

Nanjing Jusha Display Technology Co., Ltd. % Donny Lee Certification Engineer 8A, Block 1. Nanjing International Service Outsourcing Mansion, No. 301, Hanzhongmen street Nanjing, Jiangsu 210036 CHINA

June 7, 2023

Re: K231170

Trade/Device Name: C350/C350G LCD Monitor; M550/M550G LCD Monitor

Regulation Number: 21 CFR 892.2050

Regulation Name: Medical image management and processing system

Regulatory Class: Class II

Product Code: PGY Dated: April 25, 2023 Received: April 25, 2023

Dear Donny Lee:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. Although this letter refers to your product as a device, please be aware that some cleared products may instead be combination products. The 510(k) Premarket Notification Database located at https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm identifies combination product submissions. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the <u>Federal Register</u>.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part

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801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803) for devices or postmarketing safety reporting (21 CFR 4, Subpart B) for combination products (see https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820) for devices or current good manufacturing practices (21 CFR 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to https://www.fda.gov/medical-device-problems.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (https://www.fda.gov/training-and-continuing-education/cdrh-learn). Additionally, you may contact the Division of Industry and Consumer Education (DICE) to ask a question about a specific regulatory topic. See the DICE website (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice) for more information or contact DICE by email (DICE@fda.hhs.gov) or phone (1-800-638-2041 or 301-796-7100).

Sincerely,

Jessica Lamb, PhD.

Assistant Director

Imaging Software Team

DHT8B: Division of Radiological Imaging Devices

and Electronic Products

OHT8: Office of Radiological Health Office of Product Evaluation and Quality Center for Devices and Radiological Health

Enclosure

DEPARTMENT OF HEALTH AND HUMAN SERVICES Food and Drug Administration

Indications for Use

510(k) Number (if known)

K231170

Form Approved: OMB No. 0910-0120 Expiration Date: 06/30/2023

See PRA Statement below.

Device Name C350/C350G LCD Monitor M550/M550G LCD Monitor
Indications for Use (<i>Describe</i>) C350G/C350/JUSHA-C350G/JUSHA-C350 LCD monitor is intended to be used in displaying and viewing digital images for diagnosis of X-ray or MRI, etc. by trained medical practitioners. The device is not specified for digital mammography system.
M550G/M550/JUSHA-M550G/JUSHA-M550 LCD Monitor is intended to be used in displaying and viewing digital images, including standard and multi-frame digital mammography, for review, analysis, and diagnosis by trained medical practitioners. It is specially de displaying and viewing digital images, including standard and multi-frame digital mammography, for review, analysis, and diagnosis by trained medical practitioners. It is specially designed for breast tomosynthesis applications.
Type of Use (Select one or both, as applicable) Prescription Use (Part 21 CFR 801 Subpart D) Over-The-Counter Use (21 CFR 801 Subpart C)
CONTINUE ON A SEPARATE PAGE IF NEEDED.

This section applies only to requirements of the Paperwork Reduction Act of 1995.

DO NOT SEND YOUR COMPLETED FORM TO THE PRA STAFF EMAIL ADDRESS BELOW.

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510(k) Summary

(K231170)

1. In accordance with 21 CFR 807.92 the following summary of information is provided:

Date:	Apr 16, 2023
Submitter:	Nanjing Jusha Display Technology Co., Ltd
	Add: 8A, Block 1. Nanjing International Service Outsourcing
	Mansion, No. 301, Hanzhongmen street, Nanjing City, Jiangsu
	Province, 210036 China.
Contact Person:	Donny Lee
	Certification Engineer
	Nanjing Jusha Display Technology Co., Ltd
	Tel: +86-25- 83305050
	Fax: +86-25- 58783273
Device Trade Name:	C350G LCD Monitor, C350 LCD Monitor, JUSHA-C350G LCD
	Monitor, JUSHA-C350 LCD Monitor (There is no difference between
	C350G LCD Monitor, C350 LCD Monitor, JUSHA-C350G LCD
	Monitor and JUSHA-C350 LCD Monitor except for labeling as they
	are marketed in different areas. It does not affect their safety or
	effectiveness in any terms.)
	M550G LCD Monitor, M550 LCD Monitor, JUSHA-M550G LCD
	Monitor, JUSHA-M550 LCD Monitor (There is no difference
	between M550G LCD Monitor, M550 LCD Monitor, JUSHA-M550G
	LCD Monitor and JUSHA-M550 LCD Monitor except for labeling as
	they are marketed in different areas. It does not affect their safety or
	effectiveness in any terms.)
Common/Usual Name:	3MP LCD Monitor and 5MP LCD Monitor
Classification Name:	Medical Image Management and Processing System, 21 CFR
	892.2050
Product Code:	
	PGY
Device Class:	
	Class II

	1	
Predicate Device(s):	C270G;K183498	
	BARCO MDMG-5221; K161229	
Classification Name:	Medical Image Management and Processing System, 21 CFR	
	892.2050	
Product Code:	PGY	
Device Class:	Class II	
Device Description:	C350G LCD Monitor is the display system with the high resolution (2048*1536), high luminance (800 cd/m²), and 281.47 trillion colors, built-in DICOM standard LUT. In particular, C350G has ambient brightness adapting, real-time DICOM automatic calibration and presence induction system, with these this display can automatic adjustment according to different requirements in order to achieve the best results.	
	The product is consisted of the following components:	
	- 21.3" Color TFT LCD Panel	
	- DMX3304AR2/main board	
	- C350G LCD Monitor software	
	- a graphic card	
	- a graphic card driver CD	
	- a CGA software CD	
	- an AC power cord	
	- an external power supply	
	- a DVI cable	
	- a DP cable	
	- a USB cable	
	M550G LCD Monitor is the display system with the high resolution (2560*2048), high luminance (1000 cd/m2), and 16-bit grayscale (65536 level), built-in DICOM standard LUT. In particular, M550G	

has ambient brightness adapt inside. In particular, M550G has ambient brightness adapting, real-time DICOM automatic calibration, full-screen brightness equalization and presence induction system, with these this display can automatic adjustment according to different requirements in order to achieve the best results.

The product is consisted of the following components:

- 21.3" Mono-TFT LCD Panel
- DMX3304AR2/main board
- M550G LCD Monitor software
- a graphic card
- a graphic card driver CD
- an AC power cord
- an external power supply
- a DVI cable
- a DP cable
- a USB cable

In accordance with the May 11, 2005 Guidance for the Content of Premarket Submissions for Software Contained in Medical Devices, the software level of concern for the C350G and M550G LCD Monitor was determined to be Moderate on account of a failure or latent flaw could indirectly result in minor injury to the patient or operator through incorrect or delayed information or through the action of a care provider. The software doesn't include any functions of image manipulation.

The LCD Monitors are designed, tested, and will be manufactured in accordance with both mandatory and voluntary standards:

IEC 60601-1:2012, EN 60601-1:2013, ANSI/AAMI ES60601-1:2005+A1:2012+C1:2009+A2:2010, CAN/CSA C22.2 NO.60601-1:14, Medical equipment medical electrical equipment - Part 1: General requirements for basic safety and essential performance.

	2. IEC 60601-1-2 Edition 4:2014, EN 60601-1-2:2015,
	Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic disturbances - Requirements and tests.
Intended Use:	C350G/C350/JUSHA-C350G/JUSHA-C350 LCD monitor is intended
	to be used in displaying and viewing digital images for diagnosis of X-
	ray or MRI, etc. by trained medical practitioners. The device is not
	specified for digital mammography system.
	M550G/M550/JUSHA-M550G/JUSHA-M550 LCD Monitor is
	intended to be used in displaying and viewing digital images, including
	standard and multi-frame digital mammography, for review, analysis,
	and diagnosis by trained medical practitioners. It is specially de
	displaying and viewing digital images, including standard and multi- frame digital mammography, for review, analysis, and diagnosis by
	trained medical practitioners. It is specially designed for breast
	tomosynthesis applications.
Technology:	C350G LCD Monitor is the display system with the high resolution
	(2048*1536), high luminance (800 cd/m²), and 281.47 trillion colors,
	built-in DICOM standard LUT. In particular, C350G LCD Monitor has
	ambient brightness adapting, real-time DICOM automatic calibration
	and presence induction system, with these this display can automatic
	adjustment according to different requirements in order to achieve the
	best results.
	M550G LCD Monitor is the display system with the high resolution
	(2560*2048), high luminance (1000 cd/m2), and 16-bit grayscale
	(65536 level), built-in DICOM standard LUT. In particular,
	M550G/M550 LCD Monitor has ambient brightness adapt inside. In
	particular, M550G LCD Monitor has ambient brightness adapting, real-
	time DICOM automatic calibration, full-screen brightness equalization
	and presence induction system, with these this display can automatic
	adjustment according to different requirements in order to achieve the
Determination of Substantial	best results. Summary of Non-Clinical Tests:
Equivalence:	Summary of Non-Chinear Tests.
Equivalence.	The LCD Monitor complies with voluntary standards as following:
	1 IEC 60601-1:2012, EN 60601-1:2013, ANSI/AAMI ES60601-
	1:2005+A1:2012+C1:2009+A2:2010, CAN/CSA C22.2
	NO.60601-1:14, Medical equipment medical electrical equipment
	- Part 1: General requirements for basic safety and essential
	performance.

	2 IEC 60601-1-2 Edition 4:2014, EN 60601-1-2:2015, Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic disturbances - Requirements and tests C350G LCD Monitor is substantially equivalent to C270G. M550G		
	LCD Monitor is substantially equivalent to BARCO MDMG-5221. They have equivalent characteristics and functions according to comparison table, please refer to <i>2. Product Comparison</i>		
	The following quality assurance measures were applied to the development of the system:		
	•Risk Analysis		
	• Requirements Reviews		
	• Design Reviews		
	• Raw materials verification		
	• Testing on unit level (Module verification)		
	Integration testing (System verification)		
	• Final acceptance testing (Validation)		
	Performance testing (Verification)		
	• Safety testing (Verification)		
	Summary of Clinical Tests:		
	The subject of this premarket submission, LCD Monitor, did not		
	require clinical studies to support substantial equivalence.		
	The proposed devices are Substantially Equivalent (SE) to the		
	predicate devices which is US legally market device. Therefore, the		
	subject devices are determined as safe and effectiveness.		
Conclusion:	Nanjing Jusha Display Technology Co., Ltd Considers the C350G		
	LCD Monitor and M550G LCD Monitor to be as safe, as effective,		
	and performance are substantially equivalent to the predicate		
	device(s).		

2. Product Comparison

2. 1 C350G and its predicate device comparison

This comparison identifies the similarities and differences of the proposed C350G LCD monitor device to the legally marketed predicate C270G LCD Monitor device to which substantial equivalency is claimed.

Attributes	Predicate Device	Proposed Device	Discussion of Differences
Product	C270G LCD Monitor	C350G LCD Monitor	
510(k) Number	K183498	/	
	Display Performa	ance/Specifications	
Screen technology	21.3" Color TFT LCD Panel	21.3" Color TFT LCD Panel	Same
Viewing angle (H, V)	Horizontal 178 °, Vertical 178 °	Horizontal 178 °,Vertical 178 °	Same
Resolution	1600 x 1200/1200 x 1600	2048x 1536	C350G has a higher resolution than C270G Image quality is better than the image displayed
			on the predicate device.
Display area	432.0 (H) x 324.0(V) mm	433.15(H) x324.86(V) mm	-
Contrast Ratio	1400:1	1500:1	C350G has a higher contrast ratio than C270G Image quality is better than the image displayed on the predicate
2222	270 11 2	25 000 11 2	device.
DICOM calibrated luminance	350cd/m ²	Max:800cd/m ² Recommend:500cd/m ²	C350G has a higher calibrated luminance than C270G
			Image quality is better than the image displayed on the predicate device.

Attributes	Predicate Device	Proposed Device	Discussion of Differences	
Product	C270G LCD Monitor	C350G LCD Monitor		
510(k) Number	K183498	/		
Pixel Pitch	0.27x0.27 mm	0.2115x0.2115 mm	C350G has a smaller pixel pitch than C270G	
Backlight	LED	LED	Same.	
DICOM LUT	16-bit:65536	16-bit:65536	same	
Scanning frequency (H; V)	37.9~75kHz;60Hz	74.2~97.68kHz;60Hz	-	
Luminance	Built in calibration sensor	Built in calibration sensor	Same	
calibration	provided	provided		
	Video Si	gnal Input		
Input signals	DVI standard 1.0,	DVI standard 1.0,	Same	
	DisplayPort 1.2a	DisplayPort 1.2a		
Input terminational	DVI-D x 1,	DVI-D x 1,	Same	
	DisplayPort x 1	DisplayPort x 1		
Output signals	-	DisplayPort 1.2a	-	
Output	-	DisplayPort x 1	-	
Terminational				
Display controller	Off the shelf	Off the shelf	Same	
	Power Related Specification			
Power Requirement	DC 24V	DC 24V	Same	

Attributes	Predicate Device	Proposed Device	Discussion of Differences
Product	C270G LCD Monitor	C350G LCD Monitor	
510(k) Number	K183498	/	
Power Consumption/Sa ve Mode	50W/less than 0.5W	90W/less than 0.5W	The differences caused by components used in the LCD Monitor. This only shows the power consumption is different, nothing to do with the display function
Power	DVI DMPM	DVI DMPM	Same
Management	Display Port 1.1a	Display Port 1.2a	
Miscellaneous Fea	tures/Specifications	Display Fort 1.2a	
USB Ports/standard	1 upstream (endpoint), 2 downstream/ Rev. 2.0	1 upstream (endpoint), 2 downstream/ Rev. 2.0	Same
Dimensions w/o	Without stand:	Without stand:	Different housing design
(W x H x D)	382mm x490mm x77mm With stand: 382mm x635mm x238mm	382mm x490mm x77mm With stand: 363mm x(530-635)mm x238mm	due to the different panel size.
Indication for use	C270G LCD Monitor is intended to be used in displaying and viewing digital images for diagnosis of X-ray or MRI, etc. by trained medical practitioners. The device does not support the display of mammography images for diagnosis.	C350G LCD monitor is intended to be used in displaying and viewing digital images for diagnosis of X-ray or MRI, etc. by trained medical practitioners. The device is not specified for digital mammography system.	Same

Attributes	Predicate Device	Proposed Device	Discussion of Differences
Product	C270G LCD Monitor	C350G LCD Monitor	
510(k) Number	K183498	/	
Applicable standard	IEC 60601-1:2012, EN 60601-1:2013, ANSI/AAMI ES60601- 1:2005+A1:2012+C1:2009+ A2:2010, CAN/CSA C22.2 NO.60601-1:14, Medical equipment medical electrical equipment - Part 1: General requirements for basic safety and essential performance. IEC 60601-1-2 Edition 4:2014, EN 60601-1-2:2015, Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic disturbances - Requirements and tests	IEC 60601-1:2012, EN 60601-1:2013, ANSI/AAMI ES60601- 1:2005+A1:2012+C1:2009+ A2:2010, CAN/CSA C22.2 NO.60601-1:14, Medical equipment medical electrical equipment - Part 1: General requirements for basic safety and essential performance. IEC 60601-1-2 Edition 4:2014, EN 60601-1-2:2015, Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic disturbances - Requirements and tests	Same

2.2 M550G and its predicate device comparison

This comparison identifies the similarities and differences of the proposed M550G LCD monitor device to the legally marketed predicate BARCO MDMG-5221 LCD Monitor device to which substantial equivalency is claimed.

Attributes	Predicate Device	Proposed Device	Discussion of Differences	
Product	BARCO MDMG-5221	M550G LCD Monitor		
510(k) Number	K161229	/		
Display Performance/Specifications				
Screen	21.3inches, Mono-TFT LCD	21.3inches, Mono-TFT LCD	Same	
technology	Panel	Panel		

Attributes	Predicate Device	Proposed Device	Discussion of Differences
Product	BARCO MDMG-5221	M550G LCD Monitor	
510(k) Number	K161229	/	
Viewing angle (H, V)	Horizontal 176°, Vertical 176°	Horizontal 178 °, Vertical 178 °	-
Resolution	2560 x 2048/2048x 2560	2560 x2048/2048x 2560	Same
Display area	422.4(H) x 377.9 (V) mm	422.4(H) x377.92(V) mm	-
Contrast Ratio	950:1	2000:1	M550G has a higher contrast ratio than MDMG5221 Image quality is better than the image displayed on the predicate device.
DICOM calibrated	1000cd/m2	Max: 1000cd/m ² Recommended:500cd/m ²	Same
luminance Pixel Pitch	0.165x0.165 mm	0.165x0.165 mm	Same
Backlight	LED	LED	Same.
DICOM LUT	10-bit:1024	16-bit:65536	The JUSHA-M550G LCD Monitor uses a color bit expansion technology to improve image display quality, the image clarity is better than the image displayed on the predicate device.
Luminance calibration	Built in calibration sensor provided	Built in calibration sensor provided	Same
	Video S	Signal Input	

Attributes	Predicate Device	Proposed Device	Discussion of Differences
Product	BARCO MDMG-5221	M550G LCD Monitor	
510(k) Number	K161229	/	
Input signals	DVI standard 1.0,	DVI standard 1.0,	Same
	DisplayPort 1.2a	DisplayPort 1.2a	
Input terminational	DVI-D x 1,	DVI-D x 1,	Same
	DisplayPort x 1	DisplayPort x 1	
Output signals	-	DisplayPort 1.2a	-
Output	-	DisplayPort x 1	-
Terminational			
Display controller	Off the shelf	Off the shelf	Same
	Power Relat	ed Specification	
Power Requirement Power Consumption/Sa	AC 100~240V 50~60Hz 57W/less than 0.7W	DC 24V 80W/less than 0.5W	Different power supply, will not affect the performance The differences caused by
ve Mode			components used in the LCD Monitor. This only shows the power consumption is different, nothing to do with the display function
Power	DVI DMPM	DVI DMPM	Same
Management	DisplayPort 1.2a	DisplayPort 1.2a	
Miscellaneous Features/Specifications			
USB Ports/standard	1 upstream (endpoint),	1 upstream (endpoint),	Same
	2 downstream/ Rev. 2.0	2 downstream/ Rev. 2.0	

Attributes	Predicate Device	Proposed Device	Discussion of Differences
Product	BARCO MDMG-5221	M550G LCD Monitor	
510(k) Number	K161229	/	
Dimensions w/o stand (W x H x D)	Without stand: 392mm x484mm x122mm With stand:	Without stand: 368mm x474mm x70mm With stand:	Different housing design due to the different panel size.
	780mm x550mm x261mm	368mm x(521-631)mm x238mm	
Indication for use	BARCO MDMG-5221 device intended to be used in displaying and viewing digital images, including standard and multi-frame digital mammography, for review, analysis, and diagnosis by trained medical practitioners. It is specially de displaying and viewing digital images, including standard and multi-frame digital mammography, for review, analysis, and diagnosis by trained medical practitioners. It is specially designed for breast	M550G LCD Monitor is intended to be used in displaying and viewing digital images, including standard and multi-frame digital mammography, for review, analysis, and diagnosis by trained medical practitioners. It is specially de displaying and viewing digital images, including standard and multi-frame digital mammography, for review, analysis, and diagnosis by trained medical practitioners. It is specially designed for breast	Same

Attributes	Predicate Device	Proposed Device	Discussion of Differences
Product	BARCO MDMG-5221	M550G LCD Monitor	
510(k) Number	K161229	/	
Applicable	Electrical Safety test (IEC	1 IEC 60601-1:2012, EN	Same
standard	60601-1)	60601-1:2013, ANSI/AAMI	
		ES60601-	
	EMC test (IEC 60601-1-2)	1:2005+A1:2012+C1:2009+	
		A2:2010, CAN/CSA C22.2	
		NO.60601-1:14, Medical	
		equipment medical electrical	
		equipment - Part 1: General	
		requirements for basic safety	
		and essential performance.	
		2 IEC 60601-1-2 Edition	
		4:2014, EN 60601-1-2:2015,	
		CFR 47 FCC Part15 subpart	
		B: 2017, Medical electrical	
		equipment - Part 1-2:	
		General requirements for	
		basic safety and essential	
		performance - Collateral	
		standard: Electromagnetic	
		disturbances - Requirements	
		and tests	

2.3 PERFORMANCE DATA

The following performance data were provided in support of the substantial equivalence determination.

2.3.1 Bench testing:

Bench testing was conducted to demonstrate the C350G LCD Monitor and M550G LCD Monitor meet all performance standards as follows:

- Measurement of the angular dependency of luminance response in horizontal, vertical and diagonal directions
- Measurement of the luminance non-uniformity characteristics of the display screen as specified in TGI18 guideline.
- Measurement of the chromaticity non-uniformity characteristics of the display screen as specified in TG18 guideline.
- Measurement of small-spot contrast ratio.
- Measurement of temporal response
- Performance data on luminance stability

2.3.2 Electrical safety and electromagnetic compatibility (EMC)

Electrical safety and EMC testing were conducted on the C350G LCD Monitor and M550G LCD Monitor. The device complies with the IEC 60601-1 standard for safety and the IEC 60601-1-2 standard for EMC.

2.3.3 Animal and clinical study

The subject of this premarket submission, C350G LCD Monitor and M550G LCD Monitor, do not require animal or clinical studies to support substantial equivalence.

2.4 CONCLUSIONS

C350G LCD Monitor and M550G LCD Monitor are substantially equivalent to the predicate devices with respect to technical characteristics, performance, application and intended use. The non-clinical data support the safety of the device. The device should perform as intended in the specified use conditions. Nanjing Jusha Display Technology Co., Ltd considers the C350G LCD Monitor and M550G LCD Monitor do not raise any new issues of safety or effectiveness.