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## JAPAN MIC TEST REPORT

Report No.:STS2202146W11

Issued for

Shanghai Unihertz E-Commerce Co., Ltd

Room 308, Building C, 508 Chundong Rd, Minhang district  
Shanghai, China 201108

<b>Product Name:</b>	Smart phone
<b>Brand Name:</b>	Unihertz
<b>Test Model Name:</b>	UNIA62_S01
<b>Series Model:</b>	N/A
<b>Test Standard:</b>	Item 11-3 And 11-7 of Article 2 Paragraph 1, annex 29

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**TEST RESULT CERTIFICATION**

**Applicant's Name** .....: Shanghai Unihertz E-Commerce Co., Ltd  
**Address** .....: Room 308, Building C, 508 Chundong Rd, Minhang district  
Shanghai, China 201108  
**Manufacturer's Name** .....: OBLUE Communication Technology Co.,Ltd.  
**Address** .....: 7th floor, building B, dayou industrial and trade industrial park,  
heping yonghe road, fuyong street, baoan district, Shenzhen, China

**Product Description**

**Product Name**.....: Smart phone  
**Trade Mark**.....: Unihertz  
**Test Model Name**.....: UNIA62\_S01  
**Series Model**.....: N/A

**Standards** .....: Item 11-3 And 11-7 of Article 2 Paragraph 1, annex 29

This device described above has been tested by MIC and the test results show that the equipment under test (EUT) is in compliance with the Item 11-3 And 11-7 of Article 2 Paragraph 1 requirements. And it is applicable only to the tested sample identified in the report.

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**Date of Test** .....

**Date of receipt of test item** .....: 28 Feb. 2022  
**Date of performance of tests** .....: 28 Feb. 2022 ~ 14 Apr. 2022  
**Date of Issue**.....: 14 Apr. 2022  
**Test Result**.....: Pass

**Testing Engineer** :

(Chris Chen)

**Technical Manager** :

(Sean she)

**Authorized Signatory** :

(Bovey Yang)



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**Revision History**

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	14 Apr. 2022	STS2202146W11	ALL	Initial Issue



## 1. SUMMARY OF TEST RESULTS

### 1.1 TEST RESULTS DESCRIPTION AND LABORATORY INFORMATION

Item 11-3 And11-7 of Article 2 Para- graph 1, annex 29 Rules Section	Description of Test	Result
2	Vibration Test	PASS
3	Temperature And Humidity Test	PASS
4	Frequency Tolerance	PASS
5	Occupied Bandwidth	PASS
6	Unwanted Emission strength	PASS
7	Adjacent channel leakage power	PASS
8	Output Power and Output Power Tolerance	PASS
9	Leakage Power At No-Carrier Transmission	PASS
10	Transmission Data Rate	PASS
11	Secondary Radiated Emission Strength	PASS
12	System Operation Test	PASS
13	Antenna Gain	PASS
14	Construction Protection Confirmation	PASS



### 1.1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

### 1.1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded 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	RF output power, conducted	$\pm 0.87\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.895\text{dB}$
3	Frequency tolerance	$\pm 0.03\text{ppm}$



## 2. GENERAL INFORMATION

## 2.1 TECHNICAL SPECIFICATIONS AND REGULATIONS

## 2.1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Name	Smart phone	
Trade Name	Unihertz	
Model Name	UNIA62_S01	
Series Model	N/A	
Model Difference	N/A	
Hardware version	G62_V1.1	
Software version	TickTock-E_20220307	
Frequency Bands	<input type="checkbox"/> 700M Band	
	<input checked="" type="checkbox"/> 800M Band	<input type="checkbox"/> Band 5 <input checked="" type="checkbox"/> Band6 <input type="checkbox"/> Band 19
	<input checked="" type="checkbox"/> 900M Band	<input checked="" type="checkbox"/> Band 8
	<input type="checkbox"/> 1.5G Band	<input type="checkbox"/> Band 11 <input type="checkbox"/> Band 21
	<input type="checkbox"/> 1.7G Band	<input type="checkbox"/> Band 3 <input type="checkbox"/> Band 9
	<input checked="" type="checkbox"/> 2.0G Band	<input checked="" type="checkbox"/> Band 1
Antenna gain	WCDMA B1: -0.6dBi, WCDMAB6: -0.9dBi, WCDMA B8: -0.8dBi	
Antenna	PIFA	
SIM Card	SIM 1 and SIM 2 is a chipset unit and tested as single chipset, SIM 1 is used to tested.	
Adapter	Model: HJ-FC010K7-JP Input: 100-240V~ 50/60Hz 0.6A Output: 5V===2A OR 7V===2A OR 9V===2A OR 12V===1.5A	
Battery	Rated Voltage:3.85V Charge Limit Voltage:4.4V Capacity: 6000mAh	

## Channel List:

Test channel list							
Band		Frequency(MHz)	Channel	Band		Frequency(MHz)	Channel
Band1	L	1922.4	9612	Band6	L	832.4	4162
	M	1950	9750		M	835	4175
	H	1977.6	9888		H	837.6	4188
Band		Frequency(MHz)	Channel				
Band8	L	902.4	2812				
	M	907.4	2837				
	H	912.6	2863				





## 2.1.2 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Product Specification Subjective To This Standard	
Max output power	WCDMAB1: 23.08dBm WCDMAB6: 23.11dBm WCDMAB8: 23.12dBm
Modulation Type	BPSK, QPSK, 16QAM

## 2.1.3 RELATED SUBMITTAL(S) / GRANT (S)

The objective of the manufacturer is to demonstrate compliance with Radio Law of Japan Item 11-3 And11-7 of Article 2 Paragraph 1, annex 29.

## 2.1.4 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with eut intended for MIC together.

## 2.1.5 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

## 2.1.6 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

## 2.1.7 CONFIGURATION OF EUT SYSTEM

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

EUT



## 2.1.8 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

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.

### Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
N/A	N/A	N/A	N/A	N/A	N/A

### Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
N/A	N/A	N/A	N/A	N/A	N/A

Note:

- (1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.



## 2.1.9 MEASUREMENT INSTRUMENTS

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Signal Generator	Agilent	N5182A	MY46240556	2021.09.30	2022.09.29
Signal Analyzer	Keysight	N9020A	MY52440124	2022.03.01	2023.02.28
Universal Radio communication tester	R&S	CMU200	111058	2021.09.29	2022.09.28
Wireless Communications Test Set	R&S	CMW 500	131428	2022.03.01	2023.02.28
Temperature & Humidity	SW-108	SuWei	N/A	2022.03.02	2023.03.01
Temperature & Humidity test chamber	Safety test	AG80L	171200018	2022.03.01	2023.02.28
Programmable power supply	Agilent	E3642A	MY40002025	2021.10.08	2022.10.07
Attenuator	HP	8494B	DC-18G	2022.03.02	2023.03.01

## 2.1.10 MEASUREMENT RESULTS EXPLANATION EXAMPLE

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

*Offset = RF Cable Loss + Attenuator Factor.*



### 3. ANTENNA OUTPUT POWER, POWER TOLERANCE AND ANTENNA GAIN

#### 3.1 LIMIT

Article 2 Paragraph 1 of Item 11-3 and Item 11-7

Land mobile Station for W-CDMA cellular phone:

The Output power less than 24dBm

23dBm over : +48% -58%, (700MHz Band) +48% -67%

23dBm or less : +87% -47%, (700MHz Band) +87% -58%

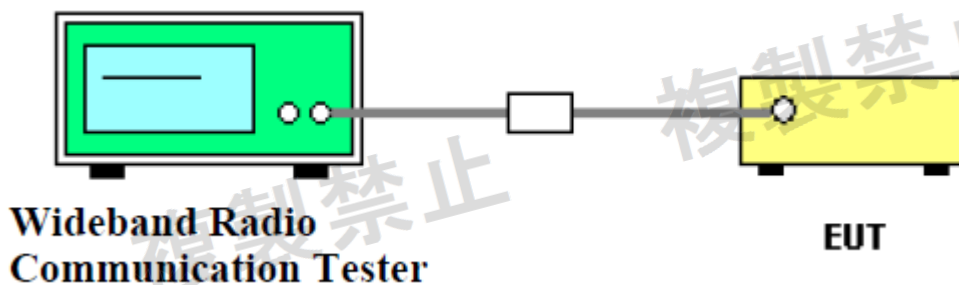
Antenna gain less than 3dBi.

#### 3.2 MEASUREMENT METHOD

Based on WCDMA bands specified in table:

Mode	DownLink Configuration	UpLink Configuration
WCDMA	N/A for Max UE output power testing	Max UE output power testing
HSDPA		
HSUPA		

#### 3.3 TEST SETUP



#### 3.4 TEST PROCEDURES

1. Set and send continuously Up power control commands to the UE.
2. Measure the mean power of the UE in a bandwidth of at least  $(1 + \alpha)$  times the chip rate of the radio access mode. The mean power shall be averaged over at least one timeslot.





## 3.5 TEST RESULTS

UMTS Band 1												
Maximum Output Power [dBm/mW/%]												
Channel	Low channel(MHz)			Middle chanel(MHz)			High channel(MHz)			Output Power Limits	Output Power ToleranceLimits	Result
	LV	NV	HV	LV	NV	HV	LV	NV	HV			
Rated Power	23.10	23.10	23.10	23.10	23.10	23.10	23.10	23.10	23.10			
Rated Power(mW)	204.17	204.17	204.17	204.17	204.17	204.17	204.17	204.17	204.17			
UMTS												
Power (dBm)	23.04	23.08	23.05	23.05	23.06	23.04	22.90	22.93	22.88	24dBm	48%~ -58%	PASS
Power (mW)	201.37	203.24	201.84	201.84	202.30	201.37	194.98	196.34	194.09			
Tolerance (%)	-1.37	-0.46	-1.14	-1.14	-0.92	-1.37	-4.50	-3.84	-4.94			
HSDPA												
Power (dBm)	22.06	22.09	22.06	22.01	22.04	21.99	21.93	21.94	21.92	24dBm	48%~ -58%	PASS
Power (mW)	160.69	161.81	160.69	158.85	159.96	158.12	155.96	156.31	155.60			
Tolerance (%)	-21.30	-20.75	-21.30	-22.20	-21.66	-22.55	-23.62	-23.44	-23.79			
HSUPA												
Power (dBm)	21.71	21.75	21.73	21.74	21.78	21.77	21.69	21.71	21.69	24dBm	48%~ -58%	PASS
Power (mW)	148.25	149.62	148.94	149.28	150.66	150.31	147.57	148.25	147.57			
Tolerance (%)	-27.39	-26.72	-27.05	-26.89	-26.21	-26.38	-27.72	-27.39	-27.72			

UMTS Band 6												
Maximum Output Power [dBm/mW/%]												
Channel	Low channel(MHz)			Middle chanel(MHz)			High channel(MHz)			Output Power Limits	Output Power ToleranceLimits	Result
	LV	NV	HV	LV	NV	HV	LV	NV	HV			
Rated Power	23.20	23.20	23.20	23.20	23.20	23.20	23.20	23.20	23.20			
Rated Power(mW)	208.93	208.93	208.93	208.93	208.93	208.93	208.93	208.93	208.93			
UMTS												
Power (dBm)	23.03	23.04	23.01	23.03	23.04	23.03	23.06	23.11	23.10	24dBm	48%~ -58%	PASS
Power (mW)	200.91	201.37	199.99	200.91	201.37	200.91	202.30	204.64	204.17			
Tolerance (%)	-3.84	-3.62	-4.28	-3.84	-3.62	-3.84	-3.17	-2.05	-2.28			
HSDPA												
Power (dBm)	22.04	22.07	22.06	22.02	22.05	22.04	22.08	22.13	22.13	24dBm	48%~ -58%	PASS
Power (mW)	159.96	161.06	160.69	159.22	160.32	159.96	161.44	163.31	163.31			
Tolerance (%)	-23.44	-22.91	-23.09	-23.79	-23.26	-23.44	-22.73	-21.84	-21.84			
HSUPA												
Power (dBm)	21.84	21.87	21.84	21.89	21.90	21.88	21.91	21.94	21.92	24dBm	48%~ -58%	PASS
Power (mW)	152.76	153.82	152.76	154.53	154.88	154.17	155.24	156.31	155.60			
Tolerance (%)	-26.89	-26.38	-26.89	-26.04	-25.87	-26.21	-25.70	-25.18	-25.53			



UMTS Band 8												
Maximum Output Power [dBm/mW/%]												
Channel	Low channel(MHz)			Middle chanel(MHz)			High channel(MHz)			Output Power Limits	Output Power ToleranceLimits	Result
	LV	NV	HV	LV	NV	HV	LV	NV	HV			
Rated Power	23.20	23.20	23.20	23.20	23.20	23.20	23.20	23.20	23.20			
Rated Power(mW)	208.93	208.93	208.93	208.93	208.93	208.93	208.93	208.93	208.93			
UMTS												
Power (dBm)	22.98	23.00	22.99	23.04	23.05	23.01	23.09	23.12	23.11	24dBm	48%~ -58%	PASS
Power (mW)	198.61	199.53	199.07	201.37	201.84	199.99	203.70	205.12	204.64			
Tolerance (%)	-4.94	-4.50	-4.72	-3.62	-3.39	-4.28	-2.50	-1.83	-2.05			
HSDPA												
Power (dBm)	21.97	22.01	21.96	22.06	22.07	22.05	22.13	22.14	22.13	24dBm	48%~ -58%	PASS
Power (mW)	157.40	158.85	157.04	160.69	161.06	160.32	163.31	163.68	163.31			
Tolerance (%)	-24.66	-23.97	-24.84	-23.09	-22.91	-23.26	-21.84	-21.66	-21.84			
HSUPA												
Power (dBm)	21.82	21.82	21.79	21.83	21.85	21.83	21.94	21.98	21.93	24dBm	48%~ -58%	PASS
Power (mW)	152.05	152.05	151.01	152.41	153.11	152.41	156.31	157.76	155.96			
Tolerance (%)	-27.22	-27.22	-27.72	-27.05	-26.72	-27.05	-25.18	-24.49	-25.36			



#### 4. FREQUENCY TOLERANCE AT VOLTAGE FLUCTUATION, ENVIRONMENT AND VIBRATION CONDITION

##### 4.1 LIMIT

Article 2 Paragraph 1 of Item 11-3 and Item 11-7

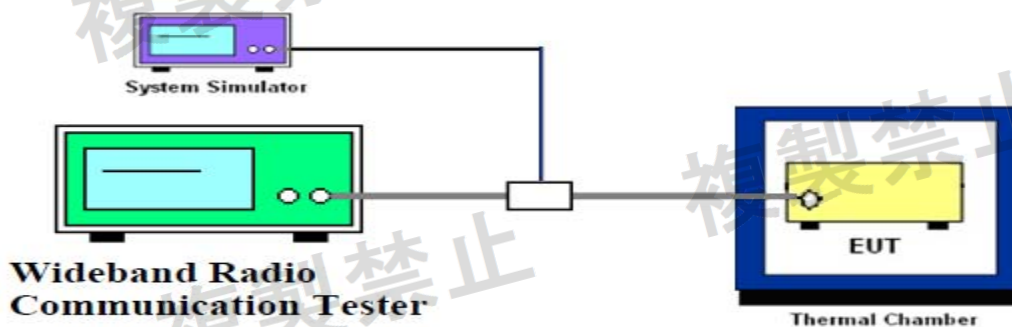
WCDMA:  $\pm (0.1 \times f \times 10^{-6} + 10)$  Hz

##### 4.2 MEASUREMENT METHOD

Based on WCDMA bands specified in table:

Mode	DownLink Configuration	UpLink Configuration
WCDMA	N/A For Frequency Tolerance	Frequency Tolerance
HSDPA		
HSUPA		

##### 4.3 TEST SETUP



##### 4.4 TEST PROCEDURES

###### 1. Vibration test:

Set the vibration test system as the table below:

Frequency	ASD(Acceleration Spectral Density) random vibration
From 5Hz to 20Hz	0.96m2/s3
Exceeding 20Hz to 500Hz	-3dB/Octave

Start the vibration test system, Test the frequency tolerance, Record the test result.

###### 2. Temperature test:

Place the device to be tested in the temperature and humidity tester in the non-operation state and set the temperature of the temperature and humidity tester to a low temperature while in this condition. the low temperature is 0°C, -10°C and -20°C, use the minimum value within the range of the specification of the device to be tested. the high temperature is 40°C, 50°C and 60°C, use the highest value within the range of the specification of the device to be tested.

Leave it in this condition for 1hour.

Apply the prescribed power supply voltage to operate to device to be tested in the temperature and humidity tester. Test the frequency tolerance, Record the test result.



### 3. Humidity Test:

Place the device to be tested in the temperature and humidity tester in the non-operating state. While this condition remains, set the temperature to 35°C and the relative humidity to 95% or the maximum or the maximum humidity in the specification of the device to be tested in the temperature and humidity tester. Leave it in this condition for 4 hours.

After this time, the setting of the temperature and humidity tester is changed back to the normal temperature and normal humidity and, after confirming that there is no condensation, operate the device to be tested by applying the prescribed power supply voltage.

Test the frequency tolerance, Record the test result.

### 4. Voltage Fluctuation Test:

Set the power supply to test voltage, Test the frequency tolerance, Record the test result. Note: NH:

Normal Humidity: 65%

HH: High Humidity: 95%

NT: Normal Temperature: 26°C

LT: Low Temperature: -20°C

HT: High Temperature: 60°C

LV: Low Voltage: 3.55V

NV: Normal Voltage: 3.85V

HV: High Voltage: 4.4V

### 5. Environmental Conditions:

Temperature:	26 °C
Relative Humidity:	65 %
ATM Pressure:	100 kPa





## 4.5 TEST RESULTS

Test condition			Low channel (Hz)	Middle chanel (Hz)	High channel (Hz)	Result
Band I UMTS						
Deviation degree Limits(Hz)			±202.24	±205	±207.76	PASS
Voltage Fluctuation Test	Humidity:65% Temp:26℃	Low Voltage	23.46	20.69	29.03	
		Normal Voltage	23.46	22.08	28.16	
		High Voltage	23.34	22.02	28.58	
Temperature Test	Humidity:65% Normal Voltage Temp:35℃	Low Temp(-20℃)	22.70	21.53	27.37	
		High Temp(60℃)	24.89	22.52	27.92	
		Humidity(95%)	22.19	21.20	27.17	
Vibration Test	Humidity:65% Normal Voltage Temp:26℃	Amplitude: 3mm	21.71	22.46	28.42	
		Amplitude: 1mm	23.01	22.26	26.16	
Band I HSDPA						
Voltage Fluctuation Test	Humidity:65% Temp:26℃	Low Voltage	18.98	20.67	25.74	PASS
		Normal Voltage	19.86	22.35	25.50	
		High Voltage	20.54	23.91	24.78	
Temperature Test	Humidity:65% Normal Voltage Temp:35℃	Low Temp(-20℃)	20.72	22.96	27.03	
		High Temp(60℃)	21.18	22.56	25.71	
		Humidity(95%)	20.27	22.58	25.92	
Vibration Test	Humidity:65% Normal Voltage Temp:26℃	Amplitude: 3mm	19.89	23.42	26.47	
		Amplitude: 1mm	18.53	22.68	25.10	
Band I HSUPA						
Voltage Fluctuation Test	Humidity:65% Temp:26℃	Low Voltage	21.01	25.33	35.51	PASS
		Normal Voltage	20.12	25.52	34.33	
		High Voltage	19.72	25.46	33.56	
Temperature Test	Humidity:65% Normal Voltage Temp:35℃	Low Temp(-20℃)	21.14	26.65	34.74	
		High Temp(60℃)	20.43	26.73	34.32	
		Humidity(95%)	19.33	25.98	33.63	
Vibration Test	Humidity:65% Normal Voltage Temp:26℃	Amplitude: 3mm	20.47	27.09	33.92	
		Amplitude: 1mm	18.95	24.85	34.98	



Test condition			Low channel (Hz)	Middle chanel (Hz)	High channel (Hz)	Result
Band VI UMTS						
Deviation degree Limits(Hz)			±93.24	±93.5	±93.76	PASS
Voltage Fluctuation Test	Humidity:65% Temp:26℃	Low Voltage	17.91	24.05	23.50	
		Normal Voltage	19.88	24.18	23.61	
		High Voltage	19.63	24.70	24.08	
Temperature Test	Humidity:65% Normal Voltage	Low Temp(-20℃)	19.69	23.61	21.69	
		High Temp(60℃)	20.76	26.11	23.03	
	Normal Voltage Temp:35℃	Humidity(95%)	19.00	25.45	22.15	
Vibration Test	Humidity:65% Normal Voltage Temp:26℃	Amplitude: 3mm	20.52	23.93	23.03	
		Amplitude: 1mm	20.91	24.29	23.19	
Band VI HSDPA						
Voltage Fluctuation Test	Humidity:65% Temp:26℃	Low Voltage	19.87	28.56	23.34	PASS
		Normal Voltage	20.85	26.86	22.06	
		High Voltage	21.44	26.77	21.87	
Temperature Test	Humidity:65% Normal Voltage	Low Temp(-20℃)	20.51	27.49	21.23	
		High Temp(60℃)	21.69	26.23	23.66	
	Normal Voltage Temp:35℃	Humidity(95%)	20.94	27.49	21.72	
Vibration Test	Humidity:65% Normal Voltage Temp:26℃	Amplitude: 3mm	21.12	27.01	21.02	
		Amplitude: 1mm	22.03	26.96	21.95	
Band VI HSUPA						
Voltage Fluctuation Test	Humidity:65% Temp:26℃	Low Voltage	24.48	28.00	29.76	PASS
		Normal Voltage	23.22	27.56	27.75	
		High Voltage	22.72	29.06	28.46	
Temperature Test	Humidity:65% Normal Voltage	Low Temp(-20℃)	23.58	28.05	28.74	
		High Temp(60℃)	23.20	28.64	27.00	
	Normal Voltage Temp:35℃	Humidity(95%)	24.46	28.05	26.00	
Vibration Test	Humidity:65% Normal Voltage Temp:26℃	Amplitude: 3mm	22.76	29.66	27.55	
		Amplitude: 1mm	21.72	27.33	27.57	



Test condition			Low channel (Hz)	Middle chanel (Hz)	High channel (Hz)	Result
Band VIII UMTS						
Deviation degree Limits(Hz)			±100.24	±100.74	±101.26	PASS
Voltage Fluctuation Test	Humidity:65% Temp:26℃	Low Voltage	20.27	17.46	20.00	
		Normal Voltage	19.50	16.75	19.33	
		High Voltage	20.15	18.34	19.17	
Temperature Test	Humidity:65% Normal Voltage	Low Temp(-20℃)	19.67	15.87	19.77	
		High Temp(60℃)	18.32	15.86	18.77	
	Normal Voltage Temp:35℃	Humidity(95%)	21.02	14.08	17.88	
Vibration Test	Humidity:65% Normal Voltage Temp:26℃	Amplitude: 3mm	20.23	17.15	19.40	
		Amplitude: 1mm	19.74	17.98	17.85	
Band VIII HSDPA						
Voltage Fluctuation Test	Humidity:65% Temp:26℃	Low Voltage	18.02	12.03	16.91	PASS
		Normal Voltage	15.82	13.73	18.01	
		High Voltage	15.03	13.04	18.37	
Temperature Test	Humidity:65% Normal Voltage	Low Temp(-20℃)	14.12	13.25	19.47	
		High Temp(60℃)	17.07	15.39	18.66	
	Normal Voltage Temp:35℃	Humidity(95%)	14.94	15.67	19.07	
Vibration Test	Humidity:65% Normal Voltage Temp:26℃	Amplitude: 3mm	16.17	13.73	17.66	
		Amplitude: 1mm	14.63	13.89	16.55	
Band VIII HSUPA						
Voltage Fluctuation Test	Humidity:65% Temp:26℃	Low Voltage	16.97	12.28	17.24	PASS
		Normal Voltage	18.51	12.13	18.29	
		High Voltage	20.18	12.58	20.39	
Temperature Test	Humidity:65% Normal Voltage	Low Temp(-20℃)	18.39	13.78	16.70	
		High Temp(60℃)	18.44	11.69	19.42	
	Normal Voltage Temp:35℃	Humidity(95%)	19.80	12.11	17.65	
Vibration Test	Humidity:65% Normal Voltage Temp:26℃	Amplitude: 3mm	17.22	13.15	20.12	
		Amplitude: 1mm	18.86	11.64	17.14	



## 5. OCCUPIED BANDWIDTH

### 5.1 LIMIT

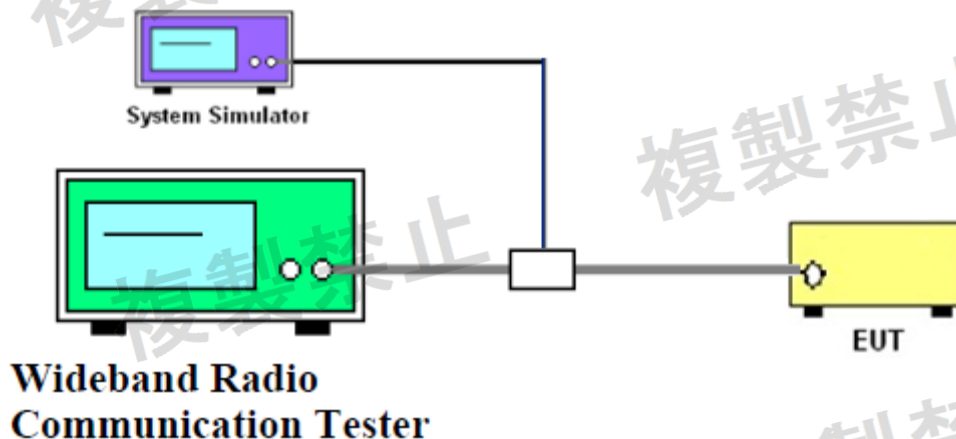
Article 2 Paragraph 1 of Item 11-3 and Item 11-7  
Land mobile Station for W-CDMA cellular phone  
Occupied bandwidth  $\leq 5$  MHz

### 5.2 MEASUREMENT METHOD

Based On WCDMA Bands Specified In Table:

Mode	DownLink Configuration	UpLink Configuration
WCDMA	N/A For Occupied Bandwidth	Occupied Bandwidth
HSDPA		
HSUPA		

### 5.3 TEST SETUP



### 5.4 TEST PROCEDURES

- Setting of SA is following as: RBW: 100 kHz / VBW: 100 kHz / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Sample / Trace mode: Max hold
- EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 99% of occupied bandwidth to measure occupied bandwidth.



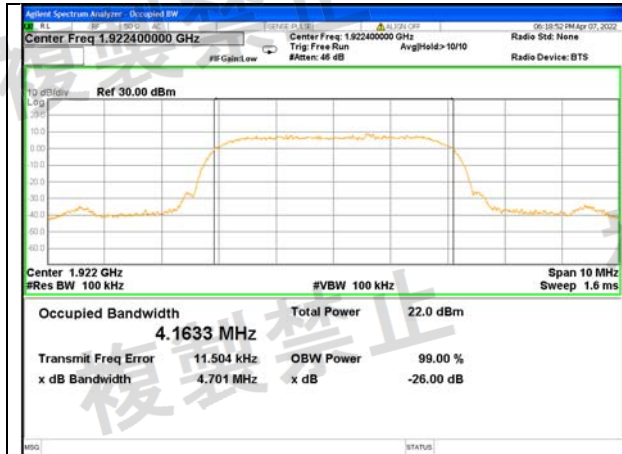


## 5.5 MEASUREMENT RESULT

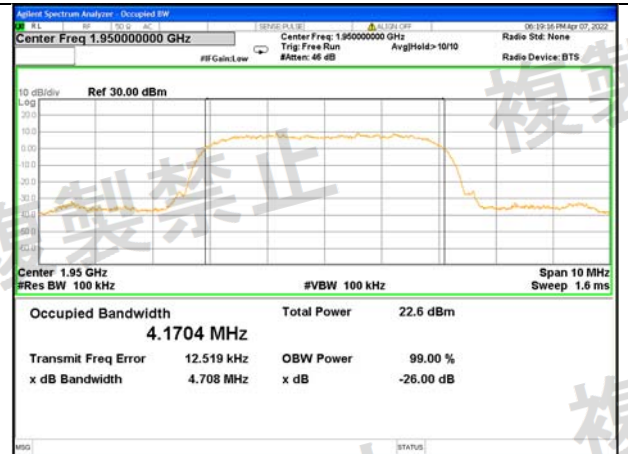
BAND 1 Bandwidth [MHz]			
Mode	Lowest	Middle	Highest
	99% BW	99% BW	99% BW
WCDMA	4.1633	4.1704	4.1673
HSDPA	4.1678	4.1743	4.1694
HSUPA	4.1711	4.1802	4.1709

BAND 6 Bandwidth [MHz]			
Mode	Lowest	Middle	Highest
	99% BW	99% BW	99% BW
WCDMA	4.1649	4.1655	4.1696
HSDPA	4.2122	4.1791	4.1833
HSUPA	4.2243	4.1867	4.1797

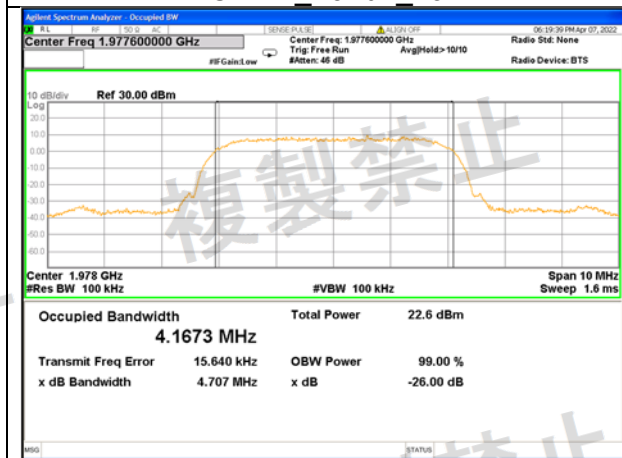
BAND 8 Bandwidth [MHz]			
Mode	Lowest	Middle	Highest
	99% BW	99% BW	99% BW
WCDMA	4.1749	4.1861	4.1514
HSDPA	4.2018	4.1834	4.1544
HSUPA	4.2020	4.7160	4.1553



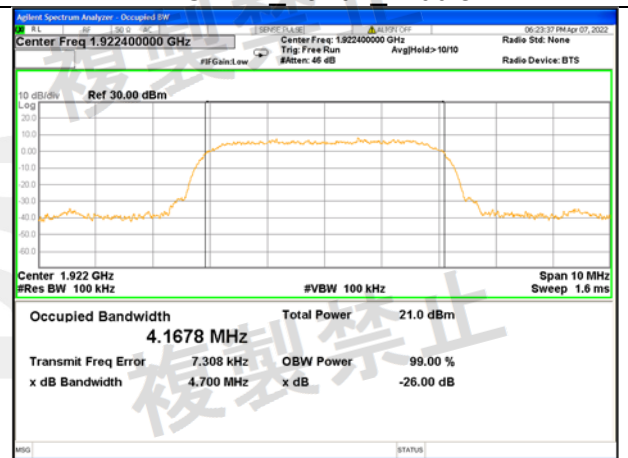
WCDMA\_Band1\_Low



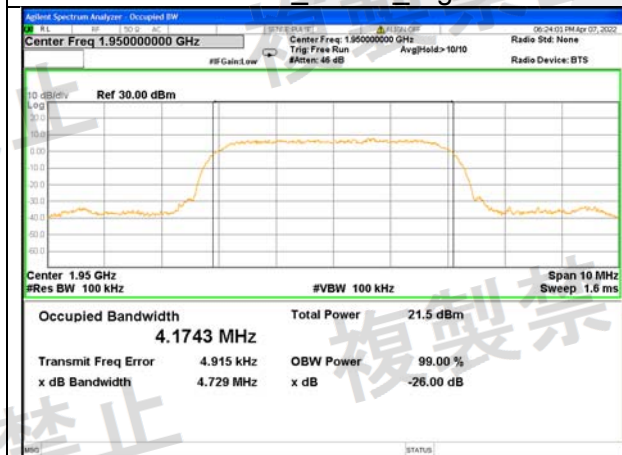
WCDMA\_Band1\_Middle



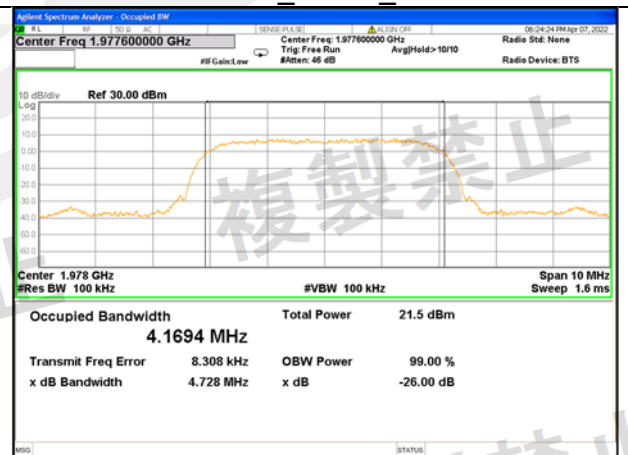
WCDMA\_Band1\_High



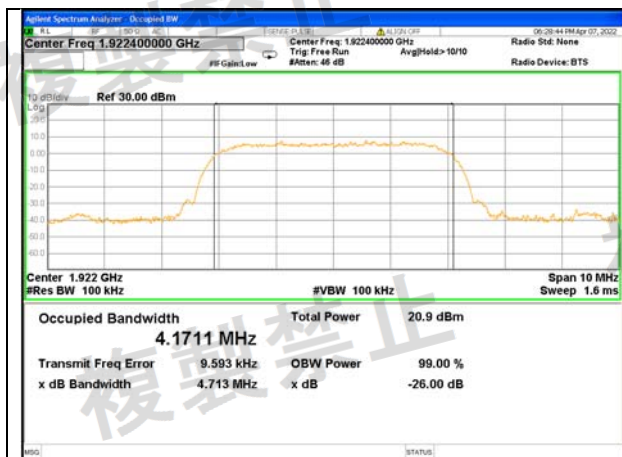
HSDPA\_Band1\_Low



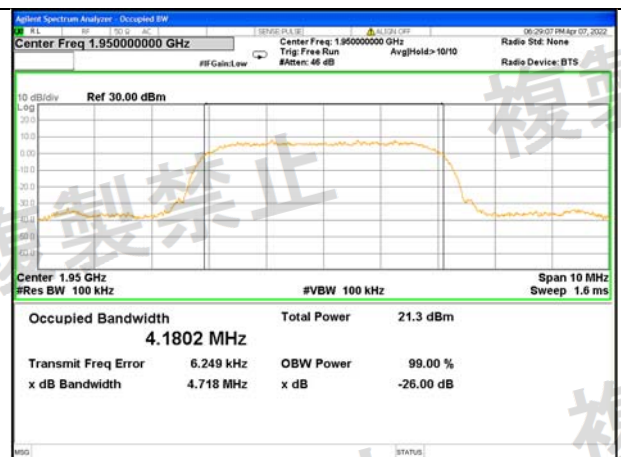
HSDPA\_Band1\_Middle



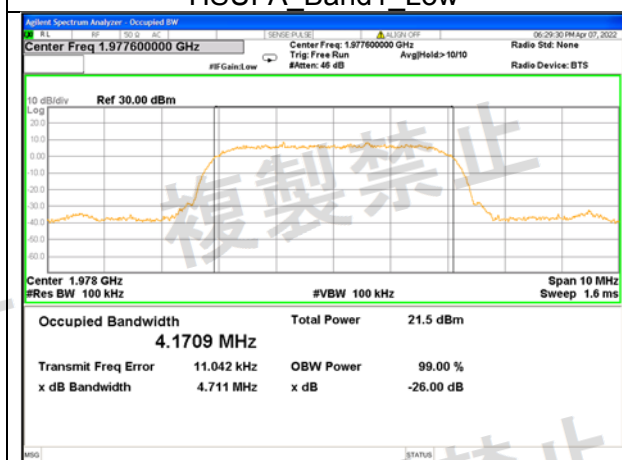
HSDPA\_Band1\_High



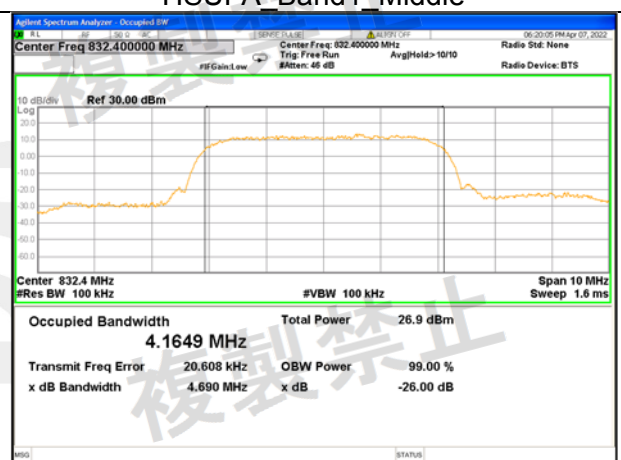
HSUPA\_Band1\_Low



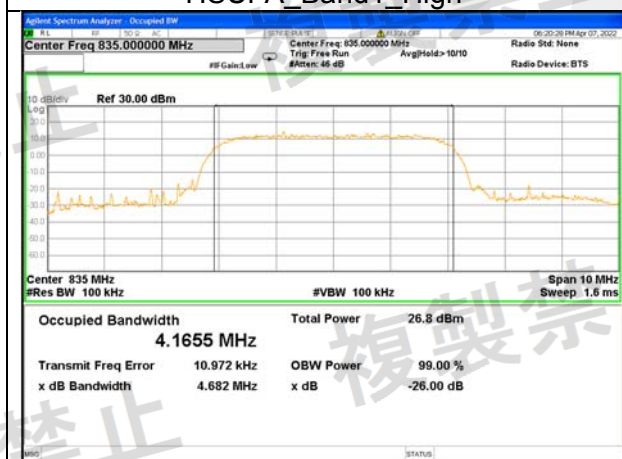
HSUPA\_Band1\_Middle



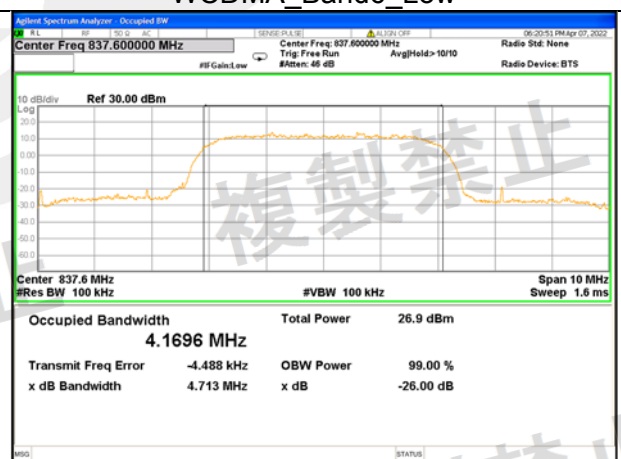
HSUPA\_Band1\_High



WCDMA\_Band6\_Low

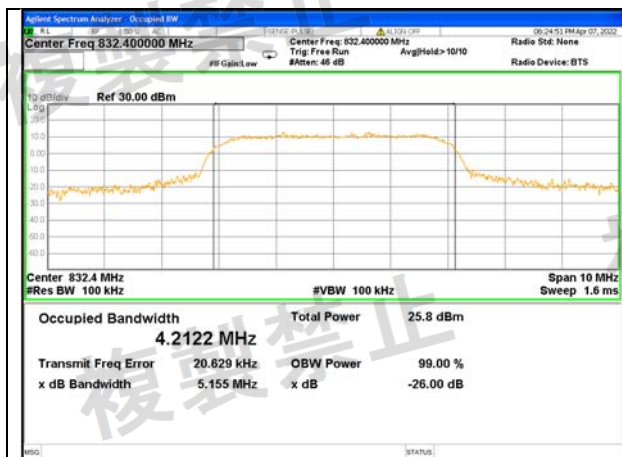


WCDMA\_Band6\_Middle

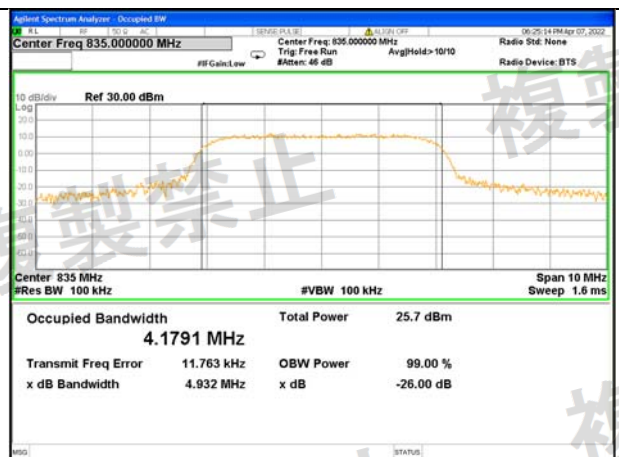


WCDMA\_Band6\_High

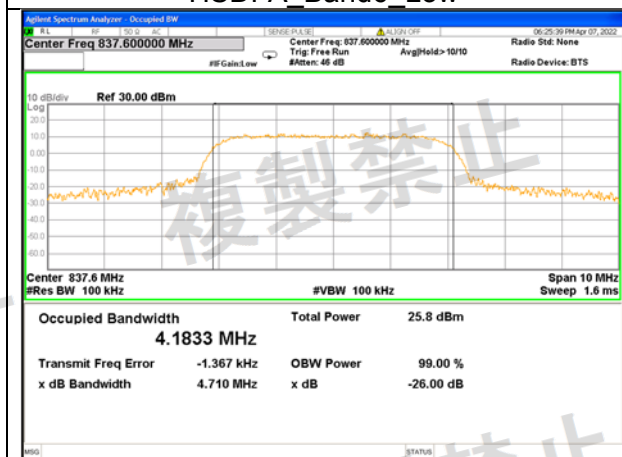




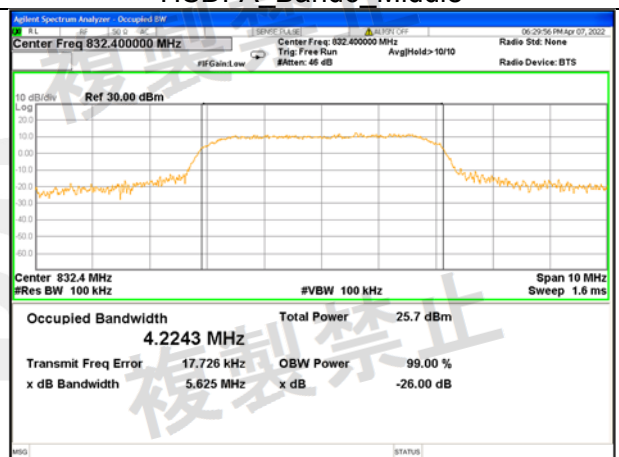
HSDPA\_Band6\_Low



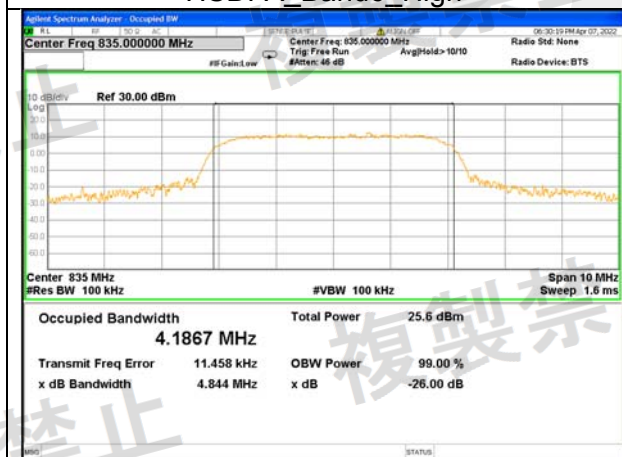
HSDPA\_Band6\_Middle



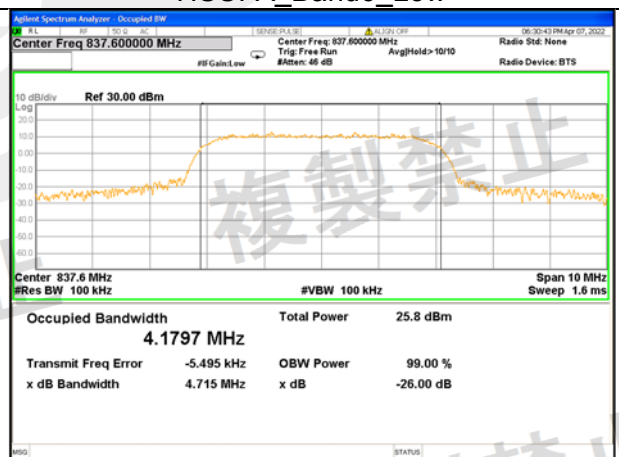
HSDPA\_Band6\_High



HSUPA\_Band6\_Low

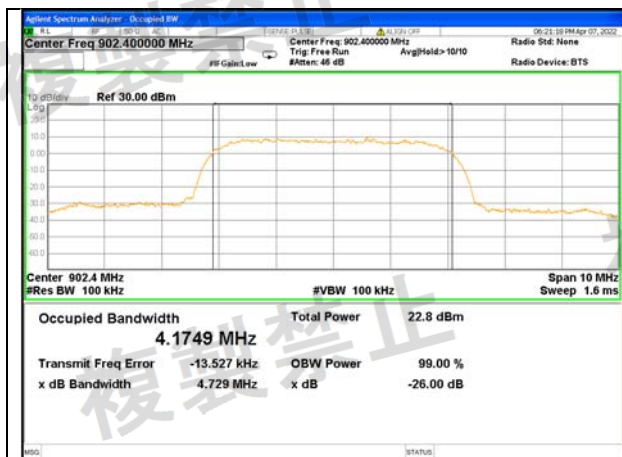


HSUPA\_Band6\_Middle

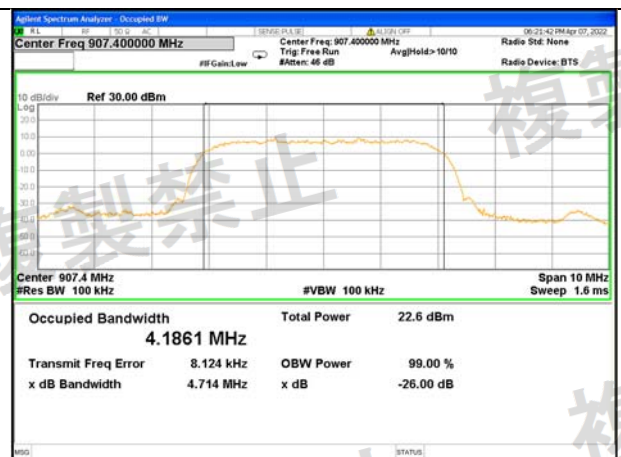


HSUPA\_Band6\_High

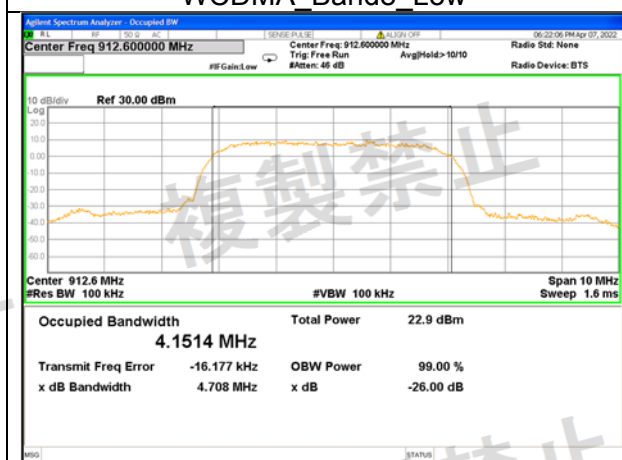




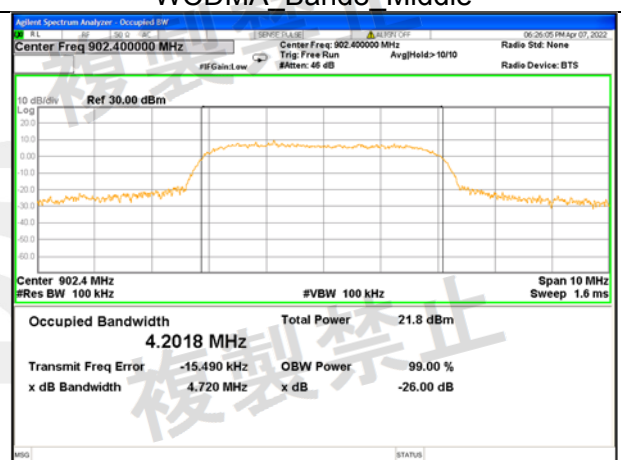
WCDMA\_Band8\_Low



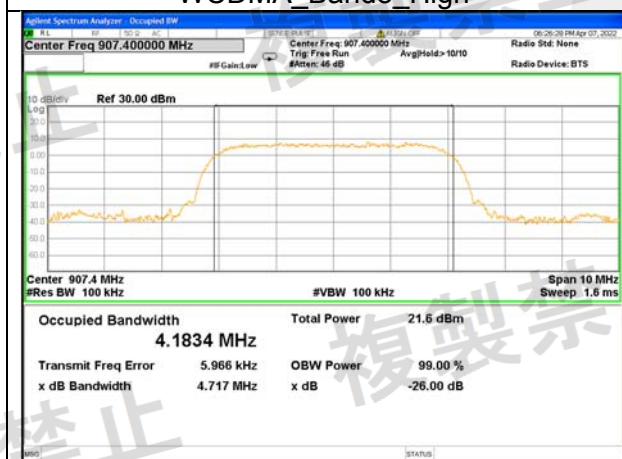
WCDMA\_Band8\_Middle



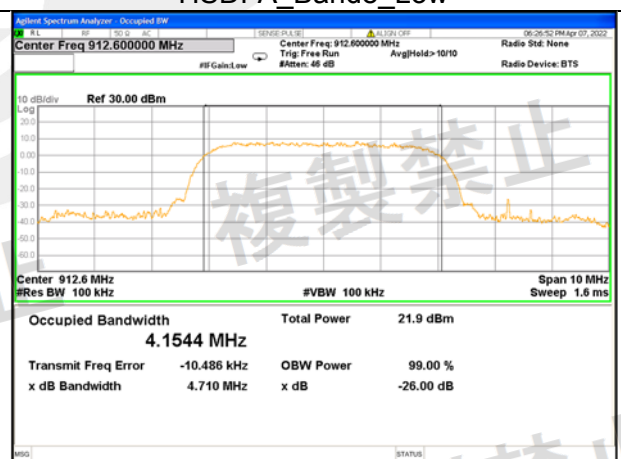
WCDMA\_Band8\_High



HSDPA\_Band8\_Low



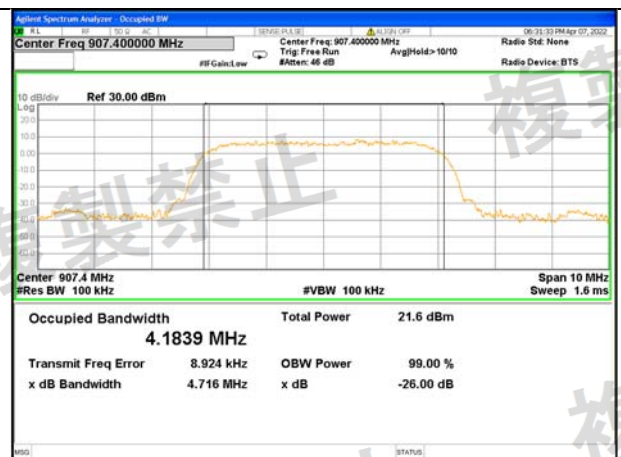
HSDPA\_Band8\_Middle



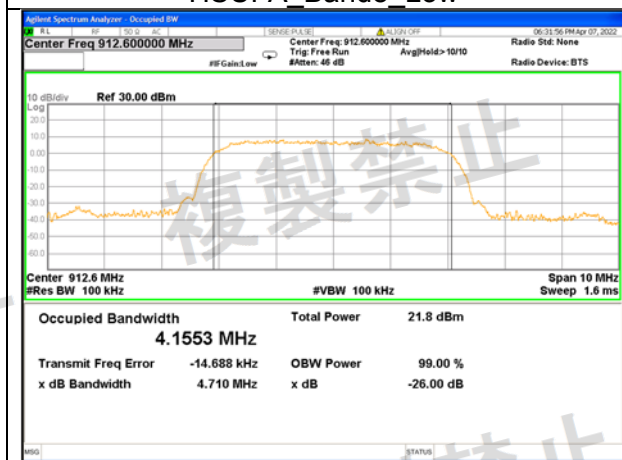
HSDPA\_Band8\_High



HSUPA\_Band8\_Low



HSUPA\_Band8\_Middle



HSUPA\_Band8\_High

## 6. UNWANTED EMISSION STRENGTH IN THE OUT-OF-BAND DOMAIN

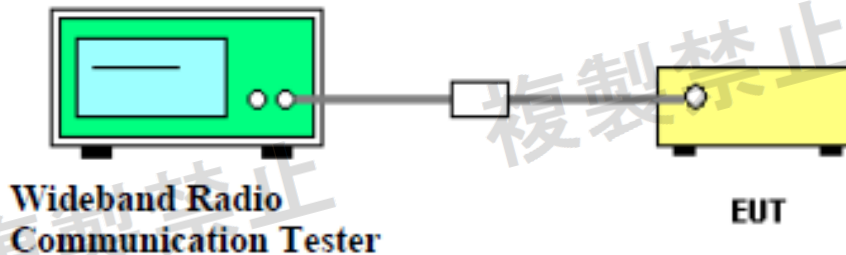
### 6.1 LIMIT

Article 2 Paragraph 1 of Item 11-3 and Item 11-7  
Land mobile Station for W-CDMA cellular phone  
W-CDMA (HSPA), Land Mobile Station

Unwanted Emission Strength	$Cf \pm 2.5 - 3.5 \text{ MHz}$	$-48.5\text{dBm}/3.84\text{MHz}$ or $-[33.5 + 15 \times ( \Delta f  - 2.5)]\text{dBc}/30\text{kHz}$	OT : Article 7 OT : Annex 3-17 (3) Note : No.430 of 2012
	$Cf \pm 3.5 - 7.5 \text{ MHz}$	$-48.5\text{dBm}/3.84\text{MHz}$ or $-[33.5 + 1 \times ( \Delta f  - 3.5)]\text{dBc}/\text{MHz}$	
	$Cf \pm 7.5 - 8.5 \text{ MHz}$	$-48.5\text{dBm}/3.84\text{MHz}$ or $-[37.5 + 10 \times ( \Delta f  - 7.5)]\text{dBc}/\text{MHz}$	
	$Cf \pm 8.5 - 12.5 \text{ MHz}$	$-48.5\text{dBm}/3.84\text{MHz}$ or $-47.5\text{dBc}/\text{MHz}$	
	$Cf \pm 12.5 \text{ MHz over}$	(700MHz Band) and 470 -710 MHz : $-26.2\text{dBm}/6\text{MHz}$	

Appendix 1

### 6.2 TEST SETUP



### 6.3 MEASUREMENT METHOD

Based on WCDMA band

Mode	DownLink Configuration	UpLink Configuration
WCDMA	N/A for SEM testing	SEM testing
HSDPA		
HSUPA		

### 6.4 TEST PROCEDURES

1. Set and send continuously Up power control commands to the UE until the UE output power shall be at the maximum level.
2. Measure the power of the transmitted signal with a measurement filter of bandwidths according to table. The characteristic of the filter shall be approximately Gaussian (typical spectrum analyzer filter). The centre frequency of the filter shall be stepped in contiguous steps according to table. The measured power shall be recorded for each step.
3. Measure the RRC filtered mean power centred on the assigned channel frequency.
4. Calculate the ratio of the power 2) with respect to 3) in dBc.

### 6.5 MEASUREMENT RESULT

Note: Test data see Appendix A.





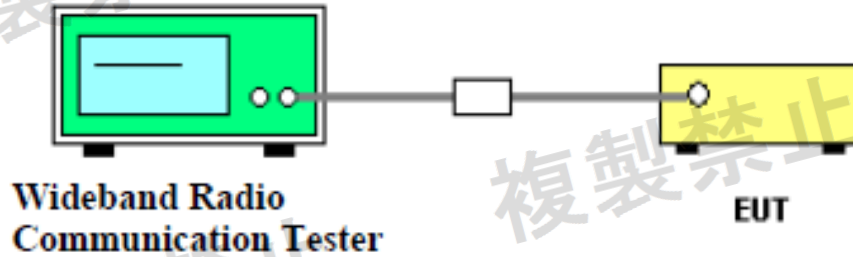
## 7. ADJACENT CHANNEL LEAKGE POWER

### 7.1 LIMIT

Article 2 Paragraph 1 of Item 11-3 and Item 11-7  
Land mobile Station for W-CDMA cellular phone

Adjacent Channel	Cf $\pm$ 5 MHz	-32.2dBc/3.84MHz or -50dBm/3.84MHz	OT : Article 49-6-4
Leakage Power	Cf $\pm$ 10 MHz	-42.2dBc/3.84MHz or -50dBm/3.84MHz	Note : No.176 of 2010

### 7.2 TEST SETUP



### 7.3 MEASUREMENT METHOD

Based on WCDMA bands

Mode	DownLink Configuration	UpLink Configuration
WCDMA	N/A for ACLR testing	ACLR testing
HSDPA		
HSUPA		

### 7.4 TEST PROCEDURES

1. The SS sends continuously Up power control commands to the UE until the UE transmitter power reaches maximum level.
2. Measure the RRC filtered mean power.
3. Measure the RRC filtered mean power of the first adjacent channels and the second adjacent channels.
4. Calculate the ratio of the power between the values measured in 2) and 3) above.

### 7.5 MEASUREMENT RESULT

Note: Test data see Appendix A.





## 8. UNWANTED EMISSION STRENGTH IN THE SPURIOUS DOMAIN

### 8.1 LIMIT

Article 2 Paragraph 1 of Item 11-3 and Item 11-7

Land mobile Station for W-CDMA cellular phone

The Unwanted Emission In The Spurious Area Should Below:

\*Appendix 1 (Unwanted Emission Strength)

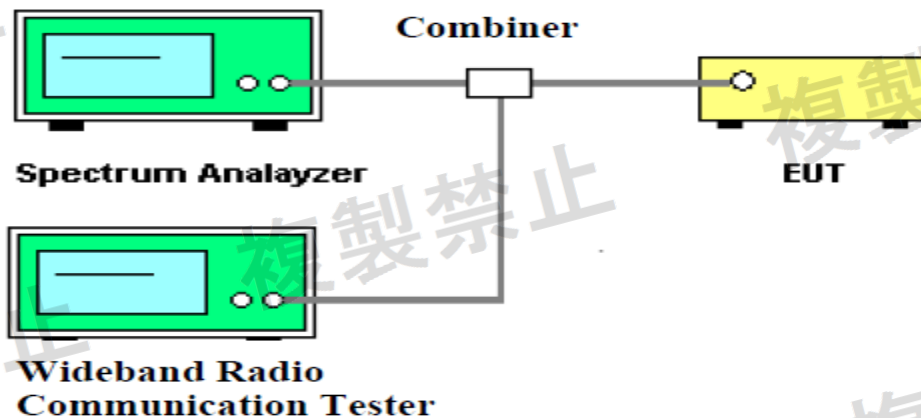
Frequency range	700MHz Band	800MHz Band	900MHz Band	1.5GHz Band	1.7GHz Band (1744.9 ~ 1749.9 MHz)	2GHz Band
				1.7GHz Band (1749.9~1784.9MHz)		
9 kHz – 150 kHz	-36dBm/1kHz					
150 kHz – 30 MHz	-36dBm/10kHz					
30 – 1,000 MHz (except as below)	-36dBm/100kHz					
470 – 710 MHz	-26.2dBm/6MHz	—	—	—	—	—
773 – 803 MHz	-60dBm/3.84MHz	—	—	—	-60dBm/3.84MHz	—
860 – 890 MHz	-60dBm/3.84MHz	—	-37dBm/MHz	-60dBm/3.84MHz	-60dBm/3.84MHz	—
925 – 935 MHz	—	—	—	—	—	-67dBm/100kHz for 51 channels of 200kHz -36dBm/100kHz for any 5 channels out of 51 channels
935 – 960 MHz	—	—	—	—	—	-79dBm/100kHz for 125 channels of 200kHz -36dBm/100kHz for any 5 channels out of 125 channels
945 – 960 MHz	-60dBm/3.84MHz	—	—	—	-60dBm/3.84MHz	—
1,000 – 12,750 MHz (except as below)	-30dBm/MHz					
1,475.9 – 1,510.9 MHz	-60dBm/3.84MHz	—	-60dBm/3.84MHz	—	-60dBm/3.84MHz	—
1,805.0 – 1,880.0 MHz	—	—	—	—	—	-71dBm/100kHz for 376 channels of 200kHz -30dBm/1MHz for any 5 channels out of 376 channels
1,839.9 – 1,844.9 MHz	—	—	—	—	-60dBm/3.84MHz	—
1,844.9 – 1,879.9 MHz	-60dBm/3.84MHz	—	-60dBm/3.84MHz	-60dBm/3.84MHz	-60dBm/3.84MHz	—
1,884.5 – 1,915.7 MHz	-41dBm/300kHz					
2,110.0 – 2,170.0 MHz	-60dBm/3.84MHz	—	-60dBm/3.84MHz	-60dBm/3.84MHz	-60dBm/3.84MHz	—

### 8.2 MEASUREMENT METHOD

Based on E-UTRA bands specified in table

Mode	DownLink Configuration	UpLink Configuration
	N/A For Spurious Emission	Spurious Emission
WCDMA	N/A For Spurious Emission	Spurious Emission
HSDPA		
HSUPA		

### 8.3 TEST SETUP





#### 8.4 TEST PROCEDURES

The RBW setup refer to below

Frequency range	Band 1 (RBW)	Band 6 (RBW)	Band 8 (RBW)	--
9kHz-150kHz	1KHz			
150KHz-30MHz	10KHz			
30MHz-1000MHz (except as below)	100KHz			
470-710MHz	--	--	--	--
773-803MHz	--	--	--	--
860-890MHz	--	--	1MHz	--
925-935MHz	100KHz	--	--	--
935-960MHz	100KHz	--	--	--
945-960MHz	--	--	--	--
1000-12750MHz (except as below)	1MHz			
1475.9-1510.9MHz	--	--	3.84MHz	--
1805-1880MHz	100KHz (376 channles of 200kHz) 1MHz(any 5 channels out of 376 channels)	--	--	--
1839.9-1844.9MHz	--	--	--	--
1844.9-1879.9MHz	--	--	3.84MHz	--
1884.5-1915.7MHz	300KHz			
2110-2170MHz	--	--	3.84MHz	--

Note: all the test use the filter to filter the fundamental power, so the fundamental power do not display on the test plots.

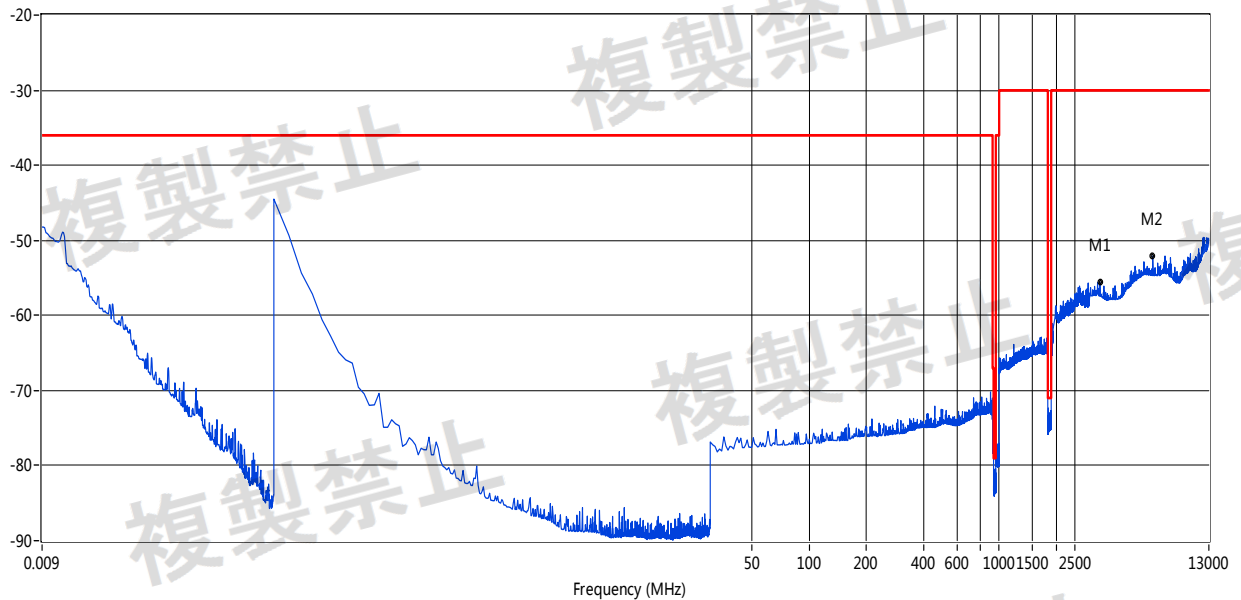


## 8.5 TEST RESULTS

Note: The all data rate modes had been test, but only worse test data was recorded in the test report.

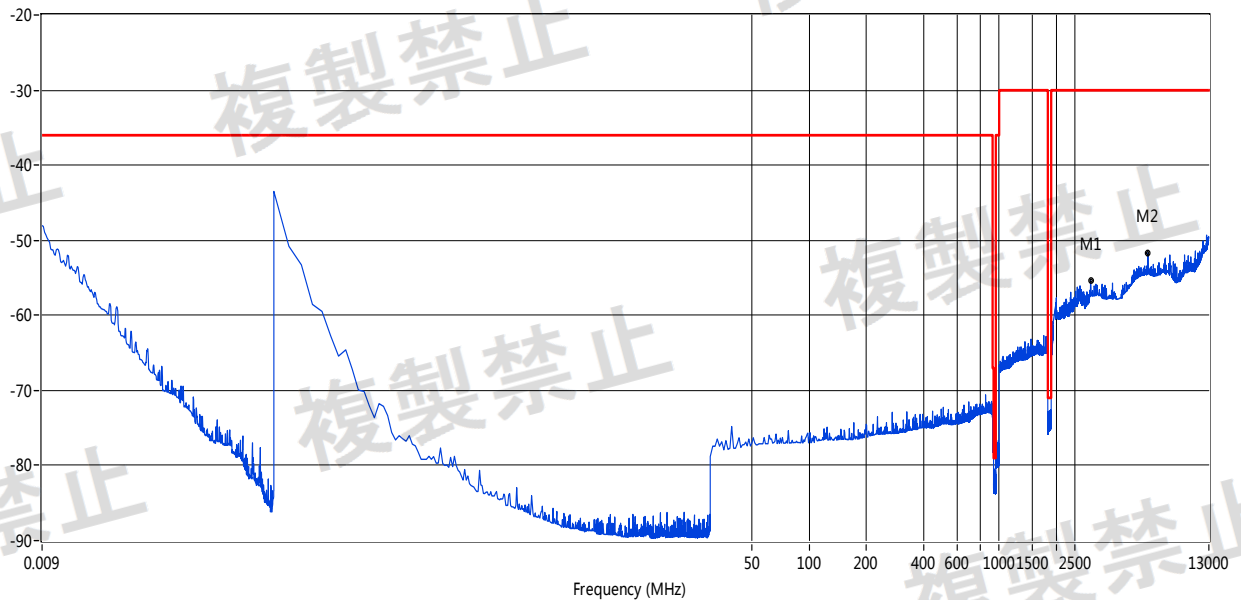
### WCDMA B1-L

Telec Test Case\_WCDMA\_CSE\_WCDMA-B1-TX\_9K-12.75GHz



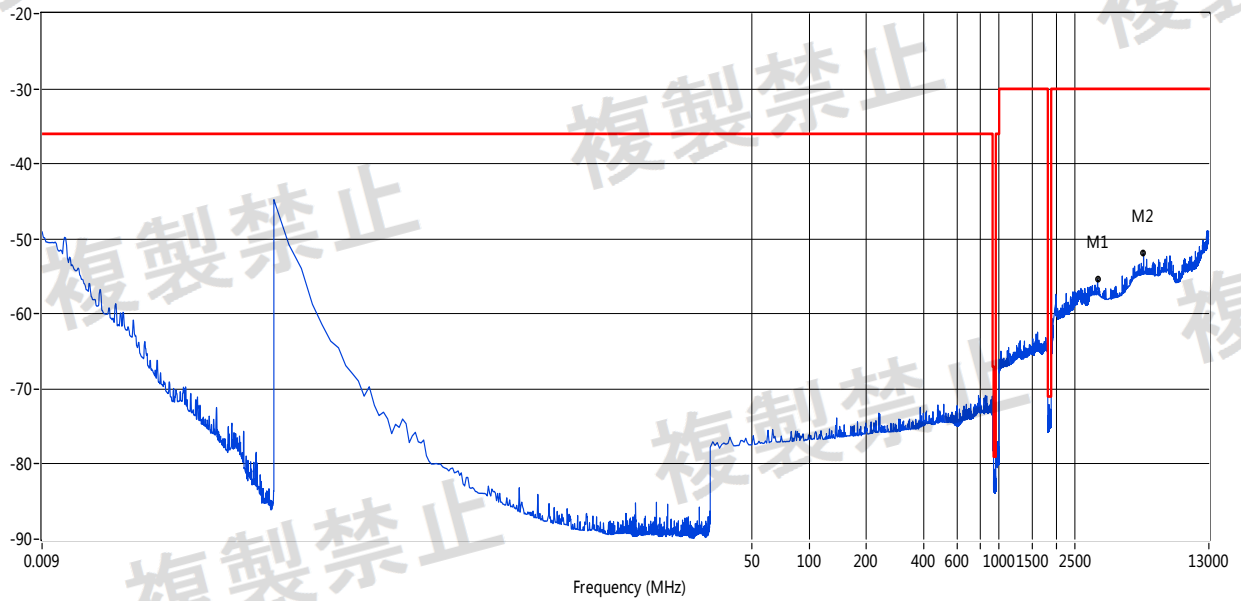
### WCDMA B1-M

Telec Test Case\_WCDMA\_CSE\_WCDMA-B1-TX\_9K-12.75GHz

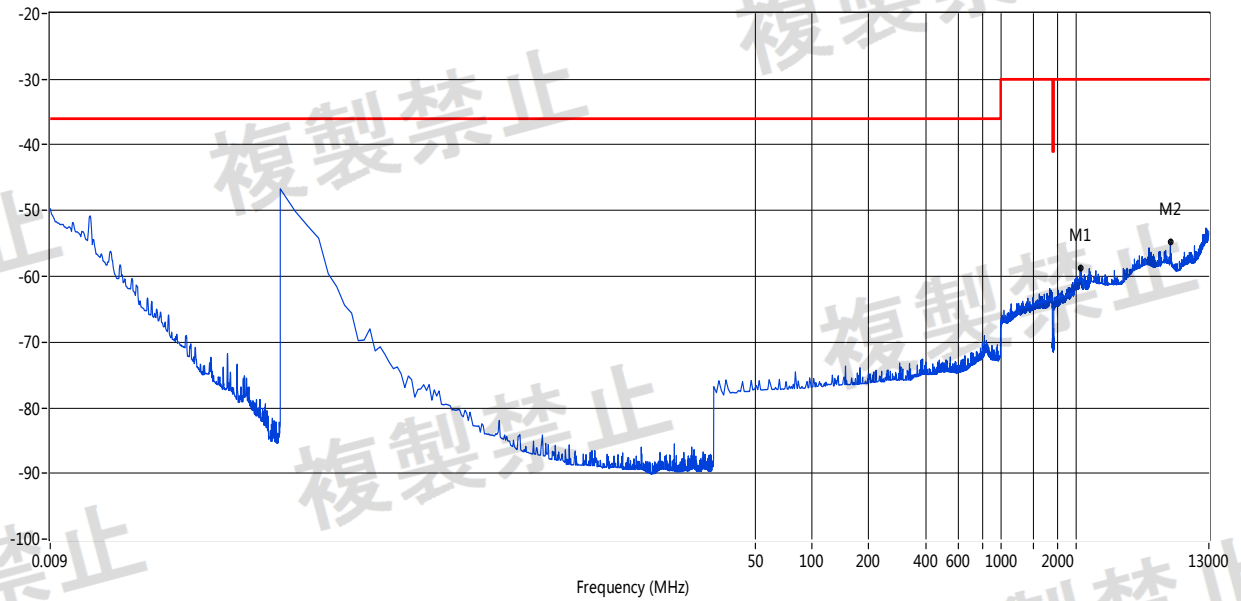


**WCDMA B1-H**

Telec Test Case\_WCDMA\_CSE\_WCDMA-B1-TX\_9K-12.75GHz

**WCDMA B6-L**

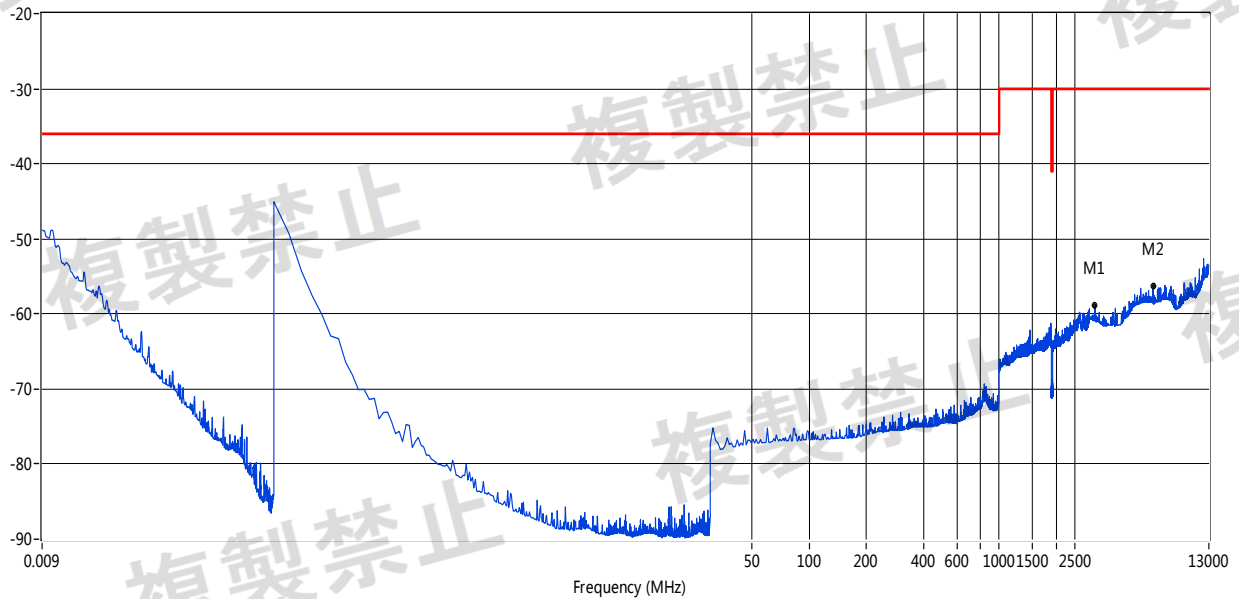
Telec Test Case\_WCDMA\_CSE\_WCDMA-B6-TX\_9K-12.75GHz



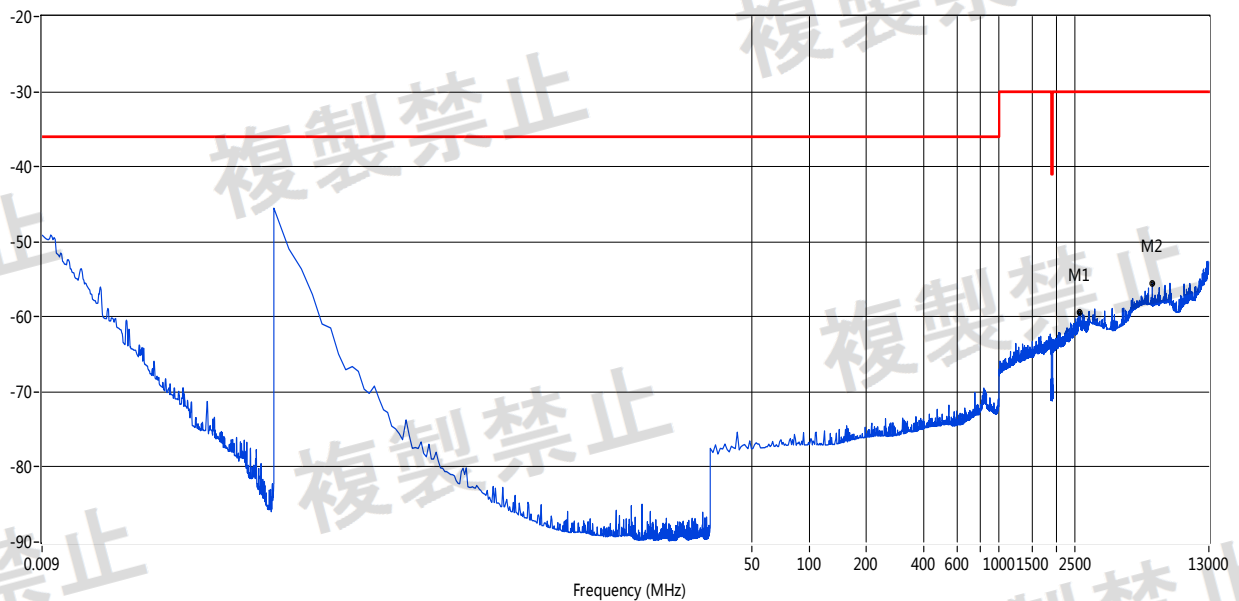


**WCDMA B6-M**

Telec Test Case\_WCDMA\_CSE\_WCDMA-B6-TX\_9K-12.75GHz

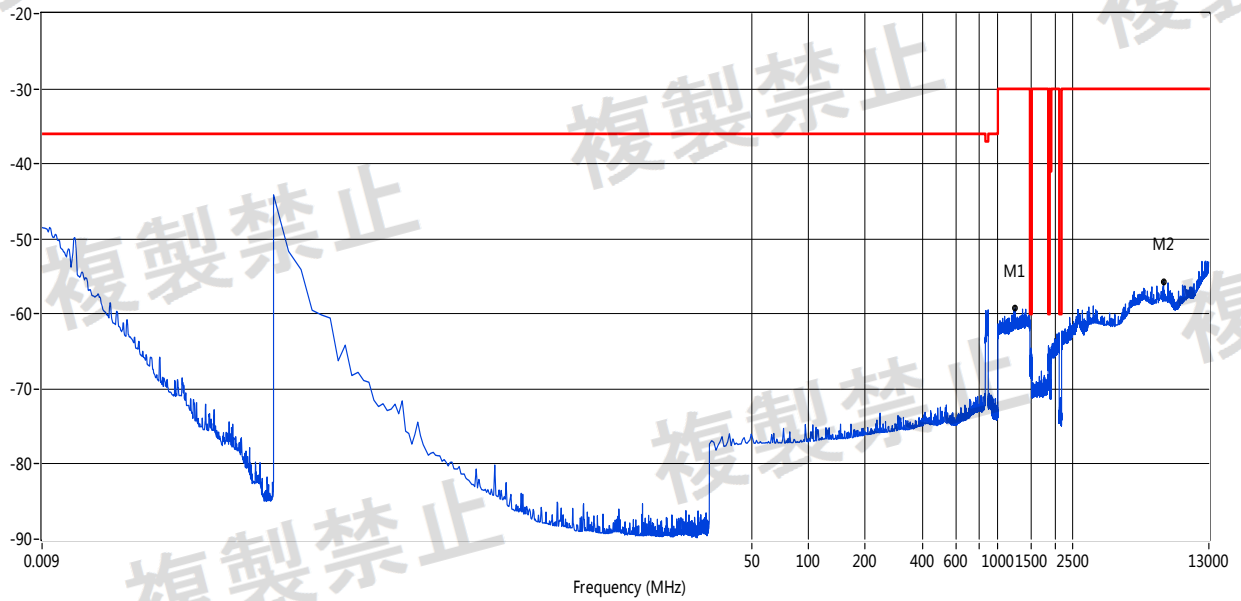
**WCDMA B6-H**

Telec Test Case\_WCDMA\_CSE\_WCDMA-B6-TX\_9K-12.75GHz

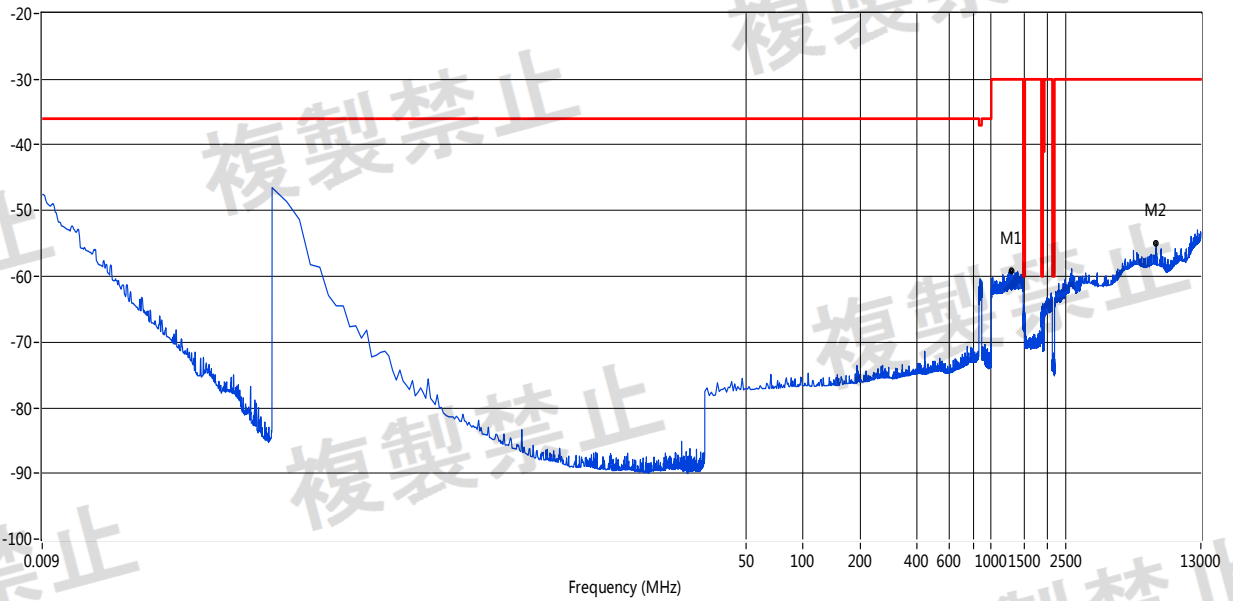


**WCDMA B8-L**

Telec Test Case\_WCDMA\_CSE\_WCDMA-B8-TX\_9K-12.75GHz

**WCDMA B8-M**

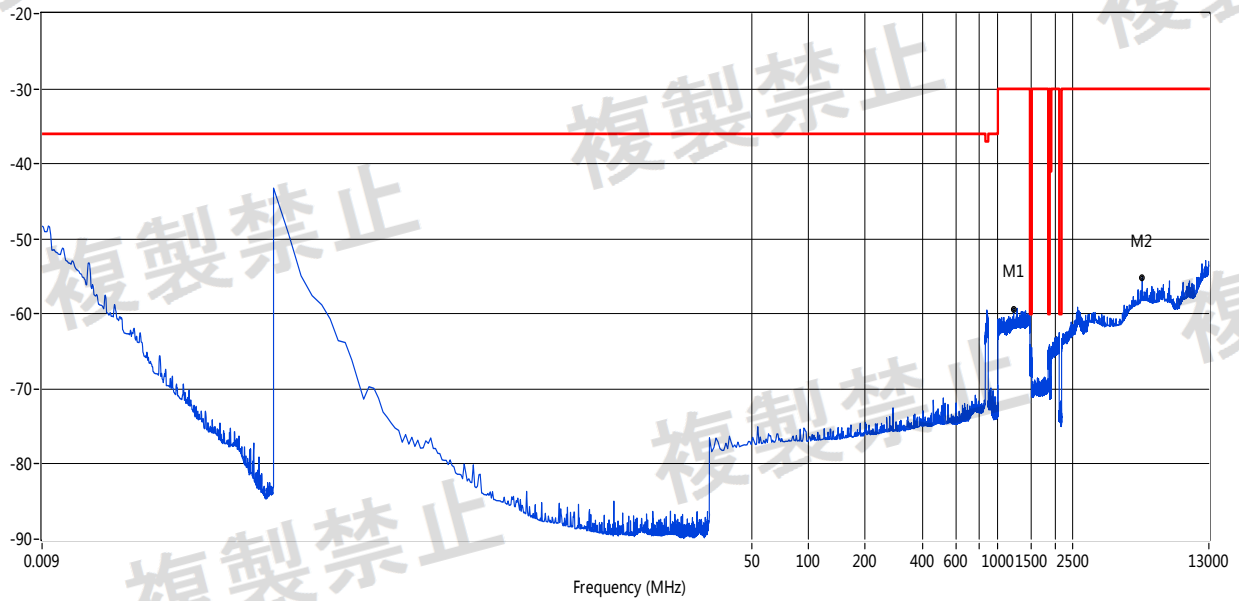
Telec Test Case\_WCDMA\_CSE\_WCDMA-B8-TX\_9K-12.75GHz





## WCDMA B8-H

Telec Test Case\_WCDMA\_CSE\_WCDMA-B8-TX\_9K-12.75GHz





## 9. LEAKAGE POWER AT NO-CARRIER TRANSMISSION

### 9.1 LIMIT

Article 2 Paragraph 1 of Item 11-3 and Item 11-7  
Land mobile Station for W-CDMA cellular phone

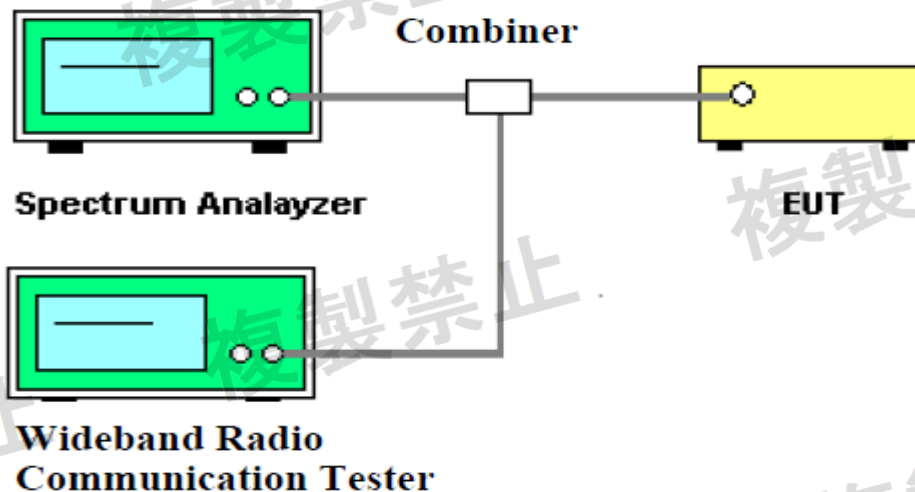
Leakage Power at No-Carrier Transmission	-55dBm / 3.84MHz	OT : Article 49-6-4
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### 9.2 TEST PROCEDURES

It shall be set in the transmission stopping condition by means of key operation, controller or the exterior test equipment.

Sweep the transmission band and search maximum value of leak power amplitude, the reading value should add 5.8dB for conversion the measuring bandwidth 1MHz to 3.84MHz.

### 9.3 TEST SETUP







## 9.4 TEST RESULTS

Test Model	Low channel(MHz)			Middle chanel(MHz)			High channel(MHz)			Limit (dBm/3.84MHz)
	LV	NV	HV	LV	NV	HV	LV	NV	HV	
Band I										
UMTS	-56.05	-56.13	-56.21	-56.32	-56.28	-56.23	-56.10	-56.09	-56.12	-55
HSDPA	-56.12	-56.14	-56.24	-56.30	-56.27	-56.28	-56.09	-56.16	-56.04	
HSUPA	-56.07	-56.22	-56.27	-56.31	-56.33	-56.29	-56.15	-56.11	-56.11	
Band VI										
UMTS	-57.27	-57.24	-57.20	-57.84	-57.81	-57.81	-57.37	-57.33	-57.30	-55
HSDPA	-57.25	-57.29	-57.19	-57.77	-57.83	-57.87	-57.33	-57.31	-57.23	
HSUPA	-57.25	-57.25	-57.20	-57.83	-57.89	-57.88	-57.28	-57.31	-57.27	
Band VIII										
UMTS	-56.94	-56.92	-56.97	-56.71	-56.68	-56.68	-56.78	-56.72	-56.69	-55
HSDPA	-57.03	-56.90	-57.02	-56.69	-56.61	-56.65	-56.80	-56.74	-56.76	
HSUPA	-57.05	-56.91	-57.03	-56.64	-56.65	-56.65	-56.84	-56.79	-56.71	



## 10. SECONDARY RADIATED EMISSION STRENGTH

### 10.1 LIMIT

Article 2 Paragraph 1 of Item 11-3 and Item 11-7  
Land mobile Station for W-CDMA cellular phone

\*Appendix 2 (Secondary Radiated Emission Strength)

Frequency Range	700MHz Band	800MHz Band	900MHz Band	1.5GHz Band	1.7GHz Band	2GHz Band
30 MHz ~ 1 GHz (except as below)	-57dBm/100kHz					
718 ~ 748 MHz	-60dBm/3.84MHz	—	—	—	—	—
773 ~ 803 MHz	—	—	—	—	—	—
815 ~ 845 MHz	—	-60dBm/3.84MHz	—	—	—	—
880 ~ 890 MHz	—	—	—	—	—	—
900 ~ 915 MHz	—	—	-60dBm/3.84MHz	—	—	—
945 ~ 960 MHz	—	—	—	—	—	—
1,000 ~ 12,750 MHz (except as below)	-47dBm/1MHz					
1,427.9 ~ 1,462.9 MHz	—	—	—	-60dBm/3.84MHz	—	—
1,475.9 ~ 1,510.9 MHz	—	—	—	—	—	—
1,744.9 ~ 1,784.9 MHz	—	—	—	—	-60dBm/3.84MHz	—
1,839.9 ~ 1,879.9 MHz	—	—	—	—	—	—
1,920.0 ~ 1,980.0MHz	—	—	—	—	—	-60dBm/3.84MHz
2,110.0 ~ 2,170.0 MHz	—	—	—	—	—	—

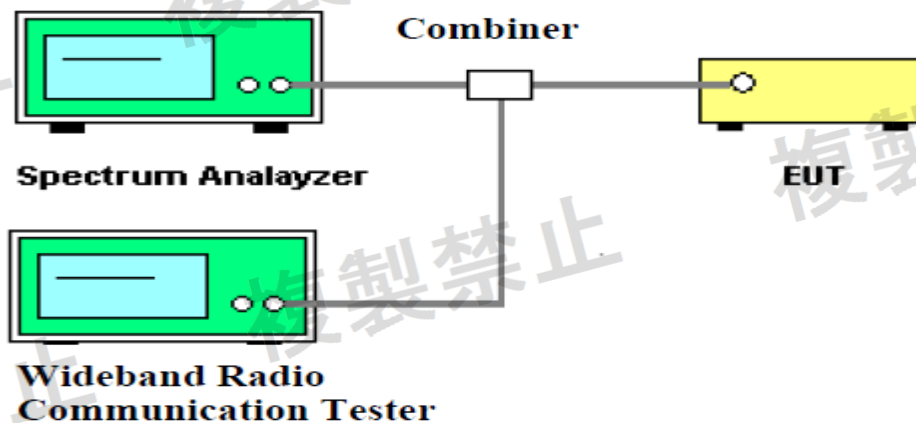
Note: the limit was applied to antenna gain less than 3dBi.

### 10.2 MEASUREMENT METHOD

Based on WCDMA bands specified in table:

Mode	DownLink Configuration	UpLink Configuration
WCDMA	N/A For Secondary Emission	Secondary Emission
HSDPA		
HSUPA		

### 10.3 TEST SETUP





#### 10.4 TEST PROCEDURES

The RBW setup refer to below

Frequency range	Band 1(RBW)	Band 6(RBW)	Band 8(RBW)	--
30MHz-1GHz (except as below)	100KHz			
718-748MHz 773-803MHz	--	--	--	--
815-845MHz 860-890MHz	--	3.84MHz	--	--
900-915MHz 945-960MHz	--	--	--	--
1000-12750MHz (except as below)	1MHz			
1427.9-1462.9MHz 1475.9-1510.9MHz	--	--	--	--
1744.9-1784.9MHz 1839.9-1879.9MHz	--	--	--	--
1920-1980MHz 2110-2170MHz	3.84MHz	--	--	--

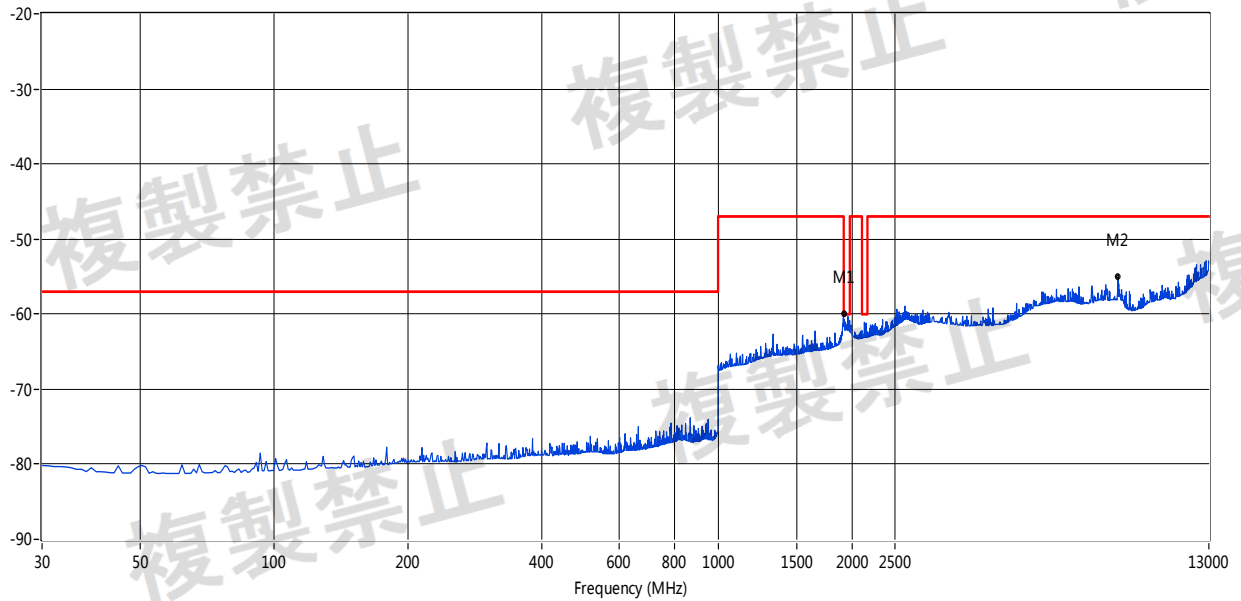


## 10.5 TEST RESULT

Note: The all data rate modes had been test, but only worse test data was recorded in the test report.

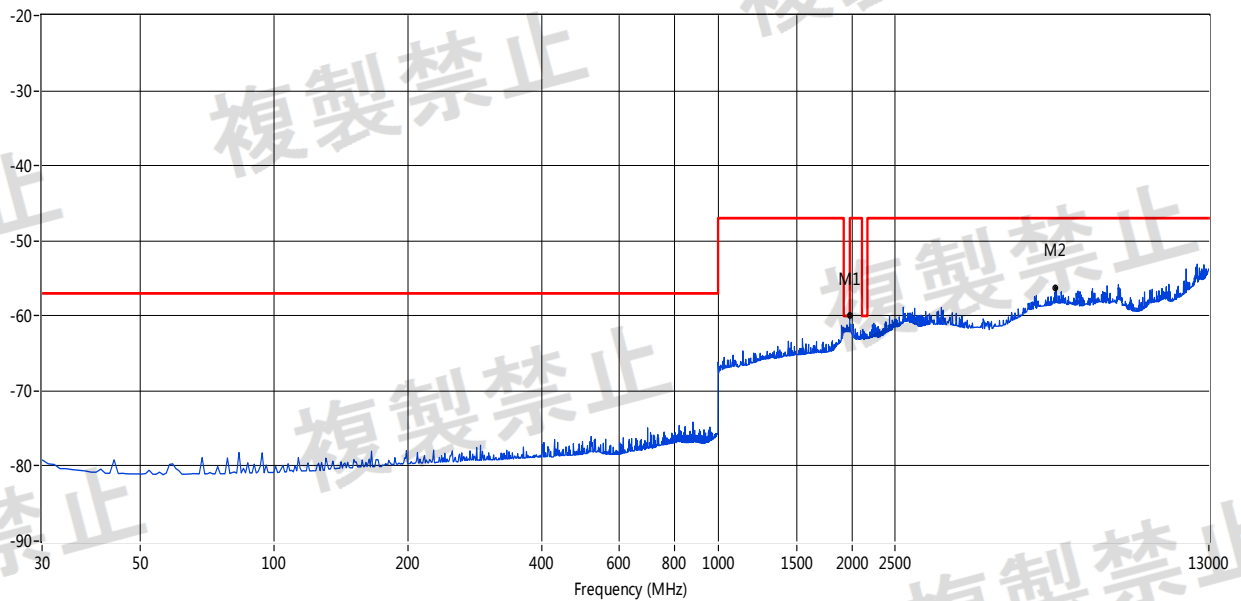
### WCDMA B1-L

Telec Test Case\_WCDMA\_CSE\_WCDMA-B1-RX-30M-12.75GHz



### WCDMA B1-M

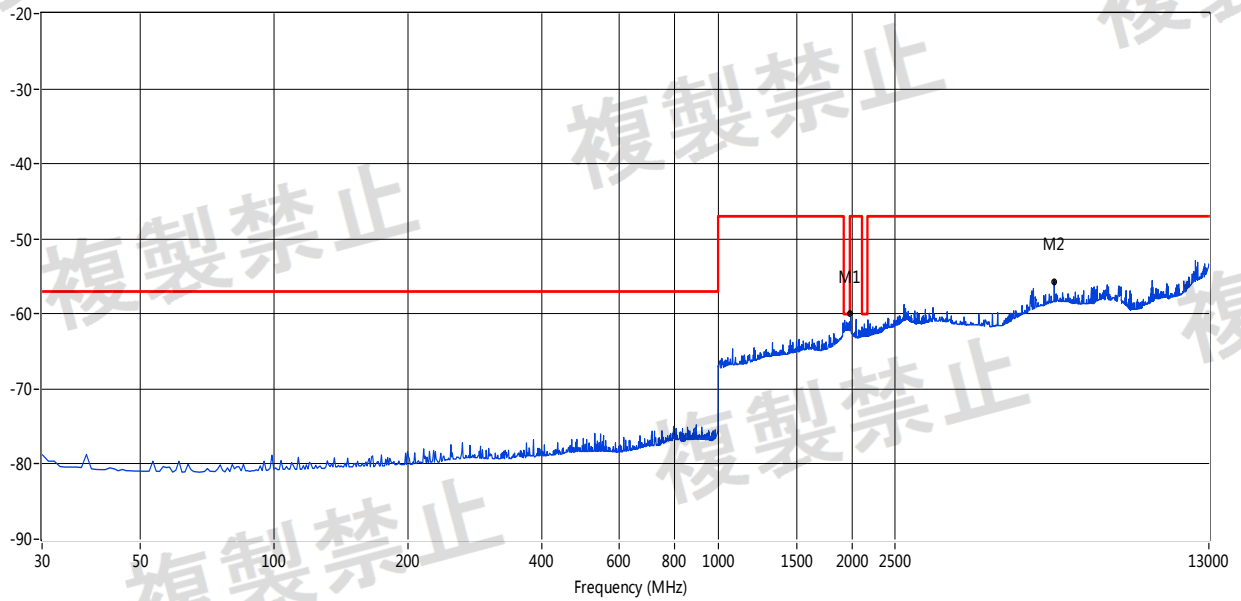
Telec Test Case\_WCDMA\_CSE\_WCDMA-B1-RX-30M-12.75GHz



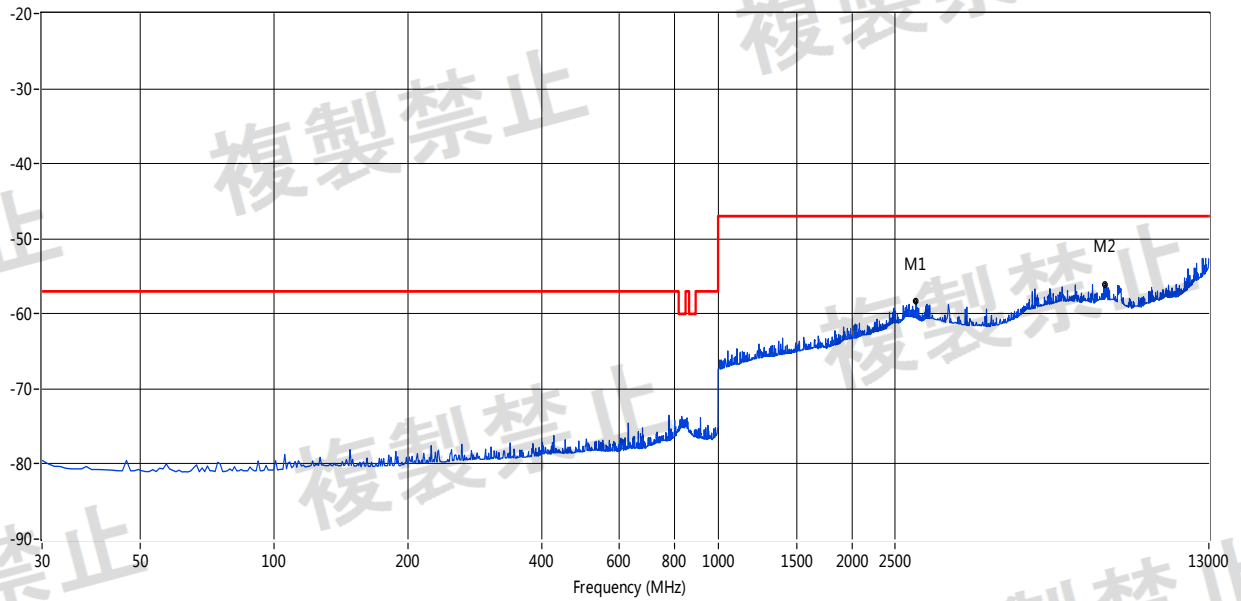


**WCDMA B1-H**

Telec Test Case\_WCDMA\_CSE\_WCDMA-B1-RX-30M-12.75GHz

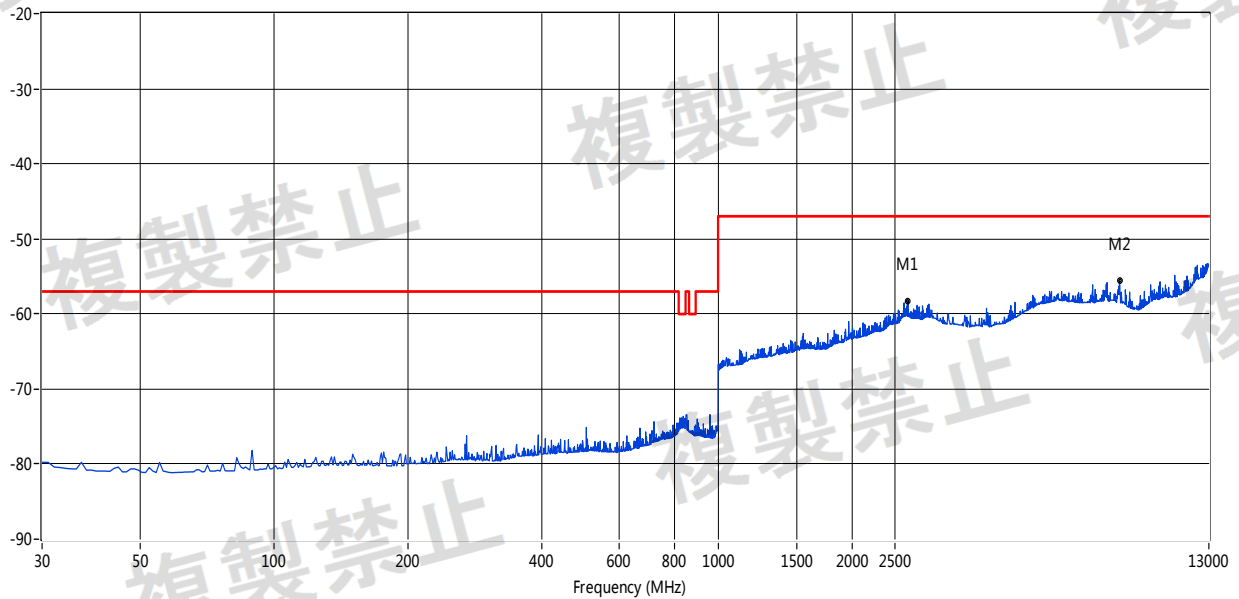
**WCDMA B6-L**

Telec Test Case\_WCDMA\_CSE\_WCDMA-B6-RX-30M-12.75GHz

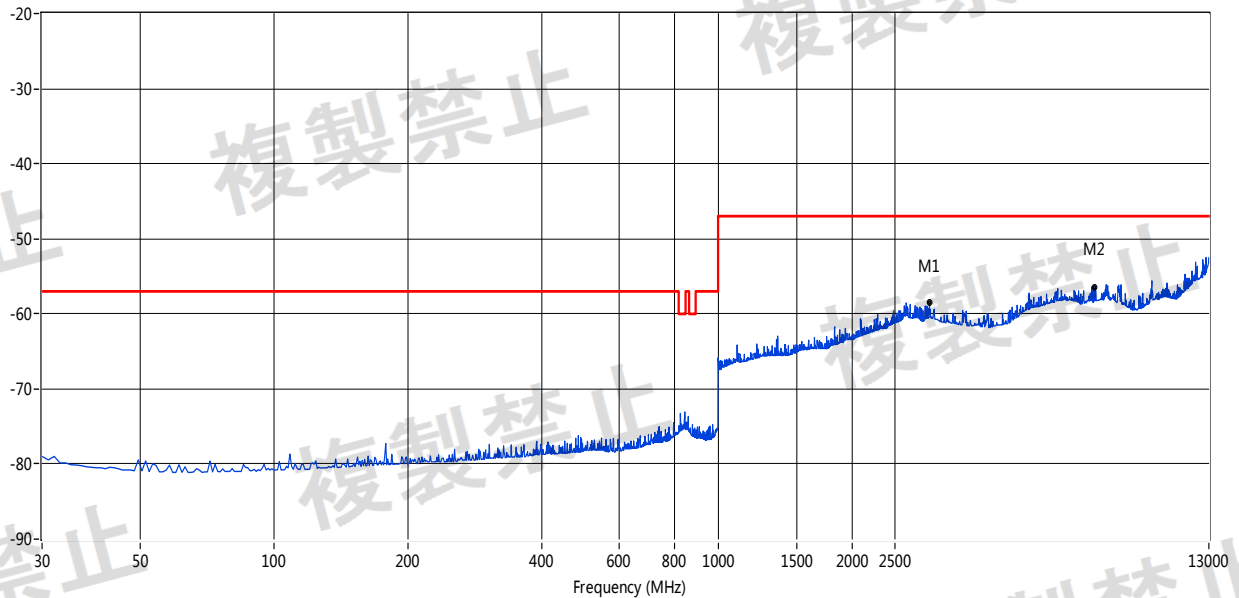


**WCDMA B6-M**

Telec Test Case\_WCDMA\_CSE\_WCDMA-B6-RX-30M-12.75GHz

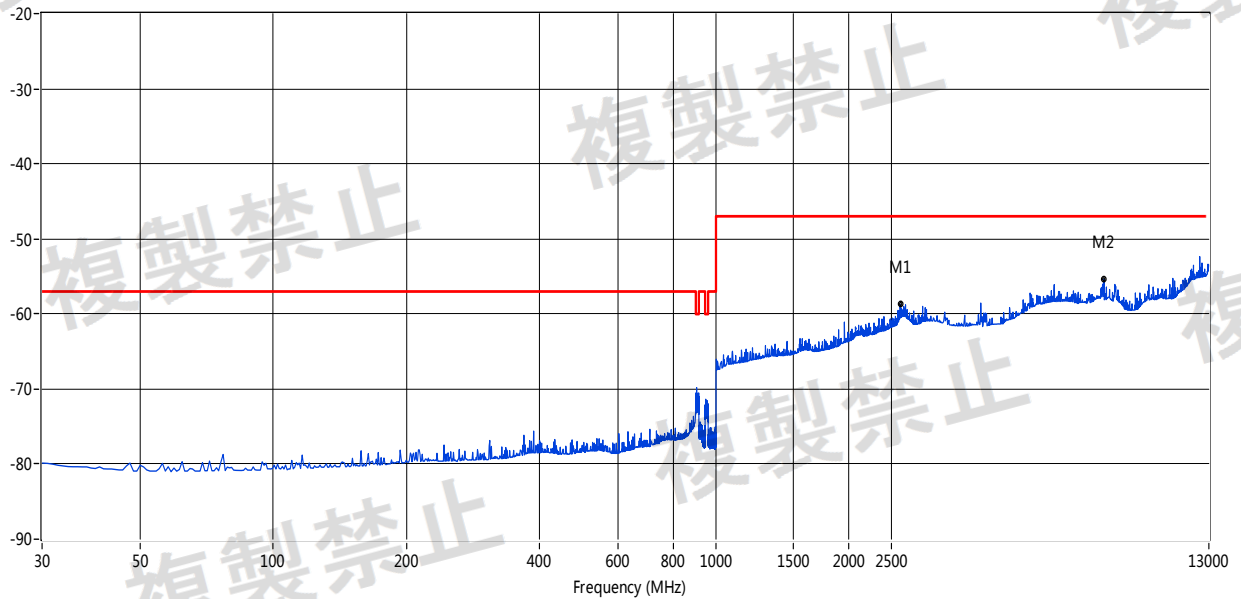
**WCDMA B6-H**

Telec Test Case\_WCDMA\_CSE\_WCDMA-B6-RX-30M-12.75GHz

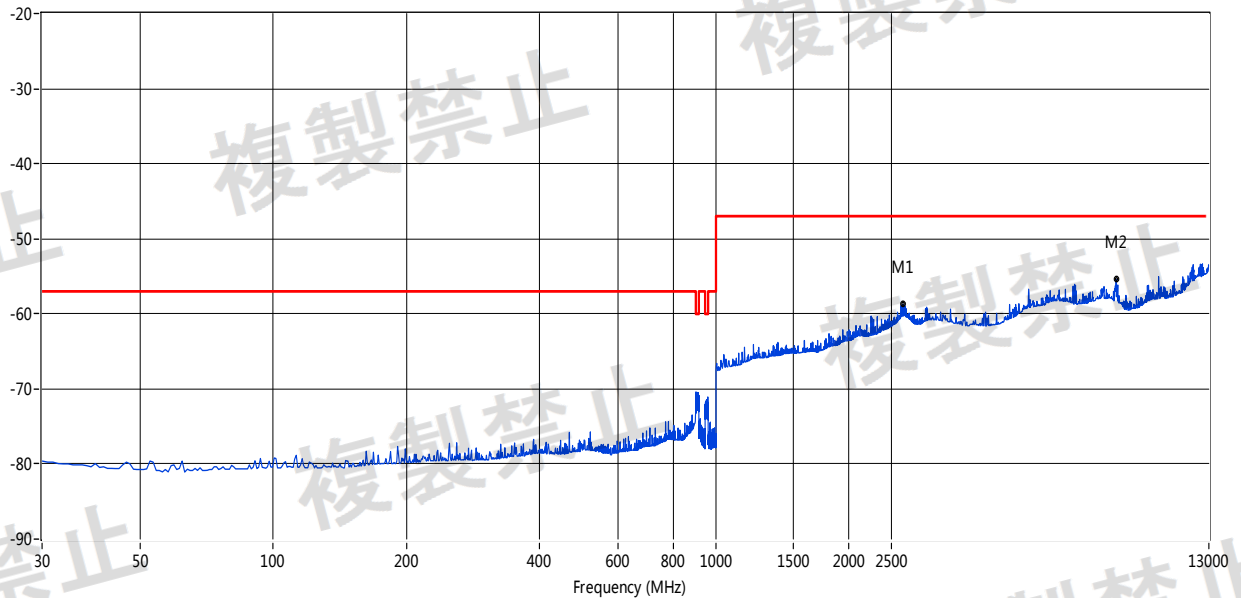


**WCDMA B8-L**

Telec Test Case\_WCDMA\_CSE\_WCDMA-B8-RX-30M-12.75GHz

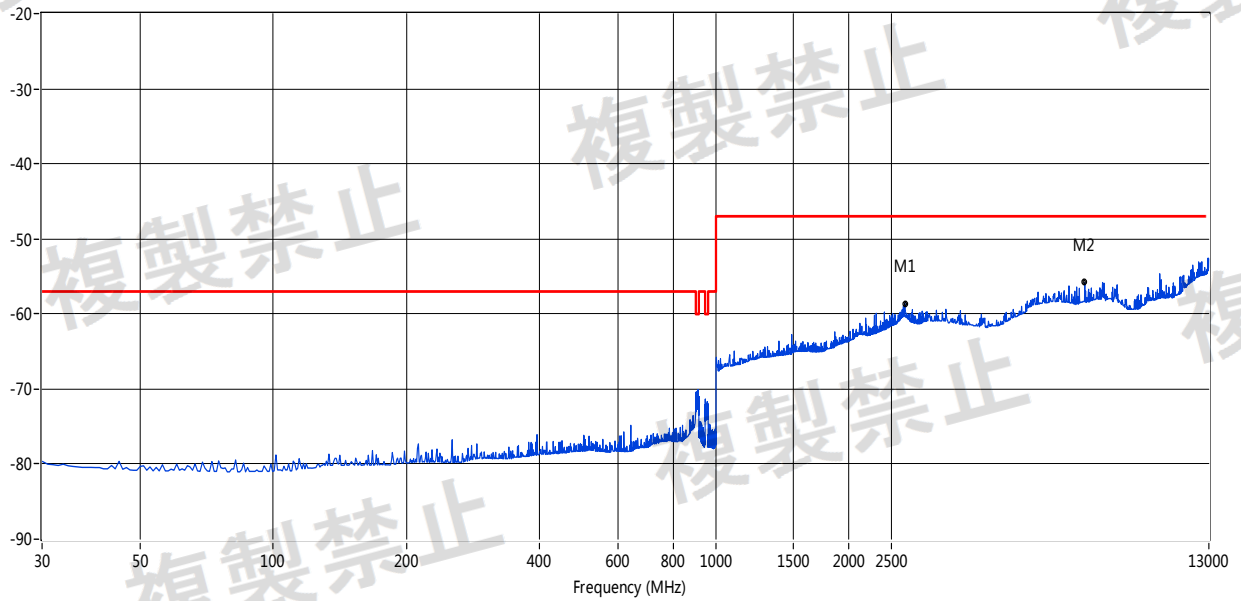
**WCDMA B8-M**

Telec Test Case\_WCDMA\_CSE\_WCDMA-B8-RX-30M-12.75GHz



**WCDMA B8-H**

Telec Test Case\_WCDMA\_CSE\_WCDMA-B8-RX-30M-12.75GHz







## 11. TRANSMISSION DATA RATE

### 11.1 LIMIT

Article 2 Paragraph 1 of Item 11-3 and Item 11-7

Land mobile Station for W-CDMA cellular phone

Circuit Switch: 64kbps

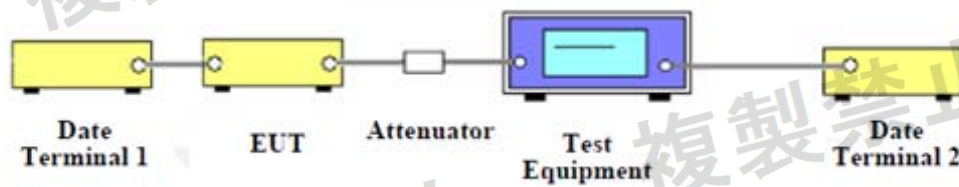
Packet Switch: 12Mbps

Note:

\* For the radio equipment whose spread code speed is 3.84 megachips/s, the antenna power shall be 24 dB (with 1 mW regarded as 0 dB) or lower, and the absolute gain of the antenna power shall be 3 dB or lower.

For radio equipment transmitting radio signals at frequencies greater than 1,749.9 MHz but no more than 1,784.9 MHz or greater than 1,920 MHz but no more than 1,980 MHz with a spread code speed of 1.2288 megachips/s or 3.6864 megachips/s, the equivalent isotropically radiated power shall be 24 dB (with 1 mW regarded as 0 dB) or lower

### 11.2 TEST SETUP



### 11.3 TEST PROCEDURES

1. Set the EUT at the test frequency and transmitting in normal operation condition
2. The external test equipment shall be able to connect test equipment, data terminal shall be able to send and receive data to external test equipment or test equipment
3. Transmitting data from the data terminal 1 to the data terminal 2, measure the data transmission speed

### 11.4 TEST RESULT

Test Mode	Transmission Type	Data Rate	Test Result
Rel 99	Circuit Switch	388kbps	Pass

## 12. SYSTEM OPERATION TEST

### 12.1 REQUIREMENT

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

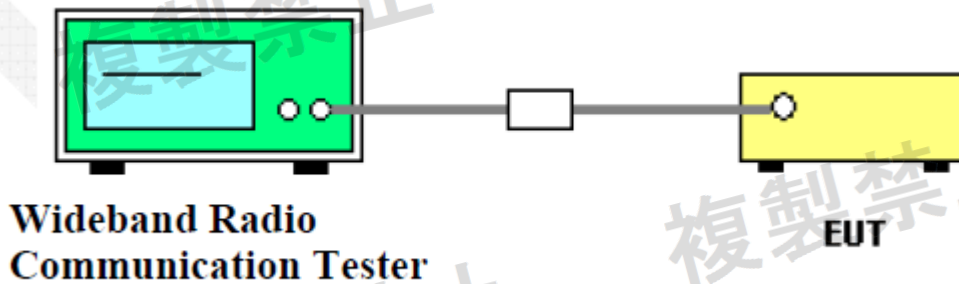
The radio equipment shall be the one in which the call channel of the base station is automatically switched to the call channel of another base station.

The area that is related to the provision of service of the base station prescribed in 1 and where field intensity necessary for providing the said service is available shall be capable of being segmentalized to suit the traffic of the said area.

The radio equipment shall have the function to separate the multi-path propagation received in temporal dispersion and improve the receive characteristics by synthesizing multi-path components.

The transmitter shall have an automatic control function to minimize the antenna received in temporal dispersion and improve the receive characteristics by base station or base on control information from a base station for the transmitter of a land mobile station.

### 12.2 TEST SETUP



### 12.3 TEST PROCEDURES

1. The test equipment to be tested shall be written with its own mobile station assigned number in advance.
2. Connect the equipment to be tested with the external test equipment and confirm the following items.
  - 1). Calling or receiving operation (including channel switching during communication)
  - 2). Number of mobile read operation
  - 3). antenna power degradation behavior (An automatic control function to minimize the antenna power as low as necessary by means of measuring receiving power of radio wave from base station).

### 12.4 TEST RESULT

PASS



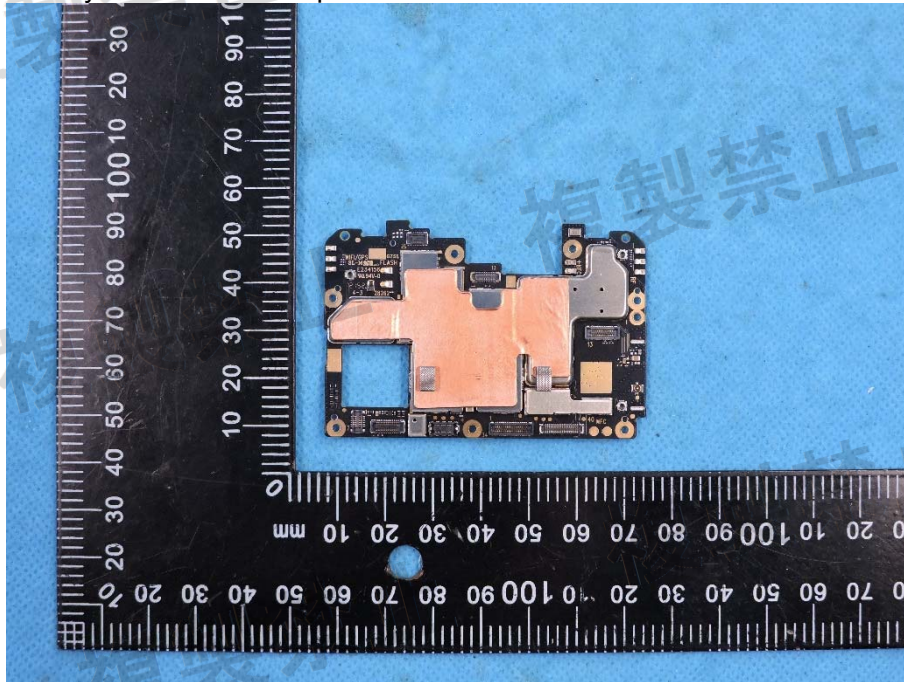
### 13. CONSTRUCTION PROTECTION CONFIRMATION

#### 13.1 LIMIT

Radio equipment of the high frequency part and modulated part and antenna The system can not be easily open.

#### 13.2 STRUCTURE DIAGRAM

The EUT has shielding cover the high-frequency section except for the antenna system, the shielding can't be opened easily. Please refer the photo below



#### 13.3 STRUCTURE PROTECTION DESCRIBED

Our products apply for Japanese radio frequency (rf) certification. We use the following methods to prevent unauthorized access and modification of RF and modulation parts. This wireless module uses a shielding cover to prevent users from disassembling and modifying it. For more information, see the following photo.

#### 13.4 TEST RESULT

PASS



#### 14. PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

\*\*\*\*\*END OF THE REPORT\*\*\*\*\*