FCC RADIO TEST REPORT
FCC ID: 2BK8UCB20RDNAR1

Product: ConBox2020RD

Trade Mark: Lear

Model No.: CB20RDNAR1

Family Model: N/A

Report No.: S24080903001005

Issue Date: Oct. 09, 2024

Prepared for

Lear Corporation Engineering GmbH

Industriestrasse 48, Kronach, Germany, 96317

Prepared by

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1 TEST RESULT CERTIFICATION

Applicant's name .....:	Lear Corporation Engineering GmbH
Address .....:	Industriestrasse 48, Kronach, Germany, 96317
Manufacturer's Name .....:	Lear Corporation Engineering GmbH
Address .....:	Industriestrasse 48, Kronach, Germany, 96317
Product description	
Product name .....:	ConBox2020RD
Model and/or type reference .....:	CB20RDNAR1
Family Model .....:	N/A
Sample number	S240809030001
Date of Test	Aug. 11, 2024 ~ Oct. 08, 2024

Measurement Procedure Used:

APPLICABLE STANDARDS	
APPLICABLE STANDARD/ TEST PROCEDURE	TEST RESULT
47 CFR Part 2, Part 22H, Part 24E, Part 27L FCC KDB 971168 D01 Power Meas License Digital Systems v03r01 ANSI C63.26:2015	Complied

This device described above has been tested by Shenzhen NTEK Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
This report shall not be reproduced except in full, without the written approval of Shenzhen NTEK Testing Technology Co., Ltd., this document may be altered or revised by Shenzhen NTEK Testing Technology Co., Ltd., personnel only, and shall be noted in the revision of the document.
The test results of this report relate only to the tested sample identified in this report.

Prepared By : Mary Hu (Project Engineer)

Reviewed By : Aaron Cheng (Supervisor)

Approved By : Alex Li (Manager)

2 SUMMARY OF TEST RESULTS

FCC Part22H / FCC Part24E / FCC Part27L & ANSI C63.26-2015			
FCC Rule	**Test Item**	**Verdict**	**Remark**
2.1046	Conducted Output Power	PASS**	
24.232	Peak-to-Average Ratio	PASS**	
2.1049	Occupied Bandwidth	PASS**	
2.1051 22.917 24.238 27.53	Band Edge	PASS**	
22.913 24.232 27.50	Effective Radiated Power & Equivalent Isotropic Radiated Power	PASS**	
2.1053 22.917 24.238 27.53	Field Strength of Spurious Radiation	PASS	
2.1055 22.355 24.235 27.54	Frequency Stability for Temperature & Voltage	PASS**	
2.1051 22.917 24.238 27.53	Conducted Emission	PASS**	

Remark:
1. “N/A” denotes test is not applicable in this Test Report.
2. All test items were verified and recorded according to the standards and without any deviation during the test.
3. No modifications are made to the EUT during all test items.
4. **The maximum conducted power is verified to be the same. The conducted signal test data may be re-used. Please check FCC ID: NKR-UMCSTD35GN (Report No.: RFBCKS-WTW-P24050344-2)

3 FACILITIES AND ACCREDITATIONS

3.1 FACILITIES

All measurement facilities used to collect the measurement data are located at
1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.
The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.10 and CISPR Publication 22.

3.2 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description		
CNAS-Lab.	:	The Certificate Registration Number is L5516.
IC-Registration		The Certificate Registration Number is 9270A.
FCC- Accredited		Test Firm Registration Number: 463705. Designation Number: CN1184
A2LA-Lab.		The Certificate Registration Number is 4298.01 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).
Name of Firm	:	Shenzhen NTEK Testing Technology Co., Ltd.
Site Location	:	1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

3.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	±3.1dB
2	RF power, conducted	±0.9dB
3	Spurious emissions, conducted	±2.2dB
4	All emissions, radiated(<1G)	±5.2dB
5	All emissions, radiated(>1G)	±5.1dB
6	Temperature	±0.5°C
7	Humidity	±2%
8	Occupied bandwidth	±3.7%

4 GENERAL DESCRIPTION OF EUT

Product Feature and Specification	
Equipment	ConBox2020RD
Trade Mark	Lear
FCC ID	2BK8UCB20RDNAR1
Model No.	CB20RDNAR1
Family Model	N/A
Model Difference	N/A
Operating Frequency	☒GSM850: TX824.2MHz~848.8MHz /RX869.2MHz~893.8MHz; ☒GSM1900: TX1850.2MHz~1909.8MHz /RX1930.2MHz~1989.8MHz; ☒WCDMA Band II: TX1852.4MHz~1907.6MHz /RX1932.4MHz~1987.6MHz; ☒WCDMA Band IV:TX1710MHz~1755MHz /RX2110MHz~2155MHz ☒WCDMA Band V: TX826.4MHz~846.6MHz /RX871.4MHz~891.6MHz;
Modulation	☒GMSK for GSM/GPRS; ☒8PSK for EGPRS; ☒BPSK, QPSK for UMTS bands;
Power Class	4, tested with power level 5(GSM 850) 1, tested with power level 0(GSM 1900) 3, tested with power control “all 1”(WCDMA Band II/IV/V)
GPRS Class	☒Multi-Class12 ☒Only 4 timeslots are used for GPRS/EGPRS
Uplink & Downlink:	1Up & 2Down
Antenna Description:	TX/PRX External Antenna 1(4K0.035.503.D): GSM850: 4.9dBi; GSM1900: 6dBi; WCDMA Band II: 6dBi; WCDMA Band IV: 6dBi; WCDMA Band V: 4.9dBi; DRX External Antenna 2(4M0.035.504.A): GSM850: 0.46dBi; GSM1900: 1.36dBi; WCDMA Band II: 1.36dBi; WCDMA Band IV: 1.36dBi; WCDMA Band V: 0.46dBi; TX/RX Internal Antenna(WAG-M-LTE10-00-007-B): GSM850: -0.66dBi; GSM1900: 4.69dBi; WCDMA Band II: 4.69dBi; WCDMA Band IV: 5.25dBi; WCDMA Band V: -0.66dBi;
Adapter	N/A
Battery	Typical Capacity: DC 3.2V, 1.1Ah, 3.52Wh Rated Capacity: DC 3.6V, 1.05Ah, 3.36Wh
Power supply	DC 12V
HW Version	H04
SW Version	0340

Note: Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.

Revision History

Report No.	Version	Description	Issued Date
S24080903001005	Rev.01	Initial issue of report	Oct. 09, 2024

5 DESCRIPTION OF TEST MODES

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMU 200 or CMW 500) to ensure max power transmission and proper modulation. Three channels (The low channel, the middle channel and the high channel) were chosen for testing on, GSM/GPRS/EGPRS 850, GSM/GPRS/EGPRS 1900, WCDMA/HSDPA/HSUPA Band II, WCDMA/HSDPA/HSUPA Band IV, WCDMA/HSDPA/HSUPA Band V.
Note: GSM/GPRS/EGPRS 850, GSM/GPRS/EGPRS 1900, WCDMA/HSDPA/HSUPA Band II, WCDMA/HSDPA/HSUPA Band IV, WCDMA/HSDPA/HSUPA Band V modes have been tested during the test. the worst condition (GMSK/RMC12.2k) be recorded in the test report if no other modes test data.

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.
Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.
Radiated emissions were investigated as following frequency range:
1. 30 MHz to 10th harmonic for GSM850, WCDMA/HSDPA/HSUPA Band V
2. 30 MHz to 10th harmonic for GSM1900, WCDMA/HSDPA/HSUPA Band II, WCDMA/HSDPA/HSUPA Band IV
All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	For Conducted Test Cases	For Radiated Test Cases
GSM 850/1900	GPRS Link	GPRS Link
WCDMA Band II/IV/V	RMC 12.2k Link	RMC 12.2k Link

Test Frequency and Channels:

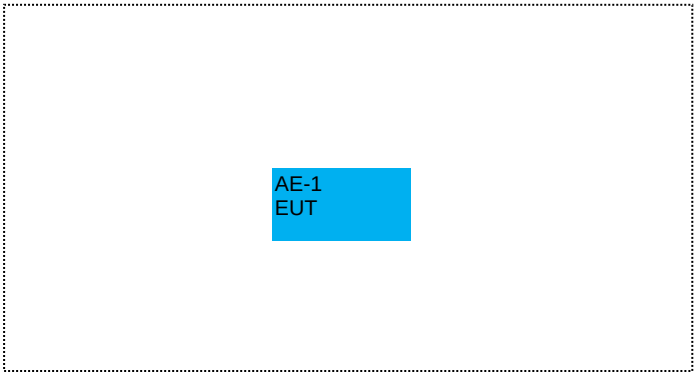
Frequency Band	☒ GSM 850		☒GSM 1900	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH_H	251	848.8	810	1909.8
CH_M	189	836.4	661	1880.0
CH_L	128	824.2	512	1850.2

Frequency Band	☒ WCDMA Band II		☒ WCDMA Band IV		☒ WCDMA Band V	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH_H	9538	1907.6	1513	1752.6	4233	846.6
CH_M	9400	1880.0	1412	1732.4	4182	836.4
CH_L	9262	1852.4	1312	1712.4	4132	826.4

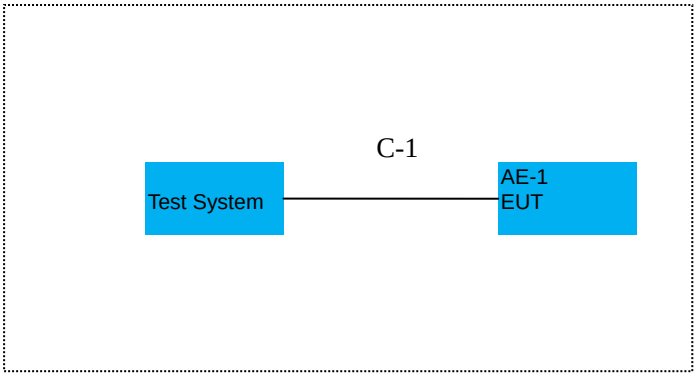
6 SETUP OF EQUIPMENT UNDER TEST

6.1 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM

For Radiated Test Cases



For Conducted Test Cases



6.2 SUPPORT EQUIPMENT

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
AE-1	ConBox2020RD	Lear	CB20RDNAR1	N/A	EUT

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	RF Cable***	YES	NO	54cm

Notes:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.
(3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.
(4) “***” RF Cable is between the module and the antenna, that’s part of the EUT. Provided by the applicant.

6.3 EQUIPMENTS LIST FOR ALL TEST ITEMS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	N9020A	MY53280244	2024.04.26	2025.04.25	1 year
2	Spectrum Analyzer	R&S	FSV40	101417	2024.04.26	2025.04.25	1 year
3	Test Receiver	R&S	ESPI7	101318	2024.03.12	2025.03.11	1 year
4	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2024.05.17	2027.05.16	3 year
5	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2024.05.12	2025.05.11	1 year
6	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2024.05.18	2027.05.17	3 year
7	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2024.05.12	2027.05.11	3 year
8	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
9	Pre-Amplifier	EMC	EMC051835SE	980246	2024.01.23	2025.01.22	1 year
10	Low Noise Amplifier	B&Z	BZ-P540-550850-452727	16476-11729	2024.02.03	2025.02.02	1 year
11	Pre-Amplifier	Sonoma	310N	186604	2024.04.25	2025.04.24	1 year
12	Signal Generaror	Keysight	N5183B	MY57280984	2024.05.30	2025.05.29	1 year
13	Wireless Communications Test Set	R&S	CMW500	103917	2024.04.26	2025.04.25	1 year
14	RF Control Unit	MWRFtest	MW200-RFCB	MW201103NTEK	N/A	N/A	N/A

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRFtest	MTS 8200	2.0	RF Conducted Test
2	raditeq	RadiMation	2023.1.3	Radiated Test

7 TEST REQUIREMENTS

7.1 FIELD STRENGTH OF SPURIOUS RADIATION

7.1.1 Applicable Standard

According to FCC KDB 971168 D01 v03r01 Section 7 and ANSI C63.26: 2015 Section 5.5

7.1.2 Conformance Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

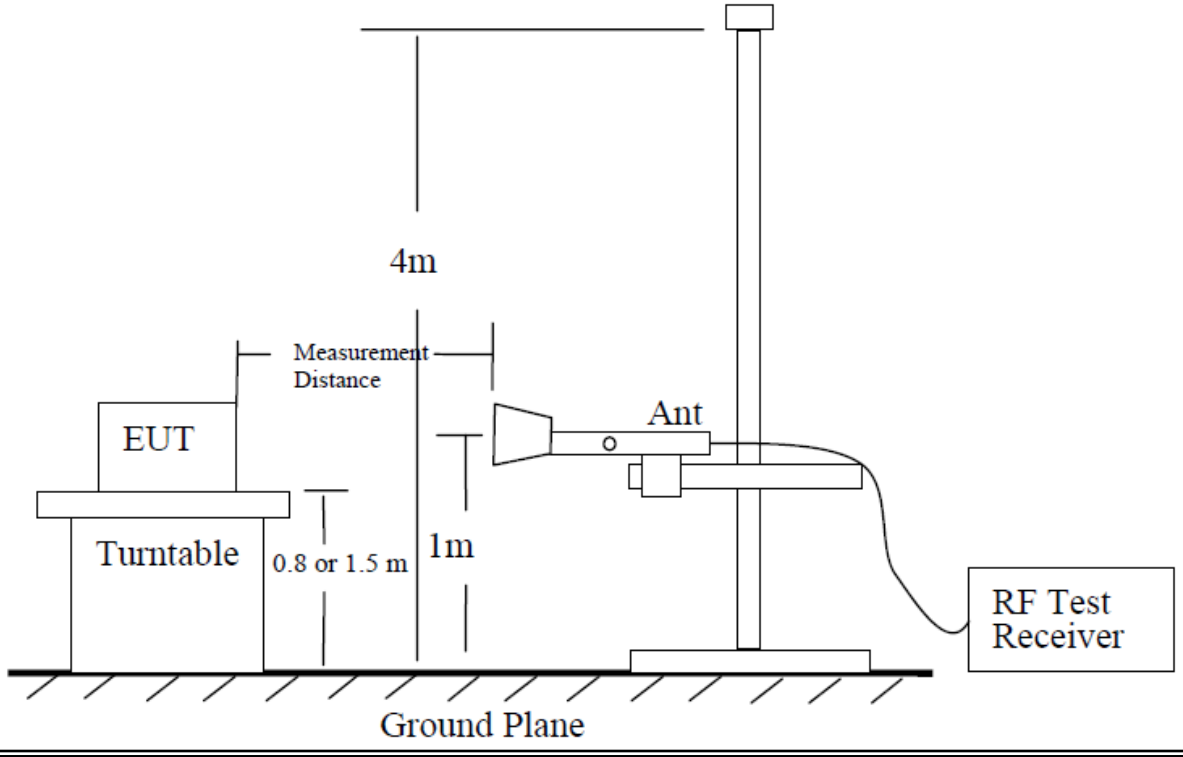
7.1.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.1.4 Test Configuration

According to the ANSI C63.26: 2015 test method, The Receiver or Spectrum was scanned from 9 KHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1910 MHz. The resolution bandwidth is set as outlined in Part 24.238, Part 22.917, Part 27.53. The spectrum is scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of WCDMA Band II/IV/V, GSM 850/1900.

TEST CONFIGURATION



7.1.5 Test Procedure

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

For 30MHz to 1GHz

1. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) height of turn table. rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
2. The height of antenna is varied from one meter to four meters above the around to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
4. Following C63.26 section 5.5 and 5.2.7

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz: The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

Above 1GHz

1. In the semi-anechoic chamber, EUT placed on the 1.5 m height of turn table, rotated the table around 360degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
2. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
4. Following C63.26 section 5.5 and 5.2.7.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.

7.1.6 Test Results

EUT:	ConBox2020RD	Model No.:	CB20RDNAR1
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	GPRS 850/1900, WCMDA Band II/IV/V		

■ Radiated Spurious Emission

Number	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Emission Level (dBm)	Limit (dBm)	Difference (dB)	Distance (m)	Polarization	Status
GSM850 GPRS 1TS L CH									
1	1236.3	1000	3000	-46.0	-13.0	-33.0	3	Horizontal	Pass
2	1648.55	1000	3000	-44.9	-13.0	-31.9	3	Horizontal	Pass
3	2060.375	1000	3000	-45.8	-13.0	-32.8	3	Horizontal	Pass
4	3194.275	1000	3000	-50.8	-13.0	-37.8	3	Horizontal	Pass
5	5753.2	1000	3000	-49.2	-13.0	-36.2	3	Horizontal	Pass
6	17988.525	1000	3000	-31.6	-13.0	-18.6	3	Horizontal	Pass
7	171.6	1000	3000	-26.6	-13.0	-13.6	3	Horizontal	Pass
1	1236.3	1000	3000	-32.5	-13.0	-19.5	3	Vertical	Pass
2	1648.55	1000	3000	-43.7	-13.0	-30.7	3	Vertical	Pass
3	2472.625	1000	3000	-47.7	-13.0	-34.7	3	Vertical	Pass
4	3195.975	1000	3000	-45.0	-13.0	-32.0	3	Vertical	Pass
5	6408.55	1000	3000	-42.6	-13.0	-29.6	3	Vertical	Pass
6	17938.8	1000	3000	-31.9	-13.0	-18.9	3	Vertical	Pass
7	245.8	1000	3000	-23.3	-13.0	-10.3	3	Vertical	Pass
GSM850 GPRS 1TS M CH									
1	1400.35	1000	3000	-46.3	-13.0	-33.3	3	Vertical	Pass
2	1672.775	1000	3000	-36.3	-13.0	-23.3	3	Vertical	Pass
3	2509.175	1000	3000	-44.7	-13.0	-31.7	3	Vertical	Pass
4	3198.525	1000	3000	-46.1	-13.0	-33.1	3	Vertical	Pass
5	6400.475	1000	3000	-44.1	-13.0	-31.1	3	Vertical	Pass
6	17991.075	1000	3000	-31.2	-13.0	-18.2	3	Vertical	Pass
7	274.0	1000	3000	-25.6	-13.0	-12.6	3	Vertical	Pass
1	1120.275	1000	3000	-54.4	-13.0	-41.4	3	Horizontal	Pass
2	1673.2	1000	3000	-47.5	-13.0	-34.5	3	Horizontal	Pass
3	2509.175	1000	3000	-53.5	-13.0	-40.5	3	Horizontal	Pass
4	6397.5	1000	3000	-48.1	-13.0	-35.1	3	Horizontal	Pass
5	11882.55	1000	3000	-42.2	-13.0	-29.2	3	Horizontal	Pass
6	17879.725	1000	3000	-31.5	-13.0	-18.5	3	Horizontal	Pass
7	136.8	1000	3000	-32.3	-13.0	-19.3	3	Horizontal	Pass

Number	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Emission Level (dBm)	Limit (dBm)	Difference (dB)	Distance (m)	Polarization	Status
GSM850 GPRS 1TS H CH									
1	1116.025	1000	3000	-54.0	-13.0	-41.0	3	Horizontal	Pass
2	1697.85	1000	3000	-26.9	-13.0	-13.9	3	Horizontal	Pass
3	2546.575	1000	3000	-34.4	-13.0	-21.4	3	Horizontal	Pass
4	4352.825	1000	3000	-54.0	-13.0	-41.0	3	Horizontal	Pass
5	6365.625	1000	3000	-47.3	-13.0	-34.3	3	Horizontal	Pass
6	17999.15	1000	3000	-30.5	-13.0	-17.5	3	Horizontal	Pass
7	85.0	1000	3000	-30.2	-13.0	-17.2	3	Horizontal	Pass
1	1390.15	1000	3000	-45.4	-13.0	-32.4	3	Vertical	Pass
2	1697.425	1000	3000	-39.1	-13.0	-26.1	3	Vertical	Pass
3	2546.575	1000	3000	-46.0	-13.0	-33.0	3	Vertical	Pass
4	3191.725	1000	3000	-44.4	-13.0	-31.4	3	Vertical	Pass
5	6375.4	1000	3000	-44.2	-13.0	-31.2	3	Vertical	Pass
6	17917.55	1000	3000	-31.5	-13.0	-18.5	3	Vertical	Pass
7	171.5	1000	3000	-27.9	-13.0	-14.9	3	Vertical	Pass

Remark:
1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 – 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

Number	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Emission Level (dBm)	Limit (dBm)	Difference (dB)	Distance (m)	Polarization	Status
GSM1900 GPRS 1TS L CH									
1	1197.2	1000	3000	-50.9	-13.0	-37.9	3	Vertical	Pass
2	1850.425	1000	3000	-39.8	-13.0	-26.8	3	Vertical	Pass
3	3700.45	1000	3000	-31.5	-13.0	-18.5	3	Vertical	Pass
4	5550.9	1000	3000	-41.6	-13.0	-28.6	3	Vertical	Pass
5	7400.925	1000	3000	-42.4	-13.0	-29.4	3	Vertical	Pass
6	11101.825	1000	3000	-37.6	-13.0	-24.6	3	Vertical	Pass
7	218.7	1000	3000	-32.2	-13.0	-19.2	3	Vertical	Pass
1	1196.775	1000	3000	-48.4	-13.0	-35.4	3	Horizontal	Pass
2	1850.425	1000	3000	-38.2	-13.0	-25.2	3	Horizontal	Pass
3	3700.45	1000	3000	-38.6	-13.0	-25.6	3	Horizontal	Pass
4	5550.475	1000	3000	-41.9	-13.0	-28.9	3	Horizontal	Pass
5	7400.925	1000	3000	-33.6	-13.0	-20.6	3	Horizontal	Pass
6	11101.4	1000	3000	-32.9	-13.0	-19.9	3	Horizontal	Pass
7	91.1	1000	3000	-27.8	-13.0	-14.8	3	Horizontal	Pass
GSM1900 GPRS 1TS M CH									
1	1196.775	1000	3000	-48.3	-13.0	-35.3	3	Horizontal	Pass
2	1880.175	1000	3000	-39.6	-13.0	-26.6	3	Horizontal	Pass
3	3759.95	1000	3000	-46.9	-13.0	-33.9	3	Horizontal	Pass
4	7519.925	1000	3000	-41.0	-13.0	-28.0	3	Horizontal	Pass
5	9400.125	1000	3000	-44.6	-13.0	-31.6	3	Horizontal	Pass
6	17976.625	1000	3000	-31.5	-13.0	-18.5	3	Horizontal	Pass
7	242.8	1000	3000	-28.7	-13.0	-15.7	3	Horizontal	Pass
1	1196.775	1000	3000	-50.8	-13.0	-37.8	3	Vertical	Pass
2	1666.825	1000	3000	-54.5	-13.0	-41.5	3	Vertical	Pass
3	1880.175	1000	3000	-41.2	-13.0	-28.2	3	Vertical	Pass
4	3759.95	1000	3000	-36.9	-13.0	-23.9	3	Vertical	Pass
5	7519.925	1000	3000	-38.0	-13.0	-25.0	3	Vertical	Pass
6	17914.575	1000	3000	-31.4	-13.0	-18.4	3	Vertical	Pass
7	208.6	1000	3000	-26.7	-13.0	-13.7	3	Horizontal	Pass
GSM1900 GPRS 1TS H CH									
1	1197.2	1000	3000	-51.7	-13.0	-38.7	3	Vertical	Pass
2	1499.8	1000	3000	-54.6	-13.0	-41.6	3	Vertical	Pass
3	1909.925	1000	3000	-31.9	-13.0	-18.9	3	Vertical	Pass
4	3819.875	1000	3000	-46.5	-13.0	-33.5	3	Vertical	Pass
5	5472.275	1000	3000	-50.7	-13.0	-37.7	3	Vertical	Pass
6	11971.375	1000	3000	-41.5	-13.0	-28.5	3	Vertical	Pass
7	101.7	1000	3000	-24.9	-13.0	-11.9	3	Vertical	Pass
1	1197.2	1000	3000	-49.7	-13.0	-36.7	3	Horizontal	Pass
2	1499.8	1000	3000	-55.2	-13.0	-42.2	3	Horizontal	Pass
3	1909.925	1000	3000	-36.2	-13.0	-23.2	3	Horizontal	Pass
4	3819.45	1000	3000	-45.1	-13.0	-32.1	3	Horizontal	Pass
5	11971.375	1000	3000	-41.2	-13.0	-28.2	3	Horizontal	Pass
6	17991.5	1000	3000	-31.4	-13.0	-18.4	3	Horizontal	Pass
7	214.1	1000	3000	-27.8	-13.0	-14.8	3	Horizontal	Pass

Remark:
1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 – 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

Number	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Emission Level (dBm)	Limit (dBm)	Difference (dB)	Distance (m)	Polarization	Status
Worst-case GSM850 GPRS 1TS L CH Backup Antenna									
1	1353.381	1000	3000	-56.2	-13.0	-43.2	3	Vertical	Pass
2	1994.344	1000	3000	-58.8	-13.0	-45.8	3	Vertical	Pass
3	2689.944	1000	3000	-58.0	-13.0	-45.0	3	Vertical	Pass
4	4977.375	1000	3000	-49.8	-13.0	-36.8	3	Vertical	Pass
5	7998.006	1000	3000	-49.7	-13.0	-36.7	3	Vertical	Pass
6	10976.631	1000	3000	-47.5	-13.0	-34.5	3	Vertical	Pass
7	260.1	1000	3000	-25.3	-13.0	-12.3	3	Vertical	Pass
1	1392.45	1000	3000	-54.4	-13.0	-41.4	3	Horizontal	Pass
2	1754.938	1000	3000	-56.5	-13.0	-43.5	3	Horizontal	Pass
3	2402.069	1000	3000	-56.9	-13.0	-43.9	3	Horizontal	Pass
4	4993.531	1000	3000	-51.4	-13.0	-38.4	3	Horizontal	Pass
5	7723.937	1000	3000	-51.6	-13.0	-38.6	3	Horizontal	Pass
6	10895.85	1000	3000	-49.3	-13.0	-36.3	3	Horizontal	Pass
7	193.6	1000	3000	-23.5	-13.0	-10.5	3	Horizontal	Pass
Worst-case GSM850 GPRS 1TS M CH Backup Antenna									
1	1347.213	1000	3000	-52.9	-13.0	-39.9	3	Horizontal	Pass
2	1771.388	1000	3000	-54.5	-13.0	-41.5	3	Horizontal	Pass
3	2439.962	1000	3000	-53.4	-13.0	-40.4	3	Horizontal	Pass
4	4998.231	1000	3000	-52.7	-13.0	-39.7	3	Horizontal	Pass
5	7390.237	1000	3000	-50.8	-13.0	-37.8	3	Horizontal	Pass
6	10926.4	1000	3000	-49.0	-13.0	-36.0	3	Horizontal	Pass
7	125.0	1000	3000	-23.5	-13.0	-10.5	3	Horizontal	Pass
1	1371.006	1000	3000	-59.6	-13.0	-46.6	3	Vertical	Pass
2	2524.269	1000	3000	-58.3	-13.0	-45.3	3	Vertical	Pass
3	4007.119	1000	3000	-56.9	-13.0	-43.9	3	Vertical	Pass
4	4799.95	1000	3000	-41.3	-13.0	-28.3	3	Vertical	Pass
5	7998.3	1000	3000	-49.8	-13.0	-36.8	3	Vertical	Pass
6	9983.756	1000	3000	-47.3	-13.0	-34.3	3	Vertical	Pass
7	108.3	1000	3000	-26.3	-13.0	-13.3	3	Vertical	Pass
Worst-case GSM850 GPRS 1TS H CH Backup Antenna									
1	1353.381	1000	3000	-55.7	-13.0	-42.7	3	Vertical	Pass
2	1665.931	1000	3000	-55.4	-13.0	-42.4	3	Vertical	Pass
3	2479.912	1000	3000	-58.4	-13.0	-45.4	3	Vertical	Pass
4	4995.587	1000	3000	-50.7	-13.0	-37.7	3	Vertical	Pass
5	7977.444	1000	3000	-48.6	-13.0	-35.6	3	Vertical	Pass
6	12255.325	1000	3000	-48.5	-13.0	-35.5	3	Vertical	Pass
7	137.6	1000	3000	-28.2	-13.0	-15.2	3	Vertical	Pass
1	1356.025	1000	3000	-54.1	-13.0	-41.1	3	Horizontal	Pass
2	1777.263	1000	3000	-55.3	-13.0	-42.3	3	Horizontal	Pass
3	2479.912	1000	3000	-49.6	-13.0	-36.6	3	Horizontal	Pass
4	4977.375	1000	3000	-52.1	-13.0	-39.1	3	Horizontal	Pass
5	8839.306	1000	3000	-50.6	-13.0	-37.6	3	Horizontal	Pass
6	10884.394	1000	3000	-48.9	-13.0	-35.9	3	Horizontal	Pass
7	89.5	1000	3000	-29.9	-13.0	-16.9	3	Horizontal	Pass

Remark:
1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 – 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

Number	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Emission Level (dBm)	Limit (dBm)	Difference (dB)	Distance (m)	Polarization	Status
WCDMA Band II RMC12.k L CH									
1	1196.775	1000	3000	-48.8	-13.0	-35.8	3	Horizontal	Pass
2	1851.7	1000	3000	-42.4	-13.0	-29.4	3	Horizontal	Pass
3	4043	1000	3000	-49.1	-13.0	-36.1	3	Horizontal	Pass
4	7406.45	1000	3000	-44.5	-13.0	-31.5	3	Horizontal	Pass
5	17954.525	1000	3000	-31.4	-13.0	-18.4	3	Horizontal	Pass
6	250.8	1000	3000	-31.0	-13.0	-18.0	3	Horizontal	Pass
1	1197.2	1000	3000	-52.6	-13.0	-39.6	3	Vertical	Pass
2	1852.125	1000	3000	-45.9	-13.0	-32.9	3	Vertical	Pass
3	2457.75	1000	3000	-51.4	-13.0	-38.4	3	Vertical	Pass
4	3703.425	1000	3000	-45.5	-13.0	-32.5	3	Vertical	Pass
5	7405.6	1000	3000	-40.4	-13.0	-27.4	3	Vertical	Pass
6	17881	1000	3000	-31.7	-13.0	-18.7	3	Vertical	Pass
7	274.8	1000	3000	-25.5	-13	-12.5	3	Vertical	Pass
WCDMA Band II RMC12.k M CH									
1	1197.2	1000	3000	-52.1	-13.0	-39.1	3	Vertical	Pass
2	1880.6	1000	3000	-42.8	-13.0	-29.8	3	Vertical	Pass
3	1960.5	1000	3000	-44.4	-13.0	-31.4	3	Vertical	Pass
4	4043.85	1000	3000	-47.1	-13.0	-34.1	3	Vertical	Pass
5	9582.025	1000	3000	-45.5	-13.0	-32.5	3	Vertical	Pass
6	17863.575	1000	3000	-31.0	-13.0	-18.0	3	Vertical	Pass
7	184.9	1000	3000	-25.5	-13.0	-12.5	3	Vertical	Pass
1	1196.775	1000	3000	-48.2	-13.0	-35.2	3	Horizontal	Pass
2	1881.45	1000	3000	-38.7	-13.0	-25.7	3	Horizontal	Pass
3	1959.65	1000	3000	-47.7	-13.0	-34.7	3	Horizontal	Pass
4	4044.275	1000	3000	-50.6	-13.0	-37.6	3	Horizontal	Pass
5	10094.575	1000	3000	-44.9	-13.0	-31.9	3	Horizontal	Pass
6	17938.375	1000	3000	-30.8	-13.0	-17.8	3	Horizontal	Pass
7	139.5	1000	3000	-32.3	-13.0	-19.3	3	Horizontal	Pass
WCDMA Band II RMC12.k H CH									
1	1196.775	1000	3000	-47.8	-13.0	-34.8	3	Horizontal	Pass
2	1906.525	1000	3000	-36.1	-13.0	-23.1	3	Horizontal	Pass
3	1988.125	1000	3000	-48.0	-13.0	-35.0	3	Horizontal	Pass
4	4044.275	1000	3000	-49.9	-13.0	-36.9	3	Horizontal	Pass
5	10987.5	1000	3000	-43.3	-13.0	-30.3	3	Horizontal	Pass
6	17844.875	1000	3000	-31.0	-13.0	-18.0	3	Horizontal	Pass
7	189.7	1000	3000	-30.3	-13.0	-17.3	3	Horizontal	Pass
1	1196.35	1000	3000	-52.3	-13.0	-39.3	3	Vertical	Pass
2	1907.375	1000	3000	-34.3	-13.0	-21.3	3	Vertical	Pass
3	1988.125	1000	3000	-45.3	-13.0	-32.3	3	Vertical	Pass
4	4044.7	1000	3000	-46.8	-13.0	-33.8	3	Vertical	Pass
5	7426	1000	3000	-47.7	-13.0	-34.7	3	Vertical	Pass
6	11908.475	1000	3000	-41.9	-13.0	-28.9	3	Vertical	Pass
7	223.8	1000	3000	-25.5	-13.0	-12.5	3	Vertical	Pass

Remark:
1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 – 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

Number	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Emission Level (dBm)	Limit (dBm)	Difference (dB)	Distance (m)	Polarization	Status
WCDMA Band IV RMC12.k L CH									
1	1197.2	1000	3000	-52.3	-13.0	-39.3	3	Vertical	Pass
2	1711.875	1000	3000	-41.6	-13.0	-28.6	3	Vertical	Pass
3	2111.8	1000	3000	-45.2	-13.0	-32.2	3	Vertical	Pass
4	4044.7	1000	3000	-46.9	-13.0	-33.9	3	Vertical	Pass
5	7336.75	1000	3000	-47.5	-13.0	-34.5	3	Vertical	Pass
6	17933.275	1000	3000	-31.1	-13.0	-18.1	3	Vertical	Pass
7	110.5	1000	3000	-23.9	-13.0	-10.9	3	Vertical	Pass
1	1196.35	1000	3000	-46.6	-13.0	-33.6	3	Horizontal	Pass
2	1711.45	1000	3000	-46.3	-13.0	-33.3	3	Horizontal	Pass
3	2111.8	1000	3000	-45.6	-13.0	-32.6	3	Horizontal	Pass
4	4044.7	1000	3000	-50.3	-13.0	-37.3	3	Horizontal	Pass
5	7323.15	1000	3000	-47.9	-13.0	-34.9	3	Horizontal	Pass
6	17967.275	1000	3000	-31.7	-13.0	-18.7	3	Horizontal	Pass
7	223.6	1000	3000	-23.6	-13.0	-10.6	3	Horizontal	Pass
WCDMA Band IV RMC12.k M CH									
1	1197.2	1000	3000	-47.3	-13.0	-34.3	3	Horizontal	Pass
2	1733.55	1000	3000	-49.7	-13.0	-36.7	3	Horizontal	Pass
3	2132.625	1000	3000	-48.3	-13.0	-35.3	3	Horizontal	Pass
4	4045.125	1000	3000	-51.4	-13.0	-38.4	3	Horizontal	Pass
5	9527.625	1000	3000	-45.7	-13.0	-32.7	3	Horizontal	Pass
6	17942.2	1000	3000	-31.4	-13.0	-18.4	3	Horizontal	Pass
7	257.1	1000	3000	-26.0	-13.0	-13.0	3	Horizontal	Pass
1	1732.7	1000	3000	-55.4	-13.0	-42.4	3	Vertical	Pass
2	2132.625	1000	3000	-45.1	-13.0	-32.1	3	Vertical	Pass
3	4045.125	1000	3000	-49.2	-13.0	-36.2	3	Vertical	Pass
4	6801.675	1000	3000	-47.3	-13.0	-34.3	3	Vertical	Pass
5	11931.425	1000	3000	-42.0	-13.0	-29.0	3	Vertical	Pass
6	17970.25	1000	3000	-31.7	-13.0	-18.7	3	Vertical	Pass
7	253.2	1000	3000	-28.8	-13.0	-15.8	3	Vertical	Pass
WCDMA Band IV RMC12.k H CH									
1	1197.625	1000	3000	-49.7	-13.0	-36.7	3	Vertical	Pass
2	1751.4	1000	3000	-45.0	-13.0	-32.0	3	Vertical	Pass
3	2151.325	1000	3000	-46.7	-13.0	-33.7	3	Vertical	Pass
4	4045.125	1000	3000	-47.3	-13.0	-34.3	3	Vertical	Pass
5	12020.25	1000	3000	-41.7	-13.0	-28.7	3	Vertical	Pass
6	17999.15	1000	3000	-30.5	-13.0	-17.5	3	Vertical	Pass
7	225.7	1000	3000	-24.2	-13.0	-11.2	3	Vertical	Pass
1	1197.2	1000	3000	-46.4	-13.0	-33.4	3	Horizontal	Pass
2	1752.25	1000	3000	-42.4	-13.0	-29.4	3	Horizontal	Pass
3	2152.6	1000	3000	-45.6	-13.0	-32.6	3	Horizontal	Pass
4	4045.125	1000	3000	-50.5	-13.0	-37.5	3	Horizontal	Pass
5	8048.625	1000	3000	-47.0	-13.0	-34.0	3	Horizontal	Pass
6	17986.825	1000	3000	-32.0	-13.0	-19.0	3	Horizontal	Pass
7	101.6	1000	3000	-32.8	-13.0	-19.8	3	Horizontal	Pass

Remark:
1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 – 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

Number	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Emission Level (dBm)	Limit (dBm)	Difference (dB)	Distance (m)	Polarization	Status
WCDMA Band V RMC12.k L CH									
1	1197.2	1000	3000	-49.1	-13.0	-36.1	3	Horizontal	Pass
2	1654.925	1000	3000	-47.9	-13.0	-34.9	3	Horizontal	Pass
3	2482.825	1000	3000	-45.9	-13.0	-32.9	3	Horizontal	Pass
4	4045.55	1000	3000	-50.4	-13.0	-37.4	3	Horizontal	Pass
5	8684.425	1000	3000	-47.8	-13.0	-34.8	3	Horizontal	Pass
6	17897.15	1000	3000	-31.9	-13.0	-18.9	3	Horizontal	Pass
7	167.0	1000	3000	-29.4	-13.0	-16.4	3	Horizontal	Pass
1	1196.35	1000	3000	-50.9	-13.0	-37.9	3	Vertical	Pass
2	1651.1	1000	3000	-54.2	-13.0	-41.2	3	Vertical	Pass
3	2457.75	1000	3000	-51.5	-13.0	-38.5	3	Vertical	Pass
4	4045.55	1000	3000	-46.3	-13.0	-33.3	3	Vertical	Pass
5	10130.275	1000	3000	-44.8	-13.0	-31.8	3	Vertical	Pass
6	17988.1	1000	3000	-31.2	-13.0	-18.2	3	Vertical	Pass
7	214.6	1000	3000	-28.4	-13.0	-15.4	3	Vertical	Pass
WCDMA Band V RMC12.k M CH									
1	1197.2	1000	3000	-50.6	-13.0	-37.6	3	Vertical	Pass
2	1892.075	1000	3000	-55.6	-13.0	-42.6	3	Vertical	Pass
3	2457.75	1000	3000	-51.5	-13.0	-38.5	3	Vertical	Pass
4	4045.55	1000	3000	-45.9	-13.0	-32.9	3	Vertical	Pass
5	10029.125	1000	3000	-46.3	-13.0	-33.3	3	Vertical	Pass
6	17958.775	1000	3000	-31.1	-13.0	-18.1	3	Vertical	Pass
7	106.4	1000	3000	-23.2	-13.0	-10.2	3	Vertical	Pass
1	1195.925	1000	3000	-48.2	-13.0	-35.2	3	Horizontal	Pass
2	2132.2	1000	3000	-55.6	-13.0	-42.6	3	Horizontal	Pass
3	4045.975	1000	3000	-49.6	-13.0	-36.6	3	Horizontal	Pass
4	7197.775	1000	3000	-47.5	-13.0	-34.5	3	Horizontal	Pass
5	11946.725	1000	3000	-41.4	-13.0	-28.4	3	Horizontal	Pass
6	17910.75	1000	3000	-31.5	-13.0	-18.5	3	Horizontal	Pass
7	223.1	1000	3000	-27.3	-13.0	-14.3	3	Horizontal	Pass
WCDMA Band V RMC12.k H CH									
1	1196.775	1000	3000	-48.0	-13.0	-35.0	3	Horizontal	Pass
2	1695.3	1000	3000	-45.7	-13.0	-32.7	3	Horizontal	Pass
3	2536.8	1000	3000	-49.0	-13.0	-36.0	3	Horizontal	Pass
4	4045.975	1000	3000	-50.9	-13.0	-37.9	3	Horizontal	Pass
5	7278.1	1000	3000	-48.1	-13.0	-35.1	3	Horizontal	Pass
6	17997.875	1000	3000	-31.0	-13.0	-18.0	3	Horizontal	Pass
7	119.3	1000	3000	-25.7	-13.0	-12.7	3	Horizontal	Pass
1	1197.2	1000	3000	-50.4	-13.0	-37.4	3	Vertical	Pass
2	1695.3	1000	3000	-44.7	-13.0	-31.7	3	Vertical	Pass
3	2536.8	1000	3000	-45.3	-13.0	-32.3	3	Vertical	Pass
4	4045.975	1000	3000	-46.3	-13.0	-33.3	3	Vertical	Pass
5	7332.5	1000	3000	-47.3	-13.0	-34.3	3	Vertical	Pass
6	17918.4	1000	3000	-31.9	-13.0	-18.9	3	Vertical	Pass
7	196.7	1000	3000	-26.5	-13.0	-13.5	3	Vertical	Pass

Remark:
1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 – 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

Number	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Emission Level (dBm)	Limit (dBm)	Difference (dB)	Distance (m)	Polarization	Status
Worst-case WCDMA Band V RMC12.k L CH Backup Antenna									
1	1332.525	1000	3000	-54.2	-13.0	-41.2	3	Horizontal	Pass
2	1951.163	1000	3000	-57.2	-13.0	-44.2	3	Horizontal	Pass
3	2414.406	1000	3000	-54.4	-13.0	-41.4	3	Horizontal	Pass
4	4824.037	1000	3000	-50.7	-13.0	-37.7	3	Horizontal	Pass
5	7978.619	1000	3000	-50.9	-13.0	-37.9	3	Horizontal	Pass
6	11016.581	1000	3000	-48.8	-13.0	-35.8	3	Horizontal	Pass
7	103.3	1000	3000	-26.6	-13.0	-13.6	3	Horizontal	Pass
1	1123.963	1000	3000	-61.4	-13.0	-48.4	3	Vertical	Pass
2	2013.731	1000	3000	-58.2	-13.0	-45.2	3	Vertical	Pass
3	2413.819	1000	3000	-57.9	-13.0	-44.9	3	Vertical	Pass
4	4175.731	1000	3000	-56.2	-13.0	-43.2	3	Vertical	Pass
5	7998.887	1000	3000	-50.8	-13.0	-37.8	3	Vertical	Pass
6	10902.9	1000	3000	-48.1	-13.0	-35.1	3	Vertical	Pass
7	124.8	1000	3000	-25.5	-13.0	-12.5	3	Vertical	Pass
Worst-case WCDMA Band V RMC12.k M CH Backup Antenna									
1	1081.369	1000	3000	-53.0	-13.0	-40.0	3	Vertical	Pass
2	1870.969	1000	3000	-57.9	-13.0	-44.9	3	Vertical	Pass
3	2441.137	1000	3000	-50.0	-13.0	-37.0	3	Vertical	Pass
4	4883.962	1000	3000	-51.0	-13.0	-38.0	3	Vertical	Pass
5	7994.187	1000	3000	-49.6	-13.0	-36.6	3	Vertical	Pass
6	11892.838	1000	3000	-49.1	-13.0	-36.1	3	Vertical	Pass
7	80.7	1000	3000	-23.3	-13.0	-10.3	3	Vertical	Pass
1	1052.288	1000	3000	-54.3	-13.0	-41.3	3	Horizontal	Pass
2	1371.594	1000	3000	-54.1	-13.0	-41.1	3	Horizontal	Pass
3	2441.137	1000	3000	-51.7	-13.0	-38.7	3	Horizontal	Pass
4	4883.962	1000	3000	-48.0	-13.0	-35.0	3	Horizontal	Pass
5	6686.706	1000	3000	-51.6	-13.0	-38.6	3	Horizontal	Pass
6	10884.1	1000	3000	-49.4	-13.0	-36.4	3	Horizontal	Pass
7	236.1	1000	3000	-24.7	-13.0	-11.7	3	Horizontal	Pass
Worst-case WCDMA Band V RMC12.k H CH Backup Antenna									
1	1016.156	1000	3000	-49.0	-13.0	-36.0	3	Horizontal	Pass
2	1352.794	1000	3000	-52.4	-13.0	-39.4	3	Horizontal	Pass
3	2470.806	1000	3000	-52.0	-13.0	-39.0	3	Horizontal	Pass
4	4943.887	1000	3000	-48.0	-13.0	-35.0	3	Horizontal	Pass
5	7972.744	1000	3000	-48.1	-13.0	-35.1	3	Horizontal	Pass
6	12263.844	1000	3000	-48.0	-13.0	-35.0	3	Horizontal	Pass
7	223.8	1000	3000	-32.1	-13.0	-19.1	3	Horizontal	Pass
1	1225.013	1000	3000	-58.2	-13.0	-45.2	3	Vertical	Pass
2	1960.563	1000	3000	-57.1	-13.0	-44.1	3	Vertical	Pass
3	2471.394	1000	3000	-47.2	-13.0	-34.2	3	Vertical	Pass
4	4984.719	1000	3000	-51.9	-13.0	-38.9	3	Vertical	Pass
5	7963.344	1000	3000	-46.0	-13.0	-33.0	3	Vertical	Pass
6	10963.413	1000	3000	-49.4	-13.0	-36.4	3	Vertical	Pass
7	172.5	1000	3000	-23.2	-13.0	-10.2	3	Vertical	Pass

Remark:
1. Above 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2;
Below 1G: Emission Level (dBm) = Read Level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) - Pre-amplifier(dB) - 95.2 – 2.15.
2. Difference (Over Limit) = Emission Level(dBm) - Limit(dBm)

7.2 EFFECTIVE RADIATED POWER AND EFFECTIVE ISOTROPIC RADIATED POWER

7.2.1 Applicable Standard

According to FCC KDB 971168 D01 v03r01 Section 5.6 and ANSI C63.26: 2015 Section 5.2.5.5

7.2.2 Conformance Limit

The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band) and the EIRP of mobile transmitters are limited to 1 Watts (AWS Band).

7.2.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.2.4 Test Configuration

For E.R.P and E.I.R.P Measurements. Please refer to the section 7.1.4 in this report.

7.2.5 Test Procedure

For E.R.P and E.I.R.P Measurements. Please refer to the section 7.1.5 in this report.

7.2.6 Test Results

EUT:	ConBox2020RD	Model No.:	CB20RDNAR1
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	GPRS 850/1900, WCMDA Band II/IV/V		

Radiated Power (ERP) for GSM 850				
UL Channel	Modulation	Power (dBm)	Limit (dBm)	Polarization
128	GMSK	28.9	38.45	Vertical
128		30.8	38.45	Horizontal
189		28.2	38.45	Vertical
189		30.1	38.45	Horizontal
251		29.8	38.45	Vertical
251		28.5	38.45	Horizontal
128	8PSK	22.8	38.45	Vertical
128		24.3	38.45	Horizontal
189		21.2	38.45	Vertical
189		23.5	38.45	Horizontal
251		23.5	38.45	Vertical
251		21.9	38.45	Horizontal

Radiated Power (EIRP) for GSM 1900				
UL Channel	Modulation	Power (dBm)	Limit (dBm)	Polarization
512	GMSK	23.3	33.01	Vertical
512		26.7	33.01	Horizontal
661		26.2	33.01	Vertical
661		24.5	33.01	Horizontal
810		25.1	33.01	Vertical
810		24.9	33.01	Horizontal
512	8PSK	19.7	33.01	Vertical
512		23.6	33.01	Horizontal
661		22.6	33.01	Vertical
661		21.4	33.01	Horizontal
810		21.8	33.01	Vertical
810		21.2	33.01	Horizontal

Radiated Power (EIRP) for WCDMA Band II				
UL Channel	Modulation	Power (dBm)	Limit (dBm)	Polarization
9262	RMC12.2k	21.4	33.01	Vertical
9262		22.5	33.01	Horizontal
9400		22.2	33.01	Vertical
9400		22.9	33.01	Horizontal
9538		21.7	33.01	Vertical
9538		22.9	33.01	Horizontal

Radiated Power (EIRP) for WCDMA Band IV				
UL Channel	Modulation	Power (dBm)	Limit (dBm)	Polarization
1312	RMC12.2k	21.7	30.00	Vertical
1312		22.6	30.00	Horizontal
1413		22.1	30.00	Vertical
1413		22.5	30.00	Horizontal
1513		22.1	30.00	Vertical
1513		22.8	30.00	Horizontal

Radiated Power (ERP) for WCDMA Band V				
UL Channel	Modulation	Power (dBm)	Limit (dBm)	Polarization
4132	RMC12.2k	21.0	38.45	Vertical
4132		22.3	38.45	Horizontal
4182		21.4	38.45	Vertical
4182		22.4	38.45	Horizontal
4233		21.1	38.45	Vertical
4233		22.1	38.45	Horizontal

7.3 CONDUCTED OUTPUT POWER

7.3.1 Applicable Standard

According to FCC KDB 971168 D01 v03r01 Section 5 and ANSI C63.26: 2015 Section 5.2

7.3.2 Conformance Limit

The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band) and the EIRP of mobile transmitters are limited to 1 Watts (AWS Band).

7.3.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.3.4 Test Setup

Please refer to Section 6.1 of this test report.

7.3.5 Test Procedure

Connect the EUT to Universal Radio Communication Tester CMU200 or CMU500 via the antenna connector.
A call is set up by the SS according to the generic call set up procedure on a channel with ARFCN in the ARFCN range, power control level set to Max power. The frequency band is set as selected frequency,
The RF output of the transmitter was connected to base station simulator.
Set EUT at maximum average power by base station simulator.
Measure the lowest, middle, and highest channels of the EUT for each bandwidth and different modulation.
Measure and record the results in the test report.

7.3.6 Test Results

EUT:	ConBox2020RD	Model No.:	CB20RDNAR1
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	GPRS 850/1900, WCMDA Band II/IV/V		

Band	UL Channel	Modulation	Original Module Power (dBm)	Verified Host Power (dBm)
GPRS 850	189	GMSK	32.79	31.96
GPRS 1900	512	GMSK	29.77	28.25
WCMDA Band II	9400	QPSK	23.97	22.81
WCMDA Band IV	1413	QPSK	24.14	23.01
WCMDA Band V	4182	QPSK	24.04	23.35

The maximum conducted power is verified to be the same. The conducted signal test data may be re-used. Please check FCC ID: NKR-UMCSTD35GN (Report No.: RFBCKS-WTW-P24050344-2)

7.4 FREQUENCY STABILITY

7.4.1 Applicable Standard

According to FCC KDB 971168 D01 Section 9.0 and ANSI C63.26: 2015 Section 5.6

7.4.2 Conformance Limit

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

7.4.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.4.4 Test Setup

Please refer to Section 6.1 of this test report.

7.4.5 Test Procedure

Connect the EUT to Universal Radio Communication Tester CMU200 or CMU500 via the antenna connector. A call is set up by the SS according to the generic call set up procedure on a channel with ARFCN in the ARFCN range, power control level set to Max power. MS TXPWR_MAX_CCH is set to the maximum value supported by the Power Class of the Mobile under test.
EUT was placed at temperature chamber and connected to an external power supply.
Temperature and voltage condition shall be tested to confirm frequency stability.
For Temperature Variation

1. The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

For Voltage Variation

1. The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.
2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

7.4.6 Test Results

EUT:	ConBox2020RD	Model No.:	CB20RDNAR1
Temperature:	N/A	Relative Humidity:	N/A
Test Mode:	N/A		

Please check FCC ID: NKR-UMCSTD35GN (Report No.: RFBCKS-WTW-P24050344-2)

7.5 PEAK-TO-AVERAGE RATIO

7.5.1 Applicable Standard

According to ANSI C63.26: 2015 Section 5.2.3.4 and FCC KDB 971168 D01 Section 5.7

7.5.2 Conformance Limit

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

7.5.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.5.4 Test Setup

Please refer to Section 6.1 of this test report.

7.5.5 Test Procedure

The EUT was connected to Spectrum Analyzer and Base Station via power divider.
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
Set the number of counts to a value that stabilizes the measured CCDF curve.
Set the measurement interval to 1 ms.
Record the maximum PAPR level associated with a probability of 0.1%.
a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
b) Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
c) Set the number of counts to a value that stabilizes the measured CCDF curve;
d) Set the measurement interval as follows:
1) for continuous transmissions, set to 1 ms,
2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
e) Record the maximum PAPR level associated with a probability of 0.1%.

7.5.6 Test Results

EUT:	ConBox2020RD	Model No.:	CB20RDNAR1
Temperature:	N/A	Relative Humidity:	N/A
Test Mode:	N/A		

Please check FCC ID: NKR-UMCSTD35GN (Report No.: RFBCKS-WTW-P24050344-2)

7.6 26DB BANDWIDTH AND 99% OCCUPIED BANDWIDTH

7.6.1 Applicable Standard

According to FCC KDB 971168 D01 Section 4 and ANSI C63.26: 2015 Section 5.4

7.6.2 Conformance Limit

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.
The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

7.6.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.6.4 Test Setup

Please refer to Section 6.1 of this test report.

7.6.5 Test Procedure

The testing follows FCC KDB 971168 v03r01 Section 4.
The EUT was connected to Spectrum Analyzer and Base Station via power divider.
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
Set the detection mode to peak, and the trace mode to max hold.
Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace.
(this is the reference value)
Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

7.6.6 Test Results

EUT:	ConBox2020RD	Model No.:	CB20RDNAR1
Temperature:	N/A	Relative Humidity:	N/A
Test Mode:	N/A		

Please check FCC ID: NKR-UMCSTD35GN (Report No.: RFBCKS-WTW-P24050344-2)

7.7 CONDUCTED BAND EDGE

7.7.1 Applicable Standard

According to FCC KDB 971168 D01 Section 6 and ANSI C63.26: 2015 Section 5.7.

7.7.2 Conformance Limit

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

7.7.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.7.4 Test Setup

Please refer to Section 6.1 of this test report.

7.7.5 Test Procedure

The testing follows FCC KDB 971168 v03r01 Section 6.
The EUT was connected to Spectrum Analyzer and Base Station via power divider.
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
The band edges of low and high channels for the highest RF powers were measured.
The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
= P(W) - [43 + 10log(P)] (dB)
= -13dBm.

7.7.6 Test Results

EUT:	ConBox2020RD	Model No.:	CB20RDNAR1
Temperature:	N/A	Relative Humidity:	N/A
Test Mode:	N/A		

Please check FCC ID: NKR-UMCSTD35GN (Report No.: RFBCKS-WTW-P24050344-2)

7.8 CONDUCTED SPURIOUS EMISSION AT ANTENNA TERMINAL

7.8.1 Applicable Standard

According to FCC KDB 971168 D01 Section 6 and ANSI C63.26: 2015 Section 5.7.

7.8.2 Conformance Limit

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.
It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

7.8.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.8.4 Test Setup

Please refer to Section 6.1 of this test report.

7.8.5 Test Procedure

The testing follows FCC KDB 971168 v03r01 Section 6.
The EUT was connected to Spectrum Analyzer and Base Station via power divider.
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
The middle channel for the highest RF power within the transmitting frequency was measured.
The conducted spurious emission for the whole frequency range was taken.
The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

= P(W) - [43 + 10log(P)] (dB)
= -13dBm.

7.8.6 Test Results

EUT:	ConBox2020RD	Model No.:	CB20RDNAR1
Temperature:	N/A	Relative Humidity:	N/A
Test Mode:	N/A		

Please check FCC ID: NKR-UMCSTD35GN (Report No.: RFBCKS-WTW-P24050344-2)

END OF REPORT