

☒ 文件新增 Addition of Document ☐ 文件變更 Alteration of Document ☐ 文件作廢 Revocation of Document

Subject: Product Requirements Doc (PRD) Doc No: [UCD-XP29D6WM](#) _Antenna report

REV: 1

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文件內容簡述:Document Contents: Antenna report of UCD-XP29D6WM

Part No.:

☒ __ ☐ N/A

Model No./Model Name:

☒ UCD-XP29D6WM-antenna ☐ N/A

文件新增/變更/作廢原因:Reason for Addition/Alteration/Revocation:

New Release

Revision History

Rev. Status	Revised Date	Revised By	Description
1.0	2025/11/30	JH Su	1 st release

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1. Antenna information

1.1 Antenna size

33 mm x 22 mm

1.2 Antenna gain description

1. Radiation measured in XY-plane (H-pol). 3 dB beam width >100° (H)
2. Peak gain: 3.49dBic
3. Axial Ratio: <3dB

1.3 Performance specifications

1. Antenna on Board UWB (1Tx_2Rx)
2. S11 < -10 dB; Isolation S21 < -25 dB
3. Radiation measured in XY-plane (H-pol). 3 dB beam width >100° (H)
4. Peak gain: 3.49dBic
5. Axial Ratio: <3dB.

1.4 Table of calibrated equipment

Equipment	Model	Manufacturer	Calibration Date
Chamber System	SATIMO SG 24L	MVG (Microwave Vision Group)	2025/11/19
Measurement Software	MVG SATIMO Measurement Suite	MVG	N/A
VNA	Keysight E5080B	Keysight	2025/11/12

1.5 Prototype 2 measurement result

Test date: 2025/6/5

Tester: Derek Ye

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Names of commercial test software: MVG SATIMO Measurement Software (24L System)

How antenna information used for conformity: Used to verify conformity with AOA performance requirements during final testing

Max gain: 3.49dBic

Polarization: CP

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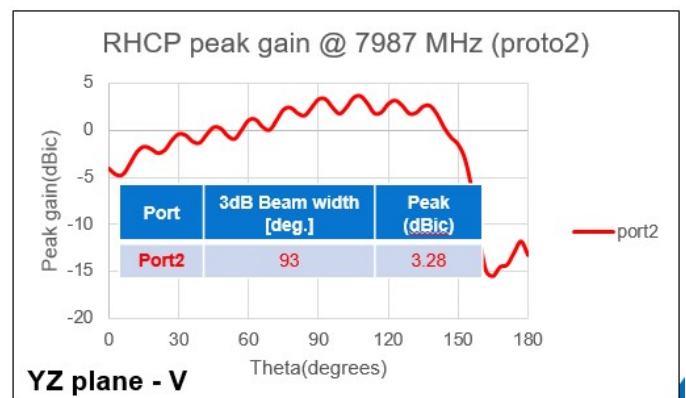
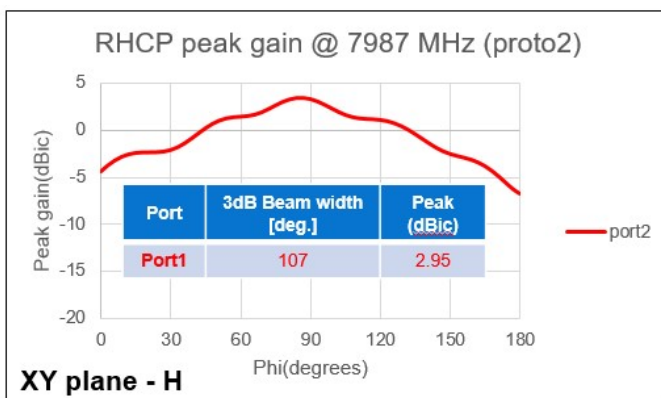
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Conclusion		Port 2 (TX)
S11		<-10dB
Coverage 3dB Beam width [deg.]	XY CUT H	107
	YZ CUT V	93
RHCP Peak Gain (dBic)	7.75GHz	3.44
	8GHz	3.49
	8.25GHz	3.31
Axial Ratio (dB)		<3

Description of how measurements are made: We only test port 2, due to port 1 is disable TX function. S-parameters and radiation patterns measured in OTA chamber using MVG SATIMO 24L system. XY (H-pol) / YZ (V-pol) scans. Phase difference & axial ratio measured.

θ/ϕ /Radiation Plots:



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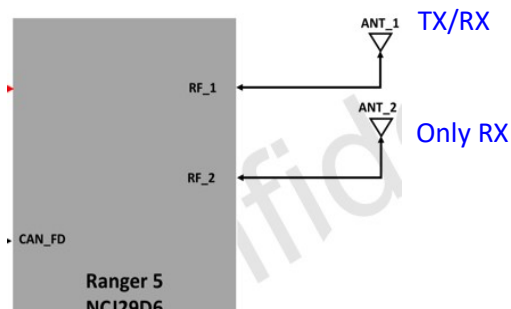
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1.6 Full electrical and mechanical specifications

Key Features / Specifications

- **Processor&BB subsystem:**
 - Chipset : NXP NCJ29D6B
 - ARM Cortex-M33 32bits W/ TrustZone
 - Build in FPU and DSP
 - Internal CAN FD Controller
 - IEEE 802.15.4/ IEEE 802.15.4z HRP UWB PHY compliant
 - Supports data rates of 110 kbit/s (HRP UWB), 850 kbit/s (HRP UWB), 6.8 Mbit/s (BPRF), 7.8 Mbit/s (HPRF)
 - Compliant with AEC-Q100 Grade 2
 - Compliance with FiRa in All-In-One MAC SW
- **Memory: On Chip**
 - User flash 768 kB of total 1MB
 - User CPU RAM 125 kB of total 160kB
- **Interface**
 - CAN-FD: compliant with the physical layer requirements of the ISO 11898-2:2016 high-speed CAN specification.
 - DC Power In
 - ID pin for different anchor location identification
- **RF**
 - Supports super-high frequency (SHF) UWB bands CH 9 with center frequency 7987.2MHz
 - Two RF TRX pins
 - Supports 2-way ranging, AOA and TDOA
 - Programmable transmitter output power of up to 12 dBm instantaneous peak power
 - PSD <= -41.3dbm/MHz
- **ANT:**
 - Internal antenna solution_CP ANT
 - ANT Type: PCB ANT, circularly polarized
 - Support Frequency : 7737.2~8237.2MHz(UWB CH9)
 - Impedance: 50ohm
 - FOV: >100°(Horizontal)&>70 °(Vertical) (TBD)
 - Peak Gain : >1dbi(TBD)
 - Return Loss : <=-6db(TBD)
- **Power Supply**
 - Single power supply input
 - Operating voltage range: 9 V~16 V
 - Typical operating voltage: 13.5 V
- **Product ID**
 - Form-Factor: 95mm*46mm*22mm
 - CMF:
 - ✓ Connector housing(Plastic)
 - Color: Black
 - Material: SPS+GF or Equivalent
 - Finish: Texture MT-11010
 - ✓ BTM Cover(Die-cast)
 - Color: Natural
 - Material: ADC-12
 - Finish: Chromate
- **Mechanical**
 - Connector : Molex Mini 50 series
 - Pin Number: 10Pin
 - IP64
- **Environment**
 - Normal Operating Temperature: -40 to 85°C
 - Storage Temperature: -40 to 85°C
- **Certification**
 - FCC, CE, TELEC, IC(1st Priority)
 - NCC, ACMA/RCM(2nd Priority)

Configuration and RF Chains:



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