BOE Q2 Roadmap

BOE NB SBU

May 2025

CHANGE LIFE WITH HEART

BOE

Part 01

LCD Mainstream Strategy

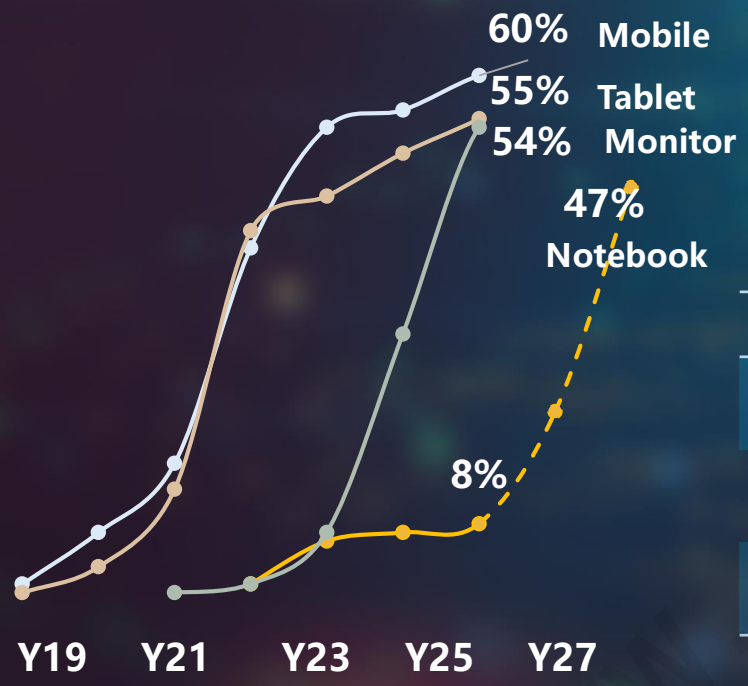
• 30-120Hz

1 LCD Mainstream Strategy - *key feature of 30~120Hz*

- 30~120Hz is a key parameter of AI PC, offers consumers with a silky user experience,eye safe and longer battery life.

RR upgrade Trend

100-120Hz Go Bigger !



Longer Battery Life

ITEM	Battery Life
A-si 60Hz (ref 1)	14h 22min
Oxide 60Hz (base on ref 1)	15h 44min ↑9.5%
Oxide 30~120Hz (base on ref 1)	16h 22min ↑13.9%

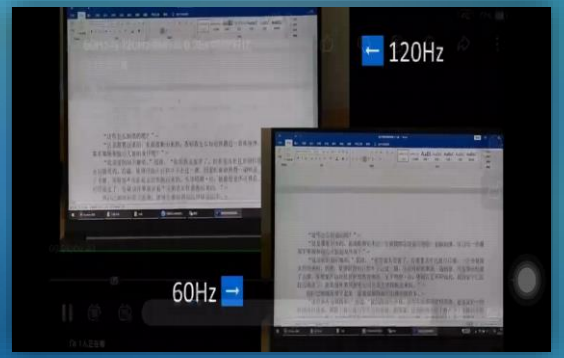
* *PC mark test on 13.3" WU laptop Intel® Core™ i7-1355U*

120Hz

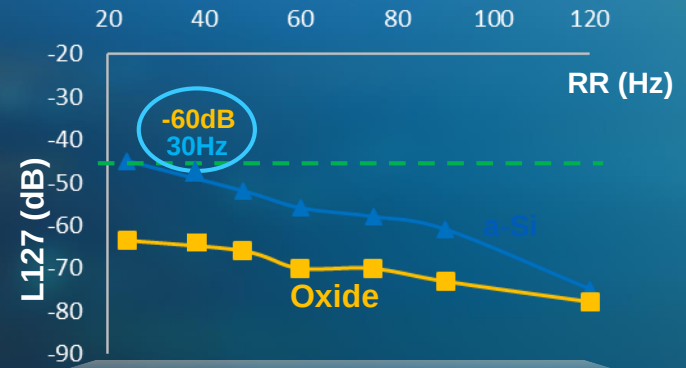
30Hz

Richer Experience

- **Silky smooth**



- **Meet daily work requirements**



- **Flicker Free**

Part 02
Technology Update

- Technology Update

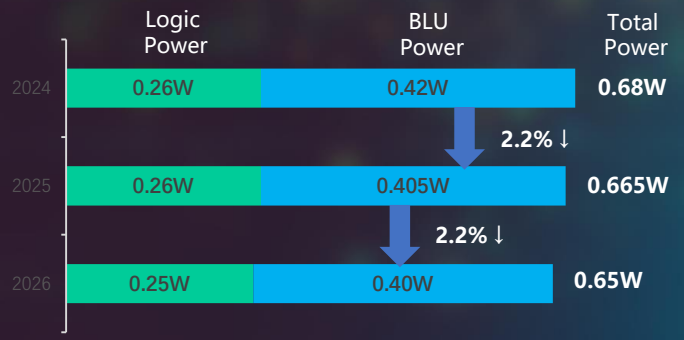
  Low Power/1Hz

  ACR

  Gaming

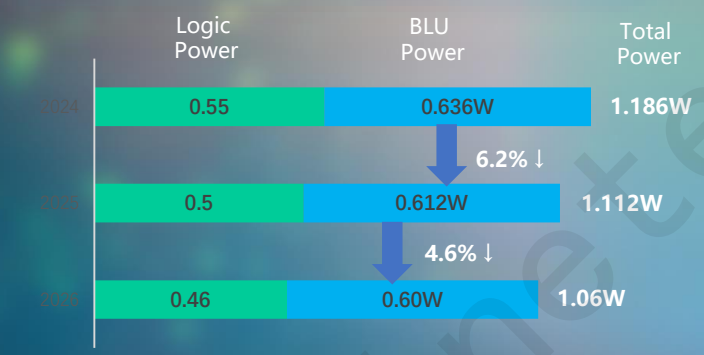
2.1 Tech. Proposal_Low power/1Hz

14.0" WUXGA



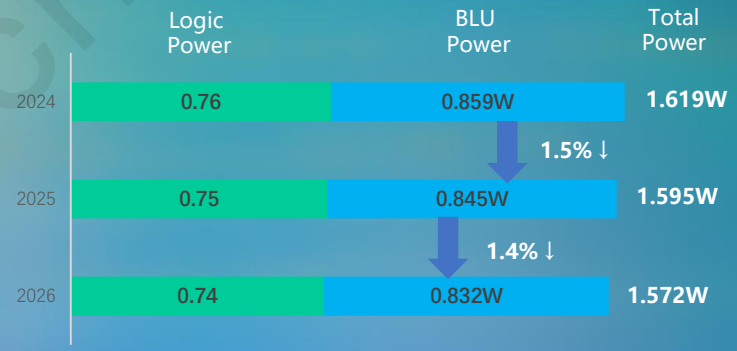
@150nit, 60Hz, sRGB100%

14.0" WQXGA



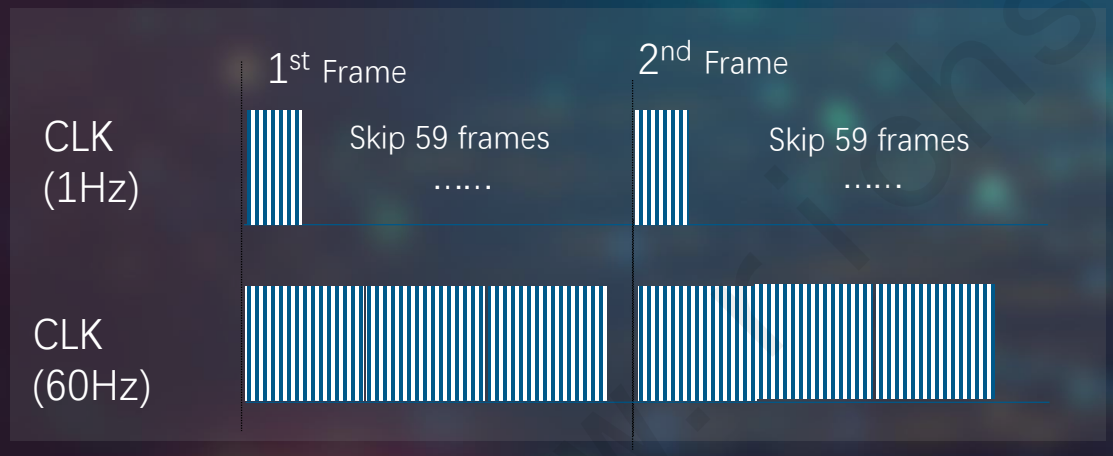
@150nit, 60Hz, sRGB100%

13.3" WQU

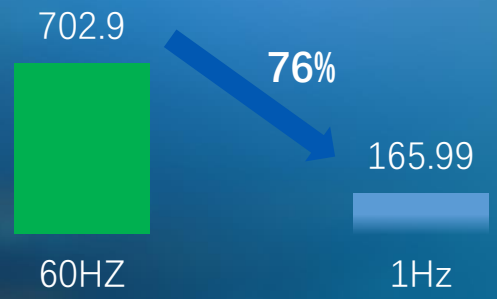


@150nit, 60Hz, sRGB100%

☐ 1Hz: Long battery life & Eco-friendly



■ Advantage: Power saving, longer battery life, Eco-friendly



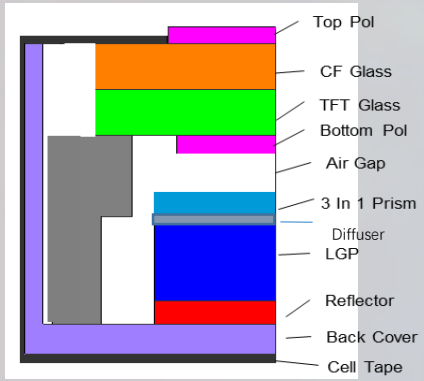
■ Schedule

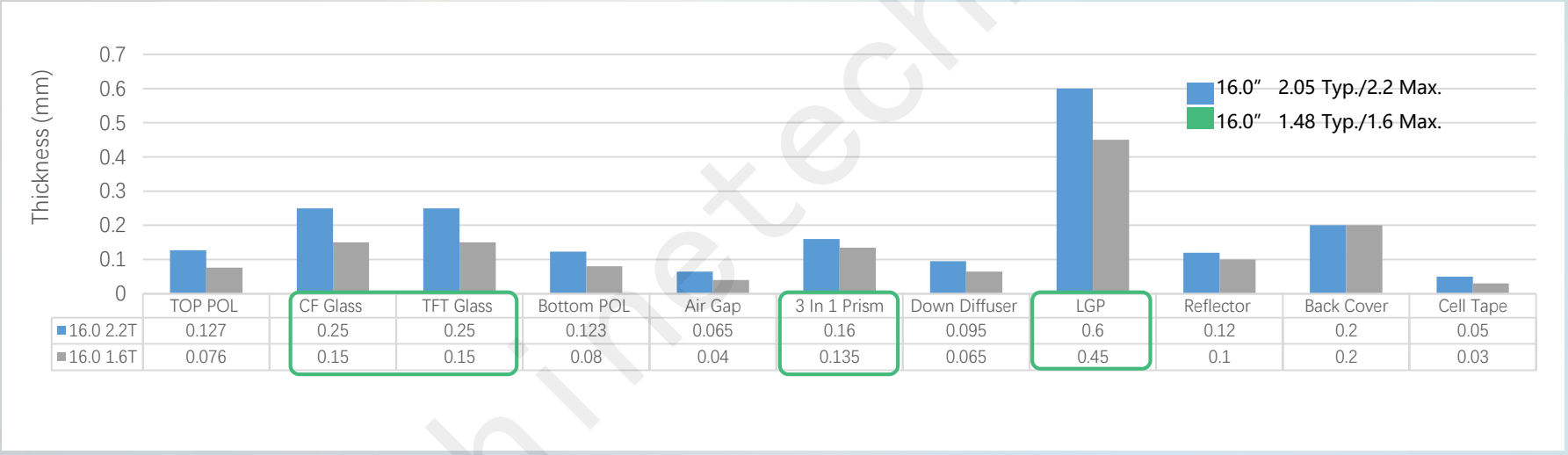
Remark: Based on 14.0 WU 1-60Hz Mosaic

2.1 Tech. Proposal_Ultra Thin & Light

Ultra-thin

Solution

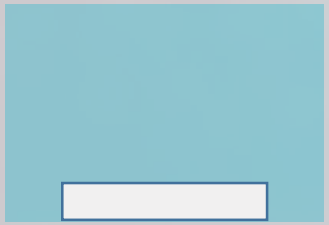


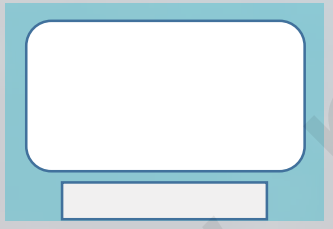


	TOP POL	CF Glass	TFT Glass	Bottom POL	Air Gap	3 In 1 Prism	Down Diffuser	LGP	Reflector	Back Cover	Cell Tape
16.0 2.2T	0.127	0.25	0.25	0.123	0.065	0.16	0.095	0.6	0.12	0.2	0.05
16.0 1.6T	0.076	0.15	0.15	0.08	0.04	0.135	0.065	0.45	0.1	0.2	0.03

Ultra-lightweight

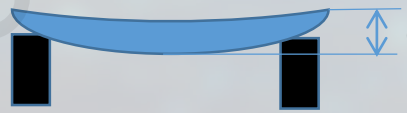
Solution





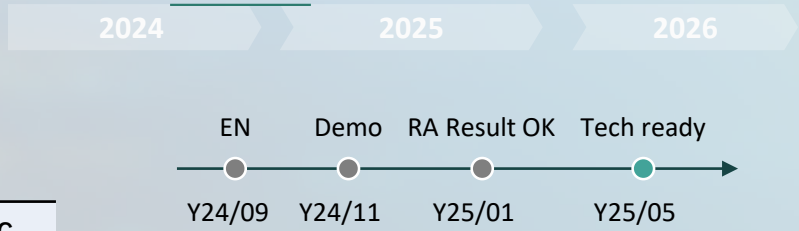
16.0 1.6t 190g@全背板　16.0 1.6T 169g@大镂空背板

Mech. Performance



item	Full B/C	Hollowed B/C
Deformation	2.5 mm	4.0 mm

Schedule



2.1 Tech. Proposal_ACR(Ambient Contrast Ratio)

- To meet the dynamic requirements of hybrid working model, displays need to adjust to more various scenarios.

Scenario 1: Outdoor work

- Need higher luminance and lower reflection rate to achieve higher work efficiency.

Scenario 2: Diverse User Profiles

- Gaming, streaming media scenarios requires higher contrast ratio to get immersive experience.

ACR(Ambient contrast ratio) can fulfill the above requirements, and many branders have already realized it, further adopting it, including Apple.

Tech Roadmap

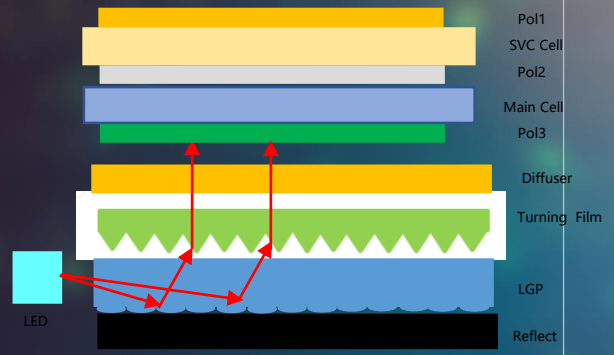
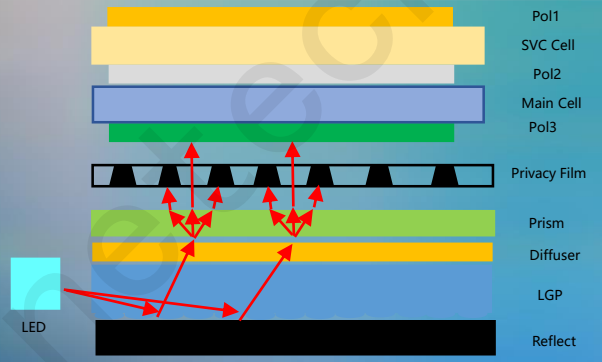
Item		2024	2025	2026
Non-Gaming	Natural CR	2500:1 typ.	2800:1 typ.	3000:1 typ.
	ACR@600nit	150:1 typ.	250:1 typ.	350:1 typ.
Gaming	Natural CR	1500:1 typ.	1800:1 typ.	
	ACR@600nit	150:1 typ.	250:1 typ.	

Product Roadmap

	Item	2024	2025	2026
PRM	13.3/14.0WU			ACR 150
	16.0/18.0WQ		ACR 200	
			ACR 150	
	RFI/RFQ	MP		

2.1 Tech. Proposal_Privacy

BOE Proposal：①CML背光+SVC；②普通 背光+SVC

Solution	CML BLU+SVC （14.0 Non touch）	Normal BLU + SVC （14.0 Non touch）	Normal BLU + SVC （16.0 MLOC）
结构			
分辨率	1920*1200	1920*1200	1920*1200
亮度	500nit （S） /500nit （P）	500nit （S） /500nit （P）	500nit （S） /500nit （P）
Brightness ratio of 45°/0°	S: 6.0%/P: 0.5%	S: 6.0%/P: 0.5%	S: 6.0%/P: 0.5%
逻辑功耗	0.54max@privacy	0.54max@privacy	0.6max@privacy
BLU Power@150nit	3.0 max@500nit 1.1 max@150nit	5.3 max@500nit 1.8 max@150nit	7.36 max@500nit 2.5 max@150nit
厚度	2.4mm max	2.4mm max	3.0mm max
优缺点	功耗低、背光成本高	功耗高、背光成本低、画质均匀性好	

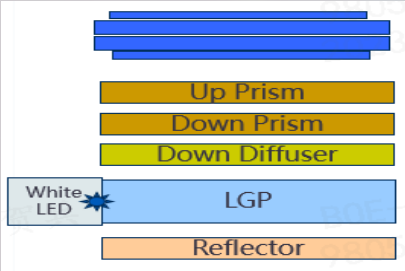
2.1 Tech. Proposal_Wide Color Gamut

BOE

- High color gamut laptops provide ***accurate color reproduction*** and wide color gamut coverage to ***improve creative efficiency***, and provide compatibility for future HDR content.

Single 100% Typ

KSF Phosphor



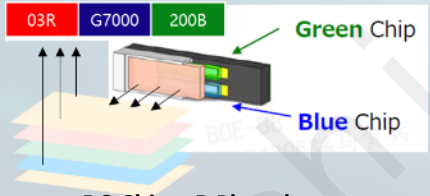
Item	DCI-P3/Adobe 100% typ.	DCI-P3 & Adobe 98.5% typ.
LED	Blue chip + KSF Phosphor	
Film	Normal	
CF	Normal	High CG CF
Status	*MP*	*Ready*

Dual 100% Typ.

- ***One device, multiple color gamuts, ready for any scene***

BG-LED

★***Tech. Ready@2025.Q1***

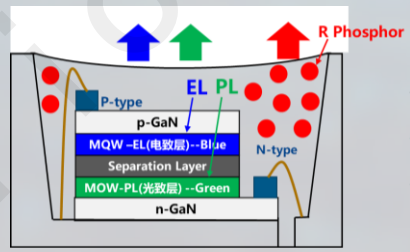


BG Chip + R Phosphor

- ***Low Power*** *(15% ↓ compared with QD/SCO film)*
- ***No Edge Failure***

BEP-LED

★***Tech. Ready@2025.Q1***



EP Chip + R Phosphor

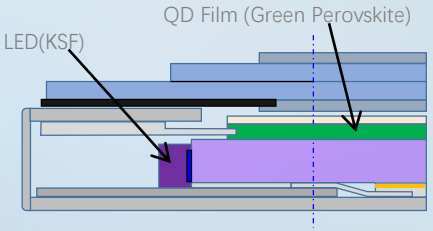
- ***Dual drive → Single drive***
- ***No Edge Failure***
- ***Color shift better than BG-LED***

BT2020 90% typ.

Perovskite solution

★ ***Ready***

- LED(KSF)+QD Film(Perovskite)



- ***The Widest Color Gamut***
- ***Cd Free***
- ***Edge Purple Light Leakage****(Border would be increased)*

Part 03

Product Update

- Product Proposal
  - OLED Proposal
  - LCD Proposal
- Product Roadmap

3-1. NB Product Roadmap_14.0

BOE

ACR feature

	MP	2025
QHD+	14.0”2880*1800 90/120Hz 100% sRGB NE140B9M-N41	14.5” 3072*1920 30~120Hz Incell 100% DCI-P3 *25Q4 MP*
	14.0” 2560*1600 240Hz 100% DCI-P3 NE140QDM-NZA	
FHD+	14.0”1920*1200 30~60Hz 100% sRGB NE140WUM-N6K	14.0”1920*1200 30~120Hz Incell 100% sRGB NS140WUM-L61 *25Q4 MP*
	14.0”1920*1200 30~120Hz 100% sRGB / 45% NTSC NE140WUM-N6S/N6T *25Q1 MP*	14.0”1920*1200 1Hz 100% sRGB NE140WU1-M60 *25Q3MP*

MP Dev Plan

3-2. NB Product Roadmap_15.X

BOE

ACR feature

	MP	2025	2025~
UHD+	**15.6 3840×2160** **120Hz** 100% DCI-P3 **NE156QUM-NZ4**		
QHD+	**15.6 2560×1440** **120Hz/165Hz** 100% sRGB **NE156QHM-NY6/NY4**	**15.3 2560×1600** **120Hz/165Hz** 100% sRGB **NE153QDM-NY2**	**15.3 2560×1600** **180Hz** 100% sRGB **NE153QDM-NY3**
	15.6 2560×1440 **165Hz/240Hz** 100% DCI-P3 **NE156QHM-NY5/NZ3**	**15.3 2560×1600** **180Hz** 100% sRGB **NE153QDM-NZ8**	**15.3 2560×1600** **240Hz** 100% sRGB **NE153QDM-NZ1**
		15.3 2560×1600 **240Hz** 100% sRGB **NE153QDM-NZ1**	**15.3 2560×1600** **300Hz** 100% sRGB **NE153QDM-NZ2**
FHD+	**15.6 1920×1080** **144Hz** 45% NTSC **NE156FHM-NX3**	**15.6 1920×1080** **144Hz** 100% sRGB **NE156FHM-NX6/NX4**	**15.3 1920×1200** **165Hz** 100% sRGB **NE153WUM-NY1**
			15.3 1920×1200 **120Hz** 45% NTSC **NE153WUM-N6X** *25Q2 MP*

MP Dev Plan

3-3. NB Product Roadmap_16.0

BOE

ACR feature

	MP	2025	2025~
UHD+	**16.0 3840×2400** **120Hz** sRGB 100% **NE160QAM-N62**	**16.0 3840×2400** **120Hz** DCI-P3 100% **NE160QAM-NZ1** ***Mini-LED optional***	**16.0 3200×2000** **165Hz** 100% DCI-P3 **LTPS**
QHD+	**16.1 2560×1440** **165Hz/240Hz** sRGB 100% **NE161QHM-NY1/NZ1**	**16.0 2560×1600** **165Hz/180Hz** sRGB 100% **NE160QDM-NYJ/NYL/NYP**	**16.0 2560×1600** **300Hz** 100% DCI-P3 **NE160QDM-NZM** ***25Q2 MP*** ***Mini-LED optional***
	16.0 2560×1600 **240Hz/300Hz** sRGB 100% **NE160QDM-NZ1/NZL**	**16.0 2560×1600** **240Hz** DCI-P3 100% **NE160QDM-NZA** ***Mini-LED optional***	**16.0 2560×1600** **360Hz ACR 200:1** 100% DCI-P3 **NE160QDM-NZK**
FHD+	**16.0 1920×1200** **165Hz/180Hz** 45%NTSC **NE160WUM-NX6/NX7**	**16.0 1920×1200** **165Hz/180Hz** sRGB 100% **NV160WUM-NX2/NY9**	**16.0 1920×1200** **30~120hz** sRGB 62.5%&100% **NE160WUM-N6S/N6T**
	16.0 1920×1200 **144Hz** 45%NTSC **NE160WUM-NX8**	**16.0 1920×1200** **480Hz** DCI-P3 100% **NE160WUM-NZ1**	**16.0 1920×1200** 30~120hz 500nit/350nit 100% DCI-P3/ 62.5%&100%sRGB ***25/4 MP***

16.0 2560×1600 **165Hz** 100% sRGB **NS160QDM-NY3** **LTPS** ***25Q2 MP***	**16.0 2560×1600** **180Hz** 100% sRGB **NS160QDM-NY2** **LTPS** ***25Q2 MP***	**16.0 2560×1600** **240Hz ACR150:1** 100% DCI-P3 **NS160QDM-NZ1** **LTPS** ***25Q2 MP***

MP Dev Plan

3-4. NB Product Roadmap_17.0~

ACR feature

	MP	2025	2025~
UHD+	17.3 3840×2160 165Hz 100% sRGB NE173QHM-NY2	17.3 3840×2160 165Hz DCI-P3 100% NE173QHM-NY7	18.0 3840×2400 240Hz 100% DCI-P3 NE180QAM-NZ2
	17.3 3840×2160 240Hz 100% sRGB NE173QHM-NZ3		18.0 3840×2400 240Hz 100% DCI-P3 NE180QAM-NZ3
QHD+	17.0 2560×1600 240Hz sRGB/DCI-P3 100% NE170QDM-NZ1/NZ2	18.0 2560×1600 165Hz DCI-P3 100% NE180QDM-NY1	18.0 2560×1600 30~120hz 100%DCI-P3 NE180QDM-NZ7 Oxide 25/5 MP
	17.0 2560×1600 240Hz DCI-P3 100% NE170QDM-NZ2	18.0 2560×1600 240Hz+ACR150:1/300Hz DCI-P3 100% NE180QDM-NZ2/NZ6 Mini-LED optional	
FHD+	17.3 1920×1080 144Hz 100% sRGB NV173FHM-NY2	18.0 1920×1200 144Hz/165Hz sRGB 100% NE180WUM-NY3/NY1	
		18.0 1920×1200 480Hz DCI-P3100% NE180WUM-NZ1	

MP Dev Plan

3-5. NB Product Roadmap_miniLED

ACR feature

MP	2025~

16.0 3840×2400
120Hz
DCI-P3 100%
1250nit
NE160QAM-NM1

16.0 2560×1600
240Hz+*ACR150:1*
DCI-P3 100%
1200nit
NE160QDM-NM8

16.0 2560×1600
300Hz
DCI-P3 100%
1200nit
NE160QDM-NM9

18.0 2560×1600
240Hz
DCI-P3 100%
1200nit
NE180QDM-NM1

18.0 2560×1600
240Hz+*ACR150:1*
DCI-P3 100%
1200nit
NE180QDM-NM2

18.0 3840×2400
240Hz
100% DCI-P3

MP Dev Plan

3-6. NB OLED Product Roadmap

- BOE is developing 16.0 3.2K tandem product on G6， and plan to new 14.0 2.8K or 16.0 2.5K or 3.2K 240Hz products on G8.6 fab.

	~MP	2025	2026~2027
Platform	Single LTPS Pad bending	Single LTPS Pad bending	Single / Tandem LTPS/LTPO + Pad bending
Roadmap G6	**14.2” 3.1K (3:2)** 600nit, 120Hz, HDR TB600, on-cell Touch ***Exclusive until 26Q2*** **13.2” 2.8K (3:2)** 600nit, 144Hz,on-cell Touch, MIPI ***Exclusive until 26Q2***	**14.0” 2.8K (16:10)** 500nit, 120Hz, HDR TB600	**16.0” 3.2K (16:10)** 26Q3 1000nit, 120Hz (Tandem) **Foldable & Rollable** **TBD**
Roadmap G8.6			**14.0” 2.8K (16:10)** 500nit, 120Hz (CG & CG Less) On-cell w/ Pen **16.0” 2.5K/3.2K (16:10)** 500nit, 240Hz

App. LCD Product Roadmap—Touch

BOE

	Add-on	On-cell		In-cell	
QHD+				14.0 WQXGA Finger & **WGP**, 400nit 100%sRGB 2.5/7.4mm, 2t, 120hz **Oxide**	8.8 1600x2560 144Hz 500nit DCI-P3 100% 2.04t **LTPS**
FHD+	10.1~16.0 OGM/GF2 **MPP2.0, AES2.0**	13.3 1920x1200 **MLOC** 14.0 FHD **SLOC & MLOC** 13.3/15.6 FHD **SLOC**	14.0 1920x1200 **SLOC & MLOC** 16.0 1920x1200 **SLOC** 60Hz 300nit 45%NTSC 3.0t	13.0 2160*1440 TDDI **MPP2.5, WGP** 14.0 FHD **WGP&MPP2.5,** 2.8W@300nits sRGB, 2.5/7.3mm, 2.7t, Bent	16.0 1920x1200 Finger (**MPP 2.5&WGP**) 2.5/7.4mm, bent,3t/5t 14.0 1920x1200 **Incell** 30-120Hz sRGB, 2.5/6.5,2.98t Small PCB **LTPS** *25Q4 MP*
HD+		11.6/14.0/15.6 HD TN **SLOC**	11.6 HD ADS **SLOC&MLOC**	11.6 HD TDDI **In-cell**	

Finger touch Active Pen

MP Dev Plan

BOE

THANKS