

Type Certificate

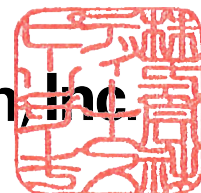
Certified to	u-blox AG
Classification of specified radio equipment	Article 2-1-11-19-3 FD-LTE, Land mobile station (eMTC)
Type of emissions, frequency and antenna power	1M40 D1A,D1B,D1C,D1D,D1F,D1X,D7W,G1A,G1B,G1C,G1D,G1F,G1X,G7W 718.79~747.21MHz,815.79~844.21MHz,900.79~914.21MHz, 1710.79~1784.21MHz,1920.79~1979.21MHz 0.2W
Model Name	SARA-R5v1
Vendor Name	u-blox AG
Certified Number	003-210146
Certified Date	March 14, 2023
Remark	No.23-0762 *Refer to the attachment for frequency details. #23-0574 : delete parts (except radio part)



This is to certify that the above mentioned certification by type has been granted in accordance with the provisions of Article 38-24, Paragraph 1 of the Radio Law.

March 14, 2023

DSP Research, Inc.



SARA-R5v1 (003-210146) Certificate - Attachment -

FD-LTE (eMTC)

2 Transmitter				Reference					
(1) Rated output	(2) Type and frequency range of transmittable radio wave								
0.2W	1M40	D1A, D1B, D1C, D1D, D1F, D1X, D7W, G1A, G1B, G1C, G1D, G1F, G1X, G7W	718.79~747.21MHz	fMHz~(f+3.42)MHz(180kHz interval 20 channels) (f=718.79+(0.1xn)[MHz](n=0~50))	Band 28	KDDI	5MHz BS		
				719.04~726.96MHz(180kHz interval 45 channels)			10MHz BS		
				fMHz~(f+3.42)MHz(180kHz interval 20 channels) (f=728.79+(0.1xn)[MHz](n=0~50))			Docomo	5MHz BS	
				729.04~736.96MHz(180kHz interval 45 channels)				10MHz BS	
				fMHz~(f+3.42)MHz(180kHz interval 20 channels) (f=738.79+(0.1xn)[MHz](n=0~50))				Softbank	5MHz BS
				739.04~746.96MHz(180kHz interval 45 channels)					10MHz BS
0.2W	1M40	D1A, D1B, D1C, D1D, D1F, D1X, D7W, G1A, G1B, G1C, G1D, G1F, G1X, G7W	815.79~844.21MHz	faMHz~(fa+3.42)MHz(180kHz interval 20 channels) (fa=815.79+(0.1xn)[MHz](n=0~100))	Band 18, Band 19, Band 26	KDDI	5MHz BS		
				fbMHz~(fb+7.92)MHz(180kHz interval 45 channels) (fb=816.04+(0.1xn)[MHz](n=0~50))			10MHz BS		
				816.29~828.71MHz(180kHz interval 70 channels)			15MHz BS		
				faMHz~(fa+3.42)MHz(180kHz interval 20 channels) (fa=830.79+(0.1xn)[MHz](n=0~100))			Docomo	5MHz BS	
				fbMHz~(fb+7.92)MHz(180kHz interval 45 channels) (fb=831.04+(0.1xn)[MHz](n=0~50))				10MHz BS	
				831.29~843.71MHz(180kHz interval 70 channels)				15MHz BS	
0.2W	1M40	D1A, D1B, D1C, D1D, D1F, D1X, D7W, G1A, G1B, G1C, G1D, G1F, G1X, G7W	900.79~914.21MHz	faMHz~(fa+3.42)MHz(180kHz interval 20 channels) (fa=900.79+(0.1xn)[MHz](n=0~100))	Band 8	Softbank		5MHz BS	
				fbMHz~(fb+7.92)MHz(180kHz interval 45 channels) (fb=901.04+(0.1xn)[MHz](n=0~50))			10MHz BS		
0.2W	1M40	D1A, D1B, D1C, D1D, D1F, D1X, D7W, G1A, G1B, G1C, G1D, G1F, G1X, G7W	1710.79~1729.21MHz	faMHz~(fa+3.42)MHz(180kHz interval 20 channels) (fa=1710.79+(0.1xn)[MHz](n=0~150))	Band 3	KDDI	5MHz BS		
				fbMHz~(fb+7.92)MHz(180kHz interval 45 channels) (fb=1711.04+(0.1xn)[MHz](n=0~100))			10MHz BS		
				fcMHz~(fc+12.42)MHz(180kHz interval 70 channels) (fc=1711.29+(0.1xn)[MHz](n=0~50))			15MHz BS		
				1711.54~1728.46MHz(180kHz interval 95 channels)			20MHz BS		
				faMHz~(fa+3.42)MHz(180kHz interval 20 channels) (fa=1730.79+(0.1xn)[MHz](n=0~150))			Rakuten	5MHz BS	
				fbMHz~(fb+7.92)MHz(180kHz interval 45 channels) (fb=1731.04+(0.1xn)[MHz](n=0~100))				10MHz BS	
			fcMHz~(fc+12.42)MHz(180kHz interval 70 channels) (fc=1731.29+(0.1xn)[MHz](n=0~50))	15MHz BS					
			1731.54~1748.46MHz(180kHz interval 95 channels)	20MHz BS					
			faMHz~(fa+3.42)MHz(180kHz interval 20 channels) (fa=1750.79+(0.1xn)[MHz](n=0~100))	Softbank	5MHz BS				
			fbMHz~(fb+7.92)MHz(180kHz interval 45 channels) (fb=1751.04+(0.1xn)[MHz](n=0~50))		10MHz BS				
			1751.29~1763.71MHz(180kHz interval 70 channels)		15MHz BS				
			faMHz~(fa+3.42)MHz(180kHz interval 20 channels) (fa=1765.79+(0.1xn)[MHz](n=0~150))		Docomo	5MHz BS			
fbMHz~(fb+7.92)MHz(180kHz interval 45 channels) (fb=1766.04+(0.1xn)[MHz](n=0~100))	10MHz BS								
fcMHz~(fc+12.42)MHz(180kHz interval 70 channels) (fc=1766.29+(0.1xn)[MHz](n=0~50))	15MHz BS								
1766.54~1783.46MHz(180kHz interval 95 channels)	20MHz BS								
0.2W	1M40	D1A, D1B, D1C, D1D, D1F, D1X, D7W, G1A, G1B, G1C, G1D, G1F, G1X, G7W	1920.79~1939.21MHz	faMHz~(fa+3.42)MHz(180kHz interval 20 channels) (fa=1920.79+(0.1xn)[MHz](n=0~150))		Band 1	KDDI	5MHz BS	
				fbMHz~(fb+7.92)MHz(180kHz interval 45 channels) (fb=1921.04+(0.1xn)[MHz](n=0~100))				10MHz BS	
				fcMHz~(fc+12.42)MHz(180kHz interval 70 channels) (fc=1921.29+(0.1xn)[MHz](n=0~50))	15MHz BS				
				1921.54~1938.46MHz(180kHz interval 95 channels)	20MHz BS				
				faMHz~(fa+3.42)MHz(180kHz interval 20 channels) (fa=1940.79+(0.1xn)[MHz](n=0~150))	Docomo			5MHz BS	
				fbMHz~(fb+7.92)MHz(180kHz interval 45 channels) (fb=1941.04+(0.1xn)[MHz](n=0~100))				10MHz BS	
			fcMHz~(fc+12.42)MHz(180kHz interval 70 channels) (fc=1941.29+(0.1xn)[MHz](n=0~50))	15MHz BS					
			1941.54~1958.46MHz(180kHz interval 95 channels)	20MHz BS					
			faMHz~(fa+3.42)MHz(180kHz interval 20 channels) (fa=1960.79+(0.1xn)[MHz](n=0~150))	Softbank		5MHz BS			
			fbMHz~(fb+7.92)MHz(180kHz interval 45 channels) (fb=1961.04+(0.1xn)[MHz](n=0~100))			10MHz BS			
			fcMHz~(fc+12.42)MHz(180kHz interval 70 channels) (fc=1961.29+(0.1xn)[MHz](n=0~50))		15MHz BS				
			1961.54~1978.46MHz(180kHz interval 95 channels)		20MHz BS				

DSP Research, Inc.



Important - Read This First -

1. Marking of specified radio equipment based on a certified construction type

- Certification label, technical conformity mark (GITEKI mark), etc. -

According to Article 38-26 of the Radio Law (hereinafter referred to as the Law), when the certified dealer^{*1} fulfills the obligation specified in Article 38-25 of the Law, he/she is allowed to display the conformity mark for specified radio equipment, declaring that it has received construction type certification. If the conformity mark is not displayed, the equipment will not be recognized as “radio equipment with conformity mark” as specified in Articles 4-2 and 4-3 of the Law, and is subject to obtaining a separate license for radio station.

^{*1} Entities who have received a construction type certification from DSP Research are defined as a “certified dealer” under the Radio Law.

The details of the conformity mark are described in the Form No.7 of the Ordinance Concerning Technical Regulations Conformity Certification etc. of Specified Radio Equipment (hereinafter referred to as a “certification regulation”) referenced in Article 20 of the Certification Regulation, and can be found below.

It is specified when displaying the conformity mark, “it shall be affixed at a readily visible location on the specified radio equipment based on a certified construction type”. For specified radio equipment in which it is unreasonable or difficult to affix the conformity mark - such as the equipment being temporarily installed or built into another product- the conformity mark can be affixed to a readily visible location on the specified radio equipment, such as the user’s manual and package or container. Alternatively, the law allows that the conformity mark may be electronically shown on the equipment’s display as stated here: “it (the conformity mark) shall be recorded using an electronic visual display method on the specified radio equipment based on a certified construction type, and shall be able to be immediately displayed clearly on the image screen of the applicable specified radio equipment”. When electing this type of display, it is necessary to attach documentation stating the conformity mark is visually electronically displayed with a description detailing the display method.

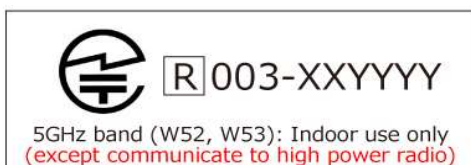
As a result of the revision of the law in “February 8, 2019”, a new method of electronic display was added, and it became possible to display the conformity mark on the image screen of the product to which the specific radio equipment was connected. (However, only when it can be displayed by wired connection with another product having an image screen before the operation of the specific radio equipment is first started.)

Also, according to the amended Ordinance by Order 67 of the Ministry of Internal Affairs and Communications (Effective on September 1, 2014), the dealer handling a product having built-in radio equipment with a conformity mark, can affix the same conformity mark as the built-in radio equipment on the product.

※For “specified radio equipment based on a certified construction type” definition can vary with the details of the type specifications. When it is installed into another product for use, it means “wireless module, etc.” When it can be used as stand-alone radio equipment, it means the “housing”.

The display methods specified in Form No. 7 are summarized below:

Example: wireless LAN IEEE 802.11a/b/g compatible product



The technical conformity mark must be easily identifiable size.
(Effective on February 8, 2019: “Minimum diameter” abolished)



The mark indicates the certification by the Radio Law.
The size, font, and color are not regulated but it must be easily distinguished.

Details of the technical conformity mark (GITEKI mark) are described in the home page of the Ministry of Internal Affairs and Communications at http://www.tele.soumu.go.jp/monitoring_qa/index.htm

Please list the certification number (e.g. “003-XXYYYY”) as provided by DSP Research at the time of certification. When printing on labels, please use a material that is not easily damaged.



In addition, "5 GHz band(W52, 53) indoor use only (except communicate to high power radio)" indication is based on the notification of radio equipment regulations article "49-20.3", "49-20.4", and "49-20.5" (No.48 of 2007 MIC / **Revised June 29, 2018** : "The transmission of radio equipment using radio waves of 5,150 to 5,350 MHz is indoors use only **"5.2GHz band communicating with 5.2GHz high power base stations or land mobile relay stations"** purport should be displayed.), and it must be displayed in radio equipment of "5GHz band (W52, W53) low power data communication systems" & **(Except when high power data communication systems, land mobile station"** (IEEE 802.11a devices).

2. Fulfill the Obligation to Conform to Construction Types

- Pre-shipping inspection of products and the preparation and retention of inspection records -

Article 38-25 of the Law stipulates that a certified dealer shall fulfill the obligation to conform to construction types. Before shipping the certified product, a certified dealer shall "inspect" to make sure the product has performance identical to that of the certified construction type. Certified dealer must then "make record of the inspection results" and **"retain the inspection records for 10 years."**

The "Marking of specified radio equipment based on a certified construction type," as described in Section 1 above, can be performed only after completing the steps of "inspection," "recording" and "retention" otherwise known as "obligation for retention of the inspection records". The certification mark on the product signifies that product meets both: the obligation to conform with construction type, and the obligation for retention of the inspection records.

The Minister of Internal Affairs and Communications can prohibit the certified dealer from affixing the conformity mark on the radio equipment (Article 38-28 of the Law, Prohibition of Affixing the Mark) if the certified dealer fails to meet any of the following: obligation to conform construction types, compliance with Administrative Order from the Ministry of Internal Affairs and Communications, or fulfillment of obligation for retention of the inspection records. Penalties under Article 112-1 and Article 114-2 of the Law for those found in violation include fines of up to 500,000 yen.

Additionally in the event it is found that the radio equipment does not comply with technical standards specified in the Law causing potential for it to create interference or jamming to other radio stations, or cause physical damage to human bodies:

1. Any person found in violation of an order from the Ministry of Internal Affairs and Communications in accordance with Article 38-22-1 of the Law (Order for Prevention of Jamming, etc.) or Article 38-28-1 of the Law (Prohibition of Affixing the Mark), shall be punished by imprisonment with work for not more than one year or by a fine of up to 1,000,000 yen based on the provisions of Article 110-8 (Penal provisions concerning Order for Prevention of Jamming, etc.), and Article 110-9 of the Law.
2. Any corporation found in violation of the above shall be fined up to 100,000,000 yen under the Article 114-1 of the Law.

3. Excerpts from related laws

• Radio Law

(Obligation to conform to construction types)

Article 38-25

1. An entity who has obtained a certification of construction type (hereinafter referred to as a "certified dealer") from a registered certification body shall, when dealing specified radio equipment based on the construction type pertaining to said certification of construction type (hereinafter referred to as "certified construction type"), ensure that said specified radio equipment conforms to the said certified construction type.
2. A certified dealer shall conduct an inspection of specified radio equipment provided for under the preceding paragraph that it deals, in accordance with the method to verify the certification of construction type, and prepares and maintains the inspection records in accordance with the applicable MIC ordinance(*).

(*: Article 19 of certification regulation)

(Mark of specified radio equipment based on a certified construction type)

Article 38-26

A certified dealer may, upon performing the obligations under paragraph (2) of the preceding article regarding specified radio equipment based on a certified construction type, affix to said specified radio equipment the mark stipulated in the applicable MIC ordinance (*).

(*: Article 20 of certification regulation)



• Ordinance concerning Technical Regulations, Conformity, Certification etc. of Specified Radio Equipment (certification regulations)

(Preparation etc. of Inspection Record)

Article 19

1. The information to be provided in the inspection records mentioned in Article 38-25, Paragraph 2 of the Law shall be as follows:
 - (1) the number of the certification by type for which the inspection was conducted;
 - (2) the date and location of the inspection;
 - (3) the name of the person who was in charge of conducting the inspection;
 - (4) the quantity of the Specified Radio Equipment for which the inspection was conducted;
 - (5) the method of the inspection; and
 - (6) results of the inspection.
2. The inspection records mentioned in the preceding Paragraph must be retained for ten years from the date of the inspection.
3. The retention of the inspection records mentioned in the preceding Paragraph may be conducted using a recording media of electronic records. In this case, the said electronic records must be immediately displayed using a computer or other equipment when necessary.

(Mark)

Article 20

1. When affixing the mark in accordance with Article 38-26 of the Law, one of the following methods shall be used.
 - a. The method of affixing the mark at a readily visible location on the specified radio equipment based on a certified construction type (the method to affix the said mark at the location specially designated by the Minister of Internal Affairs and Communications when it is difficult or unreasonable to display) in accordance with Form No.7.
 - b. The method of electronically record the mark on to the specified radio equipment based on a certified construction type in accordance with Form No.7, and to be able to clearly and immediately display on the image screen of the specified radio equipment.
 - c. The method of electronically record the mark on to the specified radio equipment based on a certified construction type in accordance with Form No.7, and to be able to clearly and immediately display on the image screen of the product connected to the specified radio equipment. (However, only when it can be displayed by wired connection with another product having an image screen before the operation of the specific radio equipment is first started.)
2. When affixing the mark in accordance with Article 38-7-2 of the Law, the compliance mark on the built-in radio equipment is verified visually or by other means, and one of the following methods shall be used for affixing the new mark on the product. In this case, the new mark shall be easily identifiable.
 - a. The method of affixing the mark at a readily visible location on the product that has built-in compliance radio equipment (if it is difficult or unreasonable to display the mark on the product, it can be displayed at any readily visible location (including the user manual, package or container)).
 - b. The method of electronically record the mark on the product that has built-in compliance radio equipment, and to be able to clearly and immediately display on the image screen of the product.
 - c. The method of electronically record the mark on the product that has built-in compliance radio equipment, and to be able to clearly and immediately display on the image screen of the product connected to built-in compliance radio equipment. (However, only when it can be displayed by wired connection with another product having an image screen before the operation of the product that has built-in compliance radio equipment is first started.)
3. When electronically affixing the mark on either the specified radio equipment or the product that has built-in radio equipment with conformity mark in accordance with subparagraph b of paragraph 1 above or subparagraph b of paragraph 2 above, it is necessary to attach documentation stating the conformity mark is visually electronically displayed with a description detailing the display method that is mentioned in above paragraphs.