TEST REPORT

No. 25T04Z100018-001

for

Japan Radio Co., Ltd.

Product Name: CBRS eNodeB

Model Name: JRL-119

FCC ID: CKEJRL-119

with

Hardware Version: D01

Software Version: JR_1.1.1

Issued Date: 2025-04-10

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: cttl_terminals@caict.ac.cn, website: www.caict.ac.cn

REPORT HISTORY

Report Number	Revision	Description	Issue Date
25T04Z100018-001	Rev.0	1st edition	2025-04-10

Note: the latest revision of the test report supersedes all previous version.

CONTENTS

1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA website.

1.2. Testing Location

Location 1: CTTL(BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology Development Area, Beijing 100176, P. R. China

1.3. Testing Environment

Normal Temperature: 15-35° C

Relative Humidity: 20-75%

1.4. Project data

Testing Start Date: 2025-02-18

Testing End Date: 2025-02-24

1.5. Signature

Zhang Ying

(Prepared this test report)

An Hui

(Reviewed this test report)

Zhang Xia

Deputy Director of the laboratory

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	Japan Radio Co., Ltd.
Address:	3000 Scott Blvd, Suite 212, Santa Clara, California 95054, United States
City:	/
Postal Code:	/
Country:	/
Contact	Yuji Kinoshita
Email	kinoshita.yuji@jrc.co.jp
Telephone:	+81-49-257-6468
Fax:	/

2.2. Manufacturer Information

Company Name:	Japan Radio Co., Ltd.
Address:	3000 Scott Blvd, Suite 212, Santa Clara, California 95054, United States
City:	/
Postal Code:	/
Country:	/
Contact	Yuji Kinoshita
Email	kinoshita.yuji@jrc.co.jp
Telephone:	+81-49-257-6468
Fax:	+81-49-257-6214

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	CBRS eNodeB
Model Name	JRL-119
FCC ID	CKEJRL-119

Note: The EUT functions are described in Annex A of this test report. Specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the client. Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL,Telecommunication Technology Labs,CAICT

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version
UT01a	12020004712217Y0038	D01	JR_1.1.1

*EUT ID: is used to identify the test sample in the lab internally. The HW and SW version information were provided by the applicant.

3.3. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	UT01a	/

4. Reference Documents

4.1. Documents supplied by applicant

EUT parameters, referring to Annex A for detailed information, were supplied by the client or manufacturer, which is the basis of testing. CAICT is not responsible for the accuracy of customer supplied technical information that may affect the test results (for example, antenna gain and loss of customer supplied cable).

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices - Unintentional Radiators	2023
ANSI C63.4	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

Note: The test methods have no deviation with standards.

5. Test Results

Abbreviations used in this clause:		
Verdict Column	P	Pass
	F	Fail
	BR	Re-use test data from basic model report.
	NA	Not applicable
	NM	Not measured

Items	Test Name	Clause in FCC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	B.1	P	**CTTL(BDA)**
2	Conducted Emission	15.107(a)	B.2	P	**CTTL(BDA)**

6. Test Facilities Utilized

Test instruments list:

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	LISN	ENV216	101459	R&S	1 year	2025-05-16
2	Test Receiver	ESCI 3	100766	R&S	1 year	2025-04-18
3	Test Receiver	ESU26	100376	R&S	1 year	2025-06-06
5	EMI Antenna	VULB 9163	01177	SCHWARZBECK	1 year	2025-11-09
6	EMI Antenna	3117	00119021	ETS-Lindgren	1 year	2025-09-18
7	Test Receiver	FSV40	101047	ETS-Lindgren	1 year	2025-07-18
8	EMI Antenna	LB-18040 0-25-C-KF	2110084000 006	A-INFO	1 year	2025-05-15

Test software list:

Test Item	Test Software	Software Vendor
Conducted emission	EMC32 V8.53.0	R&S
Radiated emission	EMC32 V8.53.0	R&S

Semi-anechoic chamber utilized did not exceed following limits along the testing:

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 10 m distance
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 6GHz

Shielded room utilized did not exceed following limits along the testing:

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz－1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω

7. Measurement Uncertainty

Where relevant, the following measurement uncertainty(worse case) levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Location 1: CTTL(BDA)

SAC/FAC2

Test item	Frequency ranges	Measurement uncertainty
Radiated Emission	30MHz-1GHz	5.73dB(*k*=2)
	1GHz-18GHz	5.58dB(*k*=2)
Conducted Emission	150kHz-30MHz	AC Power Line: 3.10dB(*k*=2)

ANNEX A: EUT parameters

Cellular Bands	☐GSM	Band
	☐CDMA	Band
	☐WCDMA	Band
	√LTE	Band 48 Channel Bandwidth: 10/20 MHz Modulation: UL: QPSK, 16QAM, 64QAM DL: QPSK, 16QAM, 64QAM
	☐5G	Band
Other	☐GNSS	√GPS ☐BDS ☐Gallileo ☐Glonass
	☐FM ☐MP3 ☐MP4 ☐Camera ☐USB data ☐NFC	
Power Supply	-40VDC ~ -57VDC, nominal -48VDC AC adaptor (multi-national standards)	

ANNEX B: Detailed Test Results

B.1. Radiated Emission

Reference: FCC Part 15.109(a).

Method of measurement: The field strength of radiated emissions from the unintentional radiator at distances of 3/10 meters(for 30MHz-1GHz) and 3 meters (for above 1GHz) were tested. The test was in accordance with the procedures of ANSI C63.4 – 2014, section 8.3.
The EUT was placed on a non-conductive table. The measurement antenna was placed at the specified distance from the EUT. During the test, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

EUT operating mode: The EUT was operating in the charging mode. During the test, the EUT was connected to a charger in the case of charging mode. All equipment was placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions.

Measurement limit:
CLASS A

Frequency range (MHz)	Field strength limit (microvolts/meter)		
	Quasi-peak	Average	Peak
30-88	90		
88-216	150		
216-960	210		
960-1000	300		
>1000		300	3000

Note: the above limit is for 10 meters test distance. The limits for 3 meters distance is got by converting: Limit(10m) = Limit(3m) + 20[log(3/10)], which is according to FCC 15.109(g)(2)

Test settings:

Frequency range (MHz)	RBW/VBW	Sweep Time (s)	Detector
30-1000	120kHz (IF Bandwidth)	5	Peak/Quasi-peak
Above 1000	1MHz/3MHz	15	Peak, Average

Measurement results:
A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”. It includes the antenna factor of receive antenna and the path loss.
The measurement results are obtained as described below:
Result = $P_{Mea} + A_{Rpl} = P_{Mea} + G_A + G_{PL}$

Where

G_A: Antenna factor of receive antenna

G_{PL}: Path Loss

P_{Mea}: Measurement result on receiver.

Note: The measurement results showed as followed are worst cases, and the combinations of different batteries, cables and headsets were considered if applicable.

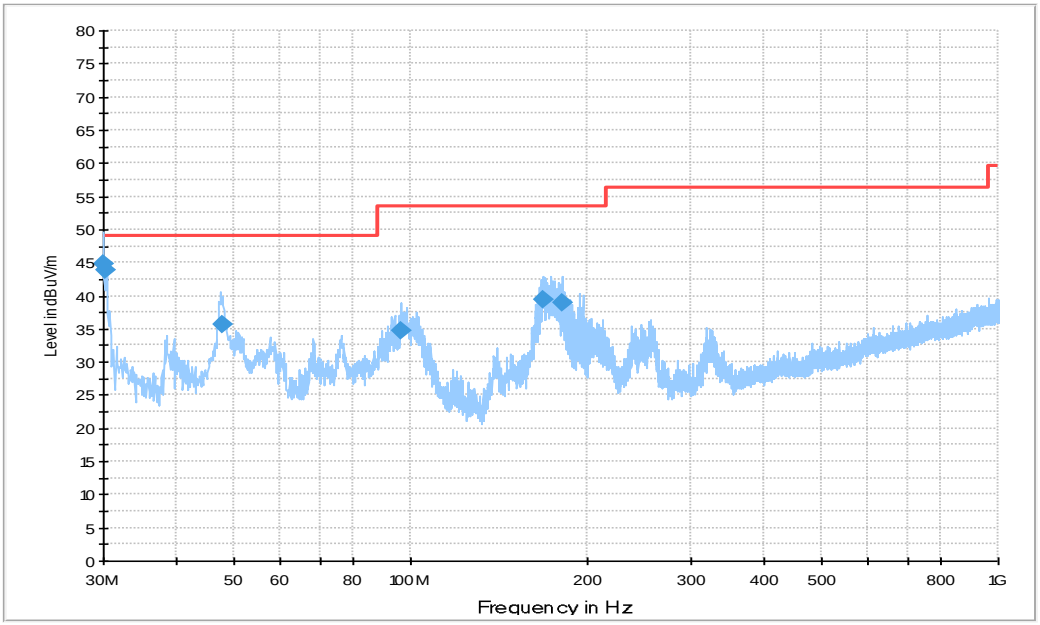

Figure A.1 Radiated Emission from 30MHz to 1GHz (class A)

QP detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
30.000000	44.9	50.0	5.1	100.0	V	248.0
30.288000	43.9	50.0	6.1	113.0	V	267.0
47.754000	35.7	50.0	14.3	125.0	V	22.0
96.448000	34.7	53.5	18.8	100.0	V	197.0
167.603000	39.4	53.5	14.1	125.0	H	112.0
181.026000	39.1	53.5	14.4	125.0	H	292.0

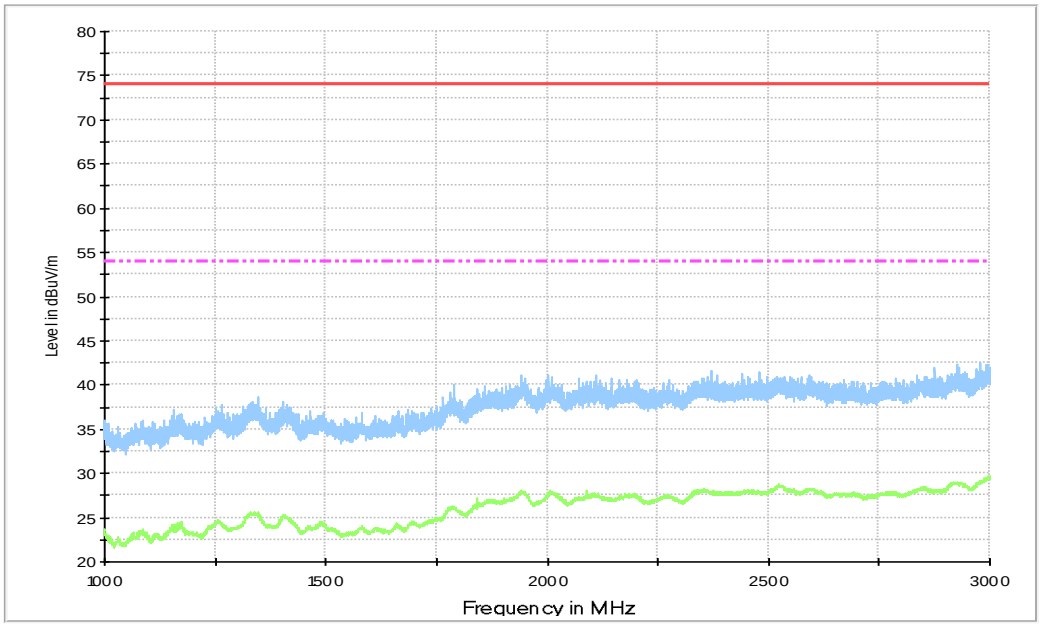

Figure A.2 Radiated Emission from 1GHz to 3GHz (class A)

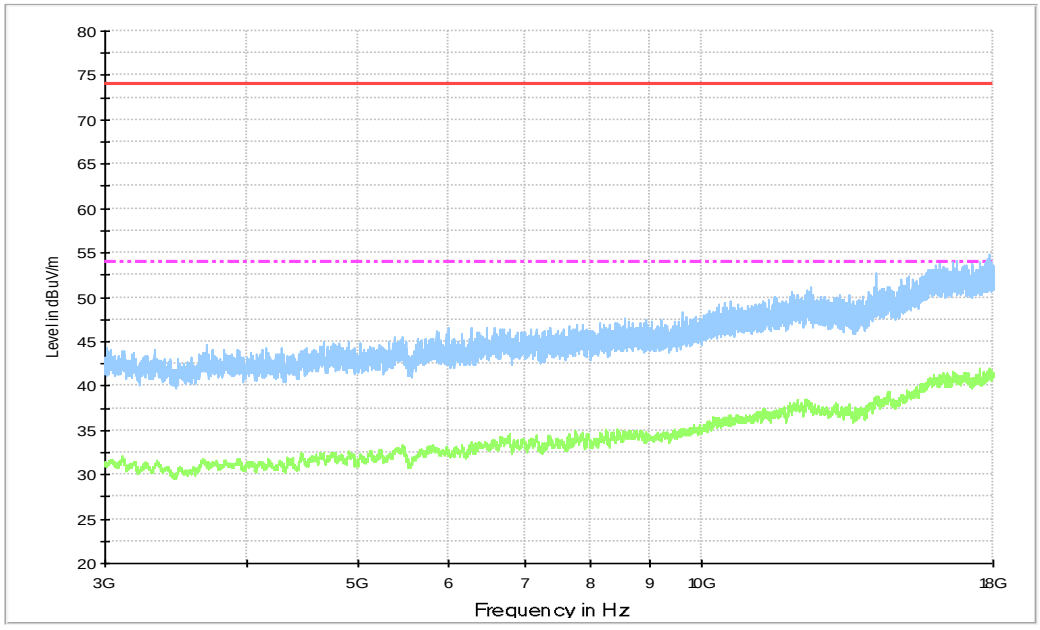

Figure A.3 Radiated Emission from 3GHz to 18GHz (class A)

Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17541.000	41.93	-21.2	40.5	22.64	54.0	12.1	V
17882.500	41.93	-20.6	40.8	21.80	54.0	12.1	V
17884.500	41.84	-21.0	40.5	22.36	54.0	12.2	V
17540.500	41.82	-21.1	40.5	22.36	54.0	12.2	V
17950.500	41.81	-21.0	40.5	22.25	54.0	12.2	V
17887.000	41.80	-20.9	40.6	22.13	54.0	12.2	V

Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17872.500	54.9	-21.2	40.5	35.56	74.0	19.1	V
17825.500	54.4	-21.4	40.6	35.24	74.0	19.6	V
17895.000	54.3	-21.1	40.5	34.87	74.0	19.7	V
16693.500	54.2	-22.6	41.4	35.37	74.0	19.8	V
17728.500	54.0	-21.8	40.5	35.32	74.0	20.0	V
17539.500	54.0	-20.7	40.8	33.92	74.0	20.0	V

B.2. Conducted Emission

Reference: FCC: Part 15.107(a).

Method of measurement: For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 – 2014, section 7.3.

EUT operating mode: The EUT is operating in the charging mode.

Measurement limit:

CLASS A

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	79	66
0.5-30	73	60
*Decreases with the logarithm of the frequency		

Test Settings:

Voltage(V)	Frequency(Hz)
120	60

RBW/IF bandwidth	Sweep Time(s)
9kHz	1

Measurement results:

The measurement results showed as followed are worst cases, and the combinations of different batteries, cables and headsets were considered if applicable.

Charger, Set.1

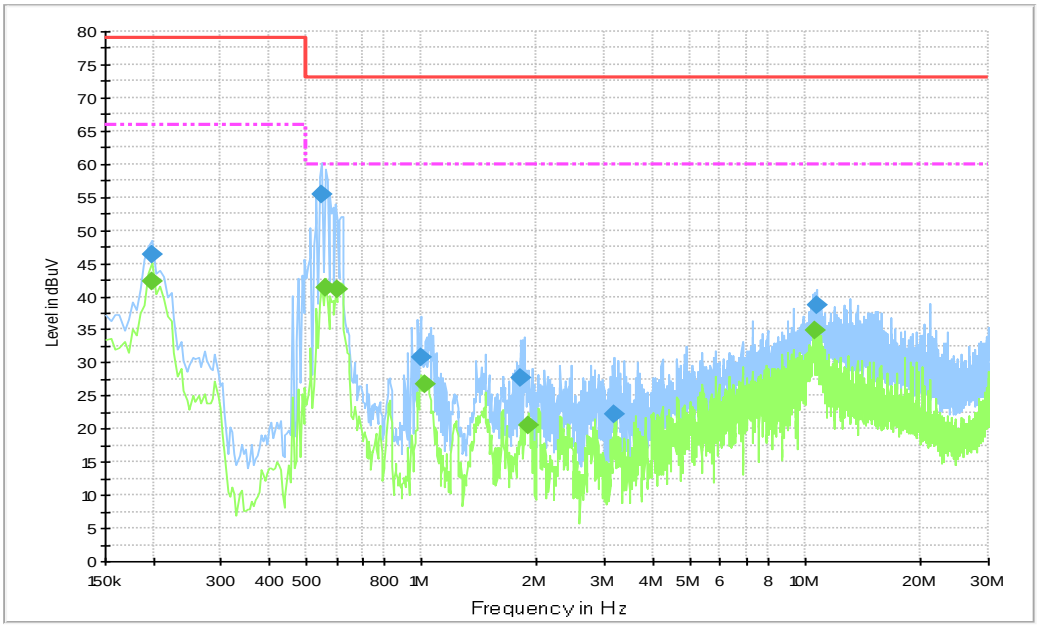

Figure A.5 Conducted Emission (class A)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.199500	46.3	2000.0	9.000	On	N	20.0	32.7	79.0
0.550500	55.5	2000.0	9.000	On	L1	20.1	17.5	73.0
0.996000	30.9	2000.0	9.000	On	L1	19.9	42.1	73.0
1.819500	27.7	2000.0	9.000	On	N	20.0	45.3	73.0
3.169500	22.2	2000.0	9.000	On	L1	19.9	50.8	73.0
10.657500	38.8	2000.0	9.000	On	L1	20.0	34.2	73.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.199500	42.3	2000.0	9.000	On	N	20.0	23.7	66.0
0.559500	41.3	2000.0	9.000	On	N	20.2	18.7	60.0
0.604500	41.0	2000.0	9.000	On	L1	20.0	19.0	60.0
1.023000	26.8	2000.0	9.000	On	L1	19.9	33.2	60.0
1.905000	20.5	2000.0	9.000	On	N	20.0	39.5	60.0
10.639500	34.8	2000.0	9.000	On	L1	20.0	25.2	60.0

ANNEX C: Persons involved in this testing

Test Item	Tester
Radiated Emission	Sun Tianyuan
Conducted Emission	Yan Xiaorui

*****END OF REPORT*****