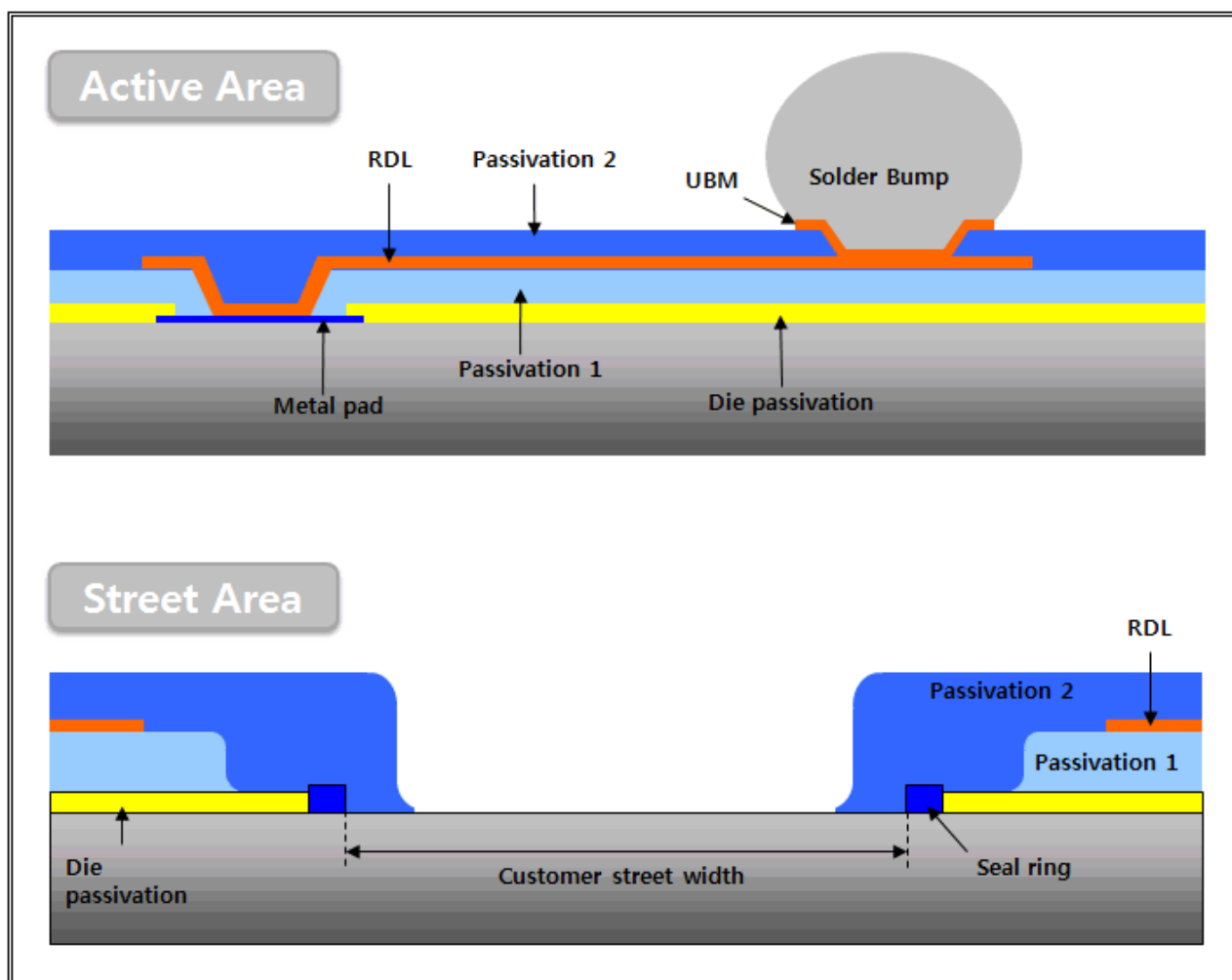




1. General Information

Design Request No	DE -----	Drawing Number / Rev	A4313 PD/0A
Product ID	P10T204-A4313-MSA8	PKG Type	CSPNL(RDL)
Customer Number	1 (AMKOR INTERNAL BUILDS)	Device Name	DC 2X2, Ball load
Designer	Eileen Chen	Create Date	2012/06/29

2. Cross-section



3. Mask Set

	Layer Name	GDS#	SID Number
Passivation	06	A4313_MASK	A4183-06A1
RDL	10	A4313_MASK	A4183-10A1
Passivation	25	A4313_MASK	A4183-25A1
UBM	35	A4313_MASK	A4183-31A1
FLUX	40	A4313_MASK	A4313-40A1
BALL	50	A4313_MASK	A4313-50A1

4. Die and Wafer Information

Wafer Size	200mm(8")
Wafer Type	SEMI
Notch or Flat	Notch
Die Size Without Street	X:730 Y:730 um
Street Width	X:80 Y:80 um
Chip Size(Die size+Street width)	X:810 Y:810 um
Chip Array in one Reticle(# of die)	X:32 Y:40
Offset of reticle(or map) center to wafer center	X:0 Y:0 um
Reticle Step (Pitch)	X:25920 Y:32400 um
Final Metal Pad of I/O	Size : NA
Final Passivation	Size : NA

5. Target CD Size

Layer Name	06	Material	HD4100 PI
		Thickness	5 um
		Via Size	NA
		Street Removal	X:100 Y:100 um
		Process Bias	Via: +1 um Street : +2.5
Layer Name	10	Trace Material	Cu
		Trace Thickness	3 um
		Trace Width (Min)	100 um
		Trace Space (Min)	142.5 um
		Via Pad Shape	NA
		Via Pad Size	NA
		Bump Pad Shape	Circular / Square
		Bump Pad Size	225 um / 290 um
		Process Bias	+0.75 um
Layer Name	25	Material	HD4100 PI
		Thickness	5 um
		Via Size	170 um
		Street Removal	X:80 Y:80 um
		Process Bias	Via: +1.4 um Street : +2.5
Layer Name	35	Material	Ti / Cu / Ni / Au UBM
		Size	205 um
		Process Bias	+2 um
Layer Name	40	Size	150 um
Layer Name	50	Size	310 um

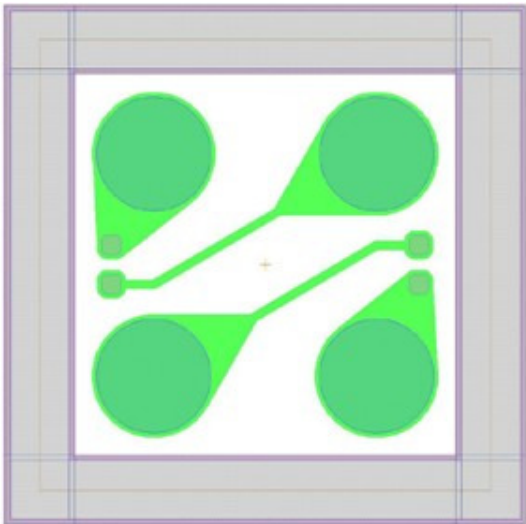
6. Technical Information

Ball Place or Electroplated	Ball Place
Bump On Pad or redistribution Layer	Redistribution Layer
Bump Material	SAC405 (Ball Place)
Bump Height	208 um
Ball Size(Ball Place Only)	250 um
Bump Diameter after Reflow	259 um
Bump pitch	400 um
Bump Shear Strength	>2 g/mil ²
Bump per Die	4
Die per Wafer	Total: 44573
Plating Area	30 : 5948 mm2 10 : 10804 mm2

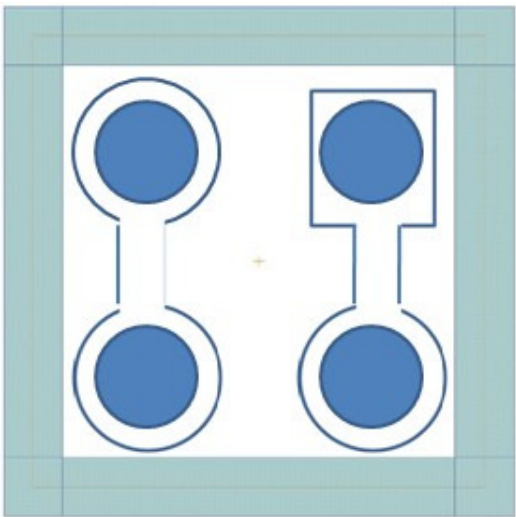
7. Design Detail

All Dimensions of CD sizes in this section are mask dimensions.

Customer die	
Description	Die Pattern From Customer

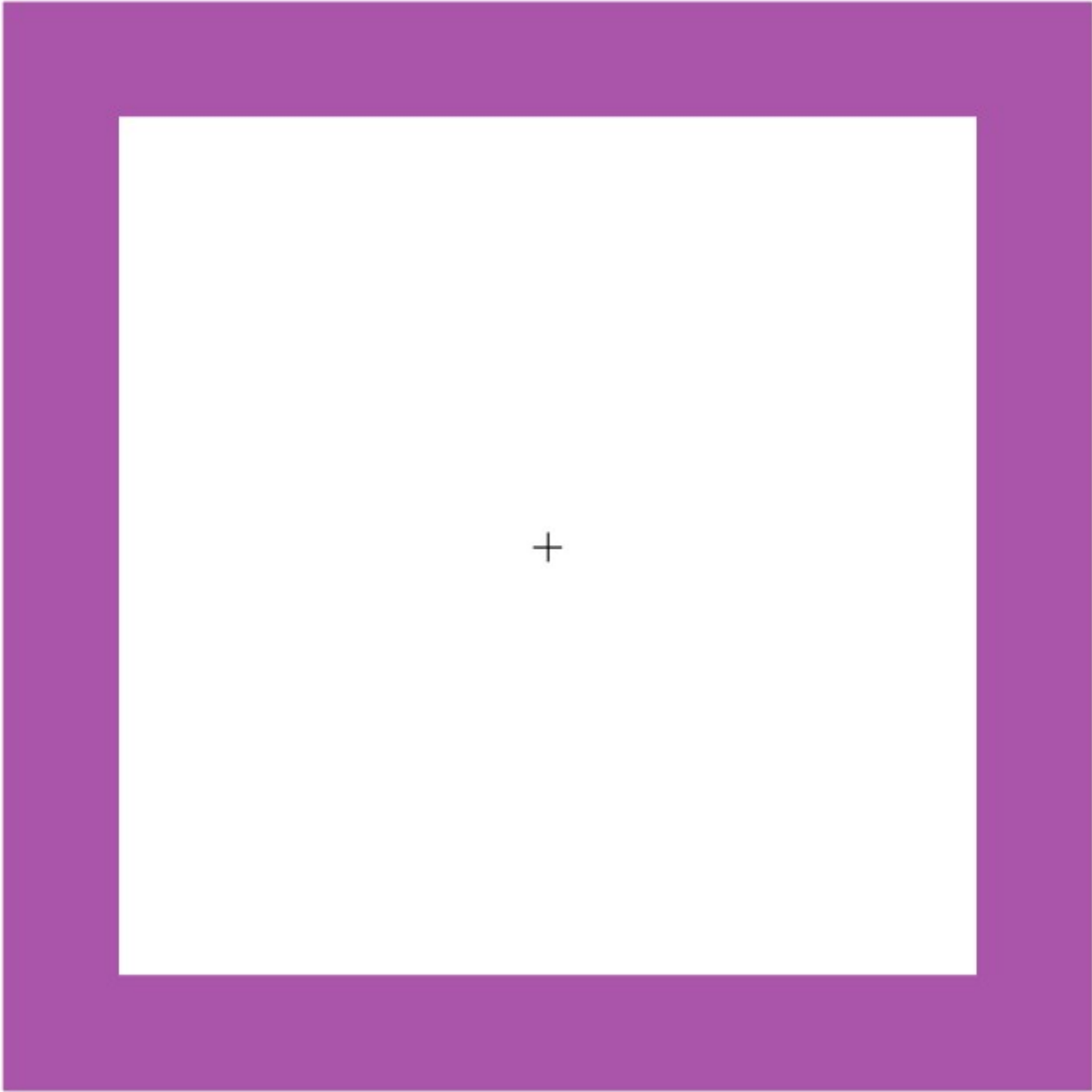


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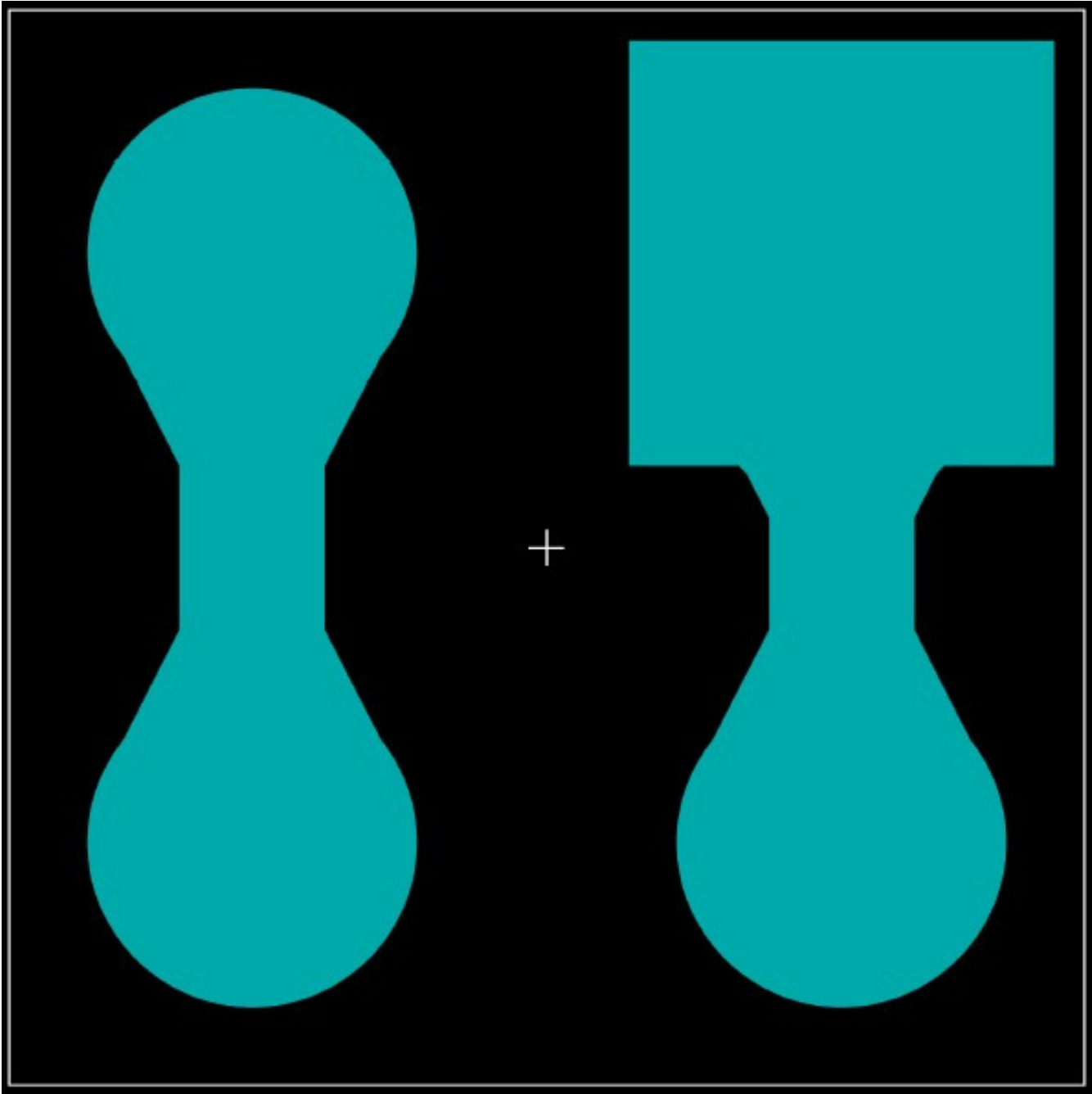


This project

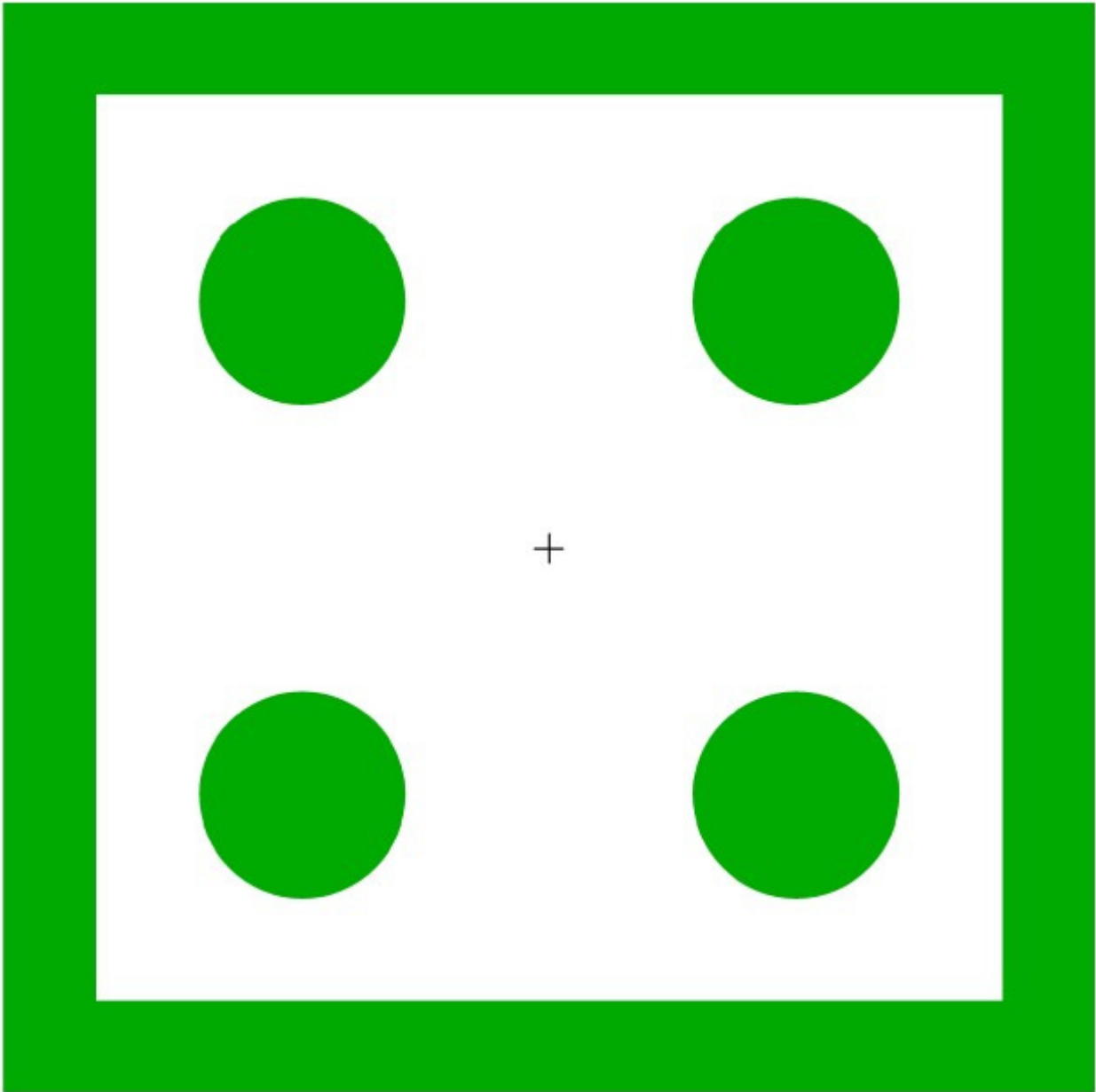
Passivation1			
Layer Name	06	SID Number (Mask ID)	A4183-06A1(A4183-06A1)
GDS#	A4313_MASK	Polarity	Dark Pattern/Clear Field
Via Size	NA	Street Removal	X:95 Y:95 um
Description	Main Die : PI1		



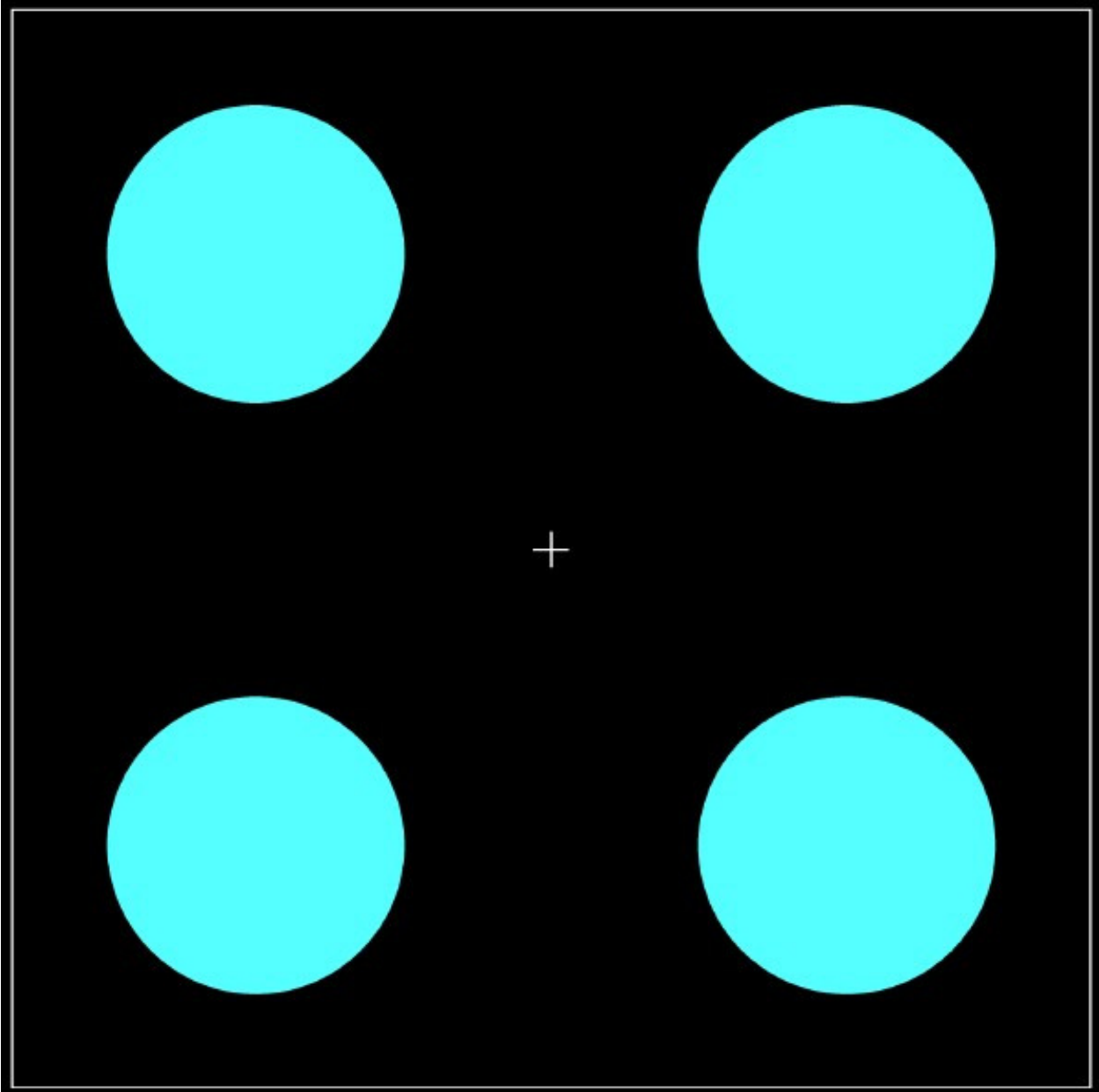
RDL1			
Layer Name	10	SID Number (Mask ID)	A4183-10A1 (A4183-10A1)
GDS#	A4313_MASK	Polarity	Clear Pattern/Dark Field
Trace Width (Min)	98.5 um	Trace Space (Min)	414 um
Via Pad Shape	NA	Via Pad Size	NA
Bump Pad Shape	Circular / Square	Bump Pad Size	223.5 / 288.5 um
Description	Main Die : RDL		



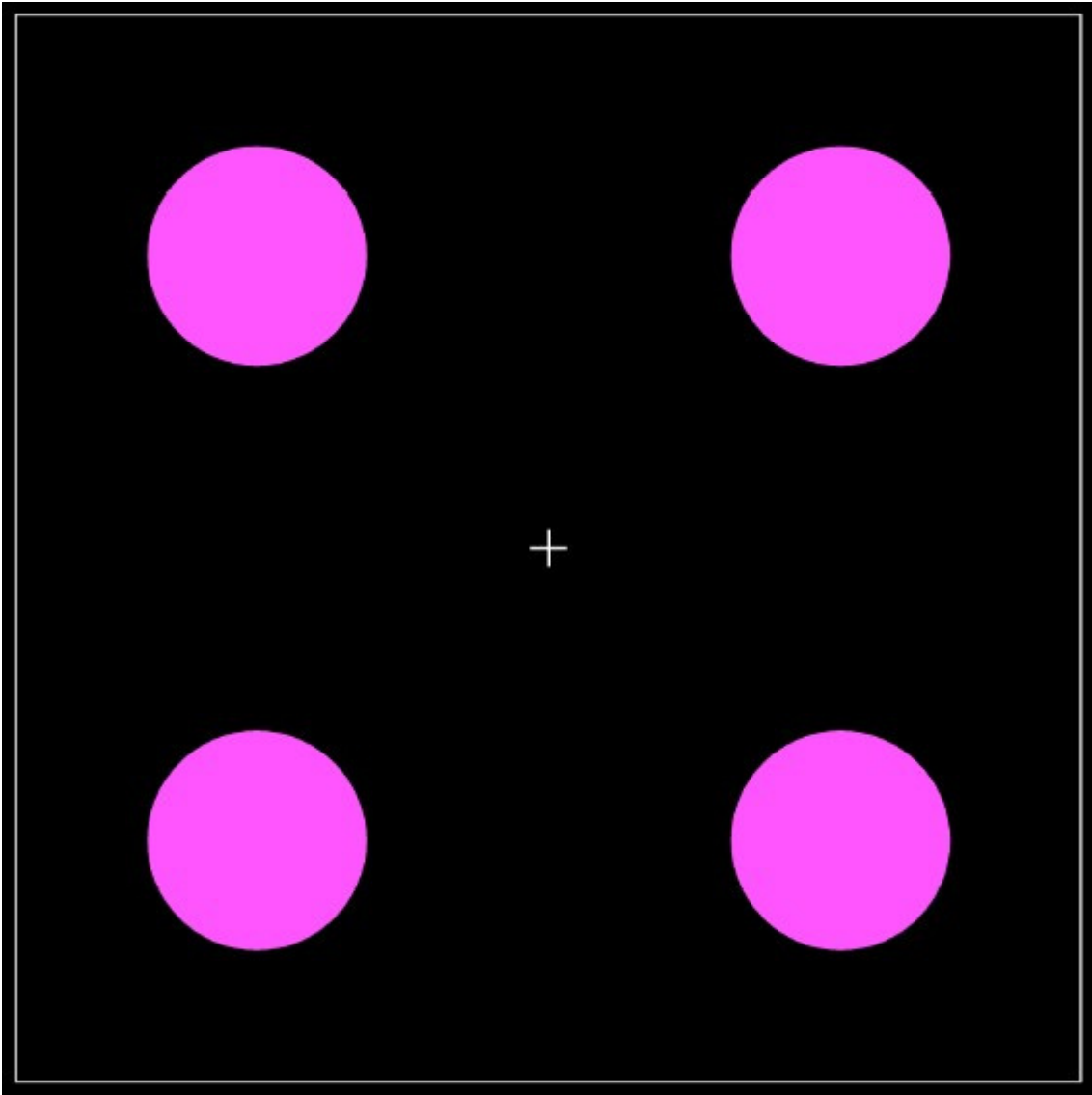
Passivation2			
Layer Name	25	SID Number (Mask ID)	A4183-25A1(A4183-25A1)
GDS#	A4313_MASK	Polarity	Dark Pattern/Clear Field
Via Size	167.2 um	Street Removal	X:75 Y:75 um
Description	Main Die : PI2		



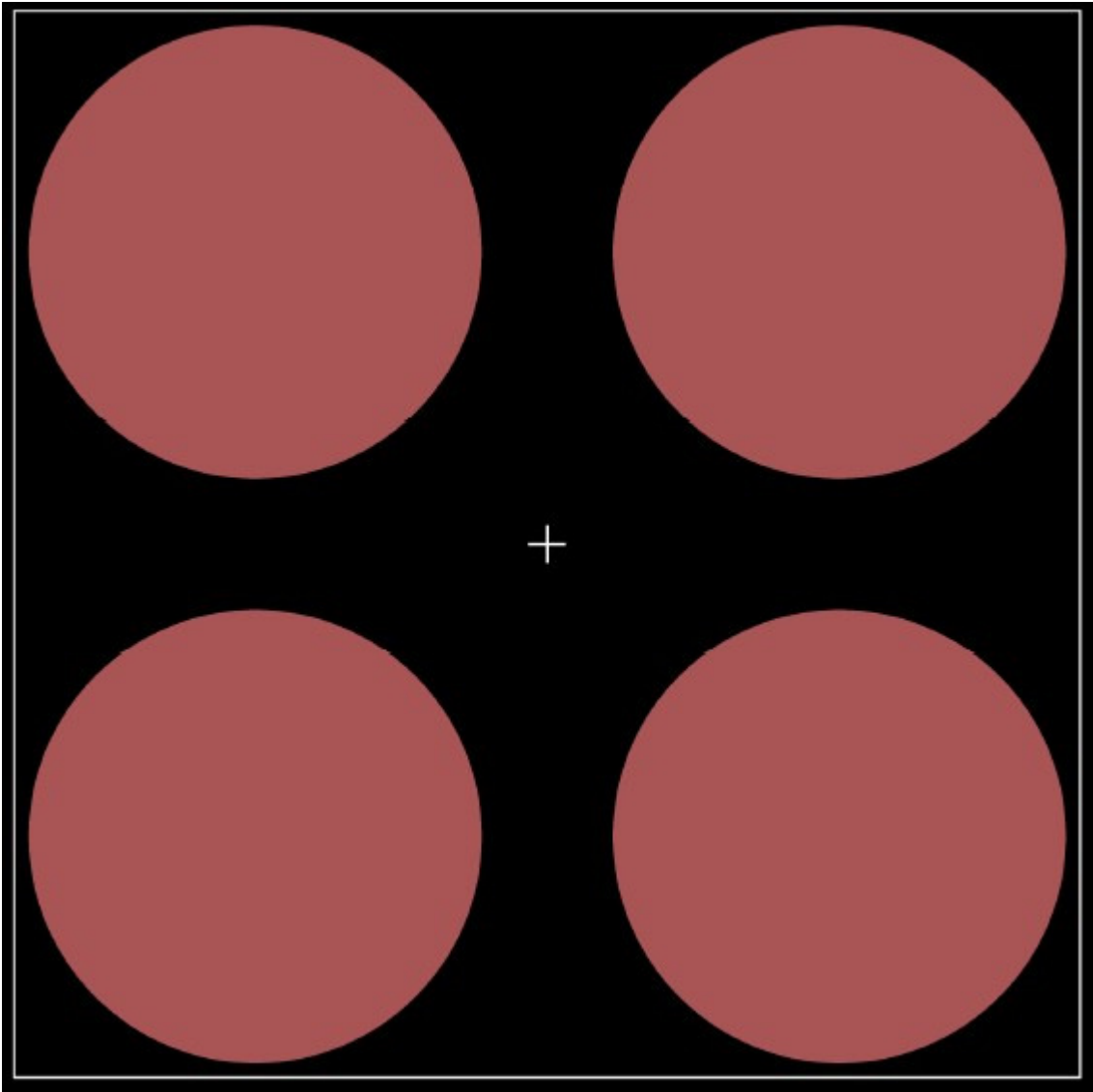
UBM			
Layer Name	35	SID Number (Mask ID)	A4183-31A1 (A4183-31A1)
GDS#	A4313_MASK	Polarity	Clear Pattern/Dark Field
UBM Shape	Circular	Size	201 um
Description	Main Die : UBM		



FLUX			
Layer Name	40	SID Number (Mask ID)	A4313-40A1 (A4313-40A1)
GDS#	A4313_MASK	Polarity	Clear Pattern/Dark Field
UBM Shape	Circular	Size	150 um
Description	Main Die : Stencil Flux		

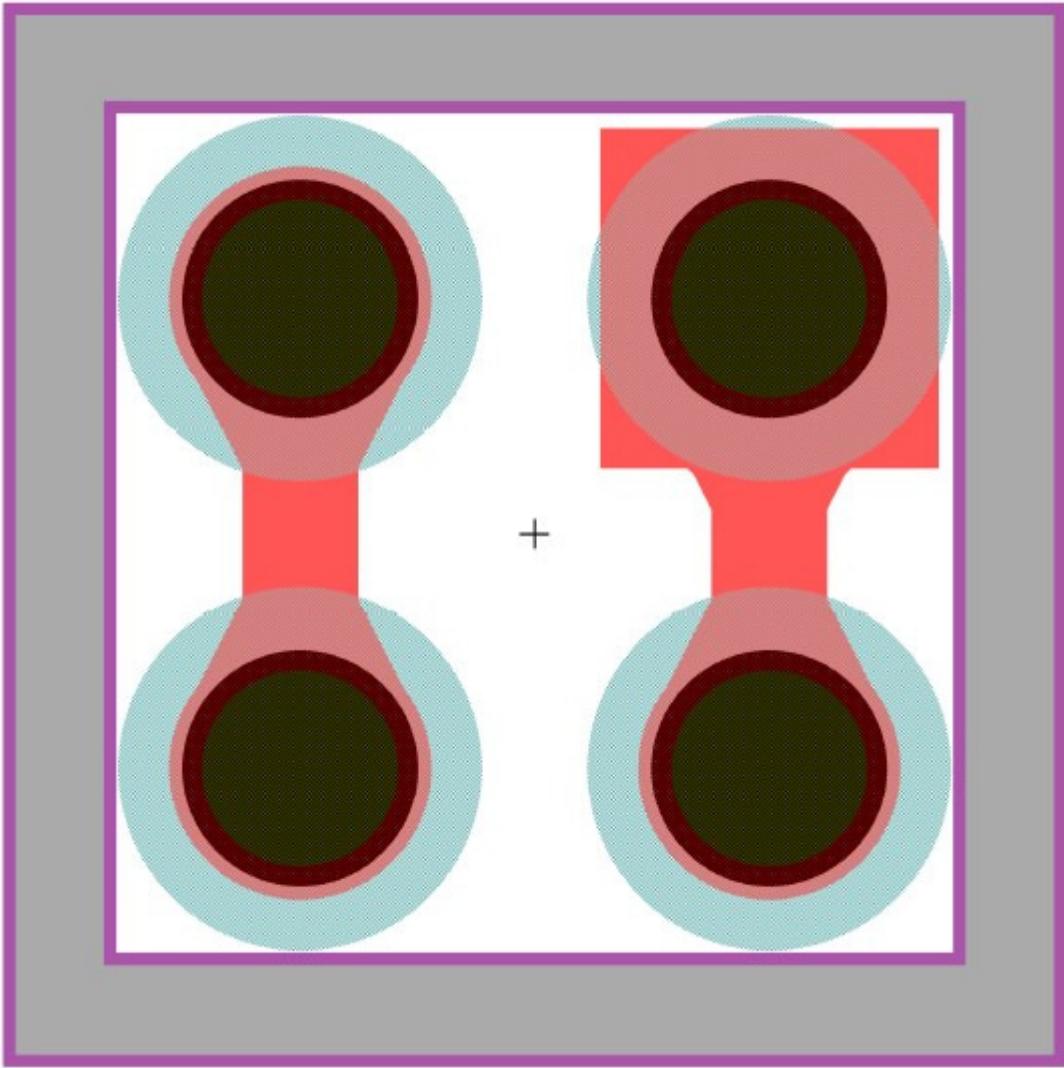


BALL			
Layer Name	50	SID Number (Mask ID)	A4313-50A1 (A4313-50A1)
GDS#	A4313_MASK	Polarity	Clear Pattern/Dark Field
UBM Shape	Circular	Size	310 um
Description	Main Die : Stencil Ball		

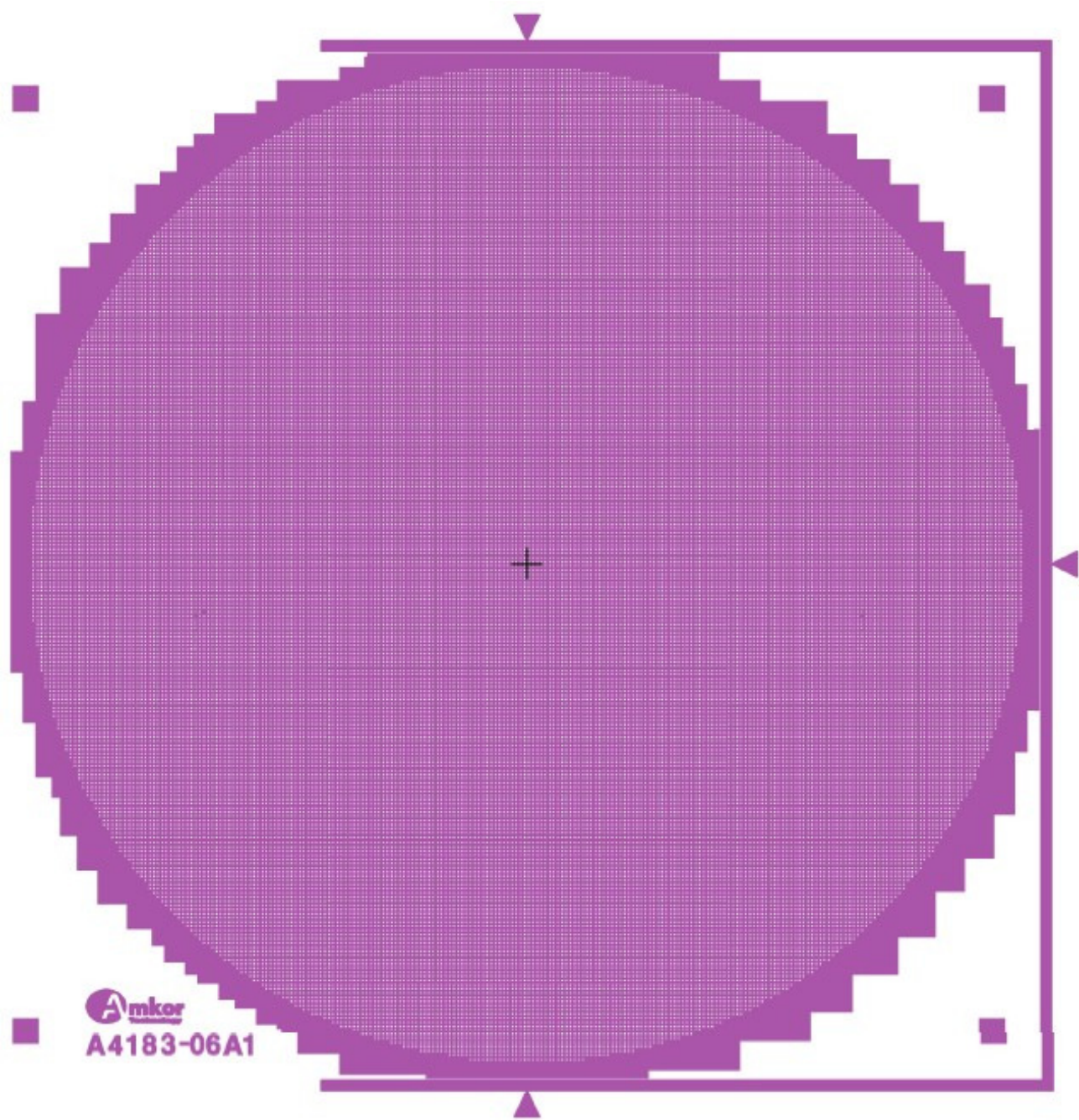


Active Die (All Layers)

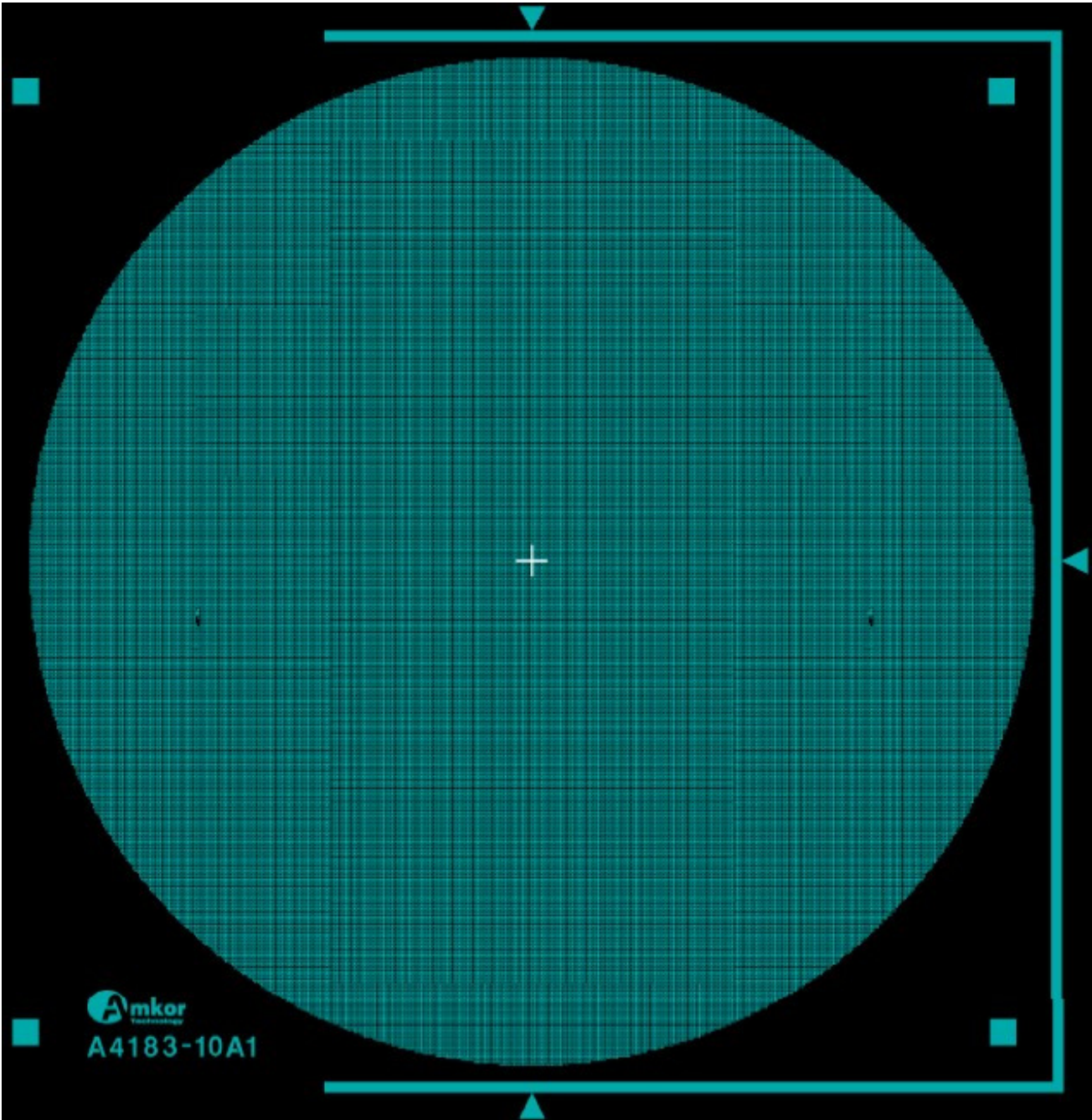
Description	Main Die : Combination
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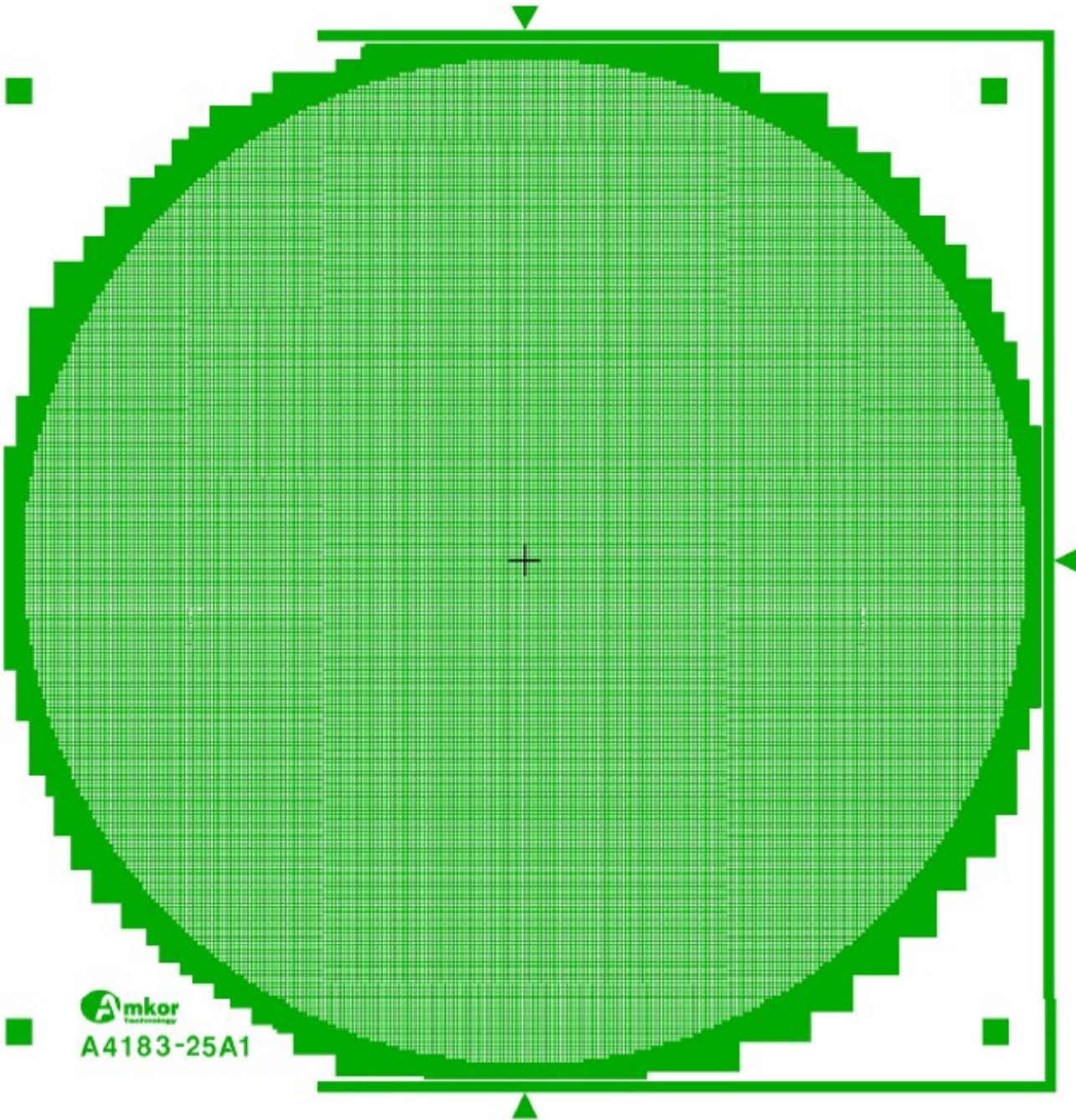
Mask	
Description	Mask Full Plot : PI1



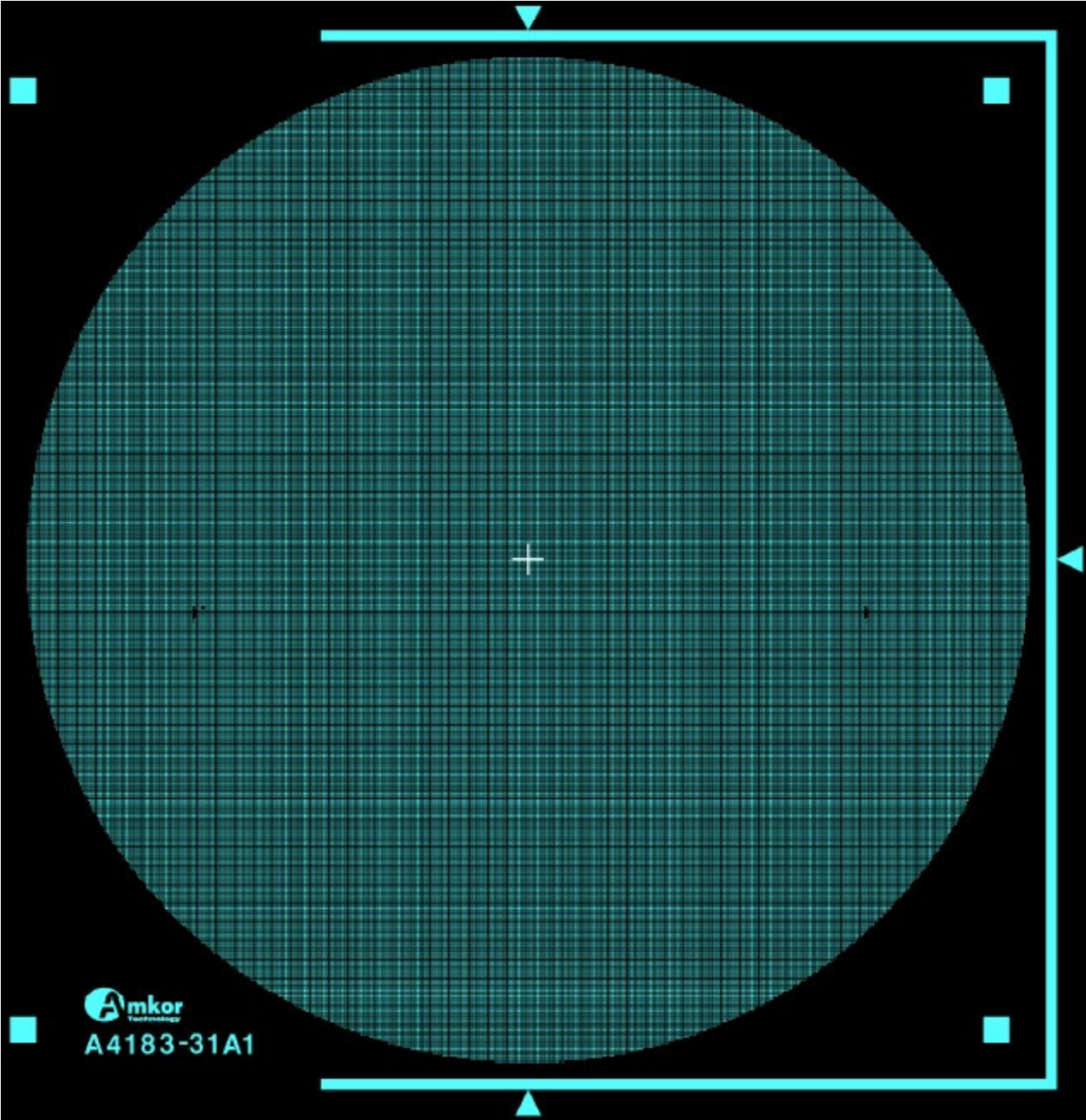
Mask	
Description	Mask Full Plot : RDL



Mask	
Description	Mask Full Plot : PI2

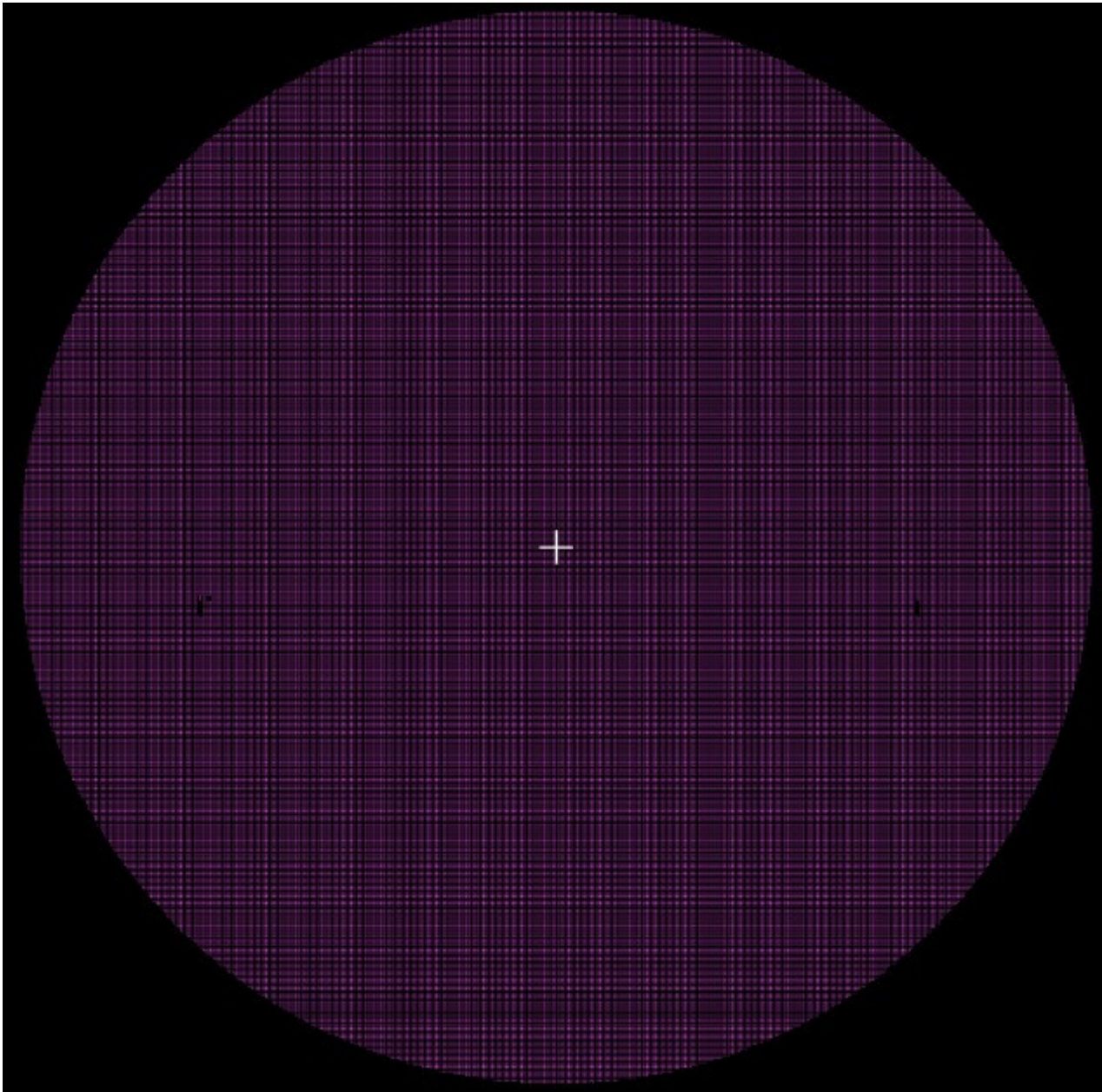


Mask	
Description	Mask Full Plot : UBM

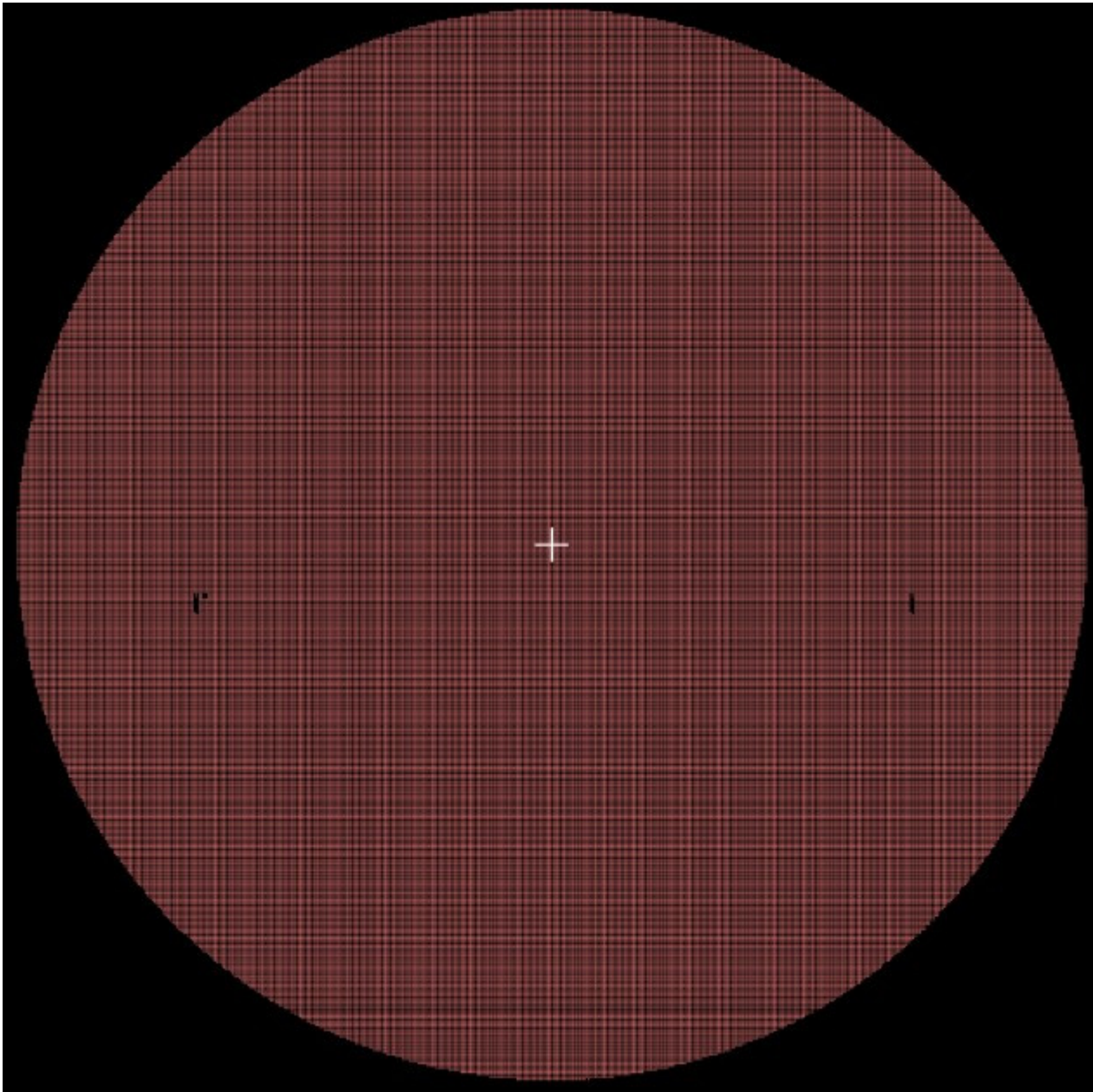


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Mask	
Description	Mask Full Plot : Stencil Flux

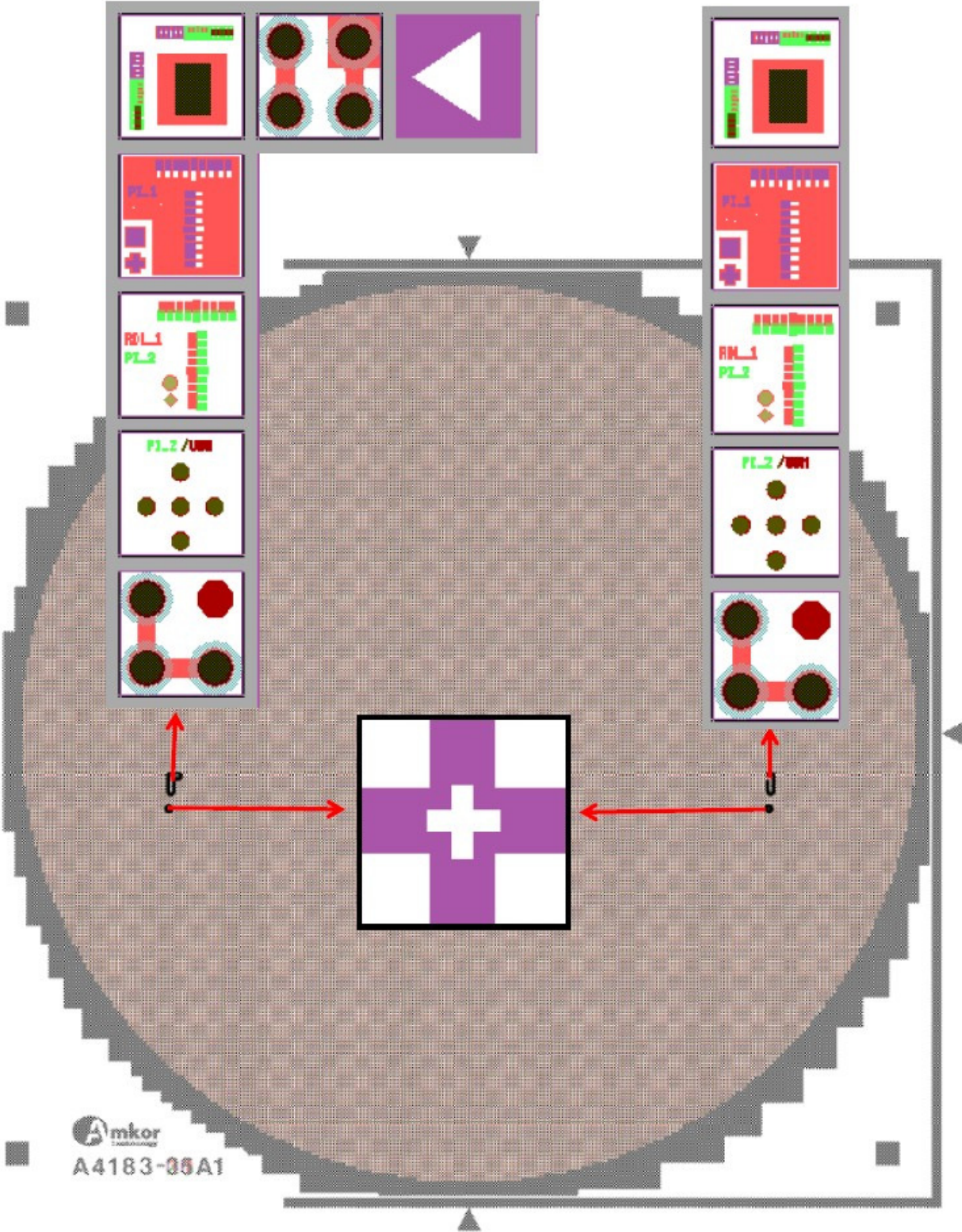


Mask	
Description	Mask Full Plot : Stencil Flux



Alignment Die (All Layers)

Description	Alignment Die: Combination
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8. Comments

REV	DESCRIPTION	DATE	Revised By
0A	Add ball drop on this design	2012/6/29	Eileen Chen