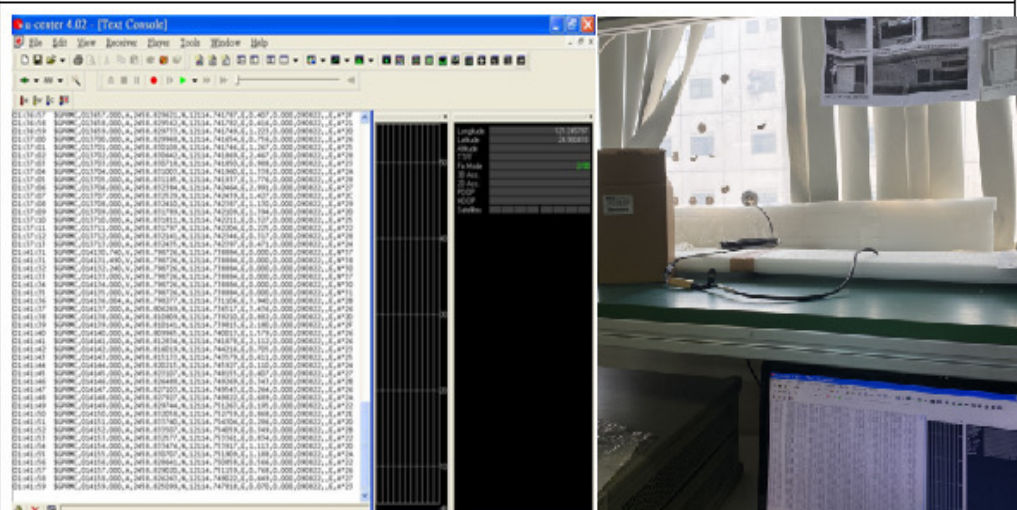
批號	B3495	料號	P890-820-0028	批量	1005	抽樣數	5
判定	<input checked="" type="checkbox"/> ACCEPT <input type="checkbox"/> REJECT	機種	CPG21M	不良數	0	不良率	0%

檢驗日期:2022/8/9

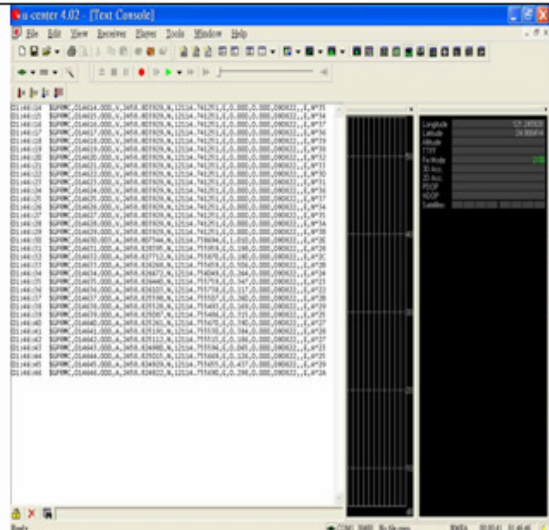
測試者: 吳麗秋

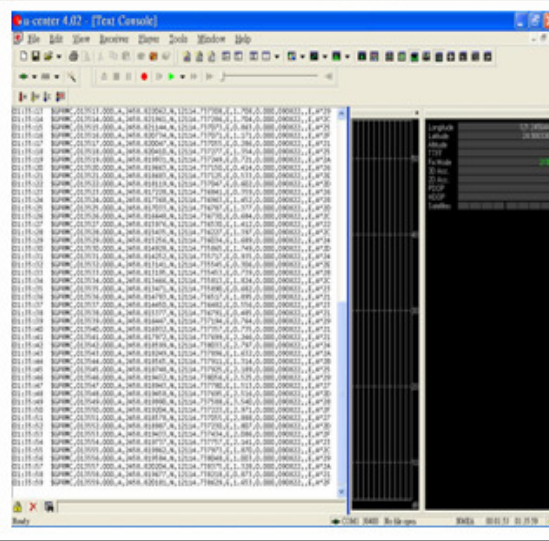
Reviewed by: 吳麗秋

- 一、測試選項: 衛星接收 儀器測試 電錶測試(短路、導通)
- 二、電性記錄:

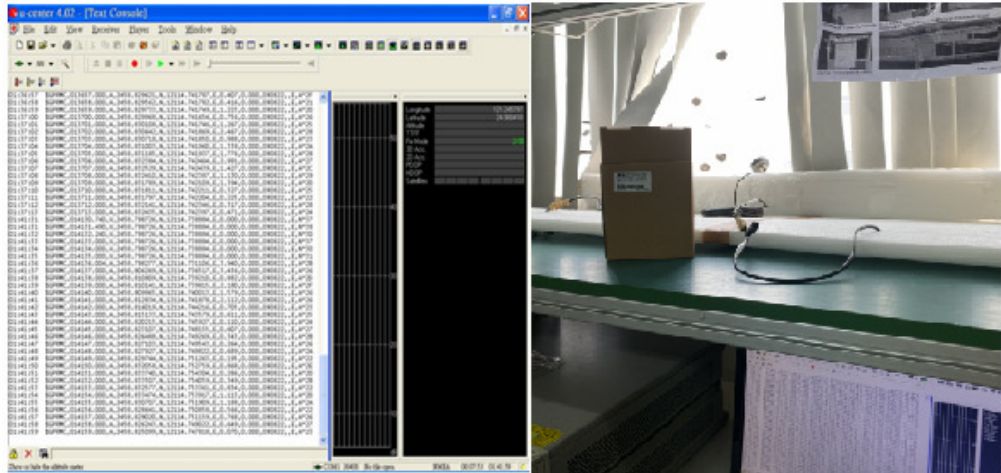
項次	SN	GPS 衛星接收
1	6433100053	
2	6433100585	

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項次	SN	GPS 衛星接收
3	6433100184	

4	6433100123	
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項次	SN	GPS 衛星接收
5	6433100116	

## 二. Cable & Connector/包材核對

1.Cable: <u>6.1 M</u>	4.頻段
2.Cable NAME: <u>E301305 28AWG</u>	4-1. 5G 頻段: <u>600 MHz ~ 960 MHz</u>
3.Connector: 6PIN Molex	<u>1710 MHz ~ 2170 MHz</u>
3-1. <u>5G</u> :	<u>2200 MHz ~ 2400 MHz</u>
3-2. :	<u>2500 MHz ~ 2700 MHz</u>
3-3. :	<u>3300 MHz ~ 3500 MHz</u>

## 測試條件

- \*\*\*實測: 確認產品接收衛星功能(衛星數: 3顆、數值: 35以上)。
- \*\*\*電測: Connector 短路測試(電錶設定: 二極體/標準值: 1)。
- \*\*\*儀測: 確認頻率、波形及 Connector 短路測試。

版次: B

表號: QD-P02-05

## 9. Box Packaging

