



TEST REPORT

Delivery Date: July 14 2011

1470nm LD Epiwafer

(#0707231-3)

Customer: ECE Department, UCSB

Customer : UCSB

Control No. : 0707231-3

Test data :

1. DXCD

Item	Wafer No.	Spec (Å) ($\pm 10\%$)	test (Å)
1	DLDA1107141- B,C	180	~178.46

2. PL

Item	Wafer No.	Spec(nm)	test (nm)
1	DLDA1107141	1470 \pm 10	1464.6

3. ECV

Item	Run No.	Layer #3(P-InP) (unit: 10^{18} cm^{-3})		Layer #7(N-InP) (unit: 10^{18} cm^{-3})		Layer #10(N-InGaAs) (unit: 10^{18} cm^{-3})	
		Spec.	Test	Spec.($\pm 20\%$)	Test	Spec.($\pm 20\%$)	Test
1	DLDA1107141	2 \rightarrow 1	~2	3	~3.08	3	~2.93

Comment :

The super-lattice period had determined by QC200 Diffractometer. The BIO-RAD RPM2000 PL mode is used to measure the wavelength. The concentrations of P-InP & N-InP & N-InGaAs layers are measured by Electro-Chemical C-V Profile.

All wafers are tested under the same criteria. The attached graphs are the prototype of the testing results. All test results are in accordance with customer's specifications.

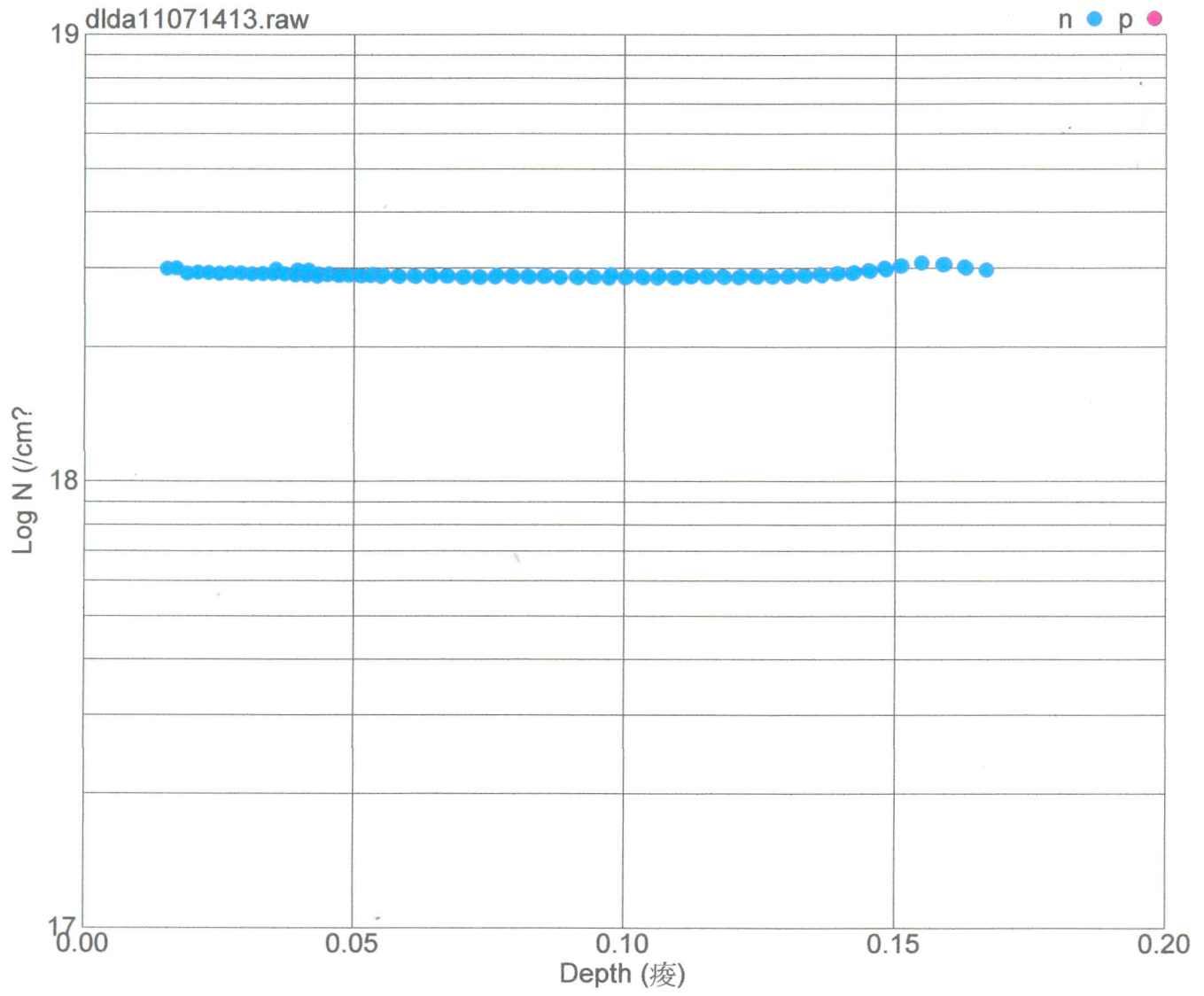
Signature :

Reported By: Jeremy

Manager: Brian Y. Lee

Supervisor: Wei Lin

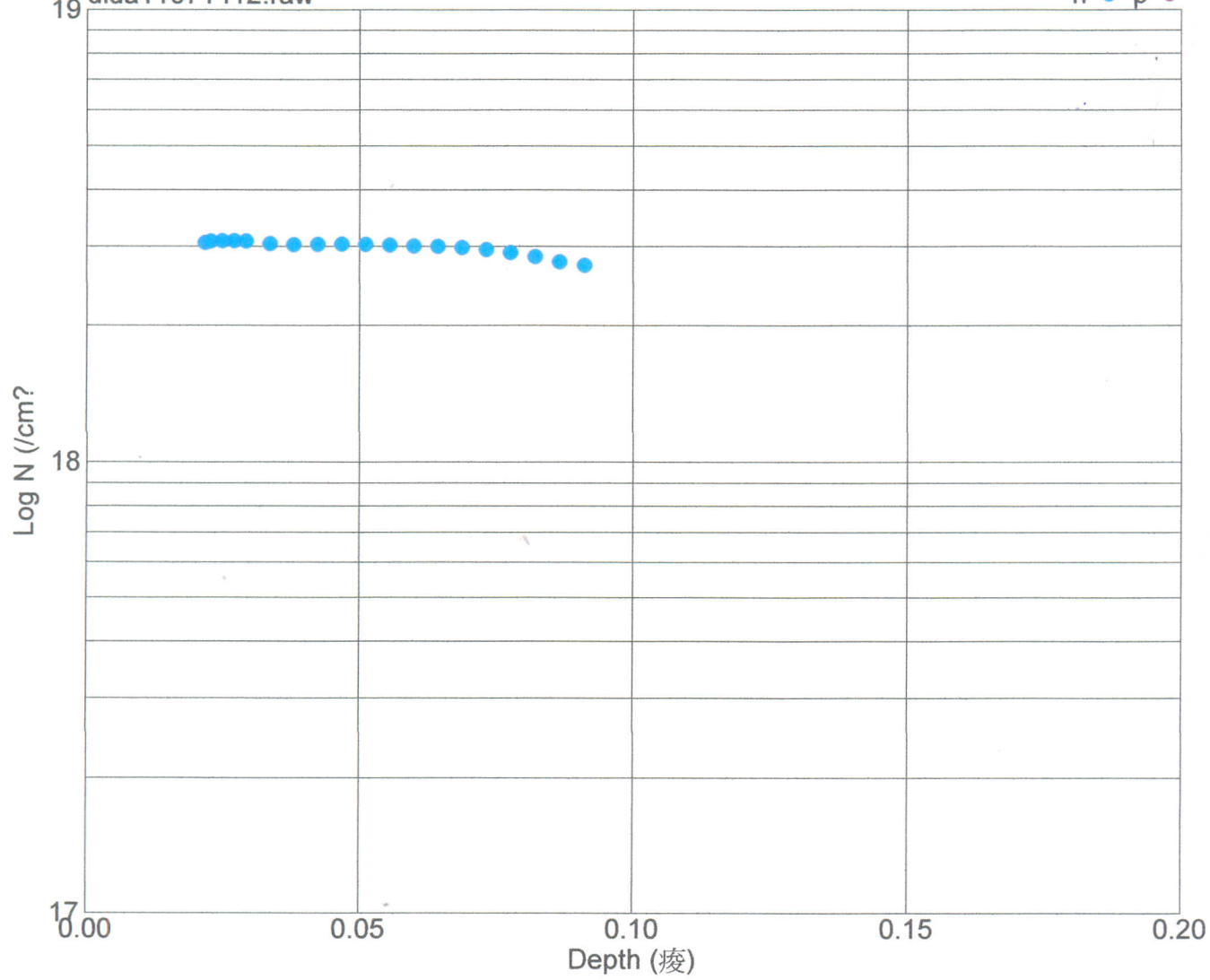
Reg End Mat1 +% Mat2 model EAC freq A-wet A-ill
1 99 InAs 47 GaAs Parall Off 0.00 0.0970 0.0960



Reg End Mat1 +% Mat2 model EAC freq A-wet A-ill
1 19 InP 0 GaAs Parall Off 0.00 0.0934 0.0960

19 dlda11071412.raw

n ● p ●



ACCENT RPM2000

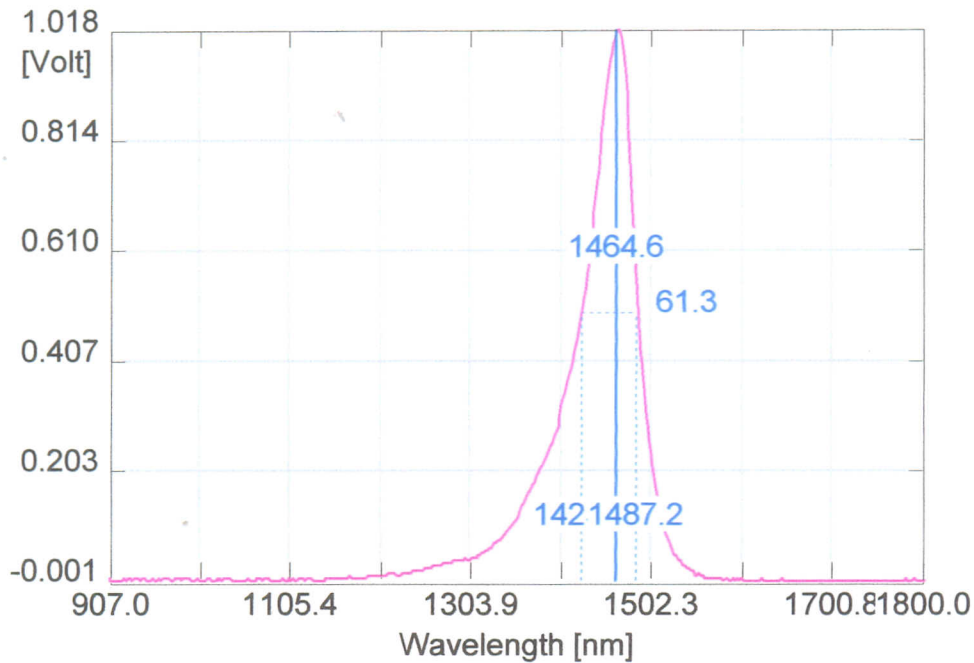
Date : July 14, 2011 07:44:01
 Wafer ID : q-qw2
 Material : InP
 Filename : D:\2011\dlida\1107141\q-qw2.spl
 Description :
 Recipe :

Operator :
 Batch ID : dlida1107141
 Thickness : 350 μ m

Scan parameters
 X : 7.0 mm
 Y : 1.1 mm
 Scan rate : 100 pts/s
 Temperature : 23.1 C

Wavelength settings
 Range : 905.9 to 1805.4 nm
 Slit width : 0.500 mm
 Grating : 150g/mm-1250
 Detector : InGaAs
 Gain : x1 (corr.)
 Filter : 570nm HP
 Calibration : (none)

Laser parameters
 Name : 532nm CW 10mW
 Wavelength : 532.0 nm
 Power : 6.2 mW

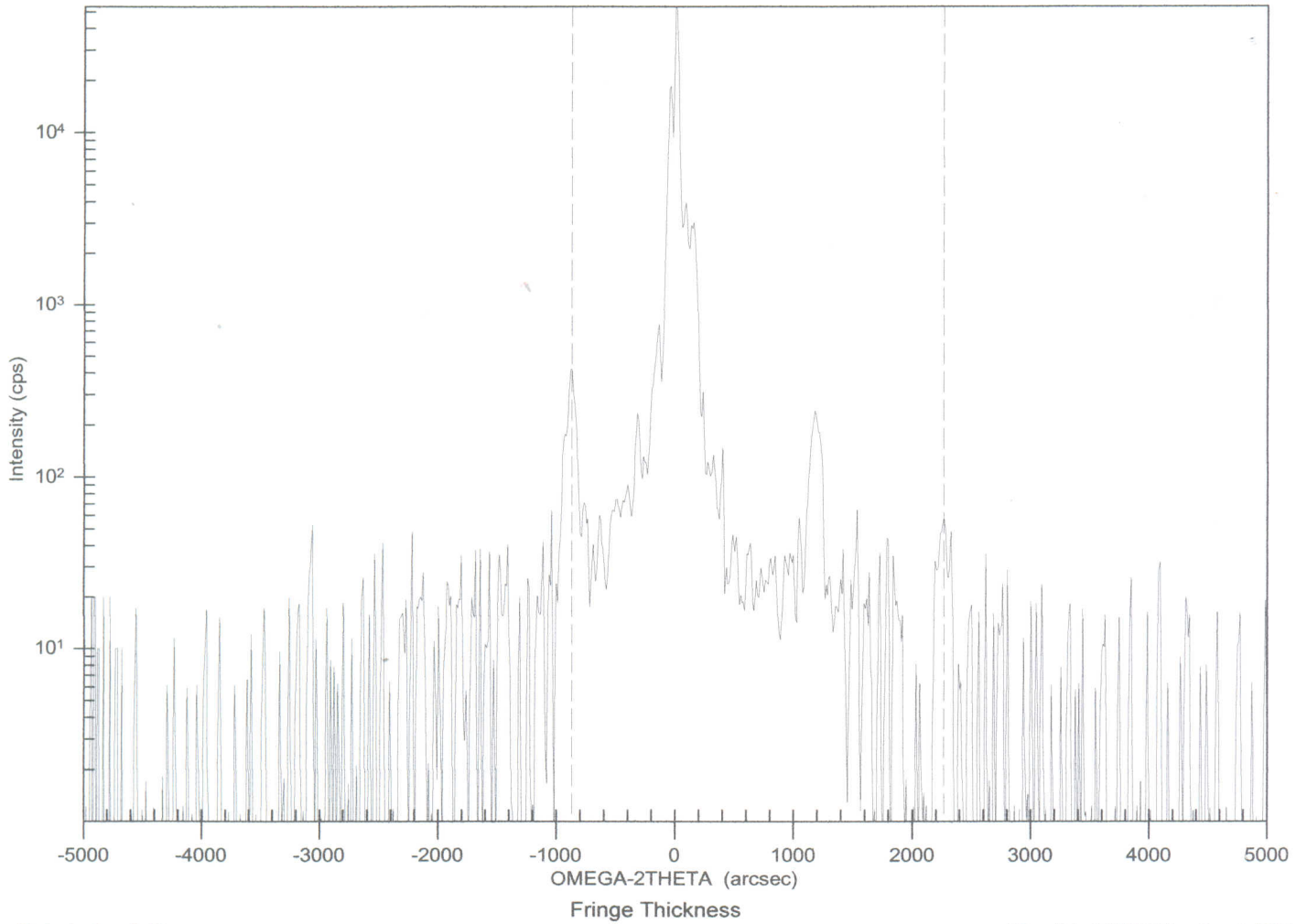


Analysis Parameters
 Mode : Custom 2
 Min Limit : 907.0 nm
 Max Limit : 1800.0 nm
 Threshold : 97.0 %
 FWHM : 50.0 %

Results
 Peak : 1464.6 nm
 Height : 1.018 Volt
 FWHM : 61.3 nm
 Area : 39 a.u.

Fringe Thickness Analysis

dlda1107141c_0aa1.X01



Substrate: InP
Epilayer: -
Average Fringe Spacing: 1046.06 arcsec
Thickness: 178.46 Å

ID: dlda1107141c_0aa1.X01
h,k,l: (0,0,4)
Number of Fringes: 3



To: Martin Yeh

規格需求表 (SPECIFICATIONS CONFORMATION) (LM-WORKP-DC-T1)

1. 功能模式來源: 契約 訂單 年度營運計畫書
(Order Type)

2. 功能簡述:
(Function Description) 1470nm LD Epi-wafer

3. 相關法令、規章(附件) (Local Regulations for the Products Specified): 無(None)

4. 制定者: UCSB
(Specified By)

5. 制定日期: 2011/02/22
(Date of Specification)

6. 規格制定 (Specifications):

序號 (No.)	規格需求項目 (Item Name)	規格值 (Value for Customer)	單位 (Unit)	誤差 (DP)	工作條件 (Test Condition)	備註 (Note)
0	N- InP Substrate (M01*)	S-Doped, (>2x10 ¹⁸)	cm ⁻³	---	---	2" wafer, 350±25µm
1	U- InP Buffer Layer	0.2	µm	±10%	---	---
2	P- In _{0.53} Ga _{0.47} As (Concentration)	0.1 (1x10 ¹⁹)	µm (cm ⁻³)	±10% (±20%)	---	---
3	P-InP Layer (Concentration)	1.5 (2→1x10 ¹⁸)	µm (cm ⁻³)	±10% (---)	C-V Test	On test wafer
4	U-In _{0.5289} Al _{0.166} Ga _{0.3051} As (λ _g =1.3µm) SCH	0.15	µm	±10%	---	---
5	10x U- In _{0.4884} Al _{0.015} Ga _{0.4966} As Well (-0.3% TS, λ _g =1.55µm)	11	nm	±10%	DXRD & PL Measurement	On epi-wafer
	/11x U- In _{0.5702} Al _{0.284} Ga _{0.1458} As Barrier(+0.3% CS, λ _g =1.119µm) (λ _{PL})	/7 (1470)	nm (nm)	±10% (±10nm)		
6	U-In _{0.5284} Al _{0.193} Ga _{0.2786} As (λ _g =1.25µm) SCH	0.1	µm	±10%	---	---
7	N-InP Layer (Concentration)	110 (3x10 ¹⁸)	nm (cm ⁻³)	±10% (±20%)	C-V Test	On test wafer
8	2xN-In _{0.85} Ga _{0.15} As _{0.327} P _{0.673} / 2xN-InP (Concentration)	7.5	nm	±10%	---	---
		/7.5 (3x10 ¹⁸)	nm (cm ⁻³)	±10% (±20%)		
9	N-InP (Concentration)	10 (3x10 ¹⁸)	nm (cm ⁻³)	±10% (±20%)	---	---
10	N- In _{0.53} Ga _{0.47} As (Concentration)	0.2 (3x10 ¹⁸)	µm (cm ⁻³)	±10% (±20%)	C-V Test	On test wafer
#	Lattice Mismatch	<±1000	ppm	---	DCXD measurement	Test on center of epiwafer

7. 研發部主管: Brian Han
(R&D Manager)

8. 技術部主管: Wei Lin
(Supervisor)

9. 需求者/客戶簽認: Xianghui Tang
(Customer Confirmation) (signature)

公司名稱: UCSB
(Customer)

10. 管制碼: 規需 0707231-3 (Control No.)
(Please mail back after the confirmation signature by manager who make this order)