



MIC LTE Test Report

For

Applicant Name: Shanghai TUGE Data Technologies Co., Ltd.
Address: Floor 1-2, Building 4, No.1628, Lingang New Area, China (Shanghai)
Pilot Free Trade Zone, Shanghai, China
EUT Name: 4G Dongle
Brand Name: N/A
Model Number: TD16JP
Series Model Number: N/A

Issued By

Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.
Address: Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park,
Tantou Community, Songgang Street, Bao'an District, Shenzhen,
Guangdong, China

Report Number: BTF260316R00603
Test Standards: Article 2, Paragraph 1, Item11-19
Article 2, Paragraph 1, Item11-21
Article 2, Paragraph 1, Item 54

Test Conclusion: Pass
Test Date: 2026-03-17 to 2026-04-26
Date of Issue: 2026-05-08

Test by:

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Prepared by:

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Approved by:

Ryan C. J. EMC manager

Note: All the test results in this report only related to the testing samples. Which can be duplicated completely for the legal use with approval of applicant; it shall not be reproduced except in full without the written approval of BTF Testing Lab (Shenzhen) Co., Ltd., All the objections should be raised within thirty days from the date of issue. To validate the report, you can contact us.

Revision History		
Version	Issue Date	Revisions Content
R_V0	2026-05-08	Original

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1. Introduction

1.1 Identification of Testing Laboratory

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130

1.2 Identification of the Responsible Testing Location

Test Location:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China
Description:	All measurement facilities used to collect the measurement data are located at Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China

1.3 Laboratory Condition

Ambient Temperature:	15 °C to 35 °C
Ambient Relative Humidity:	20 % to 75 %
Ambient Pressure:	86 kPa to 106 kPa

1.4 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2. Product Information

2.1 Application Information

Company Name:	Shanghai TUGE Data Technologies Co., Ltd.
Address:	Floor 1-2, Building 4, No.1628, Lingang New Area, China (Shanghai) Pilot Free Trade Zone, Shanghai, China

2.2 Manufacturer Information

Company Name:	Shenzhen Tuochang Intelligent Technology Co., Ltd.
Address:	Room 511, Xinxing Business Center, District 71, Xingdong Community, Xinnan Street, Bao'an District, Shenzhen City, Guangdong Province, China

2.3 Factory Information

Company Name:	Huizhou Meitron Technology Co., Ltd.
Address:	Factory building in Wuyi District, Zhongkai high-tech zone, Huizhou

2.4 General Description of Equipment under Test (EUT)

EUT Name	4G Dongle
Under Test Model Name	TD16JP
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version:	EU37C_V1.0 20251219
Software Version	N/A
Rating:	Input: DC 5V 1A

2.5 Technical Information

Product Feature & Specification		
Type Emission	D1A,D1B,D1C,D1D,D1F,D1X,W7D, G1A,G1B,G1C,G1D,G1F,G1X,G7D	
Channel Spacing	100kHz	
	850M Band	■ Band 5, Band 18,Band 26
	900M Band	■ Band 8
	1.7G Band	■ Band 3
	2.1G Band	■ Band 1
	2.3G Band	■ Band 40
	2.5G Band	■ Band 41
Frequency Range	Band 1	
	5MHz BW	: 1927.2MHz ~ 1977.5MHz
	10MHz BW	: 1934.7MHz ~ 1975.0MHz
	15MHz BW	: 1942.2MHz ~ 1972.5MHz
	20MHzBW	: 1949.7MHz ~ 1970.0MHz
	Band 3	
	3MHz BW	: 1711.5MHz ~ 1783.5MHz
	5MHz BW	: 1712.5MHz ~ 1782.4MHz
	10MHz BW	: 1715MHz ~ 1780MHz
	15MHz BW	: 1717.5MHz ~ 1777.5MHz
	20MHz BW	: 1720MHz ~ 1775MHz
	Band 5	
	5MHz BW	: 826.5MHz ~ 842.5MHz
	10MHz BW	: 829.0MHz ~ 840.0MHz
	Band 8	
	3MHz BW	: 901.5MHz ~913.5MHz
	5MHz BW	: 902.5MHz ~ 912.5MHz
	10MHz BW	: 905.0MHz ~ 910.0MHz
	Band 18	
	5MHz BW	: 817.5MHz ~ 827.5MHz
	10MHz BW	: 820.0MHz ~ 825.0MHz
	15MHz BW	: 822.5MHz ~ 822.5MHz
	Band 19	
	5MHz BW	: 832.5MHz ~ 842.5MHz
	10MHz BW	: 835.0MHz ~ 840.0MHz
	15MHz BW	: 837.5MHz ~ 837.5MHz
	Band 26	
	3MHz BW	: 816.5MHz ~ 843.5MHz
	5MHz BW	: 817.5MHz ~ 842.5MHz
	10MHz BW	: 820.0MHz ~ 840.0MHz
	15MHz BW	: 822.5MHz ~ 837.5MHz
	Band 40	
	5MHz BW	:2332.5MHz ~2367.5MHz

	10MHz BW	:2335MHz ~2365MHz
	15MHz BW	:2337.5MHz ~2362.5MHz
	20MHz BW	:2340MHz ~ 2360MHz
	Band 41	
	5MHz BW	: 2547.5MHz ~2652.5MHz
	10MHz BW	: 2550.0MHz ~2650.0MHz
	20MHz BW	: 2555.0MHz ~2645.0MHz
Declaration RF Output Power	199.5mW (23 dBm)	
Modulation Type	QPSK, 16QAM	
E-UTRA Category	Category 3	
SIM Card	1 SIM Cards	
Antenna Type	PIFA Antenna (Main and DIV ANT) Note: The two antennas are transmitted from the same port and only one works at the same time.	
Antenna Gain#	Band 1:2.35dBi Band 3: 1.01dBi Band 5: -4.66dBi Band 8:-0.31dBi Band 18: -6.65dBi Band 19: -4.66dBi Band 26: -4.66dBi Band 40: 2.77dBi Band 41:3.03dBi	
Power Source	☐ Commercial power	N/A
	☒ External Power Source	DC 5 V
	☒ Li-ion Polymer Battery	N/A
	☐ UMBattery	N/A

Note:

#: The antenna gain provided by the applicant, and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.

Test Channel Lis

2.6 Summary of Test Results

Test items and the results are as follows:

Requirement	Report Section	Result
Frequency Tolerance	5.1.1	PASS
RF Output Power Tolerance	5.1.2	PASS
Occupied Bandwidth	5.1.3	PASS
Adjacent Channel Leakage Power	5.1.4	PASS
Unwanted Emission Strength in Out-band Area	5.1.5	PASS
Unwanted Emission Strength in Spurious Area	5.1.6	PASS
Secondarily Emitted Radio Wave Strength	5.1.7	PASS
Leakage Power at No-carrier Transmission	5.1.8	PASS
Comprehensive Operation Test	5.1.9	PASS
Construction Protection Confirmation Method	5.1.10	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

2.7 Uncertainty of Test

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in TR 100 028-1, and TR 100 028-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Measurement	Value
Occupied Channel Bandwidth	69 KHz
RF output power, conducted	0.87 dB
Power Spectral Density, conducted	0.69 dB
Unwanted Emissions, conducted	0.94 dB
Frequency error measurement	53.12Hz
Temperature	0.82 °C
Humidity	4.1 %

3. Test Configuration

3.1 Environment Condition

During the measurement, the normal environment conditions were within the listed ranges

Relative Humidity (%)	45% to 55%	
Atmospheric Pressure (kPa)	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+22°C to +25°C
	LT (Low Temperature)	-10°C
	HT (High Temperature)	+55°C
Working Voltage of the EUT	NV (Normal Voltage)	5.0V
	LV (Low Voltage)	4.5V
	HV (High Voltage)	5.5V

The RF unit is supplied DC 3.87V. The fluctuation of input voltage to the circuit of RF unit of test equipment is under $\pm 1\%$, when input voltage DC 3.87V is fluctuated $\pm 10\%$, so all measurement has been conducted by only rated voltage.

DC Input	RF_IC Input	Rate of fluctuation(%)
5.0V	3.3V	0.0
4.5V	3.3V	0.0
5.5V	3.3V	0.0

3.2 Test Equipment List

Conducted Method Test								
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Cal. By	Remark	Use
MXA Signal Analyzer	KEYSIG HT	N9020 A	MY50410 020	2025/10 /17	2026/10 /16	Guangzhou LiSai Metrology & Test Co., Ltd.	3	☒
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW5 00	161997	2025/10 /17	2026/10 /16	Guangzhou LiSai Metrology & Test Co., Ltd.	3	☒
ESG VECTOR SIGNAL GENERATOR	Agilent	E4438 C	MY45094 854	2025/10 /17	2026/10 /16	Guangzhou LiSai Metrology & Test Co., Ltd.	3	☒
MXG Vector Signal Generator	Agilent	N5182 A	MY46240 163	2025/10 /17	2026/10 /16	Guangzhou LiSai Metrology & Test Co., Ltd.	3	☒
Adjustable	Donggua	etm-	20211026	2025/10	2026/10	Guangzhou LiSai Metrology & Test Co., Ltd.	3	☒

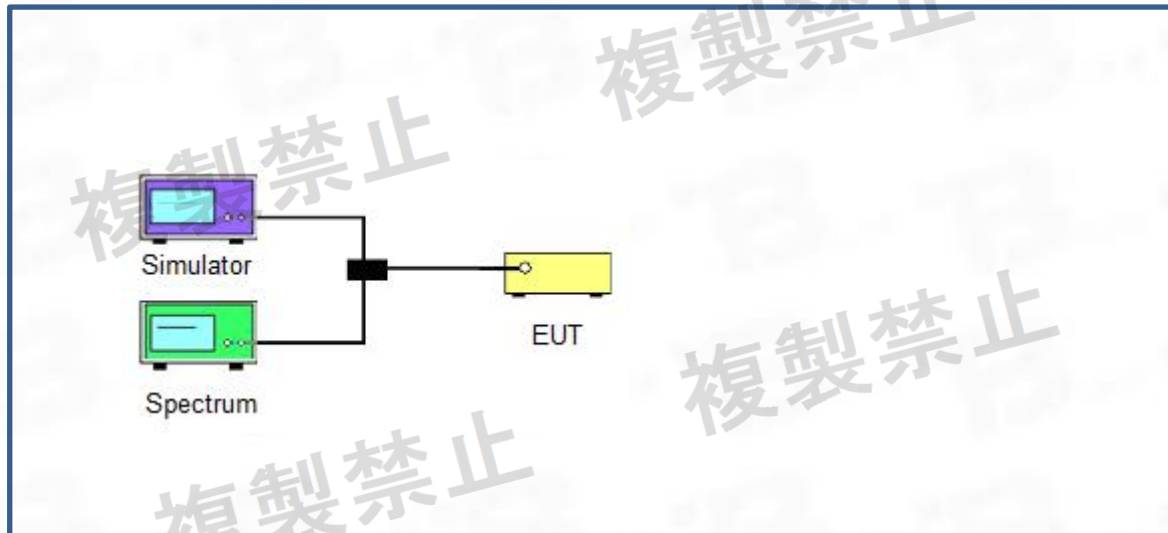
Direct Current Regulated Power Supply	n Tongmen Electronic Technology Co., LTD	6050c	123	/17	/16	est Co., Ltd.		
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2025/10/17	2026/10/16	Guangzhou LiSai Metrology & Test Co., Ltd.	3	☒
RF Control Unit	TST	TST-Full	S01	/	/	/	/	☒
RF Test software	TST	V2.0	/	/	/	/	/	☒

Remark:

1. Calibration conducted by the National Institute of Information and Communications Technology (NICT) in Japan (hereinafter referred to as *NICT*) or a designated calibration agency under Article 102-18 paragraph (1) in JRL.
2. Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Act (Act No.51 of 1992)
3. Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).
4. Calibration, etc. conducted by using measuring instruments and other equipment listed in the right column of appended table No. 3, which shall have been given any type of calibration, etc. listed above from (2) to (4).
From JRL Article 24-2, paragraph 4, Item 2
5. All calibration information is from Guangzhou LiSai Metrology & Test Co., Ltd.

3.3 Test Setup

Test Setup 1 For antenna port Test



4. Test Items

4.1 Test Results and Measurement Data

4.1.1 Frequency Tolerance

4.1.1.1 Limit

Band 1,3,5,8,18,19,26,40: $\leq \pm(0.1 \times f_c \times 10^{-6} + 15)$ Hz

Band 41: $\pm 3 \times 10^{-6}$

4.1.1.2 Test Setup

Please refer to 4.3 section description of test setup of test setup 1. The photo of test setup please refer to Test Setup Document.

4.1.1.3 Test Procedures

Follow 3GPP Standard TS36.521-1 Section 6.5.1.

4.1.1.4 Test Result

Please refer to Appendix of test date

4.1.2 RF Output Power and Output Power Tolerance Measurement

4.1.2.1 Limit

Item	Limits
Output Power / E.I.R.P	/
Output Power Tolerance	Band 1,3,5,8,18,19,26,41:-79%~87% Band 40:-79%~100%

ANT Power Limits:

Article 2 Paragraph 1 of item 11-19:

Antenna Power	200mW or less However, in the case of transmission using carrier aggregation technology using carriers of the above frequency bands, the total antenna power of the carriers simultaneously transmitted in each frequency bands. When transmitting radio waves of the same frequency from multiple antennas, the sum of the values at each antenna terminal.
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Article 2 Paragraph 1 of item 11-21(B40, B42):

Antenna Power	200mW or less However, in the case of transmission using carrier aggregation technology using carriers of the above frequency bands, the total antenna power of the carriers simultaneously transmitted in each frequency bands. When transmitting radio waves of the same frequency from multiple antennas, the sum of the values at each antenna terminal.
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Article 2 Paragraph 1 of item 54 (B41):

Antenna Power	800mW or less In the case of transmission using carrier aggregation technology using only carriers with 2,545 ~ 2,655 MHz, the sum of the antenna power of multiple carriers transmitted simultaneously When transmitting radio waves of the same frequency from multiple antennas, the sum of the values at each antenna terminal.
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4.1.2.2 Test Setup

Please refer to 4.3 section description of test setup of test setup 1. The photo of test setup please refer to Test Setup Document.

4.1.2.3 Test Procedures

Follow 3GPP Standard TS 36.521-1 Section 6.2.2
 $\text{Output Power (dBm)} = P(\text{dBm}) = P_{\text{Linear}}(\text{mW})$
 $\text{E.I.R.P (dBm)} = P(\text{dBm}) + \text{Peak Antenna Gain (dBi)}$
 $\text{Tolerance} = (P_{\text{Linear}} - P_{\text{declar}}) / P_{\text{declar}} \times 100\%$

4.1.2.4 Test Result

Please refer to Appendix of test date

4.1.3 Occupied Bandwidth Measurement

4.1.3.1 Limit

Item	Limits
Occupied Band Width	$\leq 5\text{MHz}$ (for Bandwidth = 5MHz)
	$\leq 10\text{MHz}$ (for Bandwidth = 10MHz)
	$\leq 15\text{MHz}$ (for Bandwidth = 15MHz)
	$\leq 20\text{MHz}$ (for Bandwidth = 20MHz)

4.1.3.2 Test Setup

Please refer to 4.3 section description of test setup of test setup 1. The photo of test setup please refer to Test Setup Document.

4.1.3.3 Test Procedures

Follow 3GPP Standard TS 36.521-1 Section 6.6.1.

4.1.3.4 Test Result

Please refer to Appendix of test date

4.1.4 Adjacent Channel Leakage Power Measurement

4.1.4.1 Limit

Article 2 Paragraph 1 of item 11-19:

Transmission System	Channel Interval	Technical Requirement
Transmission by the "one" carrier or Simultaneous transmission by the non-continuous "multiple" carrier	3MHz	Cf ± (1.65 - 4.35) MHz : -50dBm or -29.2dBc / 2.7MHz
		Cf ± (2.08 - 5.92) MHz : -50dBm or -32.2dBc / 3.84MHz
	5MHz	Cf ± (3.08 - 6.92) MHz : -50dBm or -32.2dBc / 3.84MHz (*1)
		Cf ± (2.75 - 7.25) MHz : -50dBm or -29.2dBc / 4.5MHz (*2)
		Cf ± (8.08 - 11.92) MHz : -50dBm or -35.2dBc / 3.84MHz (*3)
	10MHz	Cf ± (5.58 - 9.42) MHz : -50dBm or -32.2dBc / 3.84MHz (*1)
		Cf ± (5.5 - 14.5) MHz : -50dBm or -29.2dBc / 9MHz (*2)
	15MHz	Cf ± (10.58 - 14.42) MHz : -50dBm or -35.2dBc / 3.84MHz (*3)
		Cf ± (8.08 - 11.92) MHz : -50dBm or -32.2dBc / 3.84MHz (*1)
		Cf ± (13.08 - 16.92) MHz : -50dBm or -35.2dBc / 3.84MHz (*3)
		Cf ± (8.25 - 21.75) MHz : -50dBm or -29.2dBc / 13.5MHz (*2)
		Cf ± (10.58 - 14.42) MHz : -50dBm or -32.2dBc / 3.84MHz (*1)
		Cf ± (15.58 - 19.42) MHz : -50dBm or -35.2dBc / 3.84MHz (*3)
Simultaneous transmission by the continuous "two" carrier (*4)	5MHz & 5MHz	Cf ± (5.48 - 9.32) MHz : -50dBm or -32.2dBc / 3.84MHz
		Cf ± (5.15 - 14.45) MHz : -50dBm or -29.2dBc / 9.3MHz
		Cf ± (10.48 - 14.32) MHz : -50dBm or -35.2dBc / 3.84MHz
	5MHz & 10MHz	Cf ± (8.055 - 11.895) MHz : -50dBm or -32.2dBc / 3.84MHz
		Cf ± (7.975 - 21.925) MHz : -50dBm or -29.2dBc / 9MHz
		Cf ± (13.055 - 16.895) MHz : -50dBm or -35.2dBc / 3.84MHz
	5MHz & 15MHz	Cf ± (10.48 - 14.32) MHz : -50dBm or -32.2dBc / 3.84MHz
		Cf ± (15.48 - 19.32) MHz : -50dBm or -35.2dBc / 3.84MHz
		Cf ± (10.65 - 28.95) MHz : -50dBm or -29.2dBc / 18.3MHz
	10MHz & 10MHz	Cf ± (10.53 - 14.37) MHz : -50dBm or -32.2dBc / 3.84MHz
		Cf ± (15.53 - 19.37) MHz : -50dBm or -35.2dBc / 3.84MHz
		Cf ± (10.45 - 29.35) MHz : -50dBm or -29.2dBc / 18.9MHz

Article 2 Paragraph 1 of item 11-21(B34, B40, B42):

*2GHz Band (2,010 ~ 2,025 MHz)

5MHz System	10MHz System	15MHz System
$Cf \pm 5 \text{ MHz} : -50\text{dBm/MHz}$ or $^*Cf \pm (2.75 - 7.25) \text{ MHz} : -29.2\text{dBc}/4.5\text{MHz}$	$Cf \pm 10 \text{ MHz} : -50\text{dBm/MHz}$ or $^*Cf \pm (5.5 - 14.5) \text{ MHz} : -29.2\text{dBc}/9\text{MHz}$	$Cf \pm 15 \text{ MHz} : -50\text{dBm/MHz}$ or $^*Cf \pm (8.25 - 21.75) \text{ MHz} : -29.2\text{dBc}/13.5\text{MHz}$

*2.3GHz band (2,330 ~ 2,370 MHz) or 3.5GHz Band (3,400 ~ 3,600 MHz)

5MHz System	10MHz System	15MHz System	20MHz System
$Cf \pm 5 \text{ MHz} : -50\text{dBm}/4.5\text{MHz}$ or $^*Cf \pm (2.75 - 7.25) \text{ MHz} : -29.2\text{dBc}/4.5\text{MHz}$	$Cf \pm 10 \text{ MHz} : -50\text{dBm}/9\text{MHz}$ or $^*Cf \pm (5.5 - 14.5) \text{ MHz} : -29.2\text{dBc}/9\text{MHz}$	$Cf \pm 15 \text{ MHz} : -50\text{dBm}/13.5\text{MHz}$ or $^*Cf \pm (8.25 - 21.75) \text{ MHz} : -29.2\text{dBc}/13.5\text{MHz}$	$Cf \pm 20 \text{ MHz} : -50\text{dBm}/18\text{MHz}$ or $^*Cf \pm (11 - 29) \text{ MHz} : -29.2\text{dBc}/18\text{MHz}$

5MHz + 5MHz System	5MHz + 10MHz System	5MHz + 15MHz System	5MHz + 20MHz System	10MHz + 10MHz System
$Cf \pm 9.8 \text{ MHz} : -50\text{dBm}/9.3\text{MHz}$ or $^*Cf \pm (5.15 - 14.45) \text{ MHz} : -29.2\text{dBc}/9.3\text{MHz}$	$Cf \pm 14.95 \text{ MHz} : -50\text{dBm}/13.95\text{MHz}$ or $^*Cf \pm (7.975 - 21.925) \text{ MHz} : -29.2\text{dBc}/13.95\text{MHz}$	$Cf \pm 19.8 \text{ MHz} : -50\text{dBm}/18.3\text{MHz}$ or $^*Cf \pm (10.65 - 28.95) \text{ MHz} : -29.2\text{dBc}/18.3\text{MHz}$	$Cf \pm 24.95 \text{ MHz} : -50\text{dBm}/22.95\text{MHz}$ or $^*Cf \pm (13.475 - 36.425) \text{ MHz} : -29.2\text{dBc}/22.95\text{MHz}$	$Cf \pm 19.9 \text{ MHz} : -50\text{dBm}/18.9\text{MHz}$ or $^*Cf \pm (10.45 - 29.35) \text{ MHz} : -29.2\text{dBc}/18.9\text{MHz}$

10MHz + 15MHz System	10MHz + 20MHz System	15MHz + 15MHz System	15MHz + 20MHz System	20MHz + 20MHz System
$Cf \pm 24.75 \text{ MHz} : -50\text{dBm}/23.25\text{MHz}$ or $^*Cf \pm (13.125 - 36.375) \text{ MHz} : -29.2\text{dBc}/23.25\text{MHz}$	$Cf \pm 29.9 \text{ MHz} : -50\text{dBm}/27.9\text{MHz}$ or $^*Cf \pm (15.95 - 43.85) \text{ MHz} : -29.2\text{dBc}/27.9\text{MHz}$	$Cf \pm 30 \text{ MHz} : -50\text{dBm}/28.5\text{MHz}$ or $^*Cf \pm (15.75 - 44.25) \text{ MHz} : -29.2\text{dBc}/28.5\text{MHz}$	$Cf \pm 34.85 \text{ MHz} : -50\text{dBm}/32.85\text{MHz}$ or $^*Cf \pm (18.425 - 51.275) \text{ MHz} : -29.2\text{dBc}/32.85\text{MHz}$	$Cf \pm 39.8 \text{ MHz} : -50\text{dBm}/37.8\text{MHz}$ or $^*Cf \pm (20.9 - 58.7) \text{ MHz} : -29.2\text{dBc}/37.8\text{MHz}$

15MHz + 15MHz + 15MHz System	10MHz + 20MHz + 20MHz System	15MHz + 15MHz + 20MHz System	15MHz + 20MHz + 20MHz System	20MHz + 20MHz + 20MHz System
$Cf \pm 45 \text{ MHz} : -50\text{dBm}/43.5\text{MHz}$ or $^*Cf \pm (23.25 - 66.75) \text{ MHz} : -29.2\text{dBc}/43.5\text{MHz}$	$Cf \pm 49.7 \text{ MHz} : -50\text{dBm}/47.7\text{MHz}$ or $^*Cf \pm (26.85 - 73.55) \text{ MHz} : -29.2\text{dBc}/47.7\text{MHz}$	$Cf \pm 49.85 \text{ MHz} : -50\text{dBm}/47.85\text{MHz}$ or $^*Cf \pm (25.925 - 73.775) \text{ MHz} : -29.2\text{dBc}/47.85\text{MHz}$	$Cf \pm 54.65 \text{ MHz} : -50\text{dBm}/52.65\text{MHz}$ or $^*Cf \pm (28.325 - 80.975) \text{ MHz} : -29.2\text{dBc}/52.65\text{MHz}$	$Cf \pm 59.6 \text{ MHz} : -50\text{dBm}/57.6\text{MHz}$ or $^*Cf \pm (30.8 - 88.4) \text{ MHz} : -29.2\text{dBc}/57.6\text{MHz}$

Article 2 Paragraph 1 of item54 (B41):

Transmission System		Technical Requirement
Transmission by the "one" carrier or Simultaneous transmission by the non-continuous "multiple" carrier(*)	2.5MHz	$^*Cf \pm (1.25 - 3.75) \text{ MHz} : 2\text{dBm}/2.5\text{MHz}$
	5MHz	$^*Cf \pm (2.5 - 7.5) \text{ MHz} : 2\text{dBm}/5\text{MHz}$
	10MHz	$^*Cf \pm (5 - 15) \text{ MHz} : 2\text{dBm}/10\text{MHz}$
	20MHz	$^*Cf \pm (10 - 30) \text{ MHz} : 3\text{dBm}/20\text{MHz}$
Simultaneous transmission by the continuous "two" carrier	5MHz & 5MHz	$^*Cf \pm (4.9 - 14.7) \text{ MHz} : 2\text{dBm}/9.8\text{MHz}$
	5MHz & 10MHz	$^*Cf \pm (7.475 - 22.425) \text{ MHz} : 2.87\text{dBm}/14.95\text{MHz}$
	10MHz & 10MHz	$^*Cf \pm (9.95 - 29.85) \text{ MHz} : 3\text{dBm}/19.9\text{MHz}$
	5MHz & 20MHz	$^*Cf \pm (12.475 - 37.425) \text{ MHz} : 3.97\text{dBm}/24.95\text{MHz}$
	10MHz & 20MHz	$^*Cf \pm (14.95 - 44.85) \text{ MHz} : 4.78\text{dBm}/29.9\text{MHz}$
	20MHz & 20MHz	$^*Cf \pm (19.9 - 59.7) \text{ MHz} : 6\text{dBm}/39.8\text{MHz}$

4.1.4.2 Test Setup

Please refer to 4.3 section description of test setup of test setup 1. The photo of test setup please refer to Test Setup Document.

4.1.4.3 Test Procedures

Follow 3GPP Standard TS 36.521-1 Section 6.6.2.3

4.1.4.4 Test Result

Please refer to Appendix of test date

4.1.5 Unwanted Emission Strength in Out-band Area Measurement

4.1.5.1 Limit

Article 2 Paragraph 1 of item 11-19:

*Appendix 3 (Unwanted Emission Strength / Outband Area)

Transmission System	Channel Interval	Technical Requirement
Transmission by the "one" carrier or Simultaneous transmission by the non-continuous "multiple" carrier(*)	3MHz	Cf ± (1.5 - 2.5) MHz : -11.5dBm /30kHz
		Cf ± (2.5 - 6.5) MHz : -8.5dBm/MHz
		Cf ± (6.5 - 7.5) MHz : -23.5dBm/MHz
	5MHz	Cf ± (2.5 - 3.5) MHz : -13.5dBm /30kHz
		Cf ± (3.5 - 7.5) MHz : -8.5dBm/MHz
		Cf ± (7.5 - 8.5) MHz : -11.5dBm/MHz
	10MHz	Cf ± (8.5 - 12.5) MHz : -23.5dBm/MHz
		Cf ± (5 - 6) MHz : -16.5dBm /30kHz
		Cf ± (6 - 10) MHz : -8.5dBm/MHz
		Cf ± (10 - 15) MHz : -11.5dBm/MHz
	15MHz	Cf ± (15 - 20) MHz : -23.5dBm/MHz
		Cf ± (7.5 - 8.5) MHz : -18.5dBm /30kHz
		Cf ± (8.5 - 12.5) MHz : -8.5dBm/MHz
		Cf ± (12.5 - 22.5) MHz : -11.5dBm/MHz
	20MHz	Cf ± (22.5 - 27.5) MHz : -23.5dBm/MHz
		Cf ± (10 - 11) MHz : -19.5dBm /30kHz
		Cf ± (11 - 15) MHz : -8.5dBm/MHz
		Cf ± (15 - 30) MHz : -11.5dBm/MHz
		Cf ± (30 - 35) MHz : -23.5dBm/MHz
Simultaneous transmission by the continuous "two" carrier	5MHz & 5MHz	Cf ± (4.9 - 5.9) MHz : -16.4dBm /30kHz
		Cf ± (5.9 - 9.9) MHz : -8.5dBm/MHz
		Cf ± (9.9 - 14.7) MHz : -11.5dBm/MHz
		Cf ± (14.7 - 19.7) MHz : -23.5dBm/MHz
	5MHz & 10MHz	Cf ± (7.475 - 8.475) MHz : -18.4dBm /30kHz
		Cf ± (8.475 - 12.475) MHz : -8.5dBm/MHz
		Cf ± (12.475 - 22.425) MHz : -11.5dBm/MHz
		Cf ± (22.425 - 27.425) MHz : -23.5dBm/MHz
	5MHz & 15MHz	Cf ± (9.9 - 10.9) MHz : -19.5dBm /30kHz
		Cf ± (10.9 - 14.9) MHz : -8.5dBm/MHz
		Cf ± (14.9 - 29.7) MHz : -11.5dBm/MHz
		Cf ± (29.7 - 34.7) MHz : -23.5dBm/MHz
	10MHz & 10MHz	Cf ± (9.95 - 10.95) MHz : -19.5dBm /30kHz
		Cf ± (10.95 - 14.95) MHz : -8.5dBm/MHz
		Cf ± (14.95 - 29.85) MHz : -11.5dBm/MHz
		Cf ± (29.85 - 34.85) MHz : -23.5dBm/MHz

*Simultaneous transmission by the non-continuous "multiple" carrier

1. "Frequency higher than the highest frequency in the transmitting multiple carriers at same time": It will apply the value corresponding to the transmission system of the carriers of the highest frequency.

"Frequency lower than the lowest frequency in the transmitting multiple carriers at same time": It will apply the value corresponding to the transmission system of the carriers of the lowest frequency.

2. "Frequencies between the transmitting multiple carriers at the same time": it will apply "values for the each carriers(The value corresponding to the channel width of either carrier if the frequency ranges overlap)".

Article 2 Paragraph 1 of item 11-21(B40):

Appendix 2 (Unwanted Emission Strength / Outband Area)

*2GHz Band (2,010 ~ 2,025 MHz)

5MHz System	10MHz System	15MHz System
Detuning Frequency Under 1MHz : *Cf ± (2.5 - 3.5) MHz : -13.5dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (5 - 6) MHz : -16.5dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (7.5 - 8.5) MHz : -18.5dBm /30kHz
Detuning Frequency 1 - 5 MHz : *Cf ± (3.5 - 7.5) MHz : -8.5dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (6 - 10) MHz : -8.5dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (8.5 - 12.5) MHz : -8.5dBm/MHz
Detuning Frequency 5 - 10 MHz : *Cf ± (7.5 - 8.5) MHz : -11.5dBm/MHz	Detuning Frequency 5 - 10 MHz : *Cf ± (10 - 15) MHz : -11.5dBm/MHz	Detuning Frequency 5 - 15 MHz : *Cf ± (12.5 - 22.5) MHz : -11.5dBm/MHz
Detuning Frequency 10 - 15 MHz : *Cf ± (8.5 - 12.5) MHz : -23.5dBm/MHz	Detuning Frequency 10 - 15 MHz : *Cf ± (15 - 20) MHz : -23.5dBm/MHz	Detuning Frequency 15 - 20 MHz : *Cf ± (22.5 - 27.5) MHz : -23.5dBm/MHz

Detuning Frequency: Frequency of the difference from the "end of a transmit frequency range(Limited to the near end of measurement of the unwanted emission strength)" to the "end of the measurement range of the unwanted emission strength(Limited to the near end of a transmit frequency range)".

*An actual measurement range

*2.3GHz band (2,330 ~ 2,370 MHz) or 3.5GHz Band (3,400 ~ 3,600 MHz)

5MHz System	10MHz System	15MHz System	20MHz System
Detuning Frequency Under 1MHz : *Cf ± (2.5 - 3.5) MHz : -13.2dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (5 - 6) MHz : -16.2dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (7.5 - 8.5) MHz : -18.2dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (10 - 11) MHz : -19.2dBm /30kHz
Detuning Frequency 1 - 5 MHz : *Cf ± (3.5 - 7.5) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (6 - 10) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (8.5 - 12.5) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (11 - 15) MHz : -8.2dBm/MHz
Detuning Frequency 5 - 10 MHz : *Cf ± (7.5 - 8.5) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 10 MHz : *Cf ± (10 - 15) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 15 MHz : *Cf ± (12.5 - 22.5) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 20 MHz : *Cf ± (15 - 30) MHz : -11.2dBm/MHz
Detuning Frequency 10 - 15 MHz : *Cf ± (8.5 - 12.5) MHz : -23.2dBm/MHz	Detuning Frequency 10 - 15 MHz : *Cf ± (15 - 20) MHz : -23.2dBm/MHz	Detuning Frequency 15 - 20 MHz : *Cf ± (22.5 - 27.5) MHz : -23.2dBm/MHz	Detuning Frequency 20 - 25 MHz : *Cf ± (30 - 35) MHz : -23.2dBm/MHz

5MHz + 5MHz System	5MHz + 10MHz System	5MHz + 15MHz System	5MHz + 20MHz System	10MHz + 10MHz System
Detuning Frequency Under 1MHz : *Cf ± (4.8 - 5.9) MHz : -16.1dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (7.475 - 8.475) MHz : -18.1dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (9.9 - 10.9) MHz : -19.1dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (12.475 - 13.475) MHz : -20.2dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (9.95 - 10.95) MHz : -19.1dBm /30kHz
Detuning Frequency 1 - 5 MHz : *Cf ± (5.9 - 9.9) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (8.475 - 12.475) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (10.9 - 14.9) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (13.475 - 17.475) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (10.95 - 14.95) MHz : -8.2dBm/MHz
Detuning Frequency 5 - 9.8 MHz : *Cf ± (9.9 - 14.7) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 14.95 MHz : *Cf ± (12.475 - 22.425) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 19.8 MHz : *Cf ± (14.9 - 29.7) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 24.95 MHz : *Cf ± (17.475 - 37.425) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 19.8 MHz : *Cf ± (14.95 - 29.85) MHz : -11.2dBm/MHz
Detuning Frequency 9.8 - 14.8 MHz : *Cf ± (14.7 - 19.7) MHz : -23.2dBm/MHz	Detuning Frequency 14.95 - 19.95 MHz : *Cf ± (22.425 - 27.425) MHz : -23.2dBm/MHz	Detuning Frequency 19.8 - 24.8 MHz : *Cf ± (29.7 - 34.7) MHz : -23.2dBm/MHz	Detuning Frequency 24.95 - 29.95 MHz : *Cf ± (37.425 - 42.425) MHz : -23.2dBm/MHz	Detuning Frequency 19.9 - 24.9 MHz : *Cf ± (29.85 - 34.85) MHz : -23.2dBm/MHz

10MHz + 15MHz System	10MHz + 20MHz System	15MHz + 15MHz System	15MHz + 20MHz System	20MHz + 20MHz System
Detuning Frequency Under 1MHz : *Cf ± (12.375 - 13.375) MHz : -20.2dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (14.95 - 15.95) MHz : -20.7dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (15 - 16) MHz : -20.7dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (17.425 - 18.425) MHz : -21.7dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (19.9 - 20.9) MHz : -22.2dBm /30kHz
Detuning Frequency 1 - 5 MHz : *Cf ± (13.375 - 17.375) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (15.95 - 19.95) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (16 - 20) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (18.425 - 22.425) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (20.9 - 24.9) MHz : -8.2dBm/MHz
Detuning Frequency 5 - 24.75 MHz : *Cf ± (17.375 - 37.125) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 29.9 MHz : *Cf ± (19.95 - 44.85) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 30 MHz : *Cf ± (20 - 45) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 34.85 MHz : *Cf ± (22.425 - 52.275) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 39.8 MHz : *Cf ± (24.9 - 59.7) MHz : -11.2dBm/MHz
Detuning Frequency 24.75 - 29.75 MHz : *Cf ± (37.125 - 42.125) MHz : -23.2dBm/MHz	Detuning Frequency 29.9 - 34.9 MHz : *Cf ± (44.85 - 49.85) MHz : -23.2dBm/MHz	Detuning Frequency 30 - 35 MHz : *Cf ± (45 - 50) MHz : -23.2dBm/MHz	Detuning Frequency 34.85 - 39.85 MHz : *Cf ± (52.275 - 57.275) MHz : -23.2dBm/MHz	Detuning Frequency 39.8 - 44.8 MHz : *Cf ± (59.7 - 64.7) MHz : -23.2dBm/MHz

15MHz + 15MHz + 15MHz System	10MHz + 20MHz + 20MHz System	15MHz + 15MHz + 20MHz System	15MHz + 20MHz + 20MHz System	20MHz + 20MHz + 20MHz System
Detuning Frequency Under 1MHz : *Cf ± (22.5 - 23.5) MHz : -20.7dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (24.85 - 25.85) MHz : -20.7dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (24.925 - 25.925) MHz : -20.7dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (27.325 - 28.325) MHz : -21.7dBm /30kHz	Detuning Frequency Under 1MHz : *Cf ± (29.8 - 30.8) MHz : -22.2dBm /30kHz
Detuning Frequency 1 - 5 MHz : *Cf ± (23.5 - 27.5) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (25.85 - 29.85) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (25.925 - 29.925) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (28.325 - 32.325) MHz : -8.2dBm/MHz	Detuning Frequency 1 - 5 MHz : *Cf ± (30.8 - 34.8) MHz : -8.2dBm/MHz
Detuning Frequency 5 - 45 MHz : *Cf ± (27.5 - 67.5) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 49.7 MHz : *Cf ± (29.85 - 74.55) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 49.85 MHz : *Cf ± (29.925 - 74.775) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 54.65 MHz : *Cf ± (32.325 - 81.975) MHz : -11.2dBm/MHz	Detuning Frequency 5 - 59.6 MHz : *Cf ± (34.8 - 89.4) MHz : -11.2dBm/MHz
Detuning Frequency 45 - 50 MHz : *Cf ± (67.5 - 72.5) MHz : -23.2dBm/MHz	Detuning Frequency 49.7 - 54.7 MHz : *Cf ± (74.55 - 79.55) MHz : -23.2dBm/MHz	Detuning Frequency 49.85 - 54.85 MHz : *Cf ± (74.775 - 79.775) MHz : -23.2dBm/MHz	Detuning Frequency 54.65 - 59.65 MHz : *Cf ± (81.975 - 86.975) MHz : -23.2dBm/MHz	Detuning Frequency 59.6 - 64.6 MHz : *Cf ± (89.4 - 94.4) MHz : -23.2dBm/MHz

*Simultaneous transmission by the non-continuous "multiple" carrier

1. "Frequency higher than the highest frequency in the transmitting multiple carriers at same time": It will apply the value corresponding to the transmission system of the carriers of the highest frequency.

2. "Frequency lower than the lowest frequency in the transmitting multiple carriers at same time": It will apply the value corresponding to the transmission system of the carriers of the lowest frequency.

3. "Frequencies between the transmitting multiple carriers at the same time" applies "values for the each carriers(each value if the ranges overlap)". However, it does not apply to the case of overlap in the frequency range of "Adjacent Channel Leakage Power" was according to the channel spacing of the other carrier at the Simultaneous transmission.

Article 2 Paragraph 1 of item 21-3(B39):

*Appendix 1 (Unwanted Emission Strength "Outband Area")

Frequency range	1.4MHz	5MHz	10MHz
Cf ± 0.7 (<) ~ (≤) 1.7MHz	-13.7dBm / 30kHz	-	-
Cf ± 1.7 (<) ~ (≤) 3.2MHz	-10dBm / MHz	-	-
Cf ± 3.2 (<) ~ (≤) 3.5MHz	-25dBm / MHz	-	-
Cf ± 2.5 (<) ~ (≤) 3.5MHz	-	-15dBm / 30kHz	-
Cf ± 3.5 (<) ~ (≤) 6.1MHz	-	-10dBm / MHz	-
Cf ± 6.1 (<) ~ (≤) 7.3MHz	-	Master : -29dBm / MHz Slave : -13dBm / MHz	-
Cf ± 7.3 (<) ~ (≤) 12.5MHz	-	Master : -36dBm / MHz Slave : -25dBm / MHz	-
Cf ± 5 (<) ~ (≤) 6MHz	-	-	-18dBm / 30kHz
Cf ± 6 (<) ~ (≤) 8.6MHz	-	-	-10dBm / MHz
Cf ± 8.6 (<) ~ (≤) 9.8MHz	-	-	Master : -29dBm / MHz Slave : -13dBm / MHz
Cf ± 9.8 (<) ~ (≤) 20MHz	-	-	Master : -36dBm / MHz Slave : -25dBm / MHz
Cf ± 20 (<) ~ (≤) 25MHz	-	-	-36dBm / MHz
1875 (<) ~ (≤) 1880MHz	-	Slave only: -36dBm / MHz	-
1895.04 (<) ~ (≤) 1896.192MHz	-12dBm / 1.152MHz		
1901.952 (<) ~ (≤) 1903.104MHz	-12dBm / 1.152MHz		
1903.68 (<) ~ (≤) 1904.832MHz	-	-12dBm / 1.152MHz	
1920 (<) ~ (≤) 1925MHz	-	Master : -33dBm / 5MHz Slave : -18dBm / 5MHz	-
1920 (<) ~ (≤) 1930MHz	-	-	Master : -30dBm / 10MHz Slave : -15dBm / 10MHz

Article 2 Paragraph 1 of item54(B41):

*Appendix 3 (Unwanted Emission Strength / Outband Area)

Transmission System		Technical Requirement
Transmission by the "one" carrier or Simultaneous transmission by the non-continuous "multiple" carrier(*)	2.5MHz	*Cf ± (3.75 - 6.25) MHz : -10dBm/MHz
	5MHz	*Cf ± (7.5 - 12.5) MHz : -10dBm/MHz
	10MHz	*Cf ± (15 - 20) MHz : -25dBm/MHz
		*Cf ± (20 - 25) MHz : -30dBm/MHz
	20MHz	*Cf ± (30 - 35) MHz : -25dBm/MHz
		*Cf ± (35 - 50) MHz : -30dBm/MHz
Simultaneous transmission by the continuous "two" carrier	5MHz & 5MHz	*Cf ± (9.9 - 14.7) MHz : -13dBm/MHz
		*Cf ± (14.7 - 19.7) MHz : -25dBm/MHz
	5MHz & 10MHz	*Cf ± (12.475 - 22.425) MHz : -13dBm/MHz
		*Cf ± (22.425 - 27.425) MHz : -25dBm/MHz
	10MHz & 10MHz	*Cf ± (14.95 - 29.85) MHz : -13dBm/MHz
		*Cf ± (29.85 - 34.85) MHz : -25dBm/MHz
	5MHz & 20MHz	*Cf ± (17.475 - 37.425) MHz : -13dBm/MHz
		*Cf ± (37.425 - 42.425) MHz : -25dBm/MHz
	10MHz & 20MHz	*Cf ± (19.95 - 44.85) MHz : -13dBm/MHz
		*Cf ± (44.85 - 49.85) MHz : -25dBm/MHz
	20MHz & 20MHz	*Cf ± (24.9 - 59.7) MHz : -13dBm/MHz
		*Cf ± (59.7 - 64.7) MHz : -25dBm/MHz

*Simultaneous transmission by the non-continuous "multiple" carrier

1. "Frequency higher than the highest frequency in the transmitting multiple carriers at same time" : It will apply the value corresponding to the transmission system of the carriers of the highest frequency.

"Frequency lower than the lowest frequency in the transmitting multiple carriers at same time" : It will apply the value corresponding to the transmission system of the carriers of the lowest frequency.

2. "Frequencies between the transmitting multiple carriers at the same time" applies "values for the each carriers(each value if the ranges overlap)". However, it does not apply to the case of overlap in the frequency range of "Adjacent Channel Leakage Power" was according to the channel spacing of the other carrier at the Simultaneous transmission.

*=An actual measurement range

4.1.5.2 Test Setup

Please refer to 4.3 section description of test setup of test setup 1. The photo of test setup please refer to Test Setup Document.

4.1.5.3 Test Procedures

Follow 3GPP Standard TS 36.521-1 Section 6.6.2.2

4.1.5.4 Test Result

Please refer to Appendix of test date

4.1.6 Unwanted Emission Strength in Spurious Area Measurement

4.1.6.1 Limit

Article 2 Paragraph 1 of item 11-19:

*Appendix 4 (Unwanted Emission Strength / Spurious Area)

Frequency range	700MHz Band (715 ~ 718 MHz)	700MHz Band (718 ~ 748 MHz)	800MHz Band (815 ~ 845 MHz)	900MHz Band (900 ~ 915 MHz)	1.5GHz Band (1,427.0 ~ 1,482.9 MHz)	1.7GHz Band (1,710.0 ~ 1,750.0 MHz)	1.7GHz Band (1,750.0 ~ 1,785.0 MHz)	2GHz Band (1,920.0 ~ 1,980.0 MHz)
9 kHz ~ 150 kHz	-36dBm/1kHz							
150 kHz ~ 30 MHz	-36dBm/10kHz							
30 ~ 1,000 MHz except as (*)	-36dBm/100kHz							
470 ~ 710 MHz (*)	-36dBm/100kHz	-26.2dBm/6MHz (3MHz : -36dBm/100kHz)	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz
770 ~ 773 MHz (*)	-32dBm/MHz	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz
773 ~ 803 MHz (*)	-50dBm/MHz	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz	-50dBm/MHz	-36dBm/100kHz	-36dBm/100kHz
880 ~ 890 MHz (*)	-50dBm/MHz	-40dBm/MHz	-40dBm/MHz	-40dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz
945 ~ 960 MHz (*)	-50dBm/MHz	-36dBm/100kHz	-50dBm/MHz	-36dBm/100kHz	-50dBm/MHz	-36dBm/100kHz	-36dBm/100kHz	-36dBm/100kHz
1,000 ~ 12,750 MHz except as (*)	-30dBm/MHz							
1,475.0 ~ 1,496.0 MHz (*)	-50dBm/MHz	-30dBm/MHz (*)	-50dBm/MHz	-50dBm/MHz	-35dBm/MHz (5MHz : -30dBm/MHz)	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz
1,496.0 ~ 1,510.0 MHz (*)	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-35dBm/MHz (5MHz : -30dBm/MHz)	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz
1,805.0 ~ 1,845.0 MHz (*)	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz
1,845.0 ~ 1,880.0 MHz (*)	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz
1,906.0 ~ 1,910.0 MHz (*)	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-25dBm/MHz (5MHz : -30dBm/MHz)
1,910.0 ~ 1,915.7 MHz (*)	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-25dBm/MHz (5MHz : -30dBm/MHz)
2,010.0 ~ 2,025.0 MHz (*)	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz
2,110.0 ~ 2,144.4 MHz (*)	-30dBm/MHz (*)	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz
2,144.4 ~ 2,170.0 MHz (*)	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz	-50dBm/MHz
2,330.0 ~ 2,370.0 MHz (*)	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz
3,400.0 ~ 3,419.3 MHz (*)	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz
3,419.3 ~ 3,500.7 MHz (*)	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz
3,500.7 ~ 3,574.7 MHz (*)	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz
3,574.7 ~ 3,590.3 MHz (*)	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz
3,590.3 ~ 3,600.0 MHz (*)	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz
3,600.0 ~ 4,100.0 MHz (*)	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz
4,500.0 ~ 4,900.0 MHz (*)	-50dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz	-30dBm/MHz

(*) When 737.95 ~ 748.0MHz is used (*) When 715.0 ~ 723.33MHz is used

Note1, Transmission by the "one" carrier

3MHz System : applies to the frequency range of over 7.5 MHz from center frequency. However, () is excluded. *5MHz System : applies to the frequency range of over 12.5 MHz from center frequency. However, (*) is excluded.

10MHz System : applies to the frequency range of over 20.0 MHz from center frequency. However, () is excluded. *15MHz System : applies to the frequency range of over 27.5 MHz from center frequency. However, (*) is excluded.

20MHz System : applies to the frequency range of over 35.0 MHz from center frequency. However, () is excluded.

Note2, Simultaneous transmission by the continuous "two" carrier

5MHz & 5MHz : applies to the frequency range of over 19.7 MHz from the center frequency (The sum of the frequency band of a continuous carrier). However, () is excluded.

5MHz & 10MHz : applies to the frequency range of over 27.425 MHz from the center frequency (The sum of the frequency band of a continuous carrier). However, () is excluded.

5MHz & 15MHz : applies to the frequency range of over 34.7 MHz from the center frequency (The sum of the frequency band of a continuous carrier). However, () is excluded.

10MHz & 10MHz : applies to the frequency range of over 34.85 MHz from the center frequency (The sum of the frequency band of a continuous carrier). However, () is excluded.

Note3, Simultaneous transmission by the non-continuous "multiple" carrier

Applies the allowable value of this table to each carrier (if the frequency ranges overlap : The value of either carrier). However, it does not apply to the case of overlap in the frequency range of "Unwanted Emission Strength / Outband Area" was according to the channel spacing of the other carrier in the transmitting multiple carriers at the same time.

Article 2 Paragraph 1 of item 11-21(B40):

*Appendix 3 (Unwanted Emission Strength / Spurious Area)

Frequency range	2GHz Band (2,010 ~ 2,025 MHz)	2.3GHz Band (2,330 ~ 2,370 MHz)	3.5GHz Band (3,400 ~ 3,600 MHz)
9 kHz – 150 kHz	-36dBm/1kHz		
150 kHz – 30 MHz	-36dBm/10kHz		
30 – 1,000 MHz (except as *)	-36dBm/100kHz		
*773 – 803 MHz	-	-50dBm/MHz	-
*860 – 890 MHz	-	-50dBm/MHz	-
*945 – 960 MHz	-	-50dBm/MHz	-
1,000 – 12,750 MHz (except as *)	-30dBm/MHz		
*1,475.0 – 1,510.0 MHz	-	-50dBm/MHz	-
*1,805.0 – 1,845.0 MHz	-	-50dBm/MHz	-
*1,845.0 – 1,880.0 MHz	-	-50dBm/MHz	-
~~*1,884.5 – 1,916.7 MHz~~	~~-41dBm/300kHz~~	~~-41dBm/300kHz~~	~~-~~
*2,010.0 – 2,025.0 MHz	-	-50dBm/MHz	-
*2,110.0 – 2,170.0 MHz	-	-50dBm/MHz	-
*3,400.0 – 4,100.0 MHz	-	-50dBm/MHz	-
*4,500.0 – 4,900.0 MHz	-	-50dBm/MHz (Note.4) -30dBm/MHz	-
12,750.0 – 18,000.0 MHz	-	-	-30dBm/MHz

Note 1. Transmission by the "one" carrier

This table applies only to the following frequency range.

5MHz system : Cf ± "12.5MHz" or more, 10MHz system : Cf ± "20.0MHz" or more,

15MHz system : Cf ± "27.5MHz" or more, 20MHz system : Cf ± "35.0MHz" or more.

Note 2. Simultaneous transmission by the continuous "two" or "Three" carrier

This table applies only to the following frequency range.

5MHz + 5MHz System : Cf ± "19.7 MHz" or more, 5MHz + 10MHz System : Cf ± "27.425 MHz" or more,

5MHz + 15MHz System : Cf ± "34.7 MHz" or more, 5MHz + 20MHz System : Cf ± "42.425 MHz" or more,

10MHz + 10MHz System : Cf ± "34.85 MHz" or more, 10MHz + 15MHz System : Cf ± "42.125 MHz" or more,

10MHz + 20MHz System : Cf ± "49.85 MHz" or more, 15MHz + 15MHz System : Cf ± "50.0 MHz" or more,

15MHz + 20MHz System : Cf ± "57.275 MHz" or more, 20MHz + 20MHz System : Cf ± "64.7 MHz" or more,

15MHz + 15MHz + 15MHz System : Cf ± "72.5 MHz" or more, 10MHz + 20MHz + 20MHz System : Cf ± "79.55 MHz" or more,

15MHz + 15MHz + 20MHz System : Cf ± "79.775 MHz" or more, 15MHz + 20MHz + 20MHz System : Cf ± "86.975 MHz" or more,

20MHz + 20MHz + 20MHz System : Cf ± "94.4 MHz" or more.

Note 3. Simultaneous transmission by the non-continuous "multiple" carrier

* "Frequency higher than the highest frequency in the transmitting multiple carriers at same time" : It will apply the value corresponding to the transmission system of the carriers of the highest frequency.

* "Frequency lower than the lowest frequency in the transmitting multiple carriers at same time" : It will apply the value corresponding to the transmission system of the carriers of the lowest frequency.

* "Frequencies between the transmitting multiple carriers at the same time" applies "values for the each carriers(each value if the ranges overlap)". However, it does not apply to the case of overlap in the frequency range of "Adjacent Channel Leakage Power" or "Unwanted Emission Strength / Outband Area" was according to the channel spacing of the other carrier at the Simultaneous transmission.

Note 4. When the "lower end - 1 MHz" to "upper end + 1 MHz" of the second harmonic frequency range of the 2.3 GHz band is overlapped with the above table, "-30 dBm / MHz" is "unwanted emission strength".

Article 2 Paragraph 1 of item54(B41):

*Appendix 3 (Unwanted Emission Strength / Outband Area)

Transmission System		Technical Requirement
Transmission by the "one" carrier or Simultaneous transmission by the non-continuous "multiple" carrier(*)	2.5MHz	*Cf ± (3.75 - 6.25) MHz : -10dBm/MHz
	5MHz	*Cf ± (7.5 - 12.5) MHz : -10dBm/MHz
	10MHz	*Cf ± (15 - 20) MHz : -25dBm/MHz
		*Cf ± (20 - 25) MHz : -30dBm/MHz
	20MHz	*Cf ± (30 - 35) MHz : -25dBm/MHz
		*Cf ± (35 - 50) MHz : -30dBm/MHz
Simultaneous transmission by the continuous "two" carrier	5MHz & 5MHz	*Cf ± (9.9 - 14.7) MHz : -13dBm/MHz
		*Cf ± (14.7 - 19.7) MHz : -25dBm/MHz
	5MHz & 10MHz	*Cf ± (12.475 - 22.425) MHz : -13dBm/MHz
		*Cf ± (22.425 - 27.425) MHz : -25dBm/MHz
	10MHz & 10MHz	*Cf ± (14.95 - 29.85) MHz : -13dBm/MHz
		*Cf ± (29.85 - 34.85) MHz : -25dBm/MHz
	5MHz & 20MHz	*Cf ± (17.475 - 37.425) MHz : -13dBm/MHz
		*Cf ± (37.425 - 42.425) MHz : -25dBm/MHz
	10MHz & 20MHz	*Cf ± (19.95 - 44.85) MHz : -13dBm/MHz
		*Cf ± (44.85 - 49.85) MHz : -25dBm/MHz
	20MHz & 20MHz	*Cf ± (24.9 - 59.7) MHz : -13dBm/MHz
		*Cf ± (59.7 - 64.7) MHz : -25dBm/MHz

*Simultaneous transmission by the non-continuous "multiple" carrier

1. "Frequency higher than the highest frequency in the transmitting multiple carriers at same time" : It will apply the value corresponding to the transmission system of the carriers of the highest frequency.

"Frequency lower than the lowest frequency in the transmitting multiple carriers at same time" : It will apply the value corresponding to the transmission system of the carriers of the lowest frequency.

2. "Frequencies between the transmitting multiple carriers at the same time" applies "values for the each carriers(each value if the ranges overlap)". However, it does not apply to the case of overlap in the frequency range of "Adjacent Channel Leakage Power" was according to the channel spacing of the other carrier at the Simultaneous transmission.

*=An actual measurement range

4.1.6.2 Test Setup

Please refer to 4.3 section description of test setup of test setup 1. The photo of test setup please refer to Test Setup Document.

4.1.6.3 Test Procedures

Follow 3GPP Standard TS 36.521-1 Section 6.6.3

4.1.6.4 Test Result

Please refer to Appendix of test date

4.1.7 Secondarily Emitted Radio Wave Strength Measurement

4.1.7.1 Limit

Article 2 Paragraph 1 of item 11-19:

Article 2 Paragraph 1 of item 11-21(B40):

Article 2 Paragraph 1 of item 54(B41):

Secondary Radiated Emission Strength	9 kHz - 150 kHz : -54dBm / 1kHz 150 kHz - 30 MHz : -54dBm / 10kHz 30 MHz - 1,000 MHz : -54dBm / 100kHz 1 GHz - 13.5 GHz : -47dBm / 1MHz
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4.1.7.2 Test Setup

Please refer to 4.3 section description of test setup of test setup 1. The photo of test setup please refer to Test Setup Document.

4.1.7.3 Test Procedures

Follow 3GPP Standard TS 36.521-1 Section 7.9.

4.1.7.4 Test Result

Please refer to Appendix of test date

4.1.8 Leakage Power at No-carrier Transmission Measurement

4.1.8.1 Limit

Article 2 Paragraph 1 of item 11-19:

Leakage Power at No-Carrier Transmission	Channel interval 3MHz : -48.5dBm/2.7MHz Channel interval 5MHz : -48.5dBm/4.5MHz Channel interval 10MHz : -48.5dBm/9MHz Channel interval 15MHz : -48.5dBm/13.5MHz Channel interval 20MHz : -48.5dBm/18MHz
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Article 2 Paragraph 1 of item 11-21(B40,):

*Appendix 5 (Leakage Power at No-Carrier Transmission)

	2GHz Band (2,010 ~ 2,025 MHz)	2.3GHz Band (2,3300 ~ 2,370 MHz)	3.5GHz Band (3,400 ~ 3,600 MHz)
5MHz System	-48.5dBm/4.5MHz	-48.2dBm/4.5MHz	-48.2dBm/4.5MHz
10MHz System	-48.5dBm/9MHz	-48.2dBm/9MHz	-48.2dBm/9MHz
15MHz System	-48.5dBm/13.5MHz	-48.2dBm/13.5MHz	-48.2dBm/13.5MHz
20MHz System	—	-48.2dBm/18MHz	-48.2dBm/18MHz

Article 2 Paragraph 1 of item 54(B41):

Leakage Power at No-Carrier Transmission	-30 dBm
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4.1.8.2 Test Setup

Please refer to 4.3 section description of test setup of test setup 2. The photo of test setup please refer to Test Setup Document.

4.1.8.3 Test Procedures

Follow 3GPP Standard TS 36.521-1 Section 6.3.3

4.1.8.4 Test Result

Please refer to Appendix of test date

4.1.9 Comprehensive Operation Test

4.1.9.1 Limit

1. Automatic identification function

The transmitter of each land mobile station communicating with a base station shall be identified automatically by a base station

2. Automatic channel switching function

It is preformed that has automatically channel switching communicating channel from base station to other base station.

3. Traffic control function

The area in accordance is provided for the service of base station. The area resulting electric field strength required to provide for the service. It can be subdivided to match the traffic of the area.

4. Automatic power control function

Based on the control information from the base station or the measurement of the received power of the radio wave from the base station, It has a function for automatically controlling that antenna power is the minimum.

4.1.9.2 Test Setup

Please refer to 4.3 section description of test setup of test setup 2. The photo of test setup please refer to Test Setup Document.

4.1.9.3 Test Result

All test methods meet the above upper limit requirements.

4.1.10 Construction Protection Confirmation Method

4.1.10.1 Limit

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily

4.1.10.2 Test Method

☐	Sealed with special screws.
☐	Plastic chassis is being welded using ultrasonic waves.
☒	Chassis is glued using a special adhesive.
☐	Metal covers are spot-fused.
☒	Cover is specially interlocked.
☐	RF and Modulation components are covered with shielding case and this shielding case is soldered.
☒	Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method.
☐	Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive.
☐	Shield case is welded at RF and modulation parts, and ID-ROM is glued with a non-transparent laminating agent.
☐	Other :

4.1.10.3 Test Result

PASS.

4.1.11 Structural Protection.

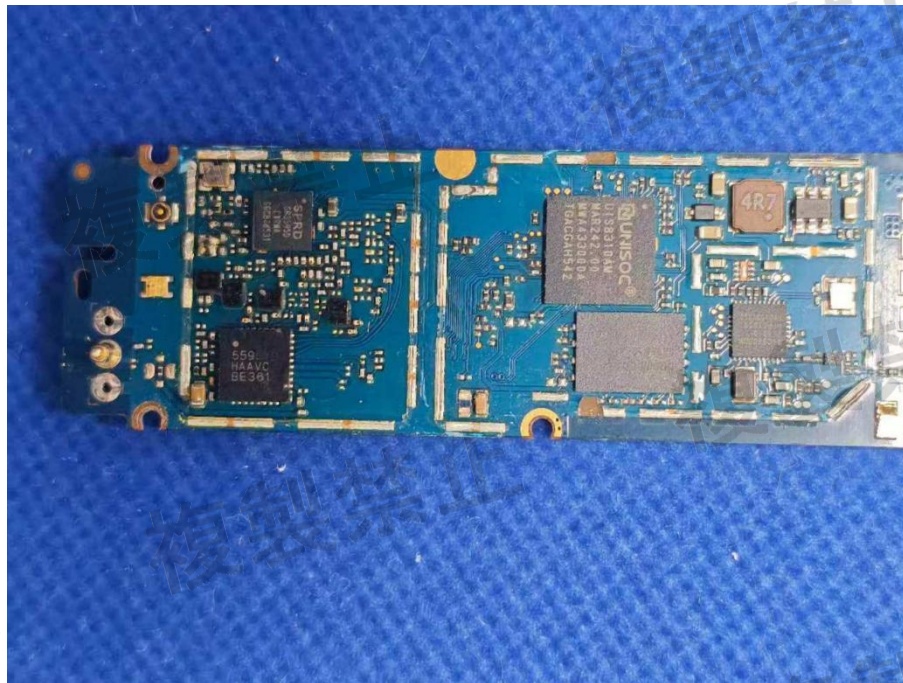
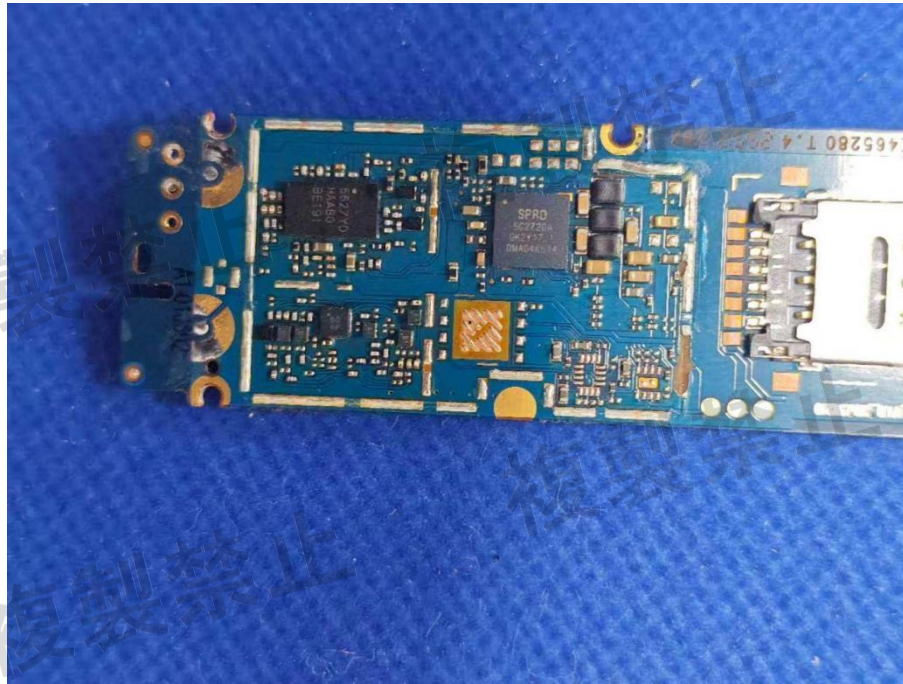
4.1.11.1 Limit

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily

4.1.11.2 Test Method

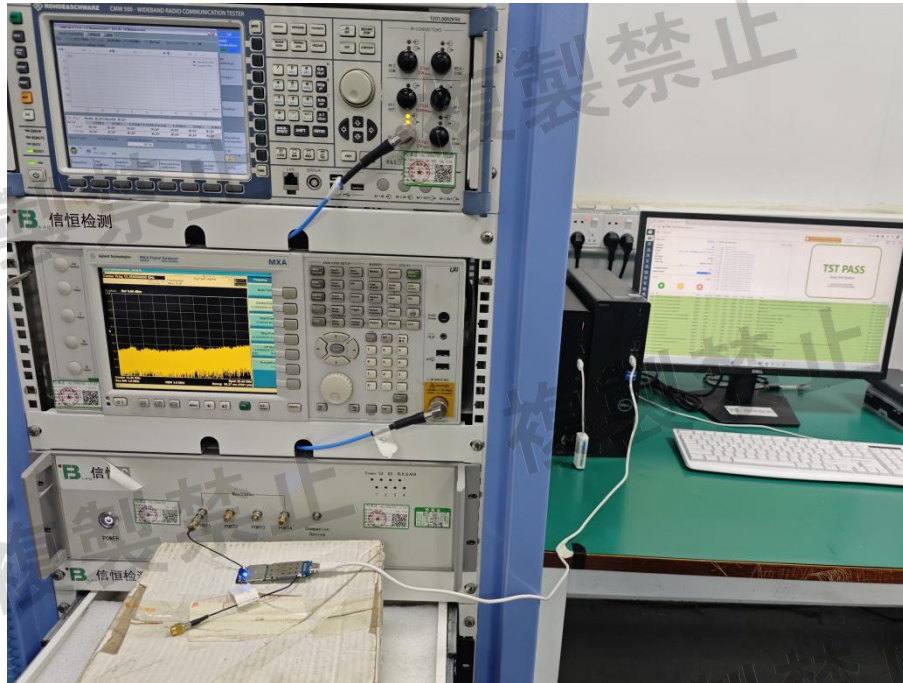
☐	Sealed with special screws.
☐	Plastic chassis is being welded using ultrasonic waves.
☒	Chassis is glued using a special adhesive.
☐	Metal covers are spot-fused.
☐	Cover is specially interlocked.
☒	RF and Modulation components are covered with shielding case and this shielding case is soldered.
☐	Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method.
☐	Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive.
☐	Shield case is welded at RF and modulation parts, and ID-ROM is glued with a non-transparent laminating agent.
☐	Other :

4.1.11.3 Test Result



EUT TEST SETUP PHOTOS

SETUP PHOTOS



EUT EUT PHOTOS

Please refer to Appendix II External Photos and Appendix III Internal Photos.



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--END OF REPORT--