

# TEST REPORT

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Report Number: SZ1230414-19311E-RF-22H

## Test Standard (s)

ETSI EN 301 908-1 V15.2.1 (2023-01), ETSI EN 301 908-2 V13.1.1 (2020-06)

## Sample Description

Product Type: Smartphone  
Model No.: KINGKONG STAR  
Multiple Model(s) No.: N/A  
Trade Mark: CUBOT  
Date Received: 2023/04/14  
Report Date: 2023/05/24

Test Result:	Pass*
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\* In the configuration tested, the EUT complied with the standards above.

**Prepared and Checked By:**

**Approved By:**

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Note: BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk "\*". Customer model name, addresses, names, trademarks etc. are not considered data.

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**DOCUMENT REVISION HISTORY**

Revision Number	Report Number	Description of Revision	Date of Revision
0	SZ1230414-19311E-RF-22H	Original Report	2023-05-24

## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

Frequency Range	WCDMA 2100: 1920-1980MHz(TX), 2110-2170MHz(RX) WCDMA 900: 880-915MHz(TX), 925-960MHz(RX)
Maximum output power	WCDMA 2100: 24.32 dBm WCDMA 900: 23.16 dBm
Modulation Technique	WCDMA: BPSK, QPSK, 16QAM, 64QAM
Antenna Specification*	B1: 0.15dBi; B8: 0.84dBi (It is provided by the manufacturer)
Voltage Range	DC3.87V from rechargeable Li-ion battery or DC 5/9/12V from adapter
Sample serial number	2408-1 (RF Conducted Test) 2408-2 (RF Radiated Test) (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Normal/Extreme Condition	N.V.: Nominal Voltage: 3.87V <sub>DC</sub> L.V.: Low Voltage 3.70V <sub>DC</sub> ; L.T.: Low Temperature -10℃ N.V.: Normal Voltage 4.26V <sub>DC</sub> ; N.T.: Normal Temperature +25℃ H.V.: High Voltage 4.45V <sub>DC</sub> ; H.T.: High Temperature +55℃ Note: the extreme test condition was declared by manufacturer.
Adapter Information	Model:HJ-PD33W-EU Input: AC100-240V~50/60Hz 0.8A Output: DC 5.0V.3.0A 15.0W OR DC9.0V. 3.0A 27.0W OR DC 12.0V.2.75A 33.0W MAX

### Objective

This test report is in accordance with ETSI EN 301 908-1 V15.2.1 (2023-01), IMT cellular networks; Harmonised Standard for access to radio spectrum; Part 1: Introduction and common requirements and ETSI EN 301 908-2 V13.1.1 (2020-06) , IMT cellular networks; Harmonised Standard for access to radio spectrum; Part 2: CDMA Direct Spread (UTRA FDD) User Equipment (UE).

The objective is to determine compliance with ETSI EN 301 908-1 V15.2.1 (2023-01), ETSI EN 301 908-2 V13.1.1 (2020-06),

## Measurement Uncertainty

For the test methods, according to the present document, the measurement uncertainty figures are calculated using expansion factors as described in clause 5.2. The recommended maximum uncertainty values in table C-1 is based on such expansion factors.

Item	Parameter	F <sub>lab</sub>	Maximum allowable uncertainty
1	ERP 30MHz-180MHz	±3.62dB	±6 dB
2	ERP 180MHz-12750MHz	±2.6 dB	±3 dB
3	Transmitter maximum output power	±0.74 dB*	±0,7 dB
4	Transmitter spectrum emissions mask	±1,6 dB*	±1,5 dB
5	Transmitter spurious emissions $f \leq 2.2$ GHz	±1.6 dB*	±1,5 dB
6	Transmitter spurious emissions $2.2 \text{ GHz} < f \leq 4 \text{ GHz}$	±1.6 dB	±2,0 dB
7	Transmitter spurious emissions $f > 4 \text{ GHz}$	±1.6 dB	±4,0 dB
8	Transmitter spurious emissions $4 \text{ GHz} < f \leq 12,75 \text{ GHz}$	±1.6 dB	±4,0 dB
9	Transmitter spurious emissions Co-existence band ( $\geq -60$ dBm)	±1.6 dB	±2,0 dB
10	Transmitter spurious emissions Co-existence band ( $< -60$ dBm)	±2.5 dB	±3,0 dB
11	Transmitter Minimum output power	±0.74 dB	±1,0 dB
12	Receiver Adjacent Channel Selectivity (ACS)	±2.8 dB*	±1,1 dB
13	Receiver Blocking characteristics $f < 15$ MHz offset	±1.5 dB*	±1,4 dB
14	Receiver Blocking characteristics $15 \text{ MHz offset} \leq f \leq 2.2 \text{ GHz}$	±1.5 dB*	±1,0 dB
15	Receiver Blocking characteristics $2.2 \text{ GHz} < f \leq 4 \text{ GHz}$	±1.5 dB	±1,7 dB
16	Receiver Blocking characteristics $f > 4 \text{ GHz}$	±3.3 dB*	±3,1 dB
17	Receiver spurious response $f \leq 2.2 \text{ GHz}$	±1.5 dB*	±1,0 dB
18	Receiver spurious response $2.2 \text{ GHz} < f \leq 4 \text{ GHz}$	±1.5 dB	±1,7 dB
19	Receiver spurious response $f > 4 \text{ GHz}$	±3.3 dB*	±3,1 dB
20	Receiver intermodulation characteristics	±1.3 dB	±1,3 dB
21	Receiver spurious emissions UE receive band (-60 dBm)	±2.5 dB	±3,0 dB
22	Receiver spurious emissions UE transmit band (-60 dBm)	±2.5 dB	±3,0 dB
23	Receiver spurious emissions $f \leq 2.2 \text{ GHz}$	±1.6 dB	±2,0 dB
24	Receiver spurious emissions $2.2 \text{ GHz} < f \leq 4 \text{ GHz}$	±1.6 dB	±2,0 dB
25	Receiver spurious emissions $f > 4 \text{ GHz}$	±1.6 dB	±4,0 dB
26	Out of synchronization of handling power DPCCH Ec/lor	±0.4 dB	±0,4 dB
27	Out of synchronization of handling power Transmit OFF power	±1.0 dB	±1,0 dB
28	Transmitter adjacent channel leakage power ratio	±0.8 dB	±0,8 dB

*Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor  $K$  with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.*

### **Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

Each test item follows test standards and with no deviation.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing according to ETSI EN 301 908-1 V15.2.1 (2023-01), ETSI EN 301 908-2 V13.1.1 (2020-06).

### EUT Exercise Software

No exercise software.

### Special Accessories

No special accessory.

### Equipment Modifications

No modifications were made to the EUT.

### Support Equipment List and Details

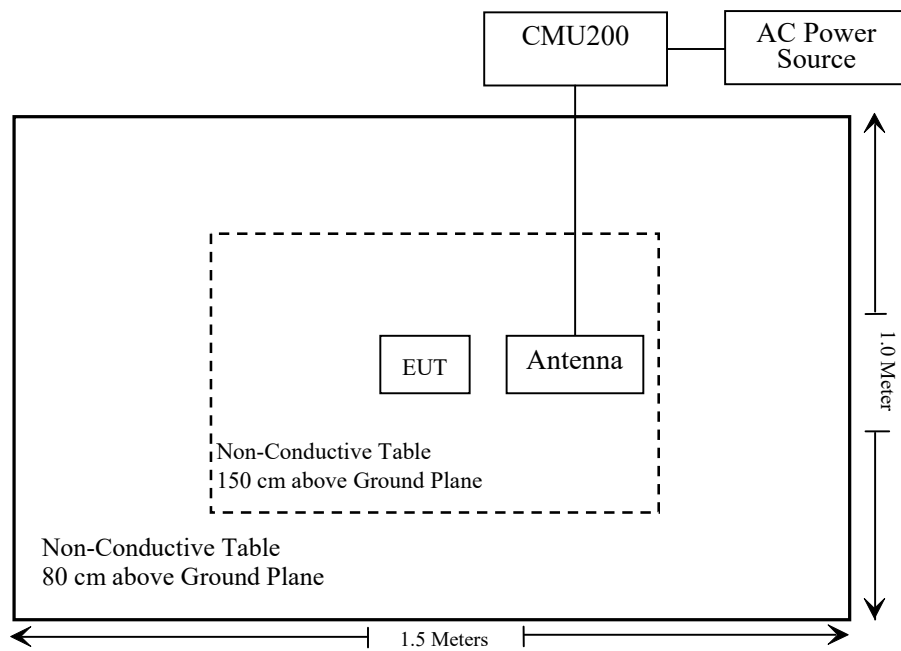
Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891

### External I/O Cable

Cable Description	Length (m)	From Port	To
/	/	/	/



## Block Diagram of Test Setup



## SUMMARY OF TEST RESULTS

ETSI EN 301 908-1 V15.2.1	Description of Test	Test Result
§4.2.2	Radiated emissions (UE)	Compliant
§4.2.3	Radiated emissions (BS and repeater)	Not Applicable
§4.2.4	Control and monitoring functions (UE)	Compliant

ETSI EN 301 908-2 V13.1.1	Description of Test	Test Result
§4.2.2	Transmitter maximum output power	Compliant
§4.2.3	Transmitter spectrum emission mask	Compliant
§4.2.4	Transmitter spurious emissions	Compliant
§4.2.5	Transmitter minimum output power	Compliant
§4.2.6	Receiver Adjacent Channel Selectivity (ACS)	Compliant
§4.2.7	Receiver blocking characteristics	Compliant
§4.2.8	Receiver spurious response	Compliant
§4.2.9	Receiver intermodulation characteristics	Compliant
§4.2.10	Receiver spurious emissions	Compliant
§4.2.11	Out-of-synchronization handling of output power	Compliant
§4.2.12	Transmitter Adjacent Channel Leakage power Ratio (ACLR)	Compliant
§4.2.13	Receiver Reference Sensitivity level	Compliant
§4.2.14	Receiver Total Radiated Sensitivity (TRS)	Not Applicable*
§4.2.15	Total Radiated Power (TRP)	Not Applicable*

Not Applicable \*: The requirement applies to handheld phones/DUTs that are narrower than 72 mm.  
The width of EUT is 82.1mm.

**TEST EQUIPMENT LIST**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Radiated Emission Test</b>					
R&S	EMI Test Receiver	ESR3	102455	2023/2/8	2024/2/7
Sonoma instrument	Pre-amplifier	310 N	186238	2022/11/11	2023/11/10
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2020/12/22	2023/12/21
Unknown	Cable	Chamber Cable 1	F-03-EM236	2022/11/11	2023/11/10
Unknown	Cable	Chamber Cable 4	EC-007	2022/11/11	2023/11/10
Agilent	Signal Generator	N5183A	MY51040755	2023/2/8	2024/2/7
COM-POWER	Dipole Antenna	AD-100	721027	NCR	NCR
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	146520	2022/6/27	2023/6/26
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2023/2/10	2024/2/9
COM-POWER	Pre-amplifier	PA-122	181919	2022/11/25	2023/11/24
Sunol Sciences	Horn Antenna	3115	9107-3694	2021/1/15	2024/1/14
A.H.System	Horn Antenna	SAS-200/571	135	2021/7/14	2024/7/13
Insulted Wire Inc.	RF Cable	SPS-2503-3150	02222010	2022/11/25	2023/11/24
Unknown	RF Cable	W1101-EQ1 OUT	F-19-EM005	2022/11/25	2023/11/24
MICRO-TRONICS	2.8G High Pass Filter	HPM50111	F-19-EM006	2023/03/30	2024/03/29
Unknown	1.3G High Pass Filter	1.3GHz	101120	2023/03/30	2024/03/29

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200982	2023/02/08	2024/02/07
WEINSCHTEL	3dB Attenuator	Unknown	F-03-EM121	2022/11/25	2023/11/24
BACL	Temperature & Humidity Chamber	BTH-150-40	30145	2022/03/01	2024/02/28
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	115500	2022/06/27	2023/06/26
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	146520	2022/06/27	2023/06/26
Agilent	MXG Vector Signal Generator	N5182B	MY53051503	2022/07/04	2023/07/03
Agilent	Signal Generator	N5183A	MY51040755	2022/09/30	2023/09/29
Weinschel	Power divider	1515	MY628	2022/11/25	2023/11/24
Wainwright Germany	B1 Band Reject Filter	1920-1980	F-03-EM233	2022/03/01	2024/02/28
Wainwright Germany	B8 Band Reject Filter	WRCG880/915-870/925-40/8SS	59	2022/03/01	2024/02/28
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
Fluke	Digital Multimeter	287	19000011	2023/2/10	2024/2/9

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

## ETSI EN 301 908-1 V15.2.1 (2023-01) §4.2.2 – RADIATED EMISSIONS (UE)

### Applicable Standard

This test assesses the ability of radio communications equipment and ancillary equipment to limit unwanted emissions from the enclosure port.

This test is applicable to radio communications equipment and ancillary equipment, except for NR UE operating in FR2.

NOTE: For NR UE operating in FR2, the radiated emission is covered by radiated spurious emission requirement in ETSI EN 301 908-25 [i.12].

This test shall be performed on the radio communications equipment and/or a representative configuration of the ancillary equipment.

### Limit

The frequency boundary and reference bandwidths for the detailed transitions of the limits between the requirements for out-of-band emissions and spurious emissions are based on Recommendations ITU-R SM.329-12 [1] and SM.1539-1 [i.6].

The requirements shown in table 4.2.2.2-1 are only applicable for frequencies in the spurious domain.

**Table 4.2.2.2-1: Radiated spurious emissions requirements (UE)**

Frequency	Minimum requirement (e.r.p.)/ reference bandwidth idle mode	Minimum requirement (e.r.p.)/ reference bandwidth traffic mode	Applicability
$30 \text{ MHz} \leq f < 1\,000 \text{ MHz}$	-57 dBm/100 kHz	-36 dBm/100 kHz	All
$1 \text{ GHz} \leq f < 12.75 \text{ GHz}$	-47 dBm/1 MHz	-30 dBm/1 MHz	All
$12.75 \text{ GHz} \leq f < 5^{\text{th}} \text{ harmonic of the upper frequency edge of the Uplink operating band in GHz}$	-47 dBm/1 MHz	-30 dBm/1 MHz	All (note 3)
$12.75 \text{ GHz} < f < 26 \text{ GHz}$	-47 dBm/1 MHz	-30 dBm/1 MHz	All (note 4)
$f_c - 2.5 \times 5 \text{ MHz} < f < f_c + 2.5 \times 5 \text{ MHz}$ (note 1 and note 2)	Not defined	Not defined	UTRA FDD, UTRA TDD, 3.84 Mcps option, cdma2000, spreading rate 3
$f_c - 2.5 \times \text{BW}_{\text{Channel}} \text{ MHz} < f < f_c + 2.5 \times \text{BW}_{\text{Channel}} \text{ MHz}$ (note 1 and note 2)	Not defined	Not defined	E-UTRA FDD, E-UTRA TDD, Mobile WIMAX™
$f_c - (1.5 \times \text{BW}_{\text{Channel}} + 5) \text{ MHz} < f < f_c + (1.5 \times \text{BW}_{\text{Channel}} + 5) \text{ MHz}$ (note 1)	Not defined	Not defined	NR operating in FR1
$f_c - 2.5 \times 10 \text{ MHz} < f < f_c + 2.5 \times 10 \text{ MHz}$ (note 1 and note 2)	Not defined	Not defined	UTRA TDD, 7.68 Mcps option
$f_c - 4 \text{ MHz} < f < f_c + 4 \text{ MHz}$ (note 1 and note 2)	Not defined	Not defined	UTRA TDD, 1.28 Mcps option cdma2000, spreading rate 1

NOTE 1:  $f_c$  is the UE transmit centre frequency.  
 NOTE 2: This frequency range is not in the spurious domain, no requirement is then defined for this frequency range.  
 NOTE 3: Applies for Band that the upper frequency edge of the Uplink Band more than 2.69 GHz.  
 NOTE 4: Applies for Band that the upper frequency edge of the Uplink Band more than 5.2 GHz.

## Test Results Summary

According to the recorded data in following table, the EUT complied with the ETSI EN 301 908-1 V15.2.1 (2023-01).

## Test Data

### Environmental Conditions

Temperature:	24.5~25 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

*The testing was performed by York Yang on 2023-04-26 for below 1GHz and Zenos Qiao on 2023-04-28 for above 1GHz.*

*EUT operation mode: Transmitting*

**Test Result: Pass**

*Please refer to following data tables.*

WCDMA2100 (Pre-test with low, middle, high channel, the worst case as below)

**Idle Mode**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	EN 301 908-1	
			Height (m)	Polar (H/V)	Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
956.1	31.38	116	2.4	H	-65.1	1.36	0.0	-66.46	-57	9.46
956.1	31.09	349	1.1	V	-63.0	1.36	0.0	-64.36	-57	7.36
1453.31	42.49	239	2.0	H	-66.2	1.60	8.50	-59.30	-47	12.30
1453.31	42.20	314	2.0	V	-66.8	1.60	8.50	-59.90	-47	12.90

**Traffic Mode**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	EN 301 908-1	
			Height (m)	Polar (H/V)	Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
953.8	32.64	186	1.9	H	-63.9	1.36	0.0	-65.26	-36	29.26
953.8	32.25	25	2.5	V	-61.8	1.36	0.0	-63.16	-36	27.16
3900.00	47.03	255	1.9	H	-55.4	1.60	11.90	-45.10	-30	15.10
3900.00	47.20	108	1.5	V	-55.1	1.60	11.90	-44.80	-30	14.80

WCDMA900 (Pre-test with low, middle, high channel, the worst case as below)

### Idle Mode

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	EN 301 908-1	
			Height (m)	Polar (H/V)	Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
956.5	31.55	148	2.3	H	-65.0	1.36	0.0	-66.36	-57	9.36
956.5	31.28	161	1.3	V	-62.8	1.36	0.0	-64.16	-57	7.16
1412.98	41.32	190	1.7	H	-67.0	1.60	7.90	-60.70	-47	13.70
1412.98	42.87	84	1.8	V	-65.7	1.60	7.90	-59.40	-47	12.40

### Traffic Mode

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	EN 301 908-1	
			Height (m)	Polar (H/V)	Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
954.7	33.15	174	2.2	H	-63.4	1.36	0.0	-64.76	-36	28.76
954.7	32.79	13	1.7	V	-61.3	1.36	0.0	-62.66	-36	26.66
1795.20	45.84	260	1.8	H	-59.5	1.30	9.30	-51.50	-30	21.50
1795.20	45.98	333	1.6	V	-59.0	1.30	9.30	-51.00	-30	21.00
2692.80	46.73	233	2.0	H	-57.0	2.00	10.40	-48.60	-30	18.60
2692.80	46.83	346	1.4	V	-56.5	2.00	10.40	-48.10	-30	18.10
3590.40	46.51	11	1.3	H	-55.9	1.50	12.10	-45.30	-30	15.30
3590.40	45.97	210	1.9	V	-55.9	1.50	12.10	-45.30	-30	15.30

**Note 1:** The unit of antenna gain is dBd for frequency below 1GHz and is dBi for frequency above 1GHz.

**Note 2:**

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level



## **ETSI EN 301 908-1 V15.2.1 (2023-01) §4.2.4 – CONTROL AND MONITORING FUNCTIONS (UE)**

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### **Applicable Standard**

This requirement, together with other control and monitoring technical requirements identified in the table of cross references in the applicable part, verifies that the control and monitoring functions of the UE prevent it from transmitting in the absence of a valid network.

This test is applicable to radio communications equipment and ancillary equipment in the operating band defined in the applicable part of this multi-part harmonised standard.

This test shall be performed on the radio communications equipment and/or a representative configuration of the ancillary equipment.

### **Limit**

For NR UE operating in FR2, the maximum measured radiated power during the duration of the test shall not exceed -13 dBm.

For any other UE (including NR UE operating in FR1), the maximum measured power during the duration of the test shall not exceed -30 dBm.

### **Test Procedure**

a) At the start of the test, the UE shall be switched off. The UE antenna connector shall be connected to a power measuring equipment, with the following characteristics:

The RF bandwidth shall exceed the total operating transmit frequency range of the UE for operation with an applicable part;

The response time of the power measuring equipment shall be such that the measured power has reached within 1 dB of its steady state value within 100 µs of a CW signal being applied;

It shall record the maximum power measured.

NOTE: The equipment may include a video low pass filter to minimize its response to transients or Gaussian noise peaks.

b) The UE shall be switched on for a period of approximately fifteen minutes, and then switched off.

c) The EUT shall remain switched off for a period of at least thirty seconds, and shall then be switched on for a period of approximately one minute.

d) The maximum power emitted from the UE throughout the duration of the test shall be recorded.

The results obtained shall be compared to the limits in clause 4.2.4.2 in order to prove compliance.

**Test Data****Environmental Conditions**

<b>Temperature:</b>	26.8 °C
<b>Relative Humidity:</b>	44 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Cloud Qiu on 2023-05-08.*

*EUT operation mode: Transmitting*

**Test Result: Pass**

No any emission was detected.

## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.2 – TRANSMITTER MAXIMUM OUTPUT POWER

### Applicable Standard

The nominal maximum output power and its tolerance are defined according to the power class of the UE.

The nominal power defined is the broadband transmit power of the UE, i.e. the power in a bandwidth of at least  $(1 + \alpha)$  times the chip rate of the radio access mode. The period of measurement shall be at least one timeslot.

### Limits

The UE maximum output power shall be within the shown value in table 4.2.2.1.2-1 even for the multi-code DPDCH transmission mode.

**Table 4.2.2.1.2-1: UE power classes**

Operating Band	Power Class 3		Power Class 3bis		Power Class 4	
	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)
Band I	+24	+1,7/-3,7			+21	+2,7/-2,7
Band III	+24	+1,7/-3,7			+21	+2,7/-2,7
Band VII	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band VIII	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XV	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-1,7
Band XVI	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-1,7
Band XX	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XXII	+24	+1,7/-5,2	+23	+2,7/-4,2	+21	+2,7/-4,2

NOTE 1: These requirements do not take into account the maximum power reduction allowed to the UE in the

presence of HS-DPCCH and E-DCH specified in ETSI TS 125 101 [4].

NOTE 2: The range of UE maximum output power for the various power classes are specified in ETSI TS 125 101 [4], clause 6.2.1. The values in table 4.2.2.1.2-1 correspond to the measurement limits taking into account the measurement uncertainty of measurement equipment (see clause 5.2).

For band V

**Table 5.2.2: Nominal Maximum Output Power**

Operating Band	Power Class 1		Power Class 2		Power Class 3		Power Class 3bis		Power Class 4	
	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)
Band I	+33	+1,7/-3,7	+27	+1,7/-3,7	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band II	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band III	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band IV	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band V	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band VI	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band VII	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band VIII	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band IX	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band X	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XI	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XII	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XIII	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XIV	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XIX	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XX	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XXI	-	-	-	-	+24	+1,7/-3,7	+23	+2,7/-2,7	+21	+2,7/-2,7
Band XXII	-	-	-	-	+24	+1,7/-5,2	+23	+2,7/-4,2	+21	+2,7/-4,2
Band XXV	-	-	-	-	+24	+1,7/-4,7	+23	+2,7/-3,7	+21	+2,7/-3,7
Band XXVI (Note 1)	-	-	-	-	+24	+1,7/-4,7	+23	+2,7/-3,7	+21	+2,7/-3,7

NOTE 1: For the UE which supports both Band V and Band XXVI operating frequencies, the UE maximum output power of Band V shall apply for Band XXVI when the carrier frequency of the assigned UTRA channel is within 824-845 MHz.

NOTE 1: These requirements do not take into account the maximum power reduction allowed to the UE in the

presence of HS-DPCCH and E-DCH specified in ETSI TS 125 101 [4].

NOTE 2: The range of UE maximum output power for the various power classes are specified in ETSI TS 125 101 [4], clause 6.2.1. The values in table 4.2.2.1.2-1 correspond to the measurement limits taking into account the measurement uncertainty of measurement equipment (see clause 5.2).

## Test Procedure

According to ETSI EN 301 908-2 V13.1.1 (2020-06)§5.3.1.

## Test Data

### Environmental Conditions

<b>Temperature:</b>	26.8 °C
<b>Relative Humidity:</b>	44 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Cloud Qiu on 2023-05-08.*

*EUT operation mode: Transmitting*

**Test Result: Pass**

*Please refer to following data tables.*

Test Band	Test Mode	Test Channel	3GPP Sub Test	Test Condition(dBm)					Limits (dBm)
				VN/TN	VL/TL	VH/TL	VL/TH	VH/TH	
WCDMA2100	RMC	Low	/	24.21	24.32	24.26	24.14	24.12	24+1.7/-3.7
		Middle	/	24.01	24.06	24.13	23.90	23.94	24+1.7/-3.7
		High	/	23.84	23.92	23.94	23.73	23.81	24+1.7/-3.7
	HSDPA	Low	1	23.09	23.20	23.13	22.96	23.03	24+1.7/-3.7
			2	23.07	23.18	23.18	23.03	23.00	24+1.7/-3.7
			3	23.10	23.23	23.15	23.01	22.98	24+1.7/-3.7
			4	23.12	23.22	23.20	23.02	23.02	24+1.7/-3.7
		Middle	1	22.86	22.97	22.94	22.74	22.78	24+1.7/-3.7
			2	22.84	22.89	22.88	22.77	22.77	24+1.7/-3.7
			3	22.88	23.01	22.94	22.85	22.84	24+1.7/-3.7
			4	22.85	22.98	22.95	22.77	22.79	24+1.7/-3.7
		High	1	22.72	22.80	22.80	22.66	22.66	24+1.7/-3.7
			2	22.73	22.81	22.85	22.63	22.60	24+1.7/-3.7
			3	22.75	22.86	22.79	22.70	22.64	24+1.7/-3.7
			4	22.72	22.79	22.77	22.60	22.64	24+1.7/-3.7
	HSUPA	Low	1	21.58	21.62	21.67	21.52	21.51	24+1.7/-3.7
			2	21.55	21.65	21.64	21.45	21.44	24+1.7/-3.7
			3	21.57	21.62	21.68	21.47	21.47	24+1.7/-3.7
			4	21.59	21.64	21.72	21.50	21.48	24+1.7/-3.7
			5	21.59	21.68	21.64	21.55	21.49	24+1.7/-3.7
		Middle	1	21.50	21.63	21.59	21.38	21.46	24+1.7/-3.7
			2	21.49	21.57	21.58	21.41	21.38	24+1.7/-3.7
			3	21.47	21.60	21.53	21.44	21.38	24+1.7/-3.7
			4	21.52	21.58	21.58	21.47	21.46	24+1.7/-3.7
			5	21.48	21.51	21.57	21.44	21.41	24+1.7/-3.7
		High	1	21.55	21.64	21.59	21.47	21.46	24+1.7/-3.7
			2	21.56	21.61	21.60	21.46	21.53	24+1.7/-3.7
			3	21.54	21.67	21.63	21.41	21.50	24+1.7/-3.7
			4	21.56	21.62	21.67	21.50	21.47	24+1.7/-3.7
			5	21.54	21.59	21.58	21.47	21.41	24+1.7/-3.7
	HSPA+	Low	1	21.42	21.48	21.51	21.35	21.35	24+1.7/-3.7
		Middle	1	21.44	21.55	21.56	21.33	21.41	24+1.7/-3.7
		High	1	21.45	21.57	21.57	21.35	21.34	24+1.7/-3.7

Test Band	Test Mode	Test Channel	3GPP Sub Test	Test Condition(dBm)					Limits (dBm)
				VN/TN	VL/TL	VH/TL	VL/TH	VH/TH	
WCDMA900	RMC	Low	/	23.03	23.11	23.12	22.99	22.95	24+1.7/-3.7
		Middle	/	23.05	23.16	23.09	23.01	22.97	24+1.7/-3.7
		High	/	22.99	23.10	23.10	22.95	22.94	24+1.7/-3.7
	HSDPA	Low	1	21.99	22.02	22.08	21.88	21.87	24+1.7/-3.7
			2	21.97	22.08	22.02	21.94	21.92	24+1.7/-3.7
			3	21.98	22.09	22.03	21.91	21.92	24+1.7/-3.7
			4	22.01	22.10	22.10	21.96	21.96	24+1.7/-3.7
		Middle	1	22.01	22.13	22.13	21.93	21.93	24+1.7/-3.7
			2	22.03	22.14	22.15	21.99	22.00	24+1.7/-3.7
			3	22.02	22.14	22.12	21.98	21.95	24+1.7/-3.7
			4	21.98	22.04	22.02	21.87	21.90	24+1.7/-3.7
		High	1	21.96	22.09	22.03	21.88	21.92	24+1.7/-3.7
			2	21.98	22.09	22.03	21.85	21.89	24+1.7/-3.7
			3	21.96	22.02	22.00	21.86	21.90	24+1.7/-3.7
			4	21.94	22.05	22.07	21.84	21.82	24+1.7/-3.7
	HSUPA	Low	1	22.72	22.78	22.78	22.64	22.63	24+1.7/-3.7
			2	22.70	22.73	22.81	22.63	22.67	24+1.7/-3.7
			3	22.73	22.77	22.81	22.69	22.67	24+1.7/-3.7
			4	22.69	22.75	22.77	22.65	22.65	24+1.7/-3.7
			5	22.72	22.76	22.75	22.66	22.65	24+1.7/-3.7
		Middle	1	22.46	22.52	22.54	22.34	22.34	24+1.7/-3.7
			2	22.44	22.48	22.52	22.37	22.33	24+1.7/-3.7
			3	22.45	22.56	22.56	22.40	22.41	24+1.7/-3.7
			4	22.47	22.58	22.51	22.39	22.36	24+1.7/-3.7
			5	22.45	22.52	22.50	22.34	22.33	24+1.7/-3.7
		High	1	22.42	22.54	22.55	22.33	22.38	24+1.7/-3.7
			2	22.43	22.51	22.50	22.30	22.39	24+1.7/-3.7
			3	22.42	22.45	22.50	22.30	22.30	24+1.7/-3.7
			4	22.44	22.51	22.53	22.37	22.33	24+1.7/-3.7
			5	22.41	22.46	22.50	22.35	22.35	24+1.7/-3.7
	HSPA+	Low	1	22.36	22.43	22.48	22.29	22.31	24+1.7/-3.7
		Middle	1	22.34	22.45	22.47	22.23	22.27	24+1.7/-3.7
		High	1	22.38	22.43	22.47	22.28	22.32	24+1.7/-3.7

## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.3 – TRANSMITTER SPECTRUM EMISSION MASK

### Applicable Standard

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.3, The spectrum emission mask of the UE applies to frequencies, which are between 2,5 MHz and 12,5 MHz away from the UE centre carrier frequency. The out of channel emission is specified relative to the RRC filtered mean power of the UE carrier.

### Limits

The power of any UE emission shall not exceed the levels specified in table 4.2.3.2-1. The requirements are applicable for all for the values of  $\beta_c$ ,  $\beta_d$ ,  $\beta_{hs}$ ,  $\beta_{ec}$  and  $\beta_{ed}$  defined in TS 125 214 [7].

Table 4.2.3.1.2-1: Spectrum emission mask requirement

$\Delta f$ in MHz (note 1)	Minimum requirement (note 2)		Measurement bandwidth (note 5)
	Relative requirement	Absolute requirement (in measurement bandwidth)	
2,5 MHz to 3,5 MHz	$\left\{ -33,5 - 15 \cdot \left( \frac{\Delta f}{\text{MHz}} - 2,5 \right) \right\} \text{dBc}$	-69,6 dBm	30 kHz (see note 3)
3,5 MHz to 7,5 MHz	$\left\{ -33,5 - 1 \cdot \left( \frac{\Delta f}{\text{MHz}} - 3,5 \right) \right\} \text{dBc}$	-54,3 dBm	1 MHz (see note 4)
7,5 MHz to 8,5 MHz	$\left\{ -37,5 - 10 \cdot \left( \frac{\Delta f}{\text{MHz}} - 7,5 \right) \right\} \text{dBc}$	-54,3 dBm	1 MHz (see note 4)
8,5 MHz to 12,5 MHz	-47,5 dBc	-54,3 dBm	1 MHz (see note 4)

NOTE 1:  $\Delta f$  is the separation between the carrier frequency and the centre of the measurement bandwidth.  
 NOTE 2: The minimum requirement is calculated from the relative requirement or the absolute requirement, whichever is the higher power.  
 NOTE 3: The first and last measurement position with a 30 kHz filter is at  $\Delta f$  equals to 2,515 MHz and 3,485 MHz.  
 NOTE 4: The first and last measurement position with a 1 MHz filter is at  $\Delta f$  equals to 4 MHz and 12 MHz.  
 NOTE 5: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

### Test Procedure

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §5.3.2.

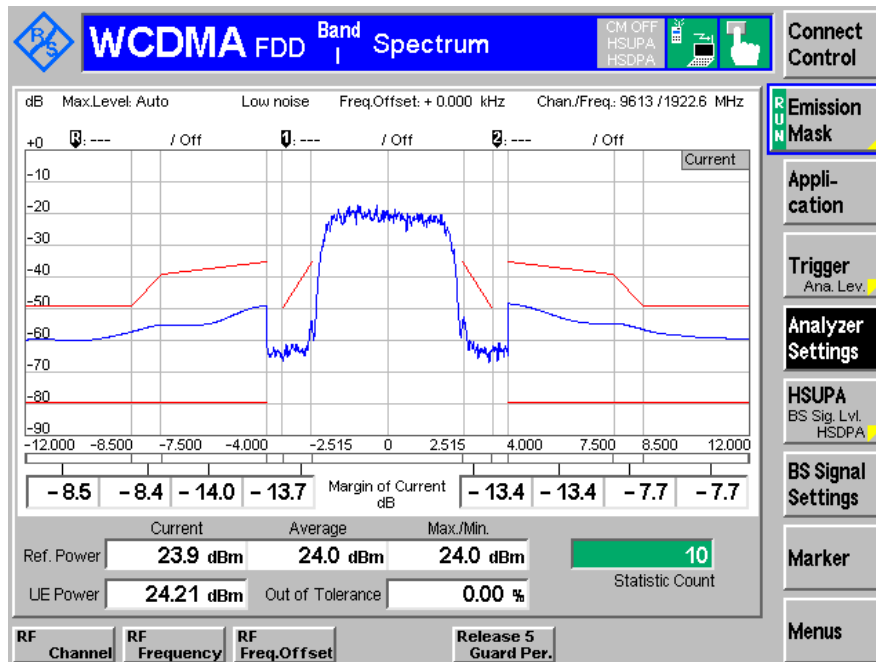
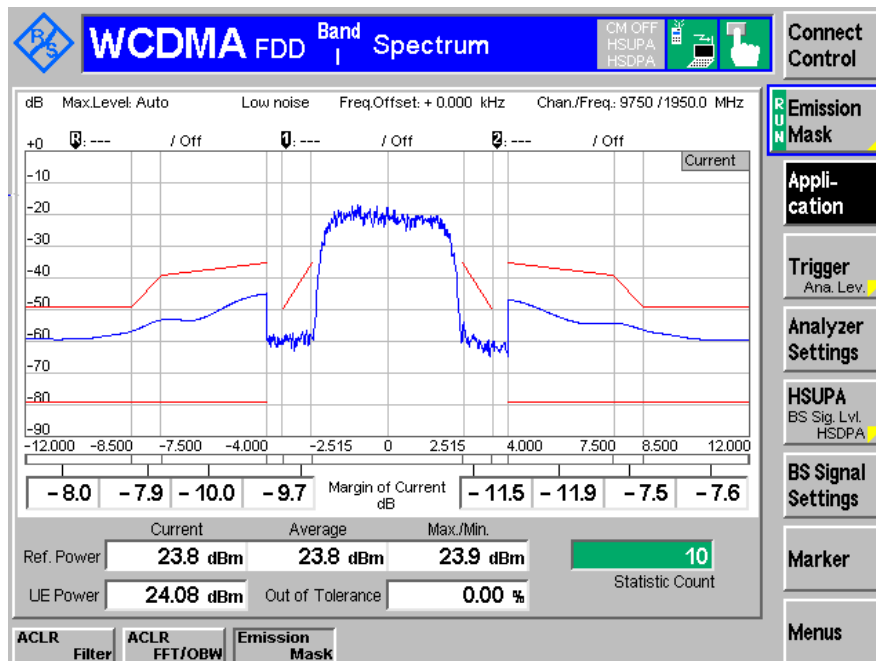
### Test Data

#### Environmental Conditions

Temperature:	26.8 °C
Relative Humidity:	44 %
ATM Pressure:	101 kPa

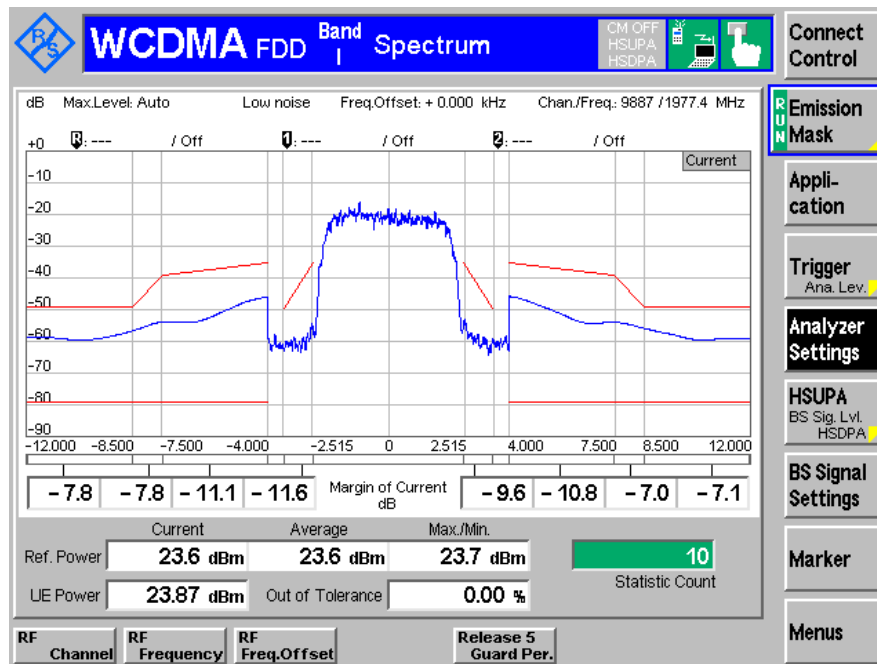
*The testing was performed by Cloud Qiu on 2023-05-08.*

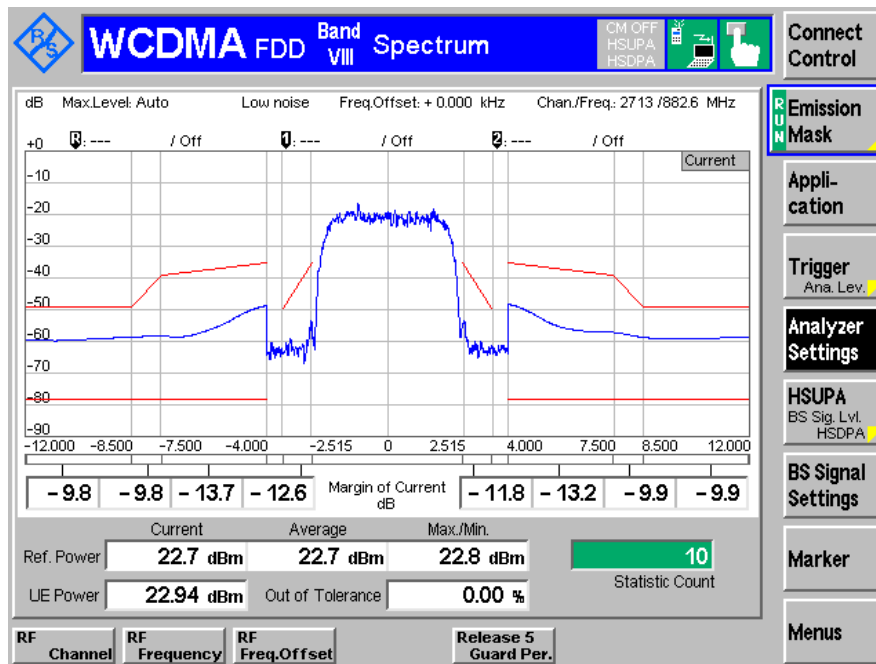
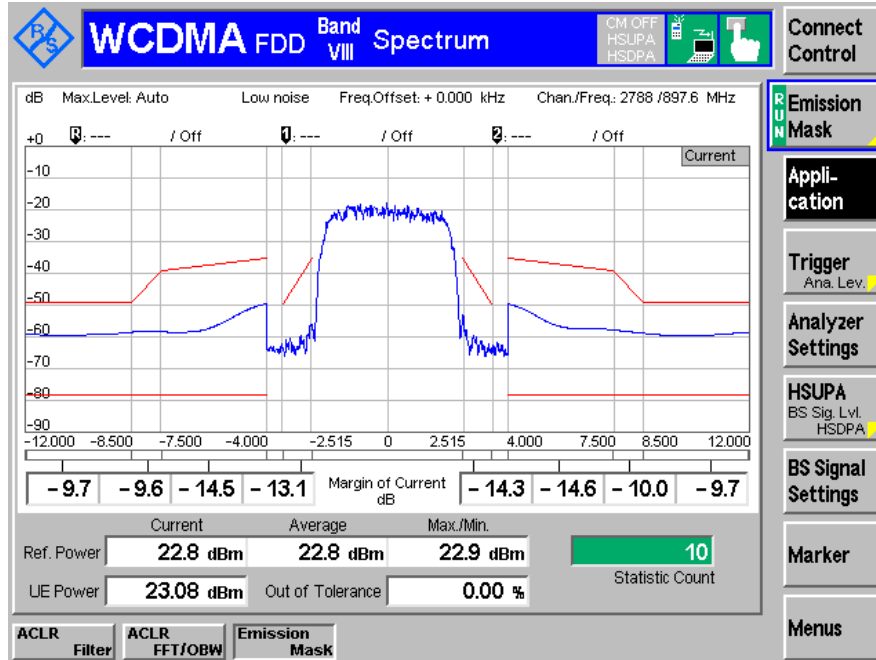
*EUT operation mode: Transmitting*

**Test Result: Pass****WCDMA 2100  
Low Channel****Middle Channel**

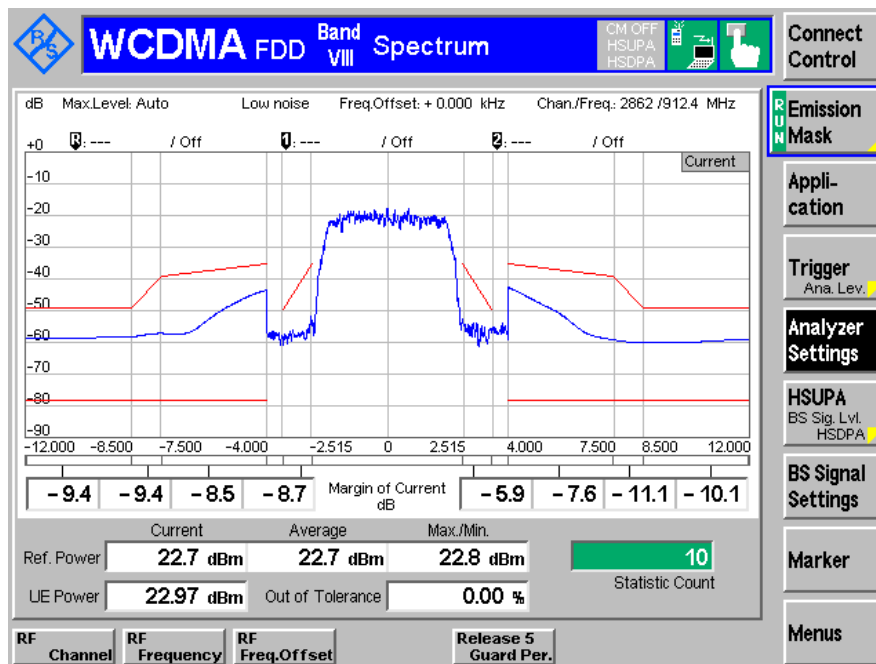


# High Channel



**WCDMA 900:  
Low Channel****Middle Channel**

## High Channel



## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.4 – TRANSMITTER SPURIOUS EMISSIONS

### Applicable Standard

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.4, Spurious emissions are emissions, which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

### Limits

The power of spurious emissions shall not exceed the limits defined in tables 4.2.4.1.2-1 and 4.2.4.1.2-2. The limits shown in tables 4.2.4.1.2-1 and 4.2.4.1.2-2 are only applicable for frequencies, which are greater than 12,5 MHz away from the UE centre carrier frequency.

**Table 4.2.4.1.2-1: General spurious emissions requirements**

Frequency bandwidth	Measurement bandwidth	Minimum requirement
$9 \text{ kHz} \leq f < 150 \text{ kHz}$	1 kHz	-36 dBm
$150 \text{ kHz} \leq f < 30 \text{ MHz}$	10 kHz	-36 dBm
$30 \text{ MHz} \leq f < 1\,000 \text{ MHz}$	100 kHz	-36 dBm
$1 \text{ GHz} \leq f < 12,75 \text{ GHz}$	1 MHz	-30 dBm
$12,75 \text{ GHz} \leq f < 5^{\text{th}}$ harmonic of the upper frequency edge of the UL operating band in GHz	1 MHz	-30 dBm (note)

NOTE: Applies only for Band XXII.

**Table 4.2.4.1.2-2: Additional spurious emissions requirements**

Operating band	Frequency bandwidth	Measurement bandwidth	Minimum requirement
I	$462,5 \text{ MHz} \leq f \leq 467,5 \text{ MHz}$	1 MHz	-50 dBm
	$791 \text{ MHz} \leq f \leq 821 \text{ MHz}$	3,84 MHz	-60 dBm
	$921 \text{ MHz} \leq f < 925 \text{ MHz}$	100 kHz	-60 dBm (note 1)
	$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 kHz	-67 dBm (note 1)
	$935 \text{ MHz} < f \leq 960 \text{ MHz}$	100 kHz	-79 dBm (note 1)
		3,84 MHz	-60 dBm
	$1\,805 \text{ MHz} \leq f \leq 1\,880 \text{ MHz}$	100 kHz	-71 dBm (note 1)
		3,84 MHz	-60 dBm
	$2\,010 \text{ MHz} < f < 2\,025 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,110 \text{ MHz} \leq f \leq 2\,170 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,300 \text{ MHz} \leq f \leq 2\,400 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,585 \text{ MHz} \leq f \leq 2\,690 \text{ MHz}$	3,84 MHz	-60 dBm

## Band V

V	$462.5 \text{ MHz} \leq f \leq 467.5 \text{ MHz}$	1 MHz	-50 dBm
	$617 \text{ MHz} \leq f \leq 652 \text{ MHz}$	1 MHz	-50 dBm
	$717 \text{ MHz} \leq f \leq 728 \text{ MHz}$	1 MHz	-50 dBm
	$703 \text{ MHz} \leq f \leq 803 \text{ MHz}$	1 MHz	-50 dBm
	$728 \text{ MHz} \leq f \leq 746 \text{ MHz}$	3.84 MHz	-60 dBm
	$746 \text{ MHz} \leq f \leq 756 \text{ MHz}$	3.84 MHz	-60 dBm
	$758 \text{ MHz} \leq f \leq 768 \text{ MHz}$	3.84 MHz	-60 dBm
	$859 \text{ MHz} \leq f \leq 869 \text{ MHz}$	1 MHz	-27 dBm
	$869 \text{ MHz} \leq f \leq 894 \text{ MHz}$	3.84 MHz	-60 dBm
	$1427 \text{ MHz} \leq f \leq 1518 \text{ MHz}$	1 MHz	-50 dBm
	$1525 \text{ MHz} \leq f \leq 1559 \text{ MHz}$	1 MHz	-50 dBm
	$1805 \text{ MHz} \leq f \leq 1880 \text{ MHz}$	3.84 MHz	-60 dBm
	$1930 \text{ MHz} \leq f \leq 1995 \text{ MHz}$	3.84 MHz	-60 dBm
	$1995 \text{ MHz} \leq f \leq 2020 \text{ MHz}$	1 MHz	-50 dBm
	$2110 \text{ MHz} \leq f \leq 2170 \text{ MHz}$	3.84 MHz	-60 dBm
	$2170 \text{ MHz} \leq f \leq 2200 \text{ MHz}$	1 MHz	-50 dBm
	$2300 \text{ MHz} \leq f \leq 2400 \text{ MHz}$	3.84 MHz	-60 dBm
	$2350 \text{ MHz} \leq f \leq 2360 \text{ MHz}$	1 MHz	-50 dBm
	$2496 \text{ MHz} \leq f \leq 2690 \text{ MHz}$	1 MHz	-50 dBm (see note 2)
	$2570 \text{ MHz} \leq f \leq 2690 \text{ MHz}$	3.84 MHz	-60 dBm
	$3510 \text{ MHz} \leq f \leq 3590 \text{ MHz}$	3.84 MHz	-60 dBm
	$3400 \text{ MHz} \leq f \leq 3800 \text{ MHz}$	1 MHz	-50 dBm

Operating band	Frequency bandwidth	Measurement bandwidth	Minimum requirement
VIII	$791 \text{ MHz} \leq f \leq 821 \text{ MHz}$	3,84 MHz	-60 dBm
	$925 \text{ MHz} \leq f \leq 935 \text{ MHz}$	100 kHz 3,84 MHz	-67 dBm (note 1) -60 dBm
	$935 \text{ MHz} < f \leq 960 \text{ MHz}$	100 kHz 3,84 MHz	-79 dBm (note 1) -60 dBm
	$1\ 805 \text{ MHz} < f \leq 1\ 830 \text{ MHz}$	100 kHz 3,84 MHz	-71 dBm (notes 1 and 2) -60 dBm (note 2)
	$1\ 830 \text{ MHz} < f \leq 1\ 880 \text{ MHz}$	100 kHz 3,84 MHz	-71 dBm (note 1) -60 dBm
	$1\ 880 \text{ MHz} \leq f \leq 1\ 920 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\ 010 \text{ MHz} \leq f \leq 2\ 025 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\ 110 \text{ MHz} \leq f \leq 2\ 170 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\ 300 \text{ MHz} < f < 2\ 400 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\ 585 \text{ MHz} \leq f \leq 2\ 640 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\ 640 \text{ MHz} \leq f \leq 2\ 690 \text{ MHz}$	3,84 MHz	-60 dBm (note 2)

## Test Procedure

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §5.3.3.

**Test Data****Environmental Conditions**

<b>Temperature:</b>	26.8 °C
<b>Relative Humidity:</b>	44 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Cloud Qiu on 2023-05-08.*

*EUT operation mode: Transmitting*

**Test Result: Pass**

*Please refer to following data tables.*

**WCDMA 2100(pre-test with Low/Middle/High channel and worst case is Middle channel):**

Mode	Frequency Range (MHz)	Detector (Peak or Average)	RBW/VBW Setting (kHz)	Result Level (dBm)	Limit (dBm)	Margin (dB)	Result
WCDMA 2100	0.009-0.15	Average	1/3	-86.51	-36	50.51	Pass
	0.15-30	Average	10/30	-86.74	-36	50.74	Pass
	30-462.5	Average	100/300	-89.53	-36	53.53	Pass
	462.5-467.5	Average	1000/3000	-82.73	-50	32.73	Pass
	467.5-791	Average	100/300	-90.60	-36	54.60	Pass
	791-821	Average	3840	-77.93	-60	17.93	Pass
	821-921	Average	100/300	-90.52	-36	54.52	Pass
	921-925	Average	100/300	-90.48	-60	30.48	Pass
	925-935	Average	100/300	-90.60	-67	23.60	Pass
	935-960	Average	100/300	-90.42	-79	11.42	Pass
			3840	-77.49	-60	17.49	Pass
	960-1000	Average	100/300	-90.36	-36	54.36	Pass
	1000-1805	Average	1000/3000	-81.63	-30	51.63	Pass
	1805-1880	Average	100/300	-89.48	-71	18.48	Pass
			3840	-76.47	-60	16.47	Pass
	1880-1937.5	Average	1000/3000	-81.40	-30	51.40	Pass
	1962.5-2010	Average	1000/3000	-81.24	-30	51.24	Pass
	2010-2025	Average	3840	-76.23	-60	16.23	Pass
	2025-2110	Average	1000/3000	-81.18	-30	51.18	Pass
	2110-2170	Average	3840	-75.94	-60	15.94	Pass
	2170-2300	Average	1000/3000	-80.52	-30	50.52	Pass
	2300-2400	Average	3840	-75.52	-60	15.52	Pass
	2400-2585	Average	1000/3000	-78.20	-30	48.20	Pass
	2585-2690	Average	3840	-74.99	-60	14.99	Pass
	2690-12750	Average	1000/3000	-57.65	-30	27.65	Pass

**WCDMA 900 (pretest with Low/Middle/High channel, the worst case is Middle channel):**

Mode	Frequency Range (MHz)	Detector (Peak or Average)	RBW/VBW Setting (kHz)	Result Level (dBm)	Limit (dBm)	Margin (dB)	Result
WCDMA 900	0.009-0.15	Average	1/3	-70.08	-36	34.08	Pass
	0.15-30	Average	10/30	-70.21	-36	34.21	Pass
	30-791	Average	100/300	-72.57	-36	36.57	Pass
	791-821	Average	3840	-67.87	-60	7.87	Pass
	821-885.1	Average	100/300	-80.67	-36	44.67	Pass
	910.1-925	Average	100/300	-80.34	-36	44.34	Pass
	925-935	Average	100/300	-80.28	-67	13.28	Pass
		Average	3840	-67.47	-60	7.47	Pass
	935-960	Average	100/300	-80.06	-79	1.06	Pass
		Average	3840	-67.45	-60	7.45	Pass
	960-1000	Average	100/300	-80.29	-36	44.29	Pass
	1000-1805	Average	1000/3000	-71.67	-30	41.67	Pass
	1805-1830	Average	100/300	-73.39	-71	2.39	Pass
		Average	3840	-66.67	-60	6.67	Pass
	1830-1880	Average	100/300	-79.39	-71	8.39	Pass
		Average	3840	-66.51	-60	6.51	Pass
	1880-1920	Average	3840	-66.40	-60	6.40	Pass
	1920-2010	Average	1000/3000	-71.10	-30	41.10	Pass
	2010-2025	Average	3840	-66.23	-60	6.23	Pass
	2025-2110	Average	1000/3000	-71.12	-30	41.12	Pass
	2110-2170	Average	3840	-65.94	-60	5.94	Pass
	2170-2300	Average	1000/3000	-70.55	-30	40.55	Pass
	2300-2400	Average	3840	-65.38	-60	5.38	Pass
	2400-2585	Average	1000/3000	-69.90	-30	39.9	Pass
	2585-2640	Average	3840	-65.10	-60	5.10	Pass
	2640-2690	Average	3840	-65.08	-60	5.08	Pass
	2690-12750	Average	1000/3000	-58.76	-30	28.76	Pass



## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.5 – TRANSMITTER MINIMUM OUTPUT POWER

### Applicable Standard

The minimum controlled output power of the UE is when the power is set to a minimum value. This is when both the inner loop and open loop power control indicate a minimum transmit output power is required.

The minimum transmit power is defined as a mean power in one time slot.

### Limits

The minimum output power shall be less than -49 dBm.

### Test Procedure

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §5.3.4.

### Test Data

#### Environmental Conditions

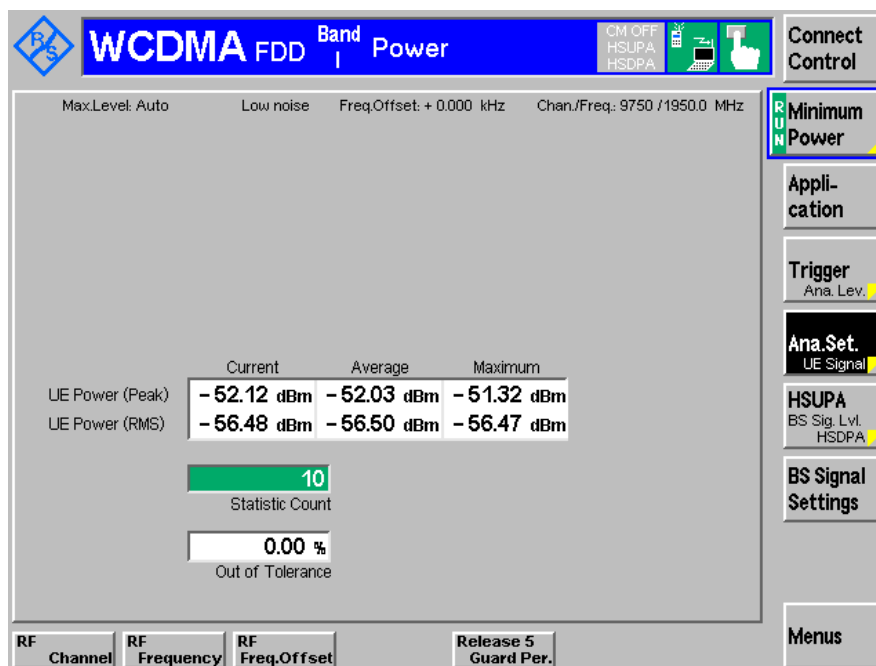
Temperature:	26.8 °C
Relative Humidity:	44 %
ATM Pressure:	101 kPa

*The testing was performed by Cloud Qiu on 2023-05-08.*

*EUT operation mode: Transmitting*

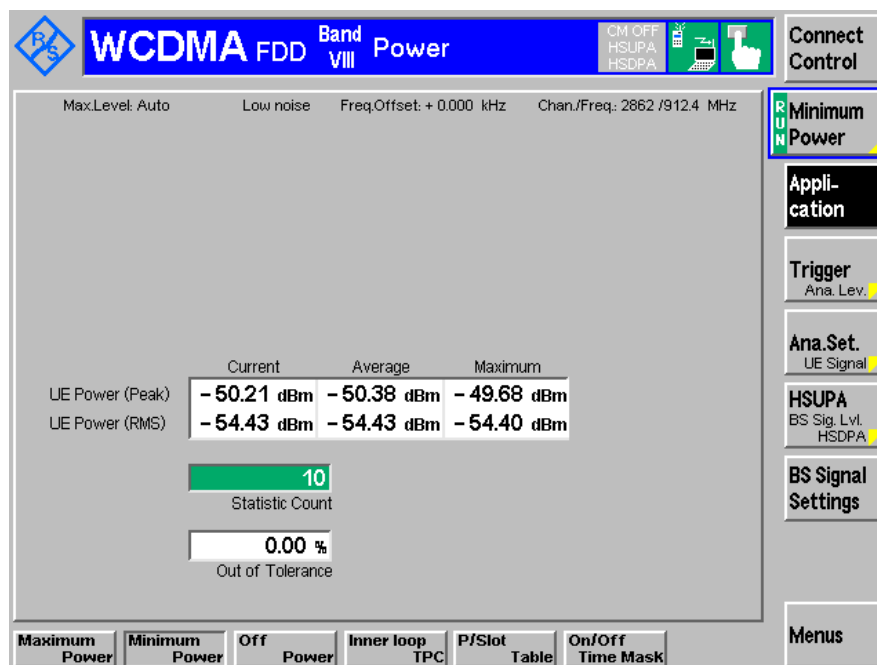
**WCDMA 2100:**

Test Conditions		Transmitter minimum output power (dBm) Limit: -49dBm	
Temperature	Voltage	Middle Channel	Result
Normal	Normal	-56.50	Compliant
Low	Low	-56.16	Compliant
Low	High	-56.57	Compliant
High	Low	-55.36	Compliant
High	High	-55.27	Compliant

**Normal Condition**

**WCDMA 900:**

Test Conditions		Transmitter minimum output power (dBm) Limit: -49dBm	
Temperature	Voltage	Middle Channel	Result
Normal	Normal	-54.43	Compliant
Low	Low	-54.17	Compliant
Low	High	-54.85	Compliant
High	Low	-54.76	Compliant
High	High	-55.26	Compliant

**Normal Condition**

## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.6 – RECEIVER ADJACENT CHANNEL SELECTIVITY (ACS)

### Applicable Standard

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.6, Adjacent Channel Selectivity (ACS) is a measure of a receiver's ability to receive a WCDMA signal at its assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the centre frequency of the assigned channel. ACS is the ratio of the receive filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).

### Limits

For the UE of power class 3 and 4, the BER shall not exceed 0,001 for the parameters specified in table 4.2.6.2-1. This test condition is equivalent to the ACS value 33 dB.

**Table 4.2.6.2-1: Test parameters for adjacent channel selectivity**

Parameter	Unit	Case 1	Case 2
DPCH_Ec	dBm/3,84 MHz	<REFSENS> + 14 dB	<REFSENS> + 41 dB
I <sub>or</sub>	dBm/3,84 MHz	<REFI <sub>or</sub> > + 14 dB	<REFI <sub>or</sub> > + 41 dB
I <sub>oac</sub> mean power (modulated)	dBm	-52	-25
F <sub>uw</sub> (offset)	MHz	+5 or -5	+5 or -5
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4)	20 (for Power class 3) 18 (for Power class 4)
NOTE 1: <REFSENS> and <REFI <sub>or</sub> > as specified in ETSI TS 134 121-1 [1].			
NOTE 2: The I <sub>oac</sub> (modulated) signal consists of the common channels and the 16 dedicated data channels as specified in ETSI TS 125 101 [4].			

### Test Procedure

- 1) Set the parameters of the interference signal generator as shown in table 4.2.6.2-1 case 1.
- 2) Set the power level of UE according to the table 4.2.6.2-1 case 1 with  $\pm 1$  dB tolerance.
- 3) Measure the BER of DCH received from the UE at the SS.
- 4) Set the parameters of the interference signal generator as shown in table 4.2.6.2-1 case 2.
- 5) Set the power level of UE according to the table 4.2.6.2-1 case 2 with  $\pm 1$  dB tolerance.
- 6) Measure the BER of DCH received from the UE at the SS.

Details of test method for UEs supporting UTRA FDD can be found in ETSI TS 134 121-1 [1], clauses 6.4 and 6.4A.

**Test Data****Environmental Conditions**

<b>Temperature:</b>	26.8 °C
<b>Relative Humidity:</b>	44 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Cloud Qiu on 2023-05-08.*

*EUT operation mode: Loopback*

Test channel: Middle channel

Test condition: Normal

**Test Result: Pass**

WCDMA2100:

The BER are 0.000%, in the case 1 interfering signal and case 2 interfering signal conditions.

WCDMA900:

The BER are 0.000%,in the case 1 interfering signal and case 2 interfering signal conditions.

## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.7 – RECEIVER BLOCKING CHARACTERISTICS

### Applicable Standard

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.7, The blocking characteristic is a measure of the receiver's ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the spurious response or the adjacent channels, without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit. The blocking performance shall apply at all frequencies except those at which a spurious response occur.

Limits:

The BER shall not exceed 0,001 for the parameters specified in tables 4.2.7.2-1 and 4.2.7.2-2. For table 4.2.7.2-2 up to 24 exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1 MHz step size.

**Table 4.2.7.2-1: Test parameters for in-band blocking characteristics**

Parameter	Unit	Level	
DPCH_Ec	dBm/3,84 MHz	<REFSENS> + 3 dB	
$\hat{I}_{or}$	dBm/3,84 MHz	<REF $\hat{I}_{or}$ > + 3 dB	
$I_{blocking}$ mean power (modulated)	dBm	-56 (for $F_{uw}$ offset $\pm 10$ MHz)	-44 (for $F_{uw}$ offset $\pm 15$ MHz)
$F_{uw}$ (Band I operation)	MHz	$2\,102,4 \leq f \leq 2\,177,6$	$2\,095 \leq f \leq 2\,185$
$F_{uw}$ (Band III operation)	MHz	$1\,797,4 \leq f \leq 1\,887,6$	$1\,790 \leq f \leq 1\,895$
$F_{uw}$ (Band VII operation)	MHz	$2\,612,4 \leq f \leq 2\,697,6$	$2\,605 \leq f \leq 2\,705$
$F_{uw}$ (Band VIII operation)	MHz	$917,4 \leq f \leq 967,6$	$910 \leq f \leq 975$
$F_{uw}$ (Band XX operation)	MHz	$783,4 \leq f \leq 828,6$	$776 \leq f \leq 836$
$F_{uw}$ (Band XXII operation)	MHz	$3\,502,4 \leq f \leq 3\,597,6$	$3\,495 \leq f \leq 3\,605$
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4) (note 3)	
NOTE 1: <REFSENS> and <REF $\hat{I}_{or}$ > as specified in ETSI TS 134 121-1 [1].			
NOTE 2: The $I_{blocking}$ (modulated) signal consists of the common channels and the 16 dedicated data channels as specified in ETSI TS 125 101 [4].			
NOTE 3: The UE transmitted mean power shall be reduced by 0,5 dB for a UE operating in band XXII.			

**Table 4.2.7.2-2: Test parameters for out-of-band blocking characteristics**

Parameter	Unit	Frequency range 1	Frequency range 2	Frequency range 3
DPCH_Ec	dBm/3,84 MHz	<REFSENS> + 3 dB	<REFSENS> + 3 dB	<REFSENS> + 3 dB
I <sub>or</sub>	dBm/3,84 MHz	<REFI <sub>or</sub> > + 3 dB	<REFI <sub>or</sub> > + 3 dB	<REFI <sub>or</sub> > + 3 dB
I <sub>blocking</sub> (CW)	dBm	-44	-30	-15
F <sub>uw</sub> (Band I operation)	MHz	2 050 < f < 2 095 2 185 < f < 2 230	2 025 < f ≤ 2 050 2 230 ≤ f < 2 255	1 < f ≤ 2 025 2 255 ≤ f < 12 750
F <sub>uw</sub> (Band III operation)	MHz	1 745 < f < 1 790 1 895 < f < 1 940	1 720 < f ≤ 1 745 1 940 ≤ f < 1 965	1 < f ≤ 1 720 1 965 ≤ f < 12 750
F <sub>uw</sub> (Band VII operation)	MHz	2 570 < f < 2 605 2 705 < f < 2 750	Na 2 750 ≤ f < 2 775	1 < f ≤ 2 570 2 775 ≤ f < 12 750
F <sub>uw</sub> (Band VIII operation)	MHz	865 < f < 910 975 < f < 1 020	840 < f < 865 1 020 ≤ f < 1 045	1 < f ≤ 840 1 045 ≤ f < 12 750
F <sub>uw</sub> (Band XV operation)	MHz	2 570 < f < 2 585 2 705 < f < 2 750	Na 2 750 ≤ f < 2 775	1 < f ≤ 2 570 2 775 ≤ f < 12 750
F <sub>uw</sub> (Band XVI operation)	MHz	Na 2 705 < f < 2 750	2 500 < f ≤ 2 570 2 750 ≤ f < 2 775	1 < f ≤ 2 500 2 775 ≤ f < 12 750
F <sub>uw</sub> (Band XX operation)	MHz	731 < f < 776 836 < f < 881	706 < f ≤ 731 881 ≤ f < 906	1 < f ≤ 706 906 ≤ f < 12 750
F <sub>uw</sub> (Band XXII operation)	MHz	3 450 < f < 3 495 3 605 < f < 3 650	3 425 < f ≤ 3 450 3 650 ≤ f < 3 675	1 < f ≤ 3 425 3 675 ≤ f < 12 750
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4)		
Band I operation	For 2 095 MHz ≤ f ≤ 2 185 MHz, the appropriate in-band blocking or adjacent channel selectivity in clause 4.2.6 and table 4.2.7.2-1 shall be applied.			

Parameter	Unit	Frequency range 1	Frequency range 2	Frequency range 3
Band III operation	For 1 790 MHz $\leq f \leq$ 1 895 MHz, the appropriate in-band blocking or adjacent channel selectivity in clause 4.2.6 and table 4.2.7.2-1 shall be applied.			
Band VII operation	For 2 605 MHz $\leq f \leq$ 2 705 MHz, the appropriate in-band blocking or adjacent channel selectivity in clause 4.2.6 and table 4.2.7.2-1 shall be applied.			
Band VIII operation	For 910 MHz $\leq f \leq$ 975 MHz, the appropriate in-band blocking or adjacent channel selectivity in clause 4.2.6 and table 4.2.7.2-1 shall be applied.			
Band XV operation	For 2 585 MHz $\leq f \leq$ 2 705 MHz, the appropriate in-band blocking or adjacent channel selectivity in clause 4.2.6 and table 4.2.7.2-1 shall be applied.			
Band XVI operation	For 2 570 MHz $\leq f \leq$ 2 705 MHz, the appropriate in-band blocking or adjacent channel selectivity in clause 4.2.6 and table 4.2.7.2-1 shall be applied.			
Band XX operation	For 776 MHz $\leq f \leq$ 836 MHz, the appropriate in-band blocking or adjacent channel selectivity in clause 4.2.6 and table 4.2.7.2-1 shall be applied.			
Band XXII operation	For 3 495 $\leq f \leq$ 3 605 MHz, the appropriate in-band blocking or adjacent channel selectivity in clause 4.2.6 and clause 4.2.7.2-1 shall be applied. (note 2)			
NOTE 1: <REFSENS> and <REF <sub>I<sub>or</sub></sub> > as specified in ETSI TS 134 121-1 [1].				
NOTE 2: The UE transmitted mean power shall be reduced by 0,5 dB for a UE operating in band XXII.				

For Band V

Operation $F_{uw}$ (Band V operation)	MHz	809 < f < 854 909 < f < 954	784 < f ≤ 809 954 ≤ f < 979	1 < f ≤ 784 979 ≤ f < 12750	824 ≤ f ≤ 849
Operation Band V operation	and clause 6.4.2 shall be applied. For 854 ≤ f ≤ 909 MHz, the appropriate in-band blocking or adjacent channel selectivity in subclause 6.5.2 and subclause 6.4.2 shall be applied.				

**Table 4.2.7.2-3: Test parameters for narrow band blocking**

Parameter	Unit	Band III, VIII
DPCH $E_c$	dBm/3,84 MHz	<REFSENS> + 10 dB
$I_{or}$	dBm/3,84 MHz	<REF $I_{or}$ > + 10 dB
$I_{blocking}$ (GMSK)	dBm	-56
$F_{uw}$ (offset)	MHz	2,8
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4)
NOTE 1: <REFSENS> and <REF $I_{or}$ > as specified in ETSI TS 134 121-1 [1].		
NOTE 2: $I_{blocking}$ (GMSK) is an interfering signal as defined in ETSI TS 145 004 [8]. It is a continuous GMSK modulated carrier following the structure of the GSM signals, but with all modulating bits (including the midamble period) derived directly from a random or any pseudo random data stream.		

For Band V

**Table 6.5.3: Test parameters for narrow band blocking**

Parameter	Unit	Band II, IV, V, X, XXV, XXVI	Band III, VIII, XII, XIII, XIV
DPCH $E_c$	dBm/3.84 MHz	<REFSENS> + 10 dB	<REFSENS> + 10 dB
$I_{or}$	dBm/3.84 MHz	<REF $I_{or}$ > + 10 dB	<REF $I_{or}$ > + 10 dB
$I_{blocking}$ (GMSK)	dBm	-57	-56
$F_{uw}$ (offset)	MHz	2.7	2.8
UE transmitted mean power	dBm	20 (for Power class 3 and 3bis) 18 (for Power class 4)	

## Test Procedure

- 1) Set the parameters of the CW generator or the interference signal generator as shown in tables 4.2.7.2-1, 4.2.7.2-2 and 4.2.7.2-3. For table 4.2.7.2-2 the frequency step size is 1 MHz.
- 2) Set the power level of the UE according to tables 4.2.7.2-1, 4.2.7.2-2 and 4.2.7.2-3 with a  $\pm 1$  dB tolerance.
- 3) Measure the BER of DCH received from the UE at the SS.
- 4) For table 4.2.7.2-2, record the frequencies for which the BER exceeds the test requirements.

Details of test method for UEs supporting UTRA FDD can be found in ETSI TS 134 121-1 [1], clause 6.5.



**Test Data****Environmental Conditions**

<b>Temperature:</b>	26.8 °C
<b>Relative Humidity:</b>	44 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Cloud Qiu on 2023-05-08.*

*EUT operation mode: Loopback*

Test channel: Middle channel

Test condition: Normal

**Test Result: Pass**

*Please refer to following data tables.*

**WCDMA2100**

Frequency Range	Interfering Frequency (MHz)	Interfering Level (dBm)	BER
Frequency Range 1	2050	-43	0.000%
	2070	-43	0.000%
	2095	-43	0.000%
	2185	-43	0.000%
	2210	-43	0.000%
	2230	-43	0.000%
Frequency Range 2	2025	-30	0.000%
	2030	-30	0.000%
	2050	-30	0.000%
	2230	-30	0.000%
	2240	-30	0.000%
	2255	-30	0.000%
Frequency Range 3	2255	-15	0.000%
	2620	-15	0.000%
	2650	-15	0.000%
	2690	-15	0.000%
	12750	-15	0.000%

**WCDMA900**

Frequency Range	Interfering Frequency (MHz)	Interfering Level (dBm)	BER
Frequency Range 1	890	-43	0.000%
	990	-43	0.000%
Frequency Range 2	850	-30	0.000%
	1030	-30	0.000%
Frequency Range 3	820	-15	0.000%
	1045	-15	0.000%
	12745	-15	0.000%

## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.8 – RECEIVER SPURIOUS RESPONSE

### Applicable Standard

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.8, Spurious response is a measure of the receiver's ability to receive a wanted signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the out-of-band blocking limit as specified in table 4.2.7.2-2 is not met.

### Limits

The BER shall not exceed 0,001 for the parameters specified in table 4.2.8.2-1.

**Table 4.2.8.2-1: Test parameters for spurious response**

Parameter	Level	Unit
DPCH_Ec	<REFSENS> + 3 dB	dBm/3,84 MHz
$\hat{I}_{or}$	<REF $\hat{I}_{or}$ > + 3 dB	dBm/3,84 MHz
$I_{blocking}(CW)$	-44	dBm
$F_{uw}$	Spurious response frequencies	MHz
UE transmitted mean power	20 (for Power class 3) 18 (for Power class 4) (note 2)	dBm
NOTE 1: <REFSENS> and <REF $\hat{I}_{or}$ > as specified in ETSI TS 134 121-1 [1].		
NOTE 2: The UE transmitted mean power shall be reduced by 0,5 dB, for a UE operating in band XXII.		

### Test Procedure

- 1) Set the parameter of the CW generator as shown in table 4.2.8.2-1. The spurious response frequencies are determined in step 4) of clause 5.3.6.1.2.
- 2) Set the power level of the UE according to table 4.2.8.2-1 with a  $\pm 1$  dB tolerance.
- 3) Measure the BER of DCH received from the UE at the SS.

Details of test method for UEs supporting UTRA FDD can be found in ETSI TS 134 121-1 [1], clause 6.6.

**Test Data****Environmental Conditions**

<b>Temperature:</b>	26.8 °C
<b>Relative Humidity:</b>	44 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Cloud Qiu on 2023-05-08.*

*EUT operation mode: Loopback*

Test channel: Middle channel

Test condition: Normal

**Test Result: Pass**

WCDMA2100:

The BER are 0.000%, for the parameters specified in table 4.2.8.2-1.

WCDMA900:

The BER are 0.000%, for the parameters specified in table 4.2.8.2-1.

## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.9 – RECEIVER INTERMODULATION CHARACTERISTICS

### Applicable Standard

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.9, Third and higher order mixing of the two interfering RF signals can produce an interfering signal in the band of the desired channel. Intermodulation response rejection is a measure of the capability of the receiver to receive a wanted signal on its assigned channel frequency in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal.

### Limits

The BER shall not exceed 0,001 for the parameters specified in table 4.2.9.2-1.

**Table 4.2.9.2-1: Receive intermodulation characteristics**

Parameter	Level		Unit
DPCH_Ec	<REFSENS> + 3 dB		dBm/3,84 MHz
$\hat{I}_{or}$	<REF $\hat{I}_{or}$ > + 3 dB		dBm/3,84 MHz
$I_{ouw1}$ (CW)	-46		dBm
$I_{ouw2}$ mean power (modulated)	-46		dBm
$F_{uw1}$ (offset)	10	-10	MHz
$F_{uw2}$ (offset)	20	-20	MHz
UE transmitted mean power	20 (for Power class 3) 18 (for Power class 4) (note 3)		dBm
NOTE 1: $I_{ouw2}$ (modulated) consists of the common channels and the 16 dedicated data channels as specified in ETSI TS 125 101 [4].			
NOTE 2: <REFSENS> and <REF $\hat{I}_{or}$ > as specified in ETSI TS 134 121-1 [1].			
NOTE 3: The UE transmitted mean power shall be reduced by 0,5 dB for a UE operating in band XXII.			

**Table 4.2.9.2-2: Test parameters for narrow band intermodulation characteristics**

Parameter	Unit	Band III, VIII	
DPCH_Ec	dBm/3,84 MHz	<REFSENS> + 10 dB	
$\hat{I}_{or}$	dBm/3,84 MHz	<REF $\hat{I}_{or}$ > + 10 dB	
$I_{ouw1}$ (CW)	dBm	-43	
$I_{ouw2}$ (GMSK)	dBm	-43	
$F_{uw1}$ (offset)	MHz	3,6	-3,6
$F_{uw2}$ (offset)	MHz	6,0	-6,0
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4)	
NOTE 1: <REFSENS> and <REF $\hat{I}_{or}$ > as specified in ETSI TS 134 121-1 [1].			
NOTE 2: $I_{ouw2}$ (GMSK) is an interfering signal as defined in ETSI TS 145 004 [8]. It is a continuous GMSK modulated carrier following the structure of the GSM signals, but with all modulating bits (including the midamble period) derived directly from a random or any pseudo random data stream.			

## Test Procedure

- 1) Set the parameters of the CW generator and interference generator as shown in tables 4.2.9.2-1 and 4.2.9.2-2.
- 2) Set the power level of the UE according to tables 4.2.9.2-1 and 4.2.9.2-2 with a  $\pm 1$  dB tolerance.
- 3) Measure the BER of DCH received from the UE at the SS.

Details of initial conditions for UEs supporting UTRA FDD can be found in ETSI TS 134 121-1 [1], clause 6.7.

## Test Data

### Environmental Conditions

Temperature:	26.8 °C
Relative Humidity:	44 %
ATM Pressure:	101 kPa

*The testing was performed by Cloud Qiu on 2023-05-08.*

*EUT operation mode: Loopback*

Test channel: Middle channel

Test condition: Normal

### Test Result: Pass

WCDMA2100:  
The BER are 0.000%

WCDMA900:  
The BER are 0.000%

## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.10 – RECEIVER SPURIOUS EMISSIONS

### Applicable Standard

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.10, The spurious emissions power is the power of emissions, generated or amplified in a receiver, which appear at the UE antenna connector. The requirements in UE transmit bands are valid in URA\_PCH, Cell\_PCH and idle state.

### Limits

The power of any narrow band CW spurious emission shall not exceed the maximum level specified in tables 4.2.10.2-1 and 4.2.10.2-2.

**Table 4.2.10.2-1: General receiver spurious emission requirements**

Frequency band	Measurement bandwidth	Maximum level
$30 \text{ MHz} \leq f < 1 \text{ GHz}$	100 kHz	-57 dBm
$1 \text{ GHz} \leq f \leq 12,75 \text{ GHz}$	1 MHz	-47 dBm

**Table 4.2.10.2-2: Additional receiver spurious emission requirements**

Band	Frequency Range	Measurement Bandwidth	Maximum level
I	$1\,920 \text{ MHz} \leq f \leq 1\,980 \text{ MHz}$	3,84 MHz	-60 dBm
III	$1\,710 \text{ MHz} \leq f \leq 1\,785 \text{ MHz}$	3,84 MHz	-60 dBm
VII	$2\,500 \text{ MHz} \leq f \leq 2\,570 \text{ MHz}$	3,84 MHz	-60 dBm
VIII	$880 \text{ MHz} \leq f \leq 915 \text{ MHz}$	3,84 MHz	-60 dBm
XV	$791 \text{ MHz} \leq f < 821 \text{ MHz}$	3,84 MHz	-60 dBm
	$921 \text{ MHz} \leq f < 925 \text{ MHz}$	100 kHz	-60 dBm (see note)
	$925 \text{ MHz} \leq f < 935 \text{ MHz}$	100 kHz	-67 dBm (see note)
		3,84 MHz	-60 dBm
	$935 \text{ MHz} \leq f \leq 960 \text{ MHz}$	100 kHz	-79 dBm (see note)
	$1\,805 \text{ MHz} \leq f \leq 1\,880 \text{ MHz}$	100 kHz	-71 dBm (see note)
	$1\,900 \text{ MHz} \leq f \leq 1\,920 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,110 \text{ MHz} \leq f \leq 2\,170 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,585 \text{ MHz} \leq f \leq 2\,690 \text{ MHz}$	3,84 MHz	-60 dBm
V	$824 \text{ MHz} \leq f \leq 849 \text{ MHz}$	3.84 MHz	-60 dBm
Band	Frequency Range	Measurement Bandwidth	Maximum level
XVI	$791 \text{ MHz} \leq f < 821 \text{ MHz}$	3,84 MHz	-60 dBm
	$921 \text{ MHz} \leq f < 925 \text{ MHz}$	100 kHz	-60 dBm (see note)
	$925 \text{ MHz} \leq f < 935 \text{ MHz}$	100 kHz	-67 dBm (see note)
		3,84 MHz	-60 dBm
	$935 \text{ MHz} \leq f \leq 960 \text{ MHz}$	100 kHz	-79 dBm (see note)
	$1\,805 \text{ MHz} \leq f \leq 1\,880 \text{ MHz}$	100 kHz	-71 dBm (see note)
	$2\,010 \text{ MHz} \leq f \leq 2\,025 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,110 \text{ MHz} \leq f \leq 2\,170 \text{ MHz}$	3,84 MHz	-60 dBm
	$2\,585 \text{ MHz} \leq f \leq 2\,690 \text{ MHz}$	3,84 MHz	-60 dBm
XX	$832 \text{ MHz} \leq f \leq 862 \text{ MHz}$	3,84 MHz	-60 dBm
XXII	$3\,410 \text{ MHz} \leq f \leq 3\,490 \text{ MHz}$	3,84 MHz	-60 dBm
NOTE: The receiver additional spurious emission measurements are made on frequencies which are integer multiples of 200 kHz. As exceptions, up to five measurements with a level up to the applicable requirements defined in table 4.2.10.2-1 are permitted for each UARFCN used in the measurement. This note applies also to receiver additional spurious emission measurements according to table 4.2.12.1.2-1.			

## Test Procedure

Sweep the spectrum analyser (or other suitable test equipment) over a frequency range from 30 MHz to 12,75 GHz and measure the average power of the spurious emissions.

Details of test method for UEs supporting UTRA FDD can be found in ETSI TS 134 121-1 [1], clause 6.8.

## Test Data

### Environmental Conditions

<b>Temperature:</b>	26.8 °C
<b>Relative Humidity:</b>	44 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Cloud Qiu on 2023-05-08.*

*EUT operation mode: Receiving*

### Test Result: Pass

*Please refer to following data tables.*

#### WCDMA2100

Mode	Frequency Range (MHz)	Detector (Peak or Average)	RBW/VBW Setting (kHz)	Result Level (dBm)	Limit (dBm)	Margin (dB)	Result
WCDMA 2100	30-1000	Average	100/300	-71.37	-57	14.37	Pass
	1000-1920	Average	1000/3000	-66.38	-47	19.38	Pass
	1920-1980	Average	3840	-66.26	-60	6.26	Pass
	1980-12750	Average	1000/3000	-64.62	-47	17.62	Pass

#### WCDMA900

Mode	Frequency Range (MHz)	Detector (Peak or Average)	RBW/VBW Setting (kHz)	Result Level (dBm)	Limit (dBm)	Margin (dB)	Result
WCDMA 900	30-880	Average	100/300	-72.35	-57	15.35	Pass
	880-915	Average	3840	-65.43	-60	5.43	Pass
	915-1000	Average	100/300	-64.53	-57	7.53	Pass
	1000-12750	Average	1000/3000	-67.29	-47	20.29	Pass



## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.11 – OUT-OF-SYNCHRONIZATION HANDLING OF OUTPUT POWER

### Applicable Standard

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.11, The UE shall monitor the DPCCH quality in order to detect a loss of the signal on Layer 1. The threshold  $Q_{out}$  specifies at what DPCCH quality levels the UE shall shut its power off. The threshold is not defined explicitly, but is defined by the conditions under which the UE shall shut its transmitter off, as stated in this clause.

The DPCCH quality shall be monitored in the UE and compared to the threshold  $Q_{out}$  for the purpose of monitoring synchronization. The threshold  $Q_{out}$  should correspond to a level of DPCCH quality where no reliable detection of the TPC commands transmitted on the downlink DPCCH can be made. This can be at a TPC command error ratio level of e.g. 20 %.

### Limits

When the UE estimates the DPCCH quality over the last 160 ms period to be worse than a threshold  $Q_{out}$ , the UE shall shut its transmitter off within 40 ms.

The quality level at the thresholds  $Q_{out}$  correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in table 4.2.11.2-1, a signal with the quality at the level  $Q_{out}$  can be generated by a  $DPCCH\_Ec/I_{or}$  ratio of -25 dB. The DL reference measurement channel 12,2 kbit/s is specified in ETSI TS 134 121-1 [1] and with static propagation conditions. The downlink physical channels, other than those specified in table 4.2.11.2-1, are as specified in ETSI TS 134 121-1 [1].

**Table 4.2.11.2-1: DCH parameters for test of out-of-synchronization handling**

Parameter	Value	Unit
$\hat{I}_{or}/I_{oc}$	-1	dB
$I_{oc}$	-60	dBm/3,84 MHz
$\frac{DPCCH\_E_c}{I_{or}}$	See figure 4.2.11.2-1: Before point A: <ul style="list-style-type: none"> <li>-16,6 for UEs not supporting enhanced receiver performance type 1 for DCH</li> <li>-19,6 for UEs supporting enhanced receiver performance type 1 for DCH</li> </ul> After point A not defined	dB
$\frac{DPCCH\_E_c}{I_{or}}$	See figure 4.2.11.2-1	dB
Information Data Rate	12,2	kbit/s

Figure 4.2.11.2-1 and table 4.2.11.2-2 show an example scenario where the  $DPCCH\_Ec/I_{or}$  ratio varies from a level where the DPCH is demodulated under normal conditions, down to a level below  $Q_{out}$  where the UE shall shut its power off.

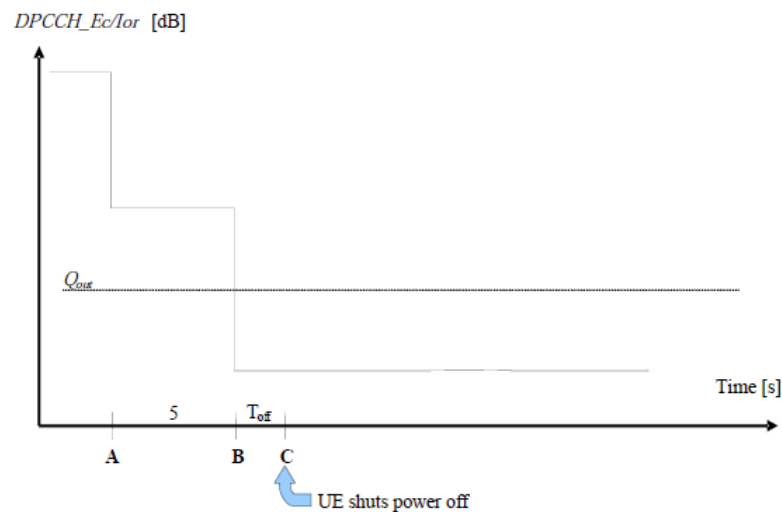


Figure 4.2.11.2-1: Conditions for out-of-synchronization handling in the UE

Table 4.2.11.2-2: Conditions for out-of-synchronization handling in the UE

Clause from figure 4.2.11.2-1	DPCCH_Ec/Ior (UE, not supporting enhanced receiver performance requirements type 1 for DCH)	DPCCH_Ec/Ior (UE, supporting enhanced receiver performance requirements type 1 for DCH)	Unit
Before A	-16,6	-19,6	dB
A to B	-21,6	-24,6	dB
After B	-28,4	-31,4	dB

The requirements for the UE are that it shall shut its transmitter off before point C.

The UE transmitter is considered to be OFF if the measured RRC filtered mean power is less than -55 dBm.

## Test Procedure

- 1) The SS sends continuously up power control commands to the UE until the UE transmitter power reach maximum level.
- 2) The SS controls the DPCCH\_Ec/Ior ratio level according to table 4.2.11.2-2, 'A to B'.
- 3) The SS controls the DPCCH\_Ec/Ior ratio level according to table 4.2.11.2-2, 'after B'. The SS waits 200 ms and then verifies that the UE transmitter has been switched off.
- 4) The SS monitors the UE transmitted power for 5 s and verifies that the UE transmitter is not switched on during this time.

Details of test method for UEs supporting UTRA FDD can be found in ETSI TS 134 121-1 [1], clause 5.4.4.

## Test Result: Pass

UE transmitter is switched off in the test.

## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.12 – TRANSMITTER ADJACENT CHANNEL LEAKAGE POWER RATIO (ACLR)

### Applicable Standard

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.12, Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the RRC filtered mean power centred on the assigned channel frequency to the RRC filtered mean power centred on an adjacent channel frequency.

### Limits

If the adjacent channel power is greater than -50 dBm then the ACLR shall be higher than the value specified in table 4.2.12.1.2-1. The requirements are applicable for all for the values of  $\beta_c$ ,  $\beta_d$ ,  $\beta_{hs}$ ,  $\beta_{ec}$  and  $\beta_{ed}$  defined in ETSI TS 125 214 [7].

**Table 4.2.12.1.2-1: UE ACLR**

Power Class	Adjacent channel frequency relative to assigned channel frequency	ACLR limit
3	+5 MHz or -5 MHz	32,2 dB
3	+10 MHz or -10 MHz	42,2 dB
4	+5 MHz or -5 MHz	32,2 dB
4	+10 MHz or -10 MHz	42,2 dB
NOTE: The requirement shall still be met in the presence of switching transients.		

### Test Procedure

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §5.3.11.

### Test Data

#### Environmental Conditions

Temperature:	26.8 °C
Relative Humidity:	44 %
ATM Pressure:	101 kPa

*The testing was performed by Cloud Qiu on 2023-05-08.*

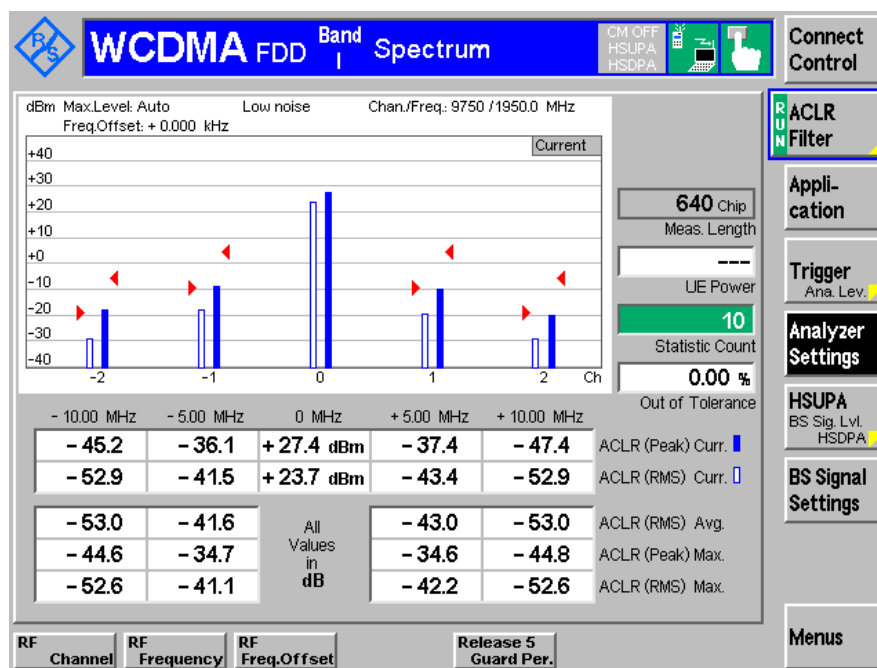
*EUT operation mode: Loopback (worst case)*

**Test Result: Pass**

*Please refer to following data tables.*

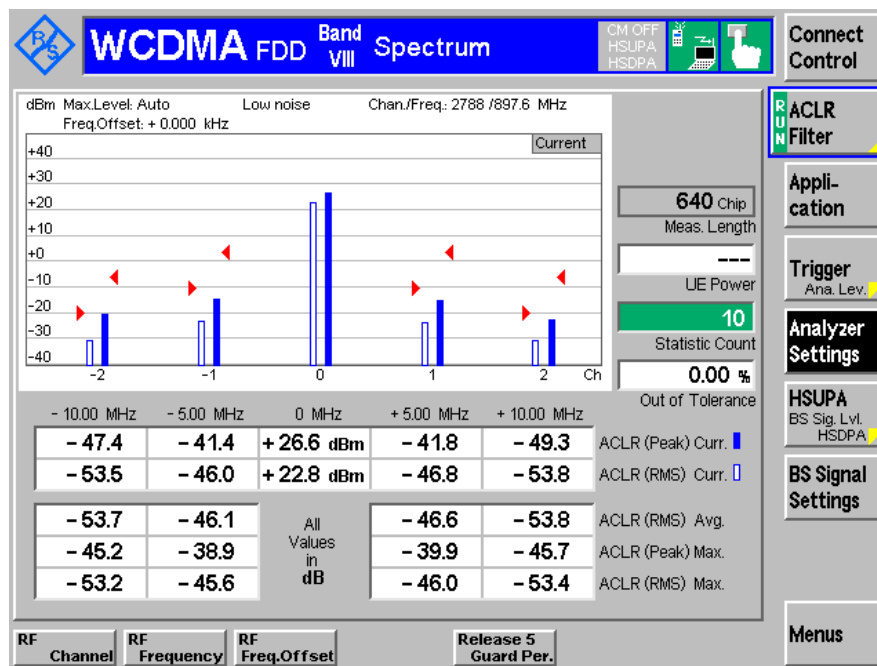
**WCDMA 2100:****Test Channel: Middle**

Condition	Transmitter Adjacent Channel Leakage Power Ratio (dB)			
	ACLR (-10 MHz)	ACLR (-5 MHz)	ACLR (+5 MHz)	ACLR (+10 MHz)
Normal	-53.0	-41.6	-43.0	-53.0
TL/VL	-52.7	-41.4	-43.2	-52.8
TL/VH	-52.7	-41.4	-43.1	-52.8
TH/VL	-52.9	-41.6	-42.3	-52.8
TH/VH	-52.7	-41.4	-42.6	-52.7

**Normal Condition**

**WCDMA 900:****Test Channel: Middle**

Condition	Transmitter Adjacent Channel Leakage Power Ratio (dB)			
	ACLR (-10 MHz)	ACLR (-5 MHz)	ACLR (+5 MHz)	ACLR (+10 MHz)
Normal	-53.7	-46.1	-46.6	-53.8
TL/VL	-53.4	-46.0	-47.0	-53.5
TL/VH	-53.5	-46.2	-46.8	-53.6
TH/VL	-53.3	-46.2	-46.8	-53.5
TH/VH	-53.3	-45.9	-46.5	-54.0

**Normal Condition**

## ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.13 –RECEIVER REFERENCE SENSITIVITY LEVEL

### Applicable Standard

According to ETSI EN 301 908-2 V13.1.1 (2020-06) §4.2.13, The reference sensitivity level <REFSENS> is the minimum mean power received at the UE antenna port at which the Bit Error Ratio (BER) shall not exceed a specific value.

### Limits

The measured BER shall not exceed 0,001.

**Table 4.2.13.2-1: Test parameters for Reference Sensitivity Level**

Operating Band	Unit	DPCH_Ec <REFSENS>	<REF <sub>for</sub> >
I	dBm/3,84 MHz	-116,3	-106
III	dBm/3,84 MHz	-113,3	-103
VII	dBm/3,84 MHz	-114,3	-104
VIII	dBm/3,84 MHz	-113,3	-103
XX	dBm/3,84 MHz	-113,3	-103
XXII	dBm/3,84 MHz	-113,3	-103
NOTE 1: For Power class 3 and 3bis this shall be at the maximum output power.			
NOTE 2: For Power class 4 this shall be at the maximum output power.			

NOTE: These requirements do not take into account the allowed increase of the reference sensitivity level of

DPCH\_Ec <REFSENS> and corresponding <REF<sub>for</sub>> in ETSI TS 134 121-1 [1], table 6.2.2 by the amount defined in minimum requirement clause for the UE, which supports DB-DC-HSDPA or dual band 4C-HSDPA and/or E-UTRA inter-band carrier aggregation.

### Test Procedure

- 1) Set and send continuously Up power control commands to the UE until the UE output power shall be maximum level.
- 2) Measure the BER of DCH received from the UE at the SS.

Details of initial conditions for UEs supporting UTRA FDD can be found in ETSI TS 134 121-1 [1], clause 6.2.

**Test Data****Environmental Conditions**

<b>Temperature:</b>	26.8 °C
<b>Relative Humidity:</b>	44 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Cloud Qiu on 2023-05-08.*

*EUT operation mode: Loopback*

Test channel: Low/Middle/High channel

Test condition: Normal, LT/LV, LT/HV, HT/LV, HT/HV

**Test Result: Pass**

WCDMA2100:  
The BER are 0.000%

WCDMA900:  
The BER are 0.000%

## **EXHIBIT A - EUT PHOTOGRAPHS**

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Please refer to the report number is SZ1230414-19311E-EUT.



## EXHIBIT B – TEST SETUP PHOTOGRAPHS

**Radiated Spurious Emissions Test View (Below 1GHz)**



**Radiated Spurious Emissions Test View (Above 1GHz)**



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