3. Set Manual bad pixel map (BPMM) as below.



No.			Overview	
1	At Figure 1, choose S from the list of $M(1)$ and click "BPM". Check if BPMM window is popped up as Figure 3.			
2	Choose "Bad" from Pixel list (Figure 3 - 2).			
3	Choose either	"row" or "col"	from Figure 3 - 3.	
4	Put the coordi	nate of pixel to	set bad pixel at Figure 3	3 - 4.
	If bad pixel is a	a line, put the	range as below at Figure	3-5.
		From	То	
5	Row	0	3327(127type) 2449(140type)	-
	Col	0	2815(127type) 2992(140type)	-
	If bad pixel is i	not a line but s	ome pixels, put the rest	- coordinate at Figure 3 - 5.
6	After completi	ng step 5 , che	eck if bad pixel has been	changed to green as Figure 2 - 6
7	Click "Fill" at F	Figure 3 - 🕖.		
8	Click "Save" a	t Figure 3 - 🔞	).	

4. Once setting BPMM is done, "BPMM.raw" file will be saved at C:\Davinci\CAL.

# 4. Usage

# 4.1 Set Up

# 4.1.1 Product Connectivity

- 1. Connect the detector and turn on the power.
- 2. Open "\_vadav.lnk" from "C:\davinci".
- **3.** Once the detector is connected, detector information is displayed in Detector Status and Link & Ready are checked as below.

Oetector Type ⓒ Single C Multi Model II4711417WCC-B.par	Full Frame Width 3328 Height 2816
Sensor IP 2 , 2 , 2 , 100 Numbe Detector #1 Edit Wireless Link Quality © Station C AP SSID Detector S/N	Flip and Rotate Rotate none Flip Horz Flip Vert
VER_FIRM:         FW-000.003         Versions           VER_FPGA:         NvFR-mkd4         Acq Count           VER_FNAN1:         LC0E13390025         Acq Count           VER_TFTP:         2AN38052R         Cink           VER_SCIN:         28155         Cink	Crop Rows and Column 30
C Calibration	Result Images Width 3268 Height 2756



If "Detector Status" does not show anything, please refer to **3.1 Installation** in Part.1 User & Installation Manual to connect the detector properly.

#### 4.1.2 Image Set Up

- 1. In order to rotate or flip an image, use the option of "Flip and Rotate" as shown below.
- 2. In order to change the size of an image, use "Crop Rows and Columns" as below.
- 3. Click "Apply" to save.

O DaVinci detector library	
Settings 3 Calibration & Acquisition 3 About	1
Detector Type © <u>Single</u> C Multi Model [47]1417WCC-R.par Sensor IP 2 , 2 , 2 , 100 Numbe Detector #1 Wireless Link Quality © Station C AP SSID Detector S/N Detector Status VER_FPGA: NVFR-mkd4 VER_FPGA: NVFR-mkd4 VER_FPGA: NVFR-mkd4 VER_FPGA: NVFR-mkd4 VER_FPGA: NVFR-mkd4 VER_FPGA: NVFR-mkd4 VER_FPGA: NVFR-mkd4 VER_FPGA: NVFR-mkd4 Collision C Calibration	Full Frame         Width       3328         Height       2816         2816          Flip and Rotate       none         Rotate       none         Flip Horz          Flip Vert          Crop Rows and Columns          30          30          30          Height       3268         Height       2756
Apply	OK Cancel

# 4.1.3 Multi Detector Set Up

Refer to 3 Multi Detector Set Up in Part.2 Service Manual for Multi-Detector Setting.

# 4.2 Image Acquisition

#### 4.2.1 Product Connection

- 1. Connect the detector and turn on the power.
- 2. Open "\_vadav.lnk" from "C:\davinci".
- **3.** Once the detector is connected, information of the detector is displayed in Detector Status and Link & Ready & Calibration are checked as below.

Detector Type	Set Full Frame Width 3328 Height 2816
Numbe Detector #1	Edit Flip Horz ctor S/N Flip Vert
VER_FIRM:         FW-000,003           VER_FPGA:         NvFR-mkd4           VER_FPGA:         LC0E13390025           VER_TFTP:         2AN36052R           VER_SCIN:         28155           VER_BOARD:         0,2	Versions Icq Count Link Ready
	Calibration Result Images Width 3268 Height 2756

- If "Detector Status" does not show anything, please refer to 3.1 Installation in Part.1 User & Installation Manual to connect the detector properly.
- If Calibration is not checked along with black dots checking off "Link" and "Ready" as above, please refer to 3.2 Calibration in Part.1 User & Installation Manual and perform calibration again.

## 4.2.2 Image Acquisition

1. Click the "Calibration & Acquisition" tab and type the name of the image inside the box below. After naming the image, click "Get Image".

🕑 DaVinci detector library	
S Settings 🕢 Calibration & Acquisition @ About	
s1 init sent (mode 1 "Default standard mode") s1 sent command 2h 47:33 05 s2 START_DONE 47:33 27 s2 XRAYSTART 47:33 29 s2 AT_READY Wireless signal : 80 Battery remain : 86 Wireless signal : 88 Battery remain : 86 Wireless signal : 80 Battery remain : 86 Wireless signal : 90 Battery remain : 86 ERR: Abort acquisition 47:47,69 Acquisition closed	<ul> <li>✓iew Images Calibration</li> <li>Acquisition</li> <li>Get Image</li> <li>✓ Offset Calibration</li> <li>✓ Gain Calibration</li> <li>✓ Bad Pix Map</li> <li>← Cut Image</li> <li>← Save Full Frame</li> <li>I3268x2756₩*,raw</li> <li>Image</li> <li>✓ Browse</li> </ul>
Default standard mode	Auxiliary Becent Frame
New Ren Del Edit	Restore Connection
Apply	OK Cancel

2. Shoot an X-ray once the "Acquiring bright frame" window pops up.

Acquiring bright frame
00:12.77 READY

- **3.** An acquired image will be stored in "C:\davinci\I.3268x2756 (127type) or 2440x2992 (140type)" and the name of the file will be "(typed name from Step 1).raw".
- 4. The format of the stored file is 16 bit little-endian order.

# 4.3 View Images

1. Click "View Images"

O DaVinci detector library	
Settings (2) Calibration & Acquisition (2) About	
s1 init sent (mode 1 "Default standard mode") s1 sent command 2h 47:33, 05 x2 START_DONE 47:33, 29 s2 AT_READY Wireless signal : 80 Battery remain : 86 Wireless signal : 88 Battery remain : 86 EARE: 88 Battery remain : 86 Wireless signal : 88 Battery remain : 86 EARE: Abort acquisition 47:47,69 Acquisition closed	View Images         Calibration         Acquisition         Get Image         Offset Calibration         Gain Calibration         Bad Pix Map         Cut Image         Save Full Frame         I3268x2756₩*,raw         Image         Browse
Init Mode #1 Default standard mode	Auxiliary
New Ren Del Edit	Recent Frame Restore Connection
Apply	OK Cancel

2. Another window will be popped up as below.

# Histogram Set Up

C fortune Hitson	1.000	2.14	Contraction and China	Contrast Internation	Careto Careto	2 14	basisti antimi
	702543141 / COleman CAL/ / Her 2 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	199     101     102.5 dor 10.5 mm 1004     101.7 10.7 10.6 100     101.7 10.7 10.6 100     101.7 10.7 10.6 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7	* bra 1002 00 000 1002 00 000 1000 000 100000 100000 10000000 10000000 100000000		160141-(ConstalCarrans 17 곳 : (mai 곳 : (mai 곳 # (s	• 8% 100 511 00 511 00 101 000 100 10 101 000 100 10	No. 100         No. 100           0         000         000         000           0         000         000         000         000           0         000         000         000         000         000           0         000         000         000         000         000         000           0         000 <t< td=""></t<>
	Histogram Max Value Minimum Value				Parameter for Auto	Function	
	1			18 L			

#### Pixel value at certain level

Choose "S" from marked box.



### Profile for horizontal line

Choose "R" from marked box.



# Profile for vertical line

Choose "C" from the marked box.



# 4.4 Additional Function

# 4.4.1 Battery Remain

Once you click "Get Image" under the "Calibration & Acquisition" tab, the Status window will show how much battery remains.

DaVinci detector library	<u> </u>
Settings 🙆 Calibration & Acquisition @ About	
s I init sent (mode 1 "Default standard mode") s1 sent command 2h 47:33,05 s2 START_DONE 47:33,27 s2 XRAYSTART 47:33,27 s2 XRAYSTART 47:33,05 s2 XRAYSTART 47:34,05 s2 XRAYSTART	View Images         Calibration         Acquisition         Get Image         ✓ Offset Calibration         ✓ Gain Calibration         ✓ Bad Pix Map
Battery remain : 86 Wireless signal : 86 Battery remain : 86 Wireless signal : 90 Battery remain : 86 ERR: Abort acquisition 47:47,69 Acquisition closed	<ul> <li>Cut Image</li> <li>Save Full Frame</li> <li>I3268x2756₩★,raw</li> <li>image</li> <li>Browse</li> </ul>
Init Mode #1 Default standard mode	Auxiliary
New Ren Del Edit	Restore Connection
Apply	OK Cancel

## 4.4.2 Wireless signal Strength

Once you click "Get Image" under the "Calibration & Acquisition" tab, the Status window will show the strength of the wireless signal.

DaVinci detector library	
Settings 🙆 Calibration & Acquisition 🕢 About	
s1 init sent (mode 1 "Default standard mode") s1 sent command 2h 47:33, 27 s2 XRAYSTART 47:33, 27 s2 XRAYSTART 47:33, 29 s2 AT.READY Wireless signal : 80 Battery remain : 86 Wireless signal : 88 Battery remain : 86 Wireless signal : 80 Battery remain : 86 Wireless signal : 80 Battery remain : 86 Init Mode #1 Default standard mode	View Images         Calibration         Acquisition         Get Image         Image         Offset Calibration         Gain Calibration         Gain Calibration         Bad Pix Map         Cut Image         Save Full Frame         I3268x2756₩*,raw         image         Browse
New Ren Del Edit	Recent Frame Restore Connection
АррТу	OK Cancel



#### 4.4.3 Sleep Mode

st init sent (mode 1 "Default standard mode") s1 sent command 2h 47:33,05 s2 START_DONE 47:33,27 s2 XRAYSTART 47:33,29 s2 AT_READY Wireless signal: 80 Entrau compine: 80	View Images     Calibration     Acquisition     Get Image
Wireless signal : 88         Battery remain : 86         Wireless signal : 88         Battery remain : 86         Wireless signal : 88         Battery remain : 86         EfR: Abort acquisition         47:47.69 Acquisition closed	<ul> <li>✓ Offset Calibration</li> <li>✓ Gain Calibration</li> <li>✓ Bad Pix Map</li> <li>← Cut Image</li> <li>← Cut Image</li> <li>← Save Full Frame</li> <li>I3268x2756₩+.rav</li> <li>image</li> </ul>
Init Mode #1 Default standard mode	Auxiliary Recent Frame Restore Connection

1. Click "Edit" under the Calibration & Acquisition tab.

2. Under the "Sleep Timeout" setting, enter a designated time for the detector to go into Sleep Mode.

Trigger Mode	
C Manual	Ready Delay : 0 _ 0 msec (0~100000)
	Dynamic Offset Timeout : 0 sec
Auto Trigger	✓ Anti-Shock
Setting	
Window Time :	500 0.5 sec 1 sec 2 sec 3 sec 4 sec
Auto Trigger Thre	schold : 50 LSB (5~100)
Anti-Shock Thres	hold 30 LSB (10~100)
16Bit ADC	
Sleep Timeout :	0 🕂 min (0~180)
Preview 🔽	4x4 Binning
	OK Cancel

- Sleep Mode does not apply when set to zero.
  - Power consumption is reduced by 40% when Sleep Mode is used.
- **3.** To turn off Sleep Mode, attempt to acquire an image or press the power button on the detector just once.



i

A normal image can be acquired after 10 seconds Sleep Mode has been turned off.

\_\_\_\_\_

-----

#### 4.4.4 Preview

1. Click "Edit" under the Calibration & Acquisition tab.

🕐 DaVinci detector library				
S Settings 🙆 Calibration & Acquisition @ About				
s1 init sent (mode 1 "Default standard mode") s1 sent command 2h 47:33 (5 s2 STAFT DONE 47:33 (27 s2 XRAYSTAFT 47:33 (29 s2 AT.FEADY Wireless signal : 80 Battery remain : 86 Wireless signal : 88 Battery remain : 86 Eattery remain : 86 Wireless signal : 90 Battery remain : 90 EATtery remain : 96 EFR: Abort acquisition 47:47,69 Acquisition closed	View Images         Calibration         Acquisition         Get Image         ✓ Offset Calibration         ✓ Gain Calibration         ✓ Bad Pix Map         ○ Cut Image         C Save Full Frame         I3268x2756₩+,raw         Image         Browse			
Default standard mode	Auxiliary			
New Ren Del Edit	Restore Connection			
Арріу	OK Cancel			

2. After checking the Preview and 4x4 Binning, a 4x4 binned image appears which allows for a quicker image preview.

I rigger Mode	
C Manual	Ready Delay : 0 0 msec (0~100000)
	🗖 Dynamic Offset 🛛 Timeout : 🛛 📑 sec
<ul> <li>Auto Trigger</li> </ul>	✓ Anti-Shock
Setting	
Window Time :	500 0.5 sec 1 sec 2 sec 3 sec 4 sec
Auto Trigger Thre	shold : 50 LSB (5~100)
Anti-Shock Thres	nold 30 LSB (10~100)
🗖 16Bit ADC	,
Sleep Timeout :	0
Preview 🔽	4x4 Binning
	OK Cancel



#### 4.4.5 Recent Frame

The last acquired image can be opened by clicking "Recent Frame" under the "Calibration & Acquisition" tab.

🖉 DaVinci detector library	X
S Settings 🕢 Calibration & Acquisition @ About	
s1 init sent (mode 1 "Default standard mode") s1 sent command 2h 47:33 (25 s2 START DONE 47:33 (27 s2 XRAYSTART 47:33 (29 s2 AT_READY Wireless signal : 80 Battery remain : 86 Wireless signal : 88 Battery remain : 86 Wireless signal : 88 Battery remain : 86 Battery remain : 86 Battery remain : 86 Battery remain : 86 Wireless signal : 80 Battery remain : 86 Uniteless signal : 90 Battery remain : 86 ERR: Abort acquisition 47:47,69 Acquisition closed Init Mode #1 Default standard mode	View Images         Calibration         Acquisition         Get Image         ✓ Offset Calibration         ✓ Gain Calibration         ✓ Bad Pix Map         C Cut Image         Save Full Frame         I3268×2756₩*.raw         Image         Browse
New Hen Del Edit	
АррТу	OK Cance I

## 4.4.6 Restore Connection

When the connection between the detector and PC is lost, the connection can be made again by clicking "Restore Connection" under the "Calibration & Acquisition" tab.

O DaVinci detector library	X
Settings A Calibration & Acquisition & About	
s1 init sent (mode 1 "Default standard mode") s1 sent command 2h 47:33, 15 s2 START DONE 47:33, 27 s2 XRAYSTART 47:33, 29 s2 AT_READY Wireless signal : 80 Battery remain : 86 Wireless signal : 88 Battery remain : 86 Wireless signal : 90 Battery remain : 86 EFR: Abort acquisition 47:47,69 Acquisition closed	View Images         Calibration         Get Image         Image         Image         Gain Calibration         Image         Save Full Frame         I3268x2756₩*.raw         Image         Browse
Apply	OK Cancel

## 4.4.7 Image Storage function

1. Press the "Mode select button" twice (within 2 seconds) and click one more time to go to "storage mode".



2. Press the mode select button for 3 seconds to check the status of storaged images.

		3sec		
15 Jul 17:31	Storage		15 Jul 17:31	Storage
WIFI BTN for 3s			A Ready 000/200	

#### Enter Storage Mode

When Storage mode is used if the connection between the detector and PC, the image is stored the memory in the Detector internal
Stored Image can be opened by referring SDK
Image can be stored up to max 200

# 4.4.8 Sharing function

1. Connect the PC and USB IrDA Dongle by using the Micro USB cable.



2. Set vadavas below

![](_page_13_Picture_5.jpeg)

No.	Overview
0	Click "sharing" tab
2	Enter follow thing in order " serial number, IP, bucky number"
3	Click "insert"
4.	Put the SSID and PW of AP
5.	Check "Enable check box"
6.	Click "apply" to save
0	Confirm the connection port in device manager of OS
8	Baud select 115200 and select confirmed port in device manager

**3.** Press the "Mode select button" turn on the detector twice (within 2 seconds) and transfer to "sharing mode".

![](_page_14_Figure_2.jpeg)

- 4. When approaching the detector with USB IrDA connecting to the PC, transfer the Serial Number information of detector.
- 5. Based on the transmitted Serial Number, the CAL folder at the PC is created and the shooting condition is set then USB IrDA of PC transfers IP/SSID information with Detector.
- 6. Detector sets the shooting conditions with the IP/ received SSID.
  - STA Mode: Detector is set by information of wireless router.
  - AP Mode: PC connects to S/N AP Host name's wireless router (Detector).
- 7. If the shooting condition setting is completed, completion status appears at the "OLED window" and "Sharing mode" is turn off.

	RJY2NC2	IrDA LED Color	Status
		Green	Connected PC
$\mathbf{i}$		Blinking Orange	Transfer the data
		End Blinking Turn on Green	Transfer success
		End Blinking Turn off Green	Transfer fail

#### 4.4.9 **OLED** function

8. OLED is operating when detector is turned on.

ė ė	ിന്ന	<b>D</b>	
		 L B B (	

9. Use the Mode select button and Power button can be used OLED function as follows.

	Current Time	Connect AP / STA(St	tion Mode ation) / Wired	Battery	WIFI Signal (Only Station Mode)	
	Operation Mode	15 Jul 17:31 Detector Status	(Wait / Ready )	2clic	k	Normal Menu
	Menu Mode 3sec	Detector Searching	Registration		:k	Sharing Menu
Enter Storage	Mode	15 Jul 17:31 WIFI BTN for	Storage 3s		:k	Storage Menu
Av	railable in	Net Mode : ST Griffon	A SSID		:k	SSID Menu
wi	reless mode	Net Mode : ST Project302	A PSK		:k	PSK Menu
		Net Mode : ST 192.168.1.80	A IP		:k	IP Menu
	1click	Net Mode : ST 255.255.255.0	A Mask		:k	Mask Menu
		Factory Rese WIFI BTN for	et 10s		Run Factory Reset	Factory Reset Menu
			Droop th		act button	
	R	<ul> <li>1 click</li> <li>2 click</li> </ul>	<ul> <li>Press th</li> </ul>	e mode sel	ect button twice (w	ithin 2 seconds)
		10 sec	<ul> <li>Press th</li> </ul>	e mode sel	ect button for 10 se	econds
		1 click	<ul> <li>Press th</li> </ul>	e power bu	tton	
	<ul> <li>Norma</li> </ul>	al menu	<ul> <li>- Will Sh detector</li> </ul>	ow the (Tin	ne / Battery remain	/ Wireless signal) of
ĺ	<ul> <li>Sharin</li> </ul>	g menu	<ul> <li>Operat</li> </ul>	ion the "sha	aring function"	
	<ul> <li>Storag</li> </ul>	e menu	<ul> <li>Operation the "storage function"</li> </ul>			
	SSID	menu	- Will Sh	low the SSI	D information of de	tector
	■ PSK	menu	- Will Sh	low the PSP	K information of det	ector
	■ IP N	lenu	<ul> <li>Will Show the IP information of detector</li> </ul>			
	Mask	menu	<ul> <li>- Will Sh</li> </ul>	low the Mas	sk information of de	etector
	Factory r	eset menu	- Factor	y reset men	u	

# 5. Maintenance

# 5.1 Cleaning

- 1. Clean the detector with IPA (Isopropyl-alcohol) when it is contaminated.
- 2. Before cleaning the detector, turn off the power and separate the battery.
- **3.** Wear waterproof gloves to protect your hands from direct contact with IPA or any other liquid.
- 4. Do not pour or spray IPA directly on the detector. Use fabric or soft cloth moistened with IPA to clean.
- 5. Avoid getting IPA or any other liquid into the detector.
- 6. After cleaning, wait until the IPA is dried completely.

# 5.2 Inspection

 In order to ensure that the detector is used safely and normally, please be sure to inspect the product regularly before use. If any problem occurs, please contact Rayence Customer Service team.

2.	Please	perform	inspections	based o	n the	check	list below.
----	--------	---------	-------------	---------	-------	-------	-------------

Inspection List	U s e r	Vendor	Cycle
Check if cables are not damaged	o		Daily
Check if plugs and connectors are not loose or damaged	0		Daily
Check if cover or part is not damaged	0		Daily
Check the LED indicator	0		Daily
Re-Calibration		0	Half Year
Check the performance of the product by doing test shots with Phantom or resolution chart		0	Yearly

# 5.3 Replaceable Parts and Instruction of Replacement

# 5.3.1 Fuse: T3.15 AL 250V

#### **Replacing the Fuse**

1. Press the fuse as below and pull the fuse box.

![](_page_17_Picture_5.jpeg)

2. Pull the fuse and replace with another fuse.

![](_page_17_Picture_7.jpeg)

- 5.3.2 Power cord: H05VV-F 0.75SQ \* 3C
- 5.3.3 Ethernet Cable: UTP 4PR 24AWG (CAT.6, straight-through)

#### 5.4 **Disposal or Recycling**

Follow local governing ordinances and recycling plans regarding the disposal or recycling of device components.

![](_page_18_Picture_3.jpeg)

**Disposal of old Electrical & Electronic Equipment** 

(Application in the European Union and other European countries with separate collection system.) This symbol indicates that this product shall not be treated as household waste. Instead, it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling this product, please refer to local governing ordinances and recycling plans.

# 6. Warranty

# 6.1 Warranty

If Buyer promptly notifies RAYENCE or Seller regarding any parts that fail to perform as specified under normal usage during the Warranty Period and RAYENCE determines that such failure resulted from a defect in materials or workmanship during the Warranty Period, then RAYENCE, at its option, shall repair, rebuild or adjust the affected parts.

RAYENCE shall have no obligation for any defects to the extent that such defect arises out of (i) normal and fair wear and tear or Product which has been modified without RAYENCE's approval, (ii) Product which has not been installed in strict conformity to the RAYENCE's directions or which have been subjected to electrical or other abuse, or damaged by improper handling, storage or use by Buyer or a third party, (iii) use of Product in combination with devices or products not purchased from RAYENCE; (iv) use or application of Product in a field or in an environment for which such Product was not designed or contemplated; (v) use of any parts or material not provided by RAYENCE; or (vii) force majeure such as natural disaster.

The remedies contained in this warranty are Buyer's exclusive remedies. RAYENCE shall not, in any event or under any circumstances, be responsible for damages or other sums in excess of the total purchase price actually paid by Buyer to Seller i.e., RAYENCE or RAYENCE's authorized agent. Without limiting the generality of the foregoing under no circumstance shall RAYENCE be responsible or liable in any regard with respect to damages from loss of use, loss of time, loss of data, inconvenience, commercial loss, lost profits or savings, or other incidental, special or consequential damages claimed by Buyer to arise out of the use or inability to use the Product, even if Buyer has been advised of the possibility of such damages.

In the event that the product is returned to RAYENCE after the warranty has expired, RAYENCE reserves the right to invoice a reasonable fee for the repair services provided to Buyer.

RAYENCE shall make the sole final determination about whether the fail to perform occurred in normal usage (under warranty) or not (excluded from warranty). If the authorized agent or the Buyer doesn't accept the result of RAYENCE's investigation, the burden of proof is on them.

#### Warranty Procedure

If Buyer needs to make a claim based on this Warranty, Buyer should advise Seller in writing immediately at the following address:

#### RAYENCE Co., Ltd.

- 14, Samsung 1-ro 1-gil, Hwaseong-si, Gyeonggi-do, Korea
- Tel: +82-31-8015-6245
- Fax: +82-31-8015-6300
- E-mail: marketing@rayence.com
- www.rayence.com

# **PART II. Service Manual**

Overview120
FPD Manager Instruction (IP, SSID Set Up /
Firmware, FPGA Update)121
Multi Detector Set Up129
Troubleshooting133

# 1. Overview

This service manual gives additional instructions for setting up the detector.

# 2. FPD Manager Instruction (IP, SSID Set Up / Firmware, FPGA Update)

# 2.1 Detector IP Address Set Up

1. Turn on the power of detector and connect with PC. (IP address: 2.2.2.100)

[Connect as wired mode (IP address: 2.2.2.101) with Link cable or wireless mode (IP address: 2.2.2.100).]

- 2. After the power of detector is on, open "FPD\_Manager.exe".
- 3. Type detector's current IP address at "Detector IP Address" from "Current Setting" as below.

![](_page_23_Picture_7.jpeg)

Detector's Ethernet Controller is operated with Second IP address, 192.168.124.80.

2D Manager V1.0.2.5 Engin	eering (build 1.6.4.22)			
Current Setting Detector IP Address	2.2.2.	100	Get Curren	it Settings
IP Change     Change to				
Wired IP address	0.0.0.	0		
Subnet Mask	0.0.0.	0		
Wireless IP address	0.0.0.	0		
Station Mode Setup Setting External AP's SSID P5K (Pre-Shared Key) Emptying Stroage Fi	older in Detector	AP Mode : Setting Host. SSI Set "Op PS (Pre-Shar Frequ	Setup	without P5K)
Firmware/FPGA Update	Uploading	(Gł	12)	
		5	elect 🛛 🗖 F	Preserve current setting
FPGA		5	elect	
Engineering	1	1		Start Setting
Extension Parameters Shock Detection History	Aging History Remove Shock Record			
				Exit

4. Select "IP change" and type the IP address. Click "Start Setting".

FPD Manager V1.0.2.5 Engin	eering (build 1.6.4.22)		
Current Setting Detector IP Address	2.2.2.	100 Get	t Current Settings
IP Change     Change to     Wired IP address     Subnet Mask	2 . 2 . 2 . 255 . 255 . 255 .	80 0	
Station Mode Setup Setting External AP's SSID PSK (Pre-Shared Key)		AP Mode Setup Setting HostAP's SSID Set "Open Net PSK	:work" (without PSK)
Emptying Stroage Fo	lder in Detector	(Pre-Shared Key Frequency (Ghz)	
Firmware/FPGA Update		Select	Preserve current setting
Engineering Extension Parameters	Aging History	Select	Start Setting
Shock Detection History	Remove Shock Record		Exit

5. Click "OK" once the message below pops up.

![](_page_24_Picture_4.jpeg)

6. Click "OK" again once the message below pops up.

![](_page_24_Picture_6.jpeg)

7. Turn off the power of the detector and after 5 seconds, turn the power back on.

# 2.2 SSID, PSK (Pre-Shared Key) Set Up

.....

1. Turn on the power of the detector and connect it to the PC. (IP address: 2.2.2.100)

[Connect as wired mode (IP address: 2.2.2.101) with Link cable or wireless mode (IP address: 2.2.2.100).]

- 2. After the power of detector is on, open "FPD\_Manager.exe".
- **3.** Type the detector's current IP address in "Detector IP Address" from "Current Setting" as below.

FPD Manager V1.0.2.5 Engineering (build 1.6.4.22)	
-Current Setting	
Detector IP Address 2 . 2 . 2	. 100 Get Current Settings
IP Change	
Change to	
Wired IP address 2 . 2 . 2	. 80
Subnet Mask 255 . 255 . 255	. 0
Station Mode Setup	AP Mode Setup
External AP's Griffon	HostAP's EFR016080012
PSK project392	
(Pre-snared Key)	PSK (Pre-Shared Key)
Emptying Stroage Folder in Detector	(Ghz) 11n/2.4G/Auto v
Firmware/FPGA Update	
Firmware	Select Preserve current setting
FPGA	
	Select
Engineering	
Extension Parameters Aging Histor	y Start Setting
Shock Detection Remove	
	Exit

4. Current SSID and PSK (Pre-Shared Key) is displayed once the "Get Current Settings" button is pressed.

Select "Station Mode Setup" and "AP Mode Setup". Type the SSID and PSK, and click 5. "Start Setting".

	2 . 2 . 2 . 100	Get Current Settings		
IP Change				
Change to	2 2 2 2			
Wired IP address	2 . 2 . 2 . 80			
Subnet Mask	2 2 2 2 91			
Wireless IP address	2 . 2 . 2 . 01			
☑ Station Mode Setup	I▼ AP	Mode Setup		
-Setting	Settin	ig		
External AP's Griffon SSID		HostAP's SSID EFR01608001	12	
PSK project393	2 5	Set "Open Network" (without PS	к)	
	(Pr	PSK project302		
Emptying Stroage Fold	er in Detector	(Ghz) I1n/5G/Auto	<b>_</b>	
Eirmunes (EDCA Lindata	Jploading			
Firmware				
		Select 🗖 Preserve c	urrent setting	
-FPGA-				
		Select		
,				
, Engineering				
, Engineering Extension Parameters	Aging History	Start	Setting	
, Engineering Extension Parameters Shork Detection	Aging History	Start	Setting	
Engineering Extension Parameters Shock Detection History	Aging History Remove Shock Record	Start	Exit	

![](_page_26_Picture_3.jpeg)

-----

- AP Mode Setup: When built-in AP is being used, use the same SSID and PSK as applied.
- Frequency (Ghz): Default Channel is set to 11n/2.4G/Auto. (802.11n/2.4Ghz/ACS). The ACS (Automatic Channel Selection) feature is setting automatically channel for good AP Mode connection quality. If the Channel causes conflict, the channel can be changed through this program.
- 6. Click "OK" once the message below pops up.

![](_page_26_Picture_7.jpeg)

7. Turn off the power of detector and after 5 seconds, turn the power back on.

\_\_\_\_\_

......

# 2.3 Firmware, FPGA Update

1. Turn on the power of the detector and connect it to the PC.

[Connect as wired mode (IP address: 2.2.2.101) with Link cable or wireless mode (IP address: 2.2.2.100).]

- 2. After the power of detector is on, open "FPD\_Manager.exe".
- **3.** Type the detector's current IP address in "Detector IP Address" from "Current Setting" as below.

![](_page_27_Picture_6.jpeg)

.....

Detector's Ethernet Controller is operated with Second IP address, 192.168.124.80.

) Manager V1.0.2.5 Engin	eering (build 1.6.4.22)	
Current Setting Detector IP Address	2.2.2.	. 100 Get Current Settings
IP Change		
Wired IB address	2 2 2 2	80
Subpet Mask	255 . 255 . 255 .	- 0
Wireless IP address	2.2.2.	. 81
Station Mode Setup		AP Mode Setup
External AP's Griffon PSK (Pre-Shared Key) project Emptying Stroage Fo	392 Jider in Detector	HostAP's EFR016080012 SSID SET "Open Network" (without PSK) PSK (Pre-Shared Key) Project302 Frequency (Ghz) 11n/2.4G/Auto V
Firmware/FPGA Update	Uploading	
		Select Preserve current setting
FPGA		Select
Engineering		
Extension Parameters	Aging History	y Start Setting
Shock Detection History	Remove Shock Record	d
		Exit

Select "Firmware/FPGA Update" and click "Select" to browse the Firmware and FPGA. 4. Once the files are selected, click "Start Setting".

Detector IP Address	2 . 2 . 2	. 100 G	et Current Settings
IP Change			
Change to			
Wired IP address	2.2.2	. 80	
Subnet Mask	255 . 255 . 255	. 0	
Wireless IP address	2 . 2 . 2	. 81	
-			**
Station Mode Setup		AP Mode Setur	þ
External AP's		HostAP's	EER016080012
SSID		SSID	LI 10 100 00 12
(Pre-Shared Key)	t392	🔲 Set "Open N	etwork" (without PSK)
		PSK (Pre-Shared K	ey) project302
		1 -	
Emptying Stroage F	Folder in Detector	(Ghz)	11n/5G/Auto 👻
	Uploading		
Firmware/FPGA Opdate			
E:\1717WCC_127_027	pfa 1. tar	Select	Preserve current settin
		Select	
Engineering	1	1	Start Setting
	A size of Dates	w l	
Extension Parameters	Aging Histor	,	

![](_page_28_Picture_3.jpeg)

FPGA file: File extension is bin.

Click "OK" once the message below pops up. 5.

![](_page_28_Picture_6.jpeg)

Turn off the power of detector and after 5 seconds, turn the power back on. 6.

![](_page_28_Picture_8.jpeg)

Detector IP address might be changed to 192.168.1.80 after updating depends on Firmware.

# 2.4 Set Windows Firewall to use FPD\_Manager (For Win 7)

![](_page_29_Picture_2.jpeg)

FPD\_Manager would not be performed properly if Windows Firewall blocks FPD\_Manager. Please follow the steps below in this case.

1. 'Control Panel' -> 'Windows Firewall' -> 'Allow an app or feature through Windows Firewall'

![](_page_29_Picture_5.jpeg)

2. Check "Name", "Private" and "Public" if FPD\_Manager program is already on the list. Click "Allow another app..." when FPD\_Manager program is not on the list.

e e e e e e e e e e e e e e e e e e e	Allowed apps			-	□ ×
€ ⊕ • ↑		v 0 9	Search Cor	ntrol Panel	Q,
	Allow apps to communicate through Windows Firewall To add, change, or remove allowed apps and ports, click Change settings.				
	What are the risks of allowing an app to communicate?	😗 Cha	nge settin	igs	
	Allowed apps and features:				
	Name	Private	Public	^	
	☑ FileServer ☑ FileServer ☑ FileServer		N		
	☑ FPD_Manager				
	Google Talk Plugin Internet Explorer ItsCst Java(TM) Platform SE binary Gava(TM) Platform SE binary Gava(TM) Platform SE binary Games HomeGroup	                             			
		Details Allow a	Re <u>m</u> ov	e p	
		ОК	Cano	el	

3. Select the program and add if it is already on the list. Click "Browse" when the program is noon the list.

Apps:		
🎽 Air 🛛	'ideo Server	· · · · · · · · · · · · · · · · · · ·
Blen	d for Visual Studio 2012	
Build	Notifications	
Calc	ulator	
AT Cha	racter Map	
cu. Com	mand Prompt	
Con	figuration	
≝ Con	figure Java	
() DAE	MON Tools Lite	
Dot	uscator and Analytics	
Flas	h Player Pro	
atta:	C. WAROUTE WAING - Convert WAING - Com	Duran
auti	C: WMOVIE WAIrvideoServer WAIrvideoServ	er. Browse

4. Browse and open FPD\_Manager program and repeat step ②.

· 찾아보기				44.5		I	×
	_Manager_v1	.0.0.5_140923		• 4 <sub>7</sub>	FPD_Manage	r_v1.0.0.5_140	9 P
Organize 👻 🍃 🖓	)pen					•	0
Se Favorites	^ Nam	e	Date modi	fied Typ	e	Size	
Desktop	1	PD_Manager_v1.0.0.5_140923	2014-09-2	23 오후 응용	· 프로그램	1,856K8	
Libraries Documents Music Pictures Videos	II						
Homegroup Computer Local Disk (C:)	-						
	File <u>n</u> ame:	FPD_Manager_v1.0.0.5_1409.	23	•	응용 프로그램( Open	*.exe;*.com;*.i	

# 3. Multi Detector Set Up

- 1. Open "\_vadav.lnk" from "C:\davinci".
- 2. Click "Edit" under the "Settings" tab.

🕐 DaVinci detector library	
Settings Acquisition & Acquisition	
Detector Type C Single  Model Sensor IP 192.168.1.80 Number Detector #1 Ureless Link Quality  Station  AF SSID AP_SSID Detector Status Check the connection of the detector Acq Count Battery Cycle C Link C Ready C Calibration	Full Frame Width 3072
Apply	OK Cancel

3. Select "Detector #1". Choose the product model and type the IP address.

1	Multi Detector
	O Detector #
	192.168. 1 . 80 Edit
1	
	C Detector #2
1	▼ 192.168.1.81 Edit
	C Detector #3
	▼ 192.168.1.82 Edit
l	
	OK Cancel

4. Click "Edit" from "Detector #1". Set up the "Trigger Mode" and "Setting".

Mode 1 "Default stand	dard mode"
- Trigger Mode C Manual	Ready Delay : 0 0 msec (0~100000)
Auto Trigger	Anti-Shock
-Setting	Foo 05 sed 1 sec 2 sec 3 sec 4 sec
Auto Trigger Thresh	old : 50 LSB (5~100)
16Bit ADC	
Sleep Timeout : V Preview V	0 : min (0~180) 4x4 Binning
Storage mode	

5. Select "Detector #2". Choose the product model and type the IP address.

Multi Detector		×
C Detector #1 [47]1417WCC-R.par	▼ 192.168.1.80	Edit
Detector #2  [48]1417WGC-R.par	▼ 192.168.1.81	Edit
C Detector #3	▼ 192.168.1.82	Edit
	OK	Cancel

6. Click "Edit" from "Detector #2". Set up the "Trigger Mode" and "Setting".

- Trigger Mode	Beadu Delau : Io	
		msec (0**100000)
	Dynamic Offset Timeout : 3600	sec
<ul> <li>Auto Trigger</li> </ul>	🔽 Anti-Shock	
- Setting		00
Window Time :	500 0.5 sec 1 sec 2	sec 3 sec 4 sec
Auto Trigger Thres	nold : 50 LSB (5~1	100)
Anti-Shock Thresh	old 30 LSB (101	~100)
	1	
I TODICADO	-	
Sleep Timeout :	0 📩 min (0~180)	
Preview 🔽	4x4 Binning	
Storage mode		

7. If a third detector is being used, select "Detector #3". Choose the product model and type the IP address.

Multi Detector		x
O Detector #1		
[47]1417WCC-R.par	▶ 192.168.1.80	Edit
C Detector #2		
[48]1417WGC-R.par	▼ 192.168.1.81	Edit
C Detector #3		
[36]1717SGC-R.par	▼ 192.168.1.82	Edit
	ОК	Cancel

8. Click "Edit" from "Detector #3". Set up the "Trigger Mode" and "Setting".

Mode 1 "Default star	idard mode"
- Trigger Mode Manual	Ready Delay : 0 0 msec (0~100000)
C Auto Trigger	🗖 Dynamic Offset 🛛 <b>Timeout</b> : 🛛 3600 📑 sec 🗖 Anti-Shock
- Setting Window Time :	500 0.5 sec 1 sec 2 sec 3 sec 4 sec
Auto Trigger Thres Anti-Shock Thresh	hold : 30 LSB (5~100) old 30 LSB (10~100)
☐ 16Bit ADC Sleep Timeout :	,
<ul><li>✓ Preview</li><li>✓ Storage mode</li></ul>	4x4 Binning
	OK Cancel

9. Choose the detector from the "Number" option and perform the calibration.

Settings A Calibratio	n & Acquisition   🥹	About	
Detector Type			Full Frame
C Single 🔍 N	lulti		Width 3328
Model [47]1417WCC	-R.par	▼ Set	Height 2816
Sensor IP 192 . 168 .	1.80		- Flip and Rotate
Number Detector #1		▼ Eda	Rotate none 💌
Detector #1			Flip Horz
Wireless Lir Detector #2		SSID	Flip Vert
Detector Status			Crop Rows and Columns
Check the connection of	f the detector	<ul> <li>Versions</li> </ul>	30 -
		Acq Count	
		Battery Cycle	
			30 🗄
		▼ C Link	Result Images
	F	C Ready	Width 3268
		C Calibration	Height 2756
Apply			OK Cance

- The calibration folder is named according to the third and fourth numbers of the IP address. (e.g. C:\Davinci\CAL\_01\_80)
- For further instructions on calibration, please refer to 0
- Calibration in Part.1 User & Installation Manual.

# 4. Troubleshooting

If any problem occurs during the usage of the product, please use this chapter as a trouble shooting guide.

Follow the instructions to resolve the problem. If the problem is not resolved, please contact our Rayence Customer Service team (E-mail: marketing@rayence.com).

# 4.1 LAN Connection Issue

#### 1. Wireless Mode

- 1. Check the power
- Make sure the remaining battery percentage is above 25%.
- Check that the power of the detector is on.
- 2. Check the AP (Access Point) IP setting

Make sure the AP (Access Point) is set up as recommended.

- SSID: Griffon
- Internal network
  - IP address: 2.2.2.1
  - Subnet mask: 255.255.255.0
  - Dynamic IP allocation range: 2.2.2.2 ~ 2.2.2.254
- Pre-Shared Key(PSK): project302
  - Authentication methods: WPAPSK or WPA2PSK
  - Password methods: TKIP/AES
- Channel (Frequency)
  - Avoid the crowded channel option.
  - Use the "Auto-Channel selection" function if the external AP has the feature.

3. Check PC Set up

Make sure that the "Obtain an IP address automatically" is selected from "Internet Protocol Version 4 (TCP/IPv4)".

Internet Protocol Version 4 (TCP/IPv4) Properties					x	
General Alternate Configuration						
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.						
Obtain an IP address automatic	Obtain an IP address automatically					
C Use the following IP address:-						
IP address:						
Sybnet mask:		•	•			
Default gateway:		•				
Obtain DNS server address automatically						
$\square \bigcirc$ Use the following DNS server as	ldresse	::::::::::::::::::::::::::::::::::::::				
Preferred DNS server:						
<u>A</u> lternate DNS server:		•				
Validate settings upon exit						
			OK		Cancel	

## 2. Wired Mode

1. Check the power

Check the link cable and the power cord are connected properly

 $\Box$  Check that the power of the detector is on.

2. Check PC Set up

Make sure that the IP address is set to"2.2.2.20" from "Internet Protocol Version4 (TCP/IPv4)"

neral			
ou can get IP settings assigned is capability. Otherwise, you no or the appropriate IP settings.	automatically if your network supports eed to ask your network administrator		
C Obtain an IP address automatically			
Use the following IP addres	is:		
IP address:	2 . 2 . 2 . 20		
Sybnet mask:	255.0.0.0		
Default gateway:			
<ul> <li>Obtain DNS server address</li> <li>Use the following DNS server</li> </ul>	automatically er addresses:		
Preferred DNS server:			
Preferred DNS server:			

# 4.2 Lost IP Address (Use one of the methods below)

- 1. Use a second IP address (192.168.124.80) and change the IP address
- 2. Press the "Reset" button to reset the IP address. (Default IP : 2.2.2.100)

# 4.3 Auto Trigger Mode

Follow these instructions when the panel auto triggers on its own and/or unintentionally acquires blank images.

- 1. Open "\_vadav.lnk" from "C:\davinci".
- 2. Click the "Calibration & Acquisition" tab.

DaVinci detector library	
Settings 🔇 Calibration & Acquisition @ About	
	Calibration
	Acquisition
	Offset Calibration
	Gain Calibration Bad Pix Map
	<ul> <li>Cut Image</li> <li>Save Full Frame</li> </ul>
	13268x2756\*.raw
	image Browse
Init Mode #1	Auxiliary
New Ren Del Edit	Recent Frame Restore Connection
Apply	OK Cancel

- 3. Click "Edit".
- 4. Change "Auto Trigger Threshold" from 5 to 100 and click "OK".

C Manual	Ready Delay :	n 🖃	n ms	
				,0000
	L Dynamic Of	iset Timec	ut:   3600 🖃	sec
Auto Trigger	🔽 Anti-Shock			
0. W				
Setting				
Window Time :	500	0.5 sec	1 sec 2 sec	3 sec 4
Auto Trigger Thresh	old : 50		LSB (5~100)	
Anti-Shock Thresho	ld I30		LSB (10~100)	
	- [50		,	
16Bit ADC				
Sleep Timeout :	0	📩 min (01	~180)	
Preview 🔽	x4 Binning			

![](_page_38_Picture_9.jpeg)

The Auto Trigger Threshold default value are 50 for CsI models and 30 for GdOS models

# **Supplement.1 Wireless AP Set Up Instruction**

(WAP Model: ASUS RT-AC66U)

1. Connect the LAN cable from the Ethernet port #1 on the PC to the Ethernet port #1 on the AP.

## 2. Access AP Set Up Page

- 1. Open a web browser. Once type 192.168.1.1. In the browser address bar a login window appears.
- 2. Enter the ID and password.
- 3. Click "Ok".

[ID: admin | PW: admin]

IP address for the first access is 192.168.1.1. After changing the IP address to 2.2.2.1, use IP address 2.2.2.1 for accessing.

C 7 C Annu 19216911 Man Loga and and difficulture and an an an and an	
에 NGC T 법사와 보이지와 방어있어야 보이며 전 가격하는 이 가격하는 이 사실 NAVER 📑 네이터 영어사원 (NAVER	L. 👷 System Diebloard - 2 R. 👰 System 🛁 - Vale. 🔘 Chini XenApp - 王三音 🛞 賞 王代 聖台村
D.	SIGN IN
	RT-AC66U
	Sign in with your ASUS router account
	Sign in 3
and the second se	

- 3. Click the "Setup" tab, and then click the "Basic Setup" page.
  - 1. Type 2.2.2.1 at "IP Address".
  - 2. Type 255.255.255.0 at "Subnet Mask".
  - 3. Click "Apply".

	👸 × ۍ - ۹	ASUS Wireless Router RT-A ×	
r N NAVER N 네이버 영어사전 (NA	.VER  文 System Dashboard - 고객 文 Syste	em Dashboard - Vate 🕝 Citrix XenApp - 로그온 🧃 웹 조각 :	갤러리
/ISLIS RT-AC66U	Logout Rebo	ot	English 🔻
Quick Internet	Operation Mode: <u>Wireless router</u> Firm SSID: <u>Griffon</u> <u>Griffon_SG</u>	nware Version: <u>3.0.0.4.378_9533</u>	\$\$ ⊡ <b>\$</b>
General	LAN IP DHCP Server Route IPTV	Switch Control	
🔠 Network Map	LAN - LAN IP Configure the LAN setting of RT-AC66U		
Guest Network	IP Address	192.168.1.1	
Traffic Manager	Subnet Mask	255.255.255.0	
Parental Controls		Apply	
USB Application			
AiCloud 2.0			
Advanced Settings			
🚮 LAN			
🕀 WAN			
ipv6			

# 4. Click the "Wireless" tab, and then click the "Basic Wireless Settings" page.

Set up Wireless Settings as below.

(SSID: Griffon, WPA2-Personal, Pre-Shared Key: project302)

/ISUS RT-AC66U	Logout Reboo	et English 🔻
Quick Internet	Operation Mode: <u>Wireless router</u> Firm SSID: <u>Griffon</u> <u>Griffon_5G</u>	ware Version: <u>3.0.0.4.378_9533</u>
Setup	General WPS WDS Wireless MAC	Filter RADIUS Setting Professional
General	Wireless - General	
🔠 Network Map	Set up the wireless related information below	
Guest Network	Band	2. 4GHz 💌
Manager Traffic Manager	SSID	Griffon
Parental Controls	Hide SSID	● Yes O No
	Wireless Mode	Auto 💽 🖬 Optimized for Xbox 🗹 b/g Protection
	Channel bandwidth	20/40 MHz 💌
AiCloud 2.0	Control Channel	Auto  Current control channel: 6
Advanced Settings	Extension Channel	Auto 🔽
察 Wireless	Authentication Method	WPA2-Personal
<u></u>	WPA Encryption	AES 🔽
ហៃ LAN	WPA Pre-Shared Key	project302
💮 wan	Network Key Rotation Interval	3600
IPv6		Apply

# Supplement.2 Recommended Generator Specification

Model	Manufacture	Specification					
			32kW	40kW	50kW		
CMP 200	Lommunications & Power Industries	kVp	40-	40-150			
		mA	10-400	10-500	10-630		
EDITOR HFe 501	Rontgenwerk Bochum	kVp	40-150				
	0	mA	10-630				
		kVp	40-150				
UD150L-40E/40F	Shimadzu	mA	@100 kVp- 500(320)				
			@80 kVp- 630(400)				
PXR-321B	Poskom Co.,Ltd.	kVp	125/150				
		mA	500				

![](_page_42_Picture_2.jpeg)

To our best knowledge, the detector is compatible with the X-ray generators with the specifications described above. If you have questions regarding the compatibility issue for other generators which are not listed above, please contact your Rayence representative.

# Supplement.3 Recommended exposure condition table

For 1417WCC

# Table of Exposure Condition

		050147010			011011									
		P	EDIATR	IC	SMAL	L(BMI=ud	er 18.4)	MIDDL	E(BMI=18	3.5~29.9)	LARG	iE(BMI=ov	/er 30.0)	
			kVp	mA	mAs	kVp	mA	mAs	kVp	mA	mAs	kVp	mA	mAs
Head		AP	70	200	16	70	200	16	70	200	20	72	200	20
	Skull	Lateral	70	200	12	70	200	10	70	200	20	72	200	24
		Town's	72	200	16	74	200	20	74	200	25	80	200	28
		PA	65	200	12	70	200	16	70	200	20	72	200	20
	Mandible	Axial Lateral	65	200	12	70	200	16	70	200	20	72	200	20
		Town's	72	200	16	74	200	20	74	200	25	74	200	28
	Nasal Lateral		48	100	3.2	48	100	3.2	48	100	4	55	100	4
	Zygomati	c Arch Axial	70	200	12	70	200	16	70	200	20	72	200	20
		Waters	70	200	16	74	200	20	74	200	25	74	200	30
	PNS	Caldwell	70	200	16	74	200	20	74	200	25	74	200	30
		Lateral	70	200	12	70	200	16	70	200	20	75	200	20
Facial		Law	70	200	12	74	200	20	74	200	25	74	200	30
	Mastoid	Sterivers	70	200	12	74	200	20	74	200	25	74	200	30
		Town's	70	200	12	74	200	20	74	200	25	74	200	30
	T-M Joint	Lateral	70	200	12	70	200	16	70	200	20	75	200	24
		Town's	/0	200	12	/4	200	20	/4	200	25	/4	200	30
		AP	90	100	4	100	200	4	100	200	4	110	250	6.3
	Chest	PA	90	100	4	100	200	4	100	200	4	110	250	6.3
		Lateral	100	200	4	110	200	4	110	250	6.3	115	250	8
Chest	<u> </u>	Apico	100	200	4	110	200	4	110	200	6.3	115	250	8
	Upper Rib	AP Obligue	00	250	8	66	320	16	66	320	20	75	320	32
		Oblique	66	250	10	66	320	20	66	320	20	/5	500	36
	Lower Rib	Obligue	66	200	10	66	320	20	00	320	20	75	500	30
	0.	Oblique	00	200	10	75	320	20	75	320	20	70	200	30
		ipine	66	320	16	/0	450	40	/0	450	40	72	200	20
		(UB	60	320	10	80	450	40	80	450	40	80	500	28
		AD	00	100	0	75	200	16	75	200	20	75	200	40
Abdomen	Pelvis	Lateral	66	200	12	75	250	25	80	250	25	80	250	30
			66	100	10	75	200	20	75	200	25	80	200	25
	Hip	Lateral	66	200	12	75	250	25	90	250	25	90	250	20
	Dec	ubitus	66	250	12	66	320	16	66	320	20	72	200	25
		ΔP	66	100	1	70	100	63	73	100	10	73	100	14
		Lateral	66	100	4	70	100	6.3	73	100	10	75	100	32
	C-spine	Oblique	66	200	4	70	200	6.3	75	200	10	74	200	24
Upper		Open Mouth	66	200	8	75	200	20	75	200	25	80	200	25
Trunk		AP	66	200	8	75	200	20	75	200	25	74	200	30
		Lateral	66	200	12	80	200	30	80	200	36	85	200	40
	T-spine	Oblique	66	200	8	74	200	20	74	200	25	85	200	30
		Swimmer	66	200	8	74	200	16	74	200	20	85	200	25
	L-spine	AP	66	100	10	73	200	20	73	200	20	85	200	32
		Lateral	66	100	16	85	200	50	85	200	50	95	250	63
		Oblique	66	100	10	80	200	20	80	200	20	85	200	45
Lower Trunk		Cone Down	66	100	10	73	200	20	73	200	20	80	200	45
	Sector	AP	66	100	8	73	200	20	73	200	20	80	200	40
	Gacrum	Lateral	66	100	12	80	200	16	80	200	20	85	200	45
	Coccyy	AP	66	100	8	73	200	20	73	200	20	80	200	40
	COCC.JA	Lateral	66	100	12	80	200	14	80	200	20	85	200	45
	Hand	AP	45	100	3.2	45	100	3.2	45	100	3.2	45	100	4
Upper Extrimity	Wrist	AP	45	100	3.2	48	100	3.2	48	100	3.2	73	100	3.2
	Foream	AP	45	100	3.2	50	100	3.2	50	100	3.2	73	100	3.2
	Elbow	AP	45	100	4	50	100	4	50	100	4	73	100	4
	Humerus	AP	45	100	4	50	100	4	50	100	4	50	100	6.3
	Shoulder	AP	45	100	4	55	100	5	55	100	5	60	100	6.3
	Clavicle	AP	45	100	4	55	100	5	55	100	5	55	100	5
	Scapula	AP	45	100	4	66	100	4	66	100	4	73	100	4
	Toe	AP	45	80	3.2	48	80	3.2	48	80	3.2	48	80	3.2
	Foot	AP	45	100	3.2	48	100	3.2	48	100	3.2	48	100	3.2
	Ankle	AP	45	100	4	52	100	4	52	100	4	52	100	4
Lower	Tibia	AP	45	80	3.2	48	80	3.2	48	80	3.2	48	80	4
Extrimity	Knee	AP	55	100	8	66	100	8	66	100	8	70	100	10
	Mei	rcnant	45	100	3	52	100	3	52	100	3	52	100	3
	Femur	AP	55	100	6	66	100	6	66	100	6	66	100	6
	I Calcanus	AXI81	4.5	80	4	48	00	4	48	80	4	416	1 80	

\*BMI- [weight(kg)] / [height(m)]<sup>2</sup>

#Table of exposure condition above could be changed depends on the body shape of a patient and spec of generator. #Please follow the expert when shooting and find the table of exposure condition above just as a reference.

#### For 1417WGC

# Table of Exposure Condition

\*BMI- [weight(kg)] / [height(m)]<sup>2</sup>

		PEDIATRIC			SMALL(BMI=under 18.4)			MIDDLE(8MI=18.5~20.0)			LARGE(BMI-over 30.0)			
		kVp	mA	mAs	kVp	mA	mAs	kVp	mA	mAs	kVp	mA	mAs	
Head		AP	70	200	16	70	200	16	70	200	20	72	200	20
	Skull	Lateral	70	200	12	70	200	10	70	200	20	72	200	24
		Town's	70	200	16	70	200	16	70	200	16	72	200	20
		PA	65	200	12	70	200	16	70	200	20	72	200	20
	Mandible	Axial Lateral	65	200	12	70	200	16	70	200	20	72	200	20
		Town's	72	200	16	74	200	20	74	200	25	74	200	28
	Nasal	Lateral	48	100	3.2	60	100	10	70	100	13	70	100	13
	Zygomatic Arch Axial		70	200	12	70	200	16	70	200	20	72	200	20
	DND	Caldwall	70	200	16	74	200	20	74	200	20	74	200	30
	FNO	Lateral	70	200	10	74	200	16	74	200	20	74	200	20
		Law	70	200	12	74	200	20	74	200	25	74	200	30
Facial	Mestoid	Stenvers	70	200	12	74	200	20	74	200	25	74	200	30
		Town's	70	200	12	74	200	20	74	200	25	74	200	30
	T.M. Island	Lateral	70	200	12	70	200	16	70	200	20	75	200	24
	I-M Joint	Town's	70	200	12	74	200	20	74	200	25	74	200	30
		AP	90	100	4	100	200	4	100	200	4	110	250	6.3
	Chest	PA	90	100	4	100	200	4	100	200	4	110	250	6.3
		Lateral	100	200	4	110	250	4	110	250	6.3	115	250	8
Chest		Apico	100	200	4	110	250	4	110	250	6.3	115	250	8
	Upper Rib	AP	66	250	8	66	320	16	66	320	20	66	320	32
			66	250	10	66	320	20	66	320	25	/5	500	36
	Lower Rib	Obligue	66	250	× 2	66	320	20	66	320	20	/0	500	30
	80	pine	66	320	16	75	450	40	75	450	45	75	450	50
	Erect		66	320	16	80	450	40	80	450	45	80	500	50
	K	UB	66	320	16	75	450	36	75	450	40	75	500	63
		AP	66	100	8	75	200	16	75	200	20	75	200	40
Abdomen	Pelvis	Lateral	66	200	12	75	250	25	80	250	25	80	250	30
	Him	AP	66	100	10	75	200	20	75	200	25	80	200	25
	Lateral		66	200	12	75	250	25	80	250	25	80	250	30
	Dec	ubitus	66	250	12	66	320	16	66	320	20	72	200	25
		AP	65	200	4	65	200	6.3	73	200	20	73	200	22
	C-spine	Lateral	65	200	4	75	200	14	75	200	16	75	200	30
		Oblique	65	200	4	/5	200	14	/5	200	16	65	200	24
Upper	T-spine	Open Mouth	66	200	8	/5	200	20	/5	200	25	80	200	25
TIMIN		AF Lateral	00	200	12	90	200	20	70	200	20	95	200	40
		Oblique	66	200	8	74	200	20	74	200	25	85	200	30
		Swimmer	66	200	8	74	200	16	74	200	20	85	200	25
	L-spine	AP	66	100	10	73	200	20	73	200	20	85	200	32
		Lateral	66	100	16	85	200	50	85	200	50	95	250	63
		Oblique	66	100	10	80	200	20	80	200	20	85	200	45
Lower		Cone Down	66	100	10	73	200	20	73	200	20	80	200	45
Trunk	Sacrum	AP	66	100	8	73	200	20	73	200	20	80	200	40
		Lateral	66	100	12	80	200	16	80	200	20	85	200	45
	Соссух	AP	66	100	8	73	200	20	73	200	20	80	200	40
	Cianos	Lateral	66	100	12	80	200	14	80	200	20	85	200	45
Upper Extrimity	Hand	PA PA	40	100	2.5	45	100	2.0	50	100	3.2	52	100	3.2
	Wrist	PA	45	100	3.2	40	100	3.2	48	100	32	73	100	32
	Forearm	AP	45	100	3.2	50	100	3.2	60	100	6.3	65	100	6.3
	Elbow	AP	45	100	4	50	100	4	60	100	5	65	100	6.3
	Humerus	AP	45	100	4	50	100	4	60	100	5	65	100	6.3
	Shoulder	AP	45	100	4	55	100	5	55	100	5	60	100	6.3
	Clavicle	AP	45	100	4	55	100	5	55	100	5	55	100	5
	Scapula	AP	45	100	4	66	100	4	66	100	4	73	100	4
	Toe	AP	45	100	3.2	48	100	3.2	48	100	3.2	48	100	3.2
	Foot	AP	45	100	3.2	48	100	3.2	65	100	6.3	65	100	6.3
Ι.	Ankle	AP	45	100	4	52	100	4	58	100	5	58	100	5
Lower	Tibia	AP	45	100	4	52	100	4	52	100	4	52	100	5
Extrimity	Knee AP		45	100	4	52	100	4	55	100	4	60	100	6
	Formure	AD VD	45	100	4	52	100	4	00	100	4	55	100	4
I	Femul	AF	00	100	0	00	100	0	00	100	0	00	100	0

![](_page_45_Picture_1.jpeg)

 14, Samsung 1-ro 1-gil, Hwaseong-si, Gyeonggi-do, Korea

 Tel: +82-31-8015-6245
 Fax: +82-31-8015-6300
 E-n

 www.rayence.com

E-mail: marketing@rayence.com