

User's Manual

Product Name: 24GHz Pulse Radar
Model Number: 24GMMR20

Please print this document in A4 size.

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1 PREFACE

1.1 DISCLAIMER

Komatsu Ltd. reserves the right to make modifications, additions, and deletions to this document due to typographical errors, inaccurate information, or improvements to programs and/or equipment at any time and without notice. Such changes will, nevertheless, be incorporated into new editions of this document.

1.2 INTENDED USAGE

This manual is intended for anyone who owns or intends to operate the 24GHz Pulse Radar "24GMMR20" in the first place and provides appropriate procedures for those engaged in safe handling. For details on how to operate, please refer to the user manual of the machine.

1.3 COMPLIANCE INFORMATION

Please read the section "Compliance Notice" for locale-specific information regarding labelling, safety related statements.

2 Document Information

Revision History

Revision	Date	Author(s)	Description/comment
1	2024/11/8	Y.Abe	Publication of the First Edition

3 Specification of Hardware

3.1 Outline Dimensions

(1) Dimensions of Outline (Dimensions are in millimeters)

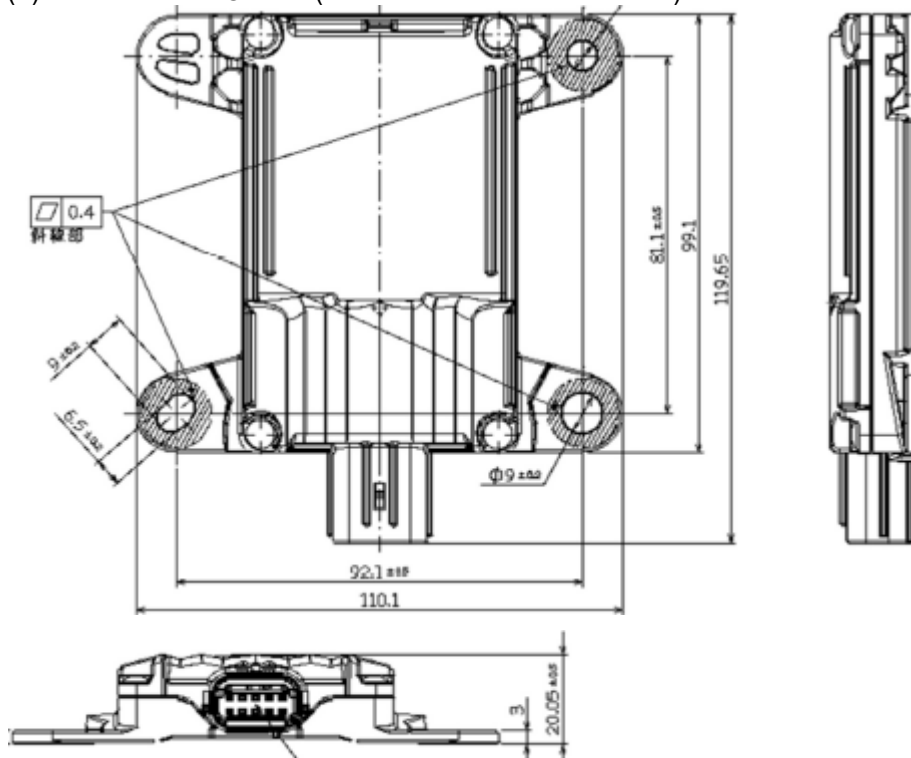


Figure 1. 24GMMR20

3.2 Maximum radio-frequency power

Frequency [GHz]	Max Power [dBm e.i.r.p]
24.05 – 24.25	-10



4 Compliance Notice

4.1 European Union



- Manufacturer/Importer

Hereby, the Manufacturer/Importer:

The Manufacturer	The Importer
FURUKAWA AUTOMOTIVE SYSTEMS INC. 1000 Amago, Koura-cho, Inukami-gun 522-0242, Shiga, Japan 	KOMATSU EUROPE INT. Mechelsesteenweg 586 B-1800 Vilvoorde, Belgium 

- Safety

Please refer to the vehicle manual for information on safety.

- Simplified Declaration of Conformity

[EN] English	Hereby, FURUKAWA AUTOMOTIVE SYSTEMS INC declares that the radio equipment type 24GMMR20 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: http://www.furukawaas.co.jp/english/approval/
[BG] Bulgarian	С настоящото FURUKAWA AUTOMOTIVE SYSTEMS INC декларира, че този тип радиосъоръжение 24GMMR20 е в съответствие с Директива 2014/53/ЕС. Цялостният текст на ЕС декларацията за съответствие може да се намери на следния интернет адрес: http://www.furukawaas.co.jp/english/approval/
[HR] Croatian	FURUKAWA AUTOMOTIVE SYSTEMS INC ovime izjavljuje da je radijska oprema tipa 24GMMR20 u skladu s Direktivom 2014/53/EU. Cjeloviti tekst EU izjave o sukladnosti dostupan je na sljedećoj internetskoj adresi: http://www.furukawaas.co.jp/english/approval/
[CS] Czech	Tímto FURUKAWA AUTOMOTIVE SYSTEMS INC prohlašuje, že typ rádiového zařízení 24GMMR20 je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese: http://www.furukawaas.co.jp/english/approval/
[DA] Danish	Hermed erklærer FURUKAWA AUTOMOTIVE SYSTEMS INC, at radioudstyrstypen 24GMMR20 er overensstemmelse med direktiv 2014/53/EU. EU-overensstemmelseserklæringens fulde tekst kan findes på følgende internetadresse: http://www.furukawaas.co.jp/english/approval/
[NL] Dutch	Hierbij verklaar ik, FURUKAWA AUTOMOTIVE SYSTEMS INC, dat het type radioapparatuur 24GMMR20 conform is met Richtlijn 2014/53/EU. De volledige tekst van de EU-conformiteitsverklaring kan worden geraadpleegd op het volgende internetadres: http://www.furukawaas.co.jp/english/approval/
[ET] Estonian	Käesolevaga deklareerib FURUKAWA AUTOMOTIVE SYSTEMS INC, et käesolev raadioseadme tüüp 24GMMR20 vastab direktiivi 2014/53/EL nõuetele. ELi vastavusdeklaratsiooni täielik tekst on kättesaadav järgmisel internetiaadressil: http://www.furukawaas.co.jp/english/approval/

[FI] Finnish	FURUKAWA AUTOMOTIVE SYSTEMS INC vakuuttaa, että radiolaitetyyppi 24GMMR20 on direktiivin 2014/53/EU mukainen. EU-vaatimustenmukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa: http://www.furukawaas.co.jp/english/approval/
[FR] French	Le soussigné, FURUKAWA AUTOMOTIVE SYSTEMS INC, déclare que l'équipement radioélectrique du type 24GMMR20 est conforme à la directive 2014/53/UE. Le texte complet de la déclaration UE de conformité est disponible à l'adresse internet suivante: http://www.furukawaas.co.jp/english/approval/
[DE] German	Hiermit erklärt FURUKAWA AUTOMOTIVE SYSTEMS INC, dass der Funkanlagentyp 24GMMR20 der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU-Konformitätserklärung ist unter der folgenden Internetadresse verfügbar: http://www.furukawaas.co.jp/english/approval/
[EL] Greek	Με την παρούσα ο/η FURUKAWA AUTOMOTIVE SYSTEMS INC, δηλώνει ότι ο ραδιοεξοπλισμός 24GMMR20 πληροί την οδηγία 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ διατίθεται στην ακόλουθη ιστοσελίδα στο διαδίκτυο: http://www.furukawaas.co.jp/english/approval/
[HU] Hungarian	FURUKAWA AUTOMOTIVE SYSTEMS INC igazolja, hogy a 24GMMR20 típusú rádióberendezés megfelel a 2014/53/EU irányelvnek. Az EU-megfelelőségi nyilatkozat teljes szövege elérhető a következő internetes címen: http://www.furukawaas.co.jp/english/approval/
[GA] Irish	Dearbhaíonn FURUKAWA AUTOMOTIVE SYSTEMS INC leis sin, go bhfuil an cineál trealaimh raidió 24GMMR20 i gcomhréir le Treoir 2014/53/AE. Tá téacs iomlán de Dhearbhú Comhréireachta AE ar fáil ag an seoladh idirlín seo a leanas: http://www.furukawaas.co.jp/english/approval/
[IT] Italian	Il fabbricante, FURUKAWA AUTOMOTIVE SYSTEMS INC, dichiara che il tipo di apparecchiatura radio 24GMMR20 è conforme alla direttiva 2014/53/UE. Il testo completo della dichiarazione di conformità UE è disponibile al seguente indirizzo Internet: http://www.furukawaas.co.jp/english/approval/
[LV] Latvian	Ar šo FURUKAWA AUTOMOTIVE SYSTEMS INC deklarē, ka radioiekārta 24GMMR20 atbilst Direktīvai 2014/53/ES. Pilns ES atbilstības deklarācijas teksts ir pieejams šādā interneta vietnē: http://www.furukawaas.co.jp/english/approval/
[LT] Lithuanian	Aš, FURUKAWA AUTOMOTIVE SYSTEMS INC, patvirtinu, kad radijo įrenginių tipas 24GMMR20 atitinka Direktyvą 2014/53/ES. Visas ES atitikties deklaracijos tekstas prieinamas šiuo interneto adresu: http://www.furukawaas.co.jp/english/approval/
[LU] Luxembourgish	Heimat deklaréiert FURUKAWA AUTOMOTIVE SYSTEMS INC, datt de Radio vum Geräityp 24GMMR20 d'd'Viraussetzunge vun der Riichtlinn 2014/53/EU erfëllt. De ganzen Text vun der EU Konformitéitserklärung ass op der follgender Internetadress verfügbar: http://www.furukawaas.co.jp/english/approval/
[MT] Maltese	B'dan, FURUKAWA AUTOMOTIVE SYSTEMS INC, niddikjara li dan it-tip ta' tagħmir tar-radju 24GMMR20 huwa konformi mad-Direttiva 2014/53/UE. It-test kollu tad-dikjarazzjoni ta' konformità tal-UE huwa disponibbli f'dan l-indirizz tal-Internet li ġej: http://www.furukawaas.co.jp/english/approval/
[PL] Polish	FURUKAWA AUTOMOTIVE SYSTEMS INC niniejszym oświadcza, że typ urządzenia radiowego 24GMMR20 jest zgodny z dyrektywą 2014/53/UE. Pełny tekst deklaracji zgodności UE jest dostępny pod następującym adresem internetowym: http://www.furukawaas.co.jp/english/approval/
[PT] Portuguese	O(a) abaixo assinado(a) FURUKAWA AUTOMOTIVE SYSTEMS INC declara que o presente tipo de equipamento de rádio 24GMMR20 está em conformidade com a Diretiva 2014/53/UE. O texto integral da declaração de conformidade está disponível no seguinte endereço de Internet: http://www.furukawaas.co.jp/english/approval/

[RO] Romanian	Prin prezenta, FURUKAWA AUTOMOTIVE SYSTEMS INC declară că tipul de echipamente radio 24GMMR20 este în conformitate cu Directiva 2014/53/UE. Textul integral al declarației UE de conformitate este disponibil la următoarea adresă internet: http://www.furukawaas.co.jp/english/approval/
[SK] Slovak	FURUKAWA AUTOMOTIVE SYSTEMS INC týmto vyhlasuje, že rádiové zariadenie typu 24GMMR20 je v súlade so smernicou 2014/53/EÚ. Úplné EÚ vyhlásenie o zhode je k dispozícii na tejto internetovej adrese: http://www.furukawaas.co.jp/english/approval/
[SL] Slovenian	FURUKAWA AUTOMOTIVE SYSTEMS INC potrjuje, da je tip radijske opreme 24GMMR20 skladen z Direktivo 2014/53/EU. Celotno besedilo izjave EU o skladnosti je na voljo na naslednjem spletnem naslovu: http://www.furukawaas.co.jp/english/approval/
[ES] Spanish	Por la presente, FURUKAWA AUTOMOTIVE SYSTEMS INC declara que el tipo de equipo radioeléctrico 24GMMR20 es conforme con la Directiva 2014/53/UE. El texto completo de la declaración UE de conformidad está disponible en la dirección Internet siguiente: http://www.furukawaas.co.jp/english/approval/
[SV] Swedish	Härmed försäkrar FURUKAWA AUTOMOTIVE SYSTEMS INC att denna typ av radioutrustning 24GMMR20 överensstämmer med direktiv 2014/53/EU. Den fullständiga texten till EU-försäkran om överensstämmelse finns på följande webbadress: http://www.furukawaas.co.jp/english/approval/
[IS] Icelandic	Hér með lýsir FURUKAWA AUTOMOTIVE SYSTEMS INC því yfir að tegund fjarskiptabúnaðar 24GMMR20 er í samræmi við tilskipun 2014/53/ESB. Fullur texti ESB samræmisýfirlýsingarinnar er fáanlegur á eftirfarandi netfangi: http://www.furukawaas.co.jp/english/approval/
[NO] Norwegian	FURUKAWA AUTOMOTIVE SYSTEMS INC erklærer herved at typen av radioutstyr 24GMMR20 er i samsvar med direktiv 2014/53/EU. Den fullstendige teksten i EU-samsvarserklæringen er tilgjengelig på følgende internettadresse: http://www.furukawaas.co.jp/english/approval/
[AN] Albanian	Përmes kësaj, FURUKAWA AUTOMOTIVE SYSTEMS INC deklaron se lloji i pajisjes radio 24GMMR20 është në përputhje me Direktivën 2014/53/BE. Teksti i plotë i deklaratës së konformitetit të BE-së është i disponueshëm në adresën e mëposhtme të internetit: http://www.furukawaas.co.jp/english/approval/
[ME] Montenegro	Ovim, FURUKAWA AUTOMOTIVE SYSTEMS INC izjavljuje da je tip radio opreme 24GMMR20 u skladu sa Direktivom 2014/53/EU. Cijeli tekst EU deklaracije o poštovanju dostupan je na slijedećoj internet adresi: http://www.furukawaas.co.jp/english/approval/
[TR] Turkish	İşbu belgeyle, FURUKAWA AUTOMOTIVE SYSTEMS INC 24GMMR20 radyo ekipmanı tipinin, 2014/53/EU Direktifi ile uyumlu olduğunu beyan eder. AB uygunluk beyanının tam metnini aşağıdaki internet adresinde bulabilirsiniz: http://www.furukawaas.co.jp/english/approval/
[GE] Georgian	წინამდებარე დეკლარაციით, FURUKAWA AUTOMOTIVE SYSTEMS INC ვაცხადებ, რომ რადიომოწყობილობის ტიპი 24GMMR20 შეესაბამება რადიომოწყობილობის შესახებ ტექნიკური რეგლამენტის მოთხოვნებს. შესაბამისობის დეკლარაციის სრული ტექსტი ხელმისაწვდომია შემდეგ ინტერნეტმისამართზე: http://www.furukawaas.co.jp/english/approval/

4.2 The Federal Communications Commission

FCC ID : 2AHE9-24GMMR20

FCC CAUTION

Changes or modifications made to this equipment not expressly approved by (FURUKAWA AUTOMOTIVE SYSTEMS INC) may void the FCC authorization to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

4.3 Canada (ISED)

IC: 21140-24GMMR20

- English

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

- French

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes

1. L'appareil ne doit pas produire de brouillage
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.