

Notified Body

EU Type Examination Certificate

Manufacturer company name: Comba Telecom Network Systems Limited
Manufacturer address: 611 East Wing, No. 8 Science Park West Avenue,
Hong Kong Science Park, Tai Po, Hong Kong.
Description of the radio equipment: Digital Band Selective Repeater
Trade name/brand name: Comba
Model/type indication: mBDA-100
Software version: A
Hardware version: A
Frequency bands of operation: UL: 832 MHz to 862 MHz; DL: 791 MHz to 821 MHz
UL: 880 MHz to 915 MHz; DL: 925 MHz to 960 MHz
UL: 1710 MHz to 1785 MHz; DL: 1805 MHz to 1880 MHz
UL: 1920 MHz to 1980 MHz; DL: 2110 MHz to 2170 MHz
UL: 2500 MHz to 2570 MHz; DL: 2620 MHz to 2690 MHz
TD reference: mBDA-100
ACB project number: ATCB027925
Certificate number: ATCB027925, issue 2

ACB, Inc. is designated as a Notified Body under the
U.S.-EU Mutual Recognition Agreement for Radio Equipment Directive 2014/53/EU

ACB, Inc.
Notified Body Number 1588
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In the opinion of ACB, Inc., the examination of the technical documentation as drawn up by the manufacturer demonstrates that the essential requirements of Article 3.1a, Article 3.1b and Article 3.2, of Radio Equipment Directive 2014/53/EU have been met. The conformity assessment on the radio equipment listed above and as described in Annex 1 to this EU-type examination certificate has been carried out in accordance with Annex III, Module B, of Radio Equipment Directive 2014/53/EU. This EU-type examination certificate relates only to the documents as provided to ACB, Inc.

A list of documentation forming the basis for the EU-type examination is provided in
Annex 2 to this EU-type examination certificate.



Notified Body: Ivan Wen

10 November 2021
Date



Annex 1 to EU-type examination certificate for Radio Equipment Directive 2014/53/EU
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The radio equipment as described and documented in the technical documentation as drawn up by the manufacturer is a Digital Band Selective Repeater.

It supports GSM technology in the 900MHz Band.

It supports UMTS technology in the 900 MHz Band VIII.

It supports LTE technology in the 800MHz Band 20, 900 MHz Band 8, 1800 MHz Band 3, 2100 MHz Band 1 and 2600 MHz Band 7.

This radio equipment also supports operation in frequency bands which are not available for use in Member States of the European Union and EFTA countries and which have not been included in this conformity assessment. The conformity assessment of this radio equipment is limited to those frequency bands of operation which are available for use in one or more Member States of the European Union and EFTA countries as detailed below.

Details of operation:

Description of service:	E-GSM 900 MHz (Repeater)
Uplink (UL) operating band BS receive:	880 MHz to 915 MHz
Downlink (DL) operating band BS transmit:	925 MHz to 960 MHz
Type of Modulation:	GMSK, 8PSK
Channel bandwidth(s):	200 KHz
Maximum output power (Uplink):	10.0 dBm, conducted
Maximum output power (Downlink):	10.0 dBm, conducted
Description of service:	UMTS 900 MHz Band VIII (Repeater)
Uplink (UL) operating band BS receive:	880 MHz to 915 MHz
Downlink (DL) operating band BS transmit:	925 MHz to 960 MHz
Type of Modulation:	QPSK, 16QAM, 64QAM
Channel bandwidth(s):	5 MHz
Maximum output power (Uplink):	23.2 dBm, conducted
Maximum output power (Downlink):	33.2 dBm, conducted
Description of service:	E-UTRA LTE Band 1 (Repeater)
Uplink (UL) operating band BS receive:	1920 MHz to 1980 MHz
Downlink (DL) operating band BS transmit:	2110 MHz to 2170 MHz
Type of Modulation:	QPSK, 16QAM, 64QAM
Channel bandwidth(s):	5 MHz, 10 MHz, 15 MHz, 20 MHz
Maximum output power (Uplink):	16.9 dBm, conducted
Maximum output power (Downlink):	32.0 dBm, conducted
Description of service:	E-UTRA LTE Band 3 (Repeater)
Uplink (UL) operating band BS receive:	1710 MHz to 1785 MHz
Downlink (DL) operating band BS transmit:	1805 MHz to 1880 MHz
Type of Modulation:	QPSK, 16QAM, 64QAM
Channel bandwidth(s):	5 MHz, 10 MHz, 15 MHz, 20 MHz
Maximum output power (Uplink):	18.7 dBm, conducted
Maximum output power (Downlink):	32.6 dBm, conducted



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Description of service:	E-UTRA LTE Band 7 (Repeater)
Uplink (UL) operating band BS receive:	2500 MHz to 2570 MHz
Downlink (DL) operating band BS transmit:	2620 MHz to 2690 MHz
Type of Modulation:	QPSK, 16QAM, 64QAM
Channel bandwidth(s):	5 MHz, 10 MHz, 15 MHz, 20 MHz
Maximum output power (Uplink):	18.7 dBm, conducted
Maximum output power (Downlink):	32.9 dBm, conducted

Description of service:	E-UTRA LTE Band 8 (Repeater)
Uplink (UL) operating band BS receive:	880 MHz to 915 MHz
Downlink (DL) operating band BS transmit:	925 MHz to 960 MHz
Type of Modulation:	QPSK, 16QAM, 64QAM
Channel bandwidth(s):	5 MHz, 10 MHz, 15 MHz, 20 MHz
Maximum output power (Uplink):	22.7 dBm, conducted
Maximum output power (Downlink):	33.2 dBm, conducted

Description of service:	E-UTRA LTE Band 20 (Repeater)
Uplink (UL) operating band BS receive:	832 MHz to 862 MHz
Downlink (DL) operating band BS transmit:	791 MHz to 821 MHz
Type of Modulation:	QPSK, 16QAM, 64QAM
Channel bandwidth(s):	5 MHz, 10 MHz, 15 MHz, 20 MHz
Maximum output power (Uplink):	17.5 dBm, conducted
Maximum output power (Downlink):	33.1 dBm, conducted



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- 1 Test report: Report number: Dated:
EMC E20210816083201-2 10 November 2021
Radio E20210816083201-1 10 November 2021
RF safety E20210816083201-3 10 November 2021
Product safety S2021081625280101 02 November 2021
- 2 Technical documentations provided: Assembly drawing(s) Block diagram
User manual External photographs Internal photographs
Circuit diagram/schematics Operational description Parts list/bill of materials
Label drawing/location Test reports Test setup photographs
PCB layout EU declaration of conformity
Risk assessment letter
- 3 Standards used to demonstrate conformity with the essential requirements of Radio Equipment Directive 2014/53/EU:
- Radio Spectrum (Article 3.2): EN 301 908-1 V13.1.1
EN 301 908-11 V11.1.2
EN 301 908-15 V15.1.1
EN 303 609 V12.5.1
- EMC (Article 3.1b): EN 301 489-1 V2.2.3
EN 301 489-50 V2.3.1
- RF safety (Article 3.1a): EN 62311: 2008
- Product safety (Article 3.1a): EN 62368-1: 2014 + A11: 2017



Annex 2 to EU-type examination certificate for Radio Equipment Directive 2014/53/EU
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4 Additional information:

This is a Class 1 device.

Radio Equipment Directive 2014/53/EU, Article 10.4: Manufacturers shall keep the technical documentation and the EU declaration of conformity for 10 years after the radio equipment has been placed on the market.

Radio Equipment Directive 2014/53/EU, Article 10.6: Manufacturers shall ensure that radio equipment which they have placed on the market bears a type, batch or serial number or other element allowing its identification, or, where the size or nature of the radio equipment does not allow it, that the required information is provided on the packaging, or in a document accompanying the radio equipment.

Radio Equipment Directive 2014/53/EU, Article 10.7: Manufacturers shall indicate on the radio equipment their name, registered trade name or registered trade mark and the postal address at which they can be contacted or, where the size or nature of radio equipment does not allow it, on its packaging, or in a document accompanying the radio equipment. The address shall indicate a single point at which the manufacturer can be contacted. The contact details shall be in a language easily understood by end-users and market surveillance authorities.

Radio Equipment Directive 2014/53/EU, Article 10.8: Manufacturers shall ensure that the radio equipment is accompanied by instructions and safety information in a language which can be easily understood by consumers and other end-users, as determined by the Member State concerned. Instructions shall include the information required to use radio equipment in accordance with its intended use. Such information shall include, where applicable, a description of accessories and components, including software, which allow the radio equipment to operate as intended. Such instructions and safety information, as well as any labelling, shall be clear, understandable and intelligible.

The following information shall also be included in the case of radio equipment intentionally emitting radio waves:

- (a) frequency band(s) in which the radio equipment operates;
- (b) maximum radio-frequency power transmitted in the frequency band(s) in which the radio equipment operates.

Radio Equipment Directive 2014/53/EU, Article 10.9: Manufacturers shall ensure that each item of radio equipment is accompanied by a copy of the EU declaration of conformity or by a simplified EU declaration of conformity. Where a simplified EU declaration of conformity is provided, it shall contain the exact internet address where the full text of the EU declaration of conformity can be obtained.

Radio Equipment Directive 2014/53/EU, Article 10.10: In cases of restrictions on putting into service or of requirements for authorization of use, information available on the packaging shall allow the identification of the Member States or the geographical area within a Member State where restrictions on putting into service or requirements for authorization of use exist. Such information shall be completed in the instructions accompanying the radio equipment.

Radio Equipment Directive 2014/53/EU, Article 19.2: On account of the nature of radio equipment, the height of the CE marking affixed to radio equipment may be lower than 5 mm, provided that it remains visible and legible.

Radio Equipment Directive 2014/53/EU, Article 20.1: The CE marking shall be affixed visibly, legibly and indelibly to the radio equipment or to its data plate, unless that is not possible or not warranted on account of the nature of radio equipment. The CE marking shall also be affixed visibly and legibly to the packaging.



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Radio Equipment Directive 2014/53/EU, Annex III, Module B.7: The manufacturer shall inform the notified body that holds the technical documentation relating to the EU-type examination certificate of all modifications to the approved type that may affect the conformity of the radio equipment with the essential requirements of this Directive or the conditions for validity of that certificate. Such modifications shall require additional approval in the form of an addition to the original EU-type examination certificate.

This review includes draft standards, deviations from the standards and technical justification for compliance.

In accordance with Notified Body guidance; if there are no changes, a Notified Body EU type examination certificate has a validity of 10 years from the date of issue.

5 Contact information:

For contact with ACB or questions regarding this EU-type examination certificate:

Web: www.acbcert.com

<http://acbcert.com/contact>

Tel.: (+1) 703 847 4700

