


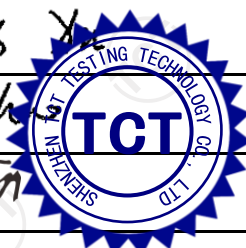


# Test Report

Test Report No. ....:	TCT220422E063	
Date of issue .....	May 17, 2022	
Testing laboratory .....	Shenzhen TCT Testing Technology Co., Ltd.	
Testing location/ address:	2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China	
Applicant's name .....	Shenzhen Huafului Technology Co., Ltd	
Address .....	Unit 1401 & 1402, 14/F, Jinqi Zhigu Mansion (No. 4 Building of Chongwen Garden), Crossing of the Liuxian Street and Tangling Road, Taoyuan Street, Nanshan District, Shenzhen, P.R. China	
Manufacturer's name.....	Shenzhen Huafului Technology Co., Ltd	
Address .....	Unit 1401 & 1402, 14/F, Jinqi Zhigu Mansion (No. 4 Building of Chongwen Garden), Crossing of the Liuxian Street and Tangling Road, Taoyuan Street, Nanshan District, Shenzhen, P.R. China	
Standard(s) .....	ETSI EN 301 908-1 V13.1.1 (2019-11) ETSI EN 301 908-13 V13.1.1 (2019-11)	
Product Name .....	Tablet	
Trade Mark.....	CUBOT	
Model/Type reference .....	TAB 30	
Rating(s) .....	Refer to EUT description of page 3	
Date of receipt of test item .....	Apr. 22, 2022	
Date (s) of performance of test .....	Apr. 11, 2022 ~ May 17, 2022	
Tested by (+signature).....	Brews XU	
Check by (+signature) .....	Beryl ZHAO	
Approved by (+signature):	Tomsin	

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## 1. General Product Information

### 1.1. EUT description

<b>Product Name .....</b>	Tablet
<b>Model/Type reference .....</b>	TAB 30
<b>Hardware Version .....</b>	T30-T618-V1.0
<b>Software Version.....</b>	CUBOT_TAB_30_P031C_V1.0_20220218
<b>Operation Frequency.....</b>	LTE Band 1: (UL)1920MHz~1980MHz, (DL)2110MHz~2170MHz LTE Band 3: (UL)1710MHz~1785MHz, (DL)1805MHz~1880MHz LTE Band 7: (UL)2500MHz~2570MHz, (DL)2620MHz~2690MHz LTE Band 8: (UL)880MHz~915MHz, (DL)925MHz~960MHz LTE Band 20: (UL)832MHz~862MHz, (DL)791MHz~821MHz
<b>Modulation Technology.....</b>	QPSK, 16-QAM
<b>Antenna Type .....</b>	PIFA Antenna
<b>Antenna Gain .....</b>	LTE band 1: 0.5dBi    LTE band 3: 0.5dBi LTE band 7: 0.4dBi    LTE band 8: -1dBi LTE band 20: -0.8dBi
<b>Rating(s) .....</b>	Adapter Information: Model: HJ-FC001K7-UK Input: AC 100-240V, 50/60Hz, 0.8A Output: DC 5.0V, 3.0A/ DC 9.0V, 2.0A/ DC 12.0V, 1.5A, 18.0W Rechargeable Li-ion Battery DC 3.8V

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

### 1.2. Model(s) list

None.

## 1.3. EUT Test Channels

Test Configuration LTE Band 1	5 MHz Bandwidth	Lowest	18025	1922.5 MHz
		Middle	18300	1950.0 MHz
		Highest	18575	1977.5 MHz
	10 MHz Bandwidth	Lowest	18050	1925.0 MHz
		Middle	18300	1950.0 MHz
		Highest	18550	1975.0 MHz
	20 MHz Bandwidth	Lowest	18100	1930.0 MHz
		Middle	18300	1950.0 MHz
		Highest	18500	1970.0 MHz
Test Configuration LTE Band 3	1.4 MHz Bandwidth	Lowest	19207	1710.7 MHz
		Middle	19575	1747.5 MHz
		Highest	19943	1784.3 MHz
	5 MHz Bandwidth	Lowest	19225	1712.5 MHz
		Middle	19575	1747.5 MHz
		Highest	19925	1782.5 MHz
	10 MHz Bandwidth	Lowest	19250	1715.0 MHz
		Middle	19575	1747.5 MHz
		Highest	19900	1780.0 MHz
	20 MHz Bandwidth	Lowest	19300	1720.0 MHz
		Middle	19575	1747.5 MHz
		Highest	19850	1775.0 MHz
Test Configuration LTE Band 7	5 MHz Bandwidth	Lowest	20775	2502.5 MHz
		Middle	21100	2535.0 MHz
		Highest	21425	2567.5 MHz
	10 MHz Bandwidth	Lowest	20800	2505.0 MHz
		Middle	21100	2535.0 MHz
		Highest	21400	2565.0 MHz
	20 MHz Bandwidth	Lowest	20850	2510.0 MHz
		Middle	21100	2535.0 MHz
		Highest	21350	2560.0 MHz
Test Configuration LTE Band 8	1.4 MHz Bandwidth	Lowest	21457	880.7 MHz
		Middle	21625	897.5 MHz
		Highest	21793	914.3 MHz
	5 MHz Bandwidth	Lowest	21475	882.5 MHz
		Middle	21625	897.5 MHz
		Highest	21775	912.5 MHz
	10 MHz Bandwidth	Lowest	21500	885.0 MHz
		Middle	21625	897.5 MHz
		Highest	21750	955.0 MHz
Test Configuration LTE Band 20	5 MHz Bandwidth	Lowest	24175	834.5 MHz
		Middle	24300	847.0 MHz
		Highest	24425	859.5 MHz

	10 MHz Bandwidth	Lowest	24200	837.0 MHz
		Middle	24300	847.0 MHz
		Highest	24400	857.0 MHz
	20 MHz Bandwidth	Lowest	24250	842.0 MHz
		Middle	24300	847.0 MHz
		Highest	24350	852.0 MHz

## 2. Test Result Summary

No.	Description of Test	Result
1	Transmitter maximum output power	PASS
2	Transmitter spectrum emission mask	PASS
3	Transmitter spurious emissions	PASS
4	Transmitter minimum output power	PASS
5	Transmitter adjacent channel leakage power ratio	PASS
6	Control and monitoring functions	PASS
7	Receiver adjacent channel selectivity (ACS)	PASS
8	Receiver blocking characteristics	PASS
9	Receiver spurious response	PASS
10	Receiver intermodulation characteristics	PASS
11	Receiver spurious emissions	PASS
12	Radiated emissions	PASS

**Note:**

1 Pass: Test item meets the requirement.

2. N/A: Test case does not apply to the test object.

3. The test result judgment is decided by the limit of test standard.

### 3. General Information

#### 3.1. Test environment and mode

Item	Normal condition	Extreme condition			
		HVHT	LVHT	HVLT	LVLT
Temperature	+25°C	+25°C	+25°C	-20°C	-20°C
Voltage	DC 3.8V	DC 4.35V	DC 3.3V	DC 4.35V	DC 3.3V
Humidity	20%-75%				
Atmospheric Pressure:	1008 mbar				
Test Mode:	Keep the EUT in Transmitting mode by Simulator Base station.				

#### 3.2. Description of 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.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

**Note:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

**3.3. Test Instruments List**

Name	Model No.	Manufacturer	Date of Cal.	Due Date
EMI Test Receiver	ESIB7	R&S	Jul. 08, 2021	Jul. 07, 2022
Spectrum Analyzer	FSQ40	R&S	Jul. 08, 2021	Jul. 07, 2022
Pre-amplifier	8447D	HP	Jul. 08, 2021	Jul. 07, 2022
Pre-amplifier	LNPA_0118G-45	SKET	Feb. 25, 2022	Feb. 24, 2023
Pre-amplifier	LNPA_1840G-50	SKET	Feb. 25, 2022	Feb. 24, 2023
Broadband Antenna	VULB9163	Schwarzbeck	Sep. 05, 2020	Sep. 04, 2022
Horn Antenna	BBHA 9120D	Schwarzbeck	Sep. 05, 2020	Sep. 04, 2022
Horn Antenna	BBHA 9170	Schwarzbeck	Apr. 11, 2021	Apr. 10, 2023
Coaxial cable	RC_DC18G-N	SKET	Feb. 25, 2022	Feb. 24, 2023
Coaxial cable	RC-DC18G-N	SKET	Feb. 25, 2022	Feb. 24, 2023
Coaxial cable	RC-DC40G-N	SKET	Jul. 08, 2021	Jul. 07, 2022
EMI Test Software	EZ-EMC	Shurple Technology	N/A	N/A
Spectrum Analyzer	N9020A	Agilent	Jul. 19, 2021	Jul. 18, 2022
Wideband Radio Communication Tester	CMW500	R&S	Jul. 08, 2021	Jul. 07, 2022
DC Power Supply	KR3005K	Kingrang	Jul. 19, 2021	Jul. 18, 2022
Programable tempratuce and humidity chamber	MHU-80L	JQ	Jul. 19, 2021	Jul. 18, 2022



## 4. Facilities and Accreditations

### 4.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098

SHENZHEN TONGCE TESTING LAB

Designation Number: CN1205

The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

SHENZHEN TONGCE TESTING LAB

CAB identifier: CN0031

The testing lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

### 4.2. Location

Shenzhen TCT Testing Technology Co., Ltd.

Address: 2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

### 4.3. Measurement Uncertainty

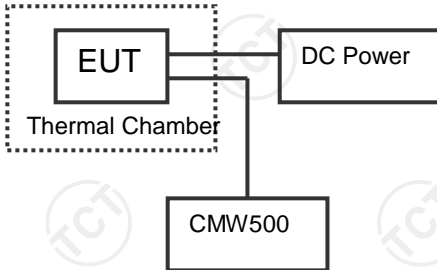
The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 3.10$ dB
2	RF power, conducted	$\pm 0.12$ dB
3	Spurious emissions, conducted	$\pm 0.11$ dB
4	All emissions, radiated(<1 GHz)	$\pm 4.56$ dB
5	All emissions, radiated(1 GHz - 18 GHz)	$\pm 4.22$ dB
6	All emissions, radiated(18 GHz- 40 GHz)	$\pm 4.36$ dB
7	Temperature	$\pm 0.1^{\circ}\text{C}$
8	Humidity	$\pm 1.0\%$

## 5. Test Results and Measurement Data

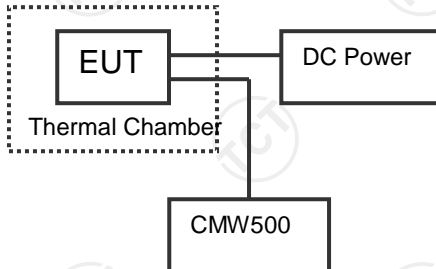
### 5.1. Transmitter Maximum Output Power

#### 5.1.1. Test Specification

<b>Test Requirement:</b>	ETSI EN 301 908-13 clause 4.2.2
<b>Test Method:</b>	ETSI EN 301 908-13 clause 5.3.1
<b>Test Setup:</b>	 <pre> graph LR     subgraph Thermal Chamber         EUT[EUT]     end     DC Power[DC Power] --- EUT     CMW500[CMW500] --- EUT </pre>
<b>Limit:</b>	23dBm +/- 2.7dB
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C_RNTI to schedule the UL RMC according to table 6.2.2.1.4.1-1 of TS 136 521-1 [1]. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.</li> <li>2. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE; allow at least 200 ms for the UE to reach PUMAX level.</li> <li>3. Measure the mean power of the UE in the channel bandwidth of the radio access mode. The period of measurement shall be at least the continuous duration of one sub-frame (1 ms). For TDD slots with transient periods are not under test.</li> <li>4. Repeat for applicable test frequencies, channel bandwidths, operating band combinations and environmental conditions.</li> </ol>
<b>Test Instrument:</b>	Refer to Item 3.3
<b>Test Result:</b>	PASS

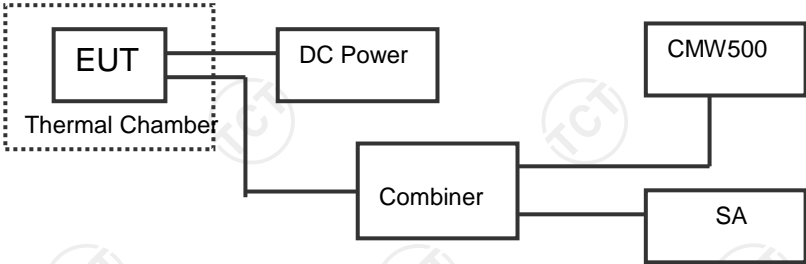
## 5.2. Transmitter Spectrum Emission Mask

### 5.2.1. Test Specification

Test Requirement:	ETSI EN 301 908-13 clause 4.2.3																																																																																
Test Method:	ETSI EN 301 908-13 clause 5.3.2																																																																																
Test Setup:	 <pre>graph LR     subgraph Thermal Chamber         EUT[EUT]     end     DC[DC Power] --&gt; EUT     EUT --&gt; CMW[CMW500]</pre>																																																																																
Limit:	<table><tr><th><math>\Delta f_{\text{OoB}}</math> (MHz)</th><th>1,4 MHz</th><th>3,0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th><th>Measurement bandwidth</th></tr><tr><td><math>\pm 0</math> to 1</td><td>-8,5</td><td>-11,5</td><td>-13,5</td><td>-16,5</td><td>-18,5</td><td>-19,5</td><td>30 kHz</td></tr><tr><td><math>\pm 1</math> to 2,5</td><td>-8,5</td><td>-8,5</td><td>-8,5</td><td>-8,5</td><td>-8,5</td><td>-8,5</td><td>1 MHz</td></tr><tr><td><math>\pm 2,5</math> to 2,8</td><td>-23,5</td><td>-8,5</td><td>-8,5</td><td>-8,5</td><td>-8,5</td><td>-8,5</td><td>1 MHz</td></tr><tr><td><math>\pm 2,8</math> to 5</td><td></td><td>-8,5</td><td>-8,5</td><td>-8,5</td><td>-8,5</td><td>-8,5</td><td>1 MHz</td></tr><tr><td><math>\pm 5</math> to 6</td><td></td><td>-23,5</td><td>-11,5</td><td>-11,5</td><td>-11,5</td><td>-11,5</td><td>1 MHz</td></tr><tr><td><math>\pm 6</math> to 10</td><td></td><td></td><td>-23,5</td><td>-11,5</td><td>-11,5</td><td>-11,5</td><td>1 MHz</td></tr><tr><td><math>\pm 10</math> to 15</td><td></td><td></td><td></td><td>-23,5</td><td>-11,5</td><td>-11,5</td><td>1 MHz</td></tr><tr><td><math>\pm 15</math> to 20</td><td></td><td></td><td></td><td></td><td>-23,5</td><td>-11,5</td><td>1 MHz</td></tr><tr><td><math>\pm 20</math> to 25</td><td></td><td></td><td></td><td></td><td></td><td>-23,5</td><td>1 MHz</td></tr></table> <p>NOTE 1: The first and last measurement position with a 30 kHz filter is at <math>\Delta f_{\text{OoB}}</math> equals to 0,015 MHz and 0,985 MHz.</p> <p>NOTE 2: The first and last measurement position with a 1 MHz filter for 1 MHz - 2,5 MHz offset range is at <math>\Delta f_{\text{OoB}}</math> equals to 1,5 MHz and 2,0 MHz. Similarly for other <math>\Delta f_{\text{OoB}}</math> ranges.</p> <p>NOTE 3: The measurements are to be performed above the upper edge of the channel and below the lower edge of the channel.</p> <p>NOTE 4: For the 2,5 MHz - 2,8 MHz offset range with 1,4 MHz channel bandwidth, the measurement position is at <math>\Delta f_{\text{OoB}}</math> equals to 3 MHz.</p>	$\Delta f_{\text{OoB}}$ (MHz)	1,4 MHz	3,0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Measurement bandwidth	$\pm 0$ to 1	-8,5	-11,5	-13,5	-16,5	-18,5	-19,5	30 kHz	$\pm 1$ to 2,5	-8,5	-8,5	-8,5	-8,5	-8,5	-8,5	1 MHz	$\pm 2,5$ to 2,8	-23,5	-8,5	-8,5	-8,5	-8,5	-8,5	1 MHz	$\pm 2,8$ to 5		-8,5	-8,5	-8,5	-8,5	-8,5	1 MHz	$\pm 5$ to 6		-23,5	-11,5	-11,5	-11,5	-11,5	1 MHz	$\pm 6$ to 10			-23,5	-11,5	-11,5	-11,5	1 MHz	$\pm 10$ to 15				-23,5	-11,5	-11,5	1 MHz	$\pm 15$ to 20					-23,5	-11,5	1 MHz	$\pm 20$ to 25						-23,5	1 MHz
$\Delta f_{\text{OoB}}$ (MHz)	1,4 MHz	3,0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Measurement bandwidth																																																																										
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$\pm 2,8$ to 5		-8,5	-8,5	-8,5	-8,5	-8,5	1 MHz																																																																										
$\pm 5$ to 6		-23,5	-11,5	-11,5	-11,5	-11,5	1 MHz																																																																										
$\pm 6$ to 10			-23,5	-11,5	-11,5	-11,5	1 MHz																																																																										
$\pm 10$ to 15				-23,5	-11,5	-11,5	1 MHz																																																																										
$\pm 15$ to 20					-23,5	-11,5	1 MHz																																																																										
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Test procedure:	<ol style="list-style-type: none"><li>1. SS sends uplink scheduling information via PDCCH DCI format 0 for C_RNTI to schedule the UL RMC according to TS 136 521-1 [1], table 6.6.2.1.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.</li><li>2. Send continuously uplink power control "up" commands in the uplink scheduling information to the UE until the UE transmits at PUMAX level.</li><li>3. Measure the power of the transmitted signal with a measurement filter of bandwidths according to table 4.2.3.1.2-1 or 4.2.3.1.2-2, as applicable. The center frequency of the filter shall be stepped in continuous steps according to the same table. The measured power shall be recorded for each step. The measurement period shall capture the active TSs.</li><li>4. Repeat for applicable test frequencies, channel bandwidths, operating band combinations and environmental conditions.</li></ol>																																																																																
Test Instruments:	Refer to Item 3.3																																																																																
Test Result	PASS																																																																																

## 5.3. Transmitter Spurious Emissions

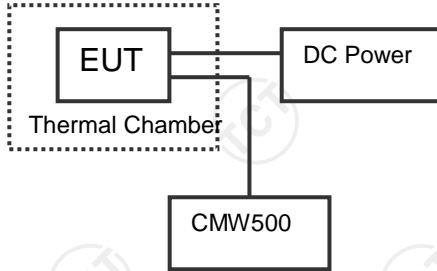
### 5.3.1. Test Specification

Test Requirement:	ETSI EN 301 908-13 clause 4.2.4																																																																																																													
Test Method:	ETSI EN 301 908-13 clause 5.3.3																																																																																																													
Test Setup:																																																																																																														
Limit:	<table><tr><th>Frequency range</th><th>Maximum level</th><th>Measurement bandwidth</th><th>Comment</th></tr><tr><td>9 kHz ≤ f &lt; 150 kHz</td><td>-36 dBm</td><td>1 kHz</td><td></td></tr><tr><td>150 kHz ≤ f &lt; 30 MHz</td><td>-36 dBm</td><td>10 kHz</td><td></td></tr><tr><td>30 MHz ≤ f &lt; 1 000 MHz</td><td>-36 dBm</td><td>100 kHz</td><td></td></tr><tr><td>1 GHz ≤ f &lt; 12,75 GHz</td><td>-30 dBm</td><td>1 MHz</td><td></td></tr><tr><td>12,75 GHz ≤ f &lt; 5<sup>th</sup> harmonic of the upper frequency edge of the UL operating band in GHz</td><td>-30 dBm</td><td>1 MHz</td><td>See note</td></tr></table> <p>NOTE: Applies for Band 42 and Band 43.</p>	Frequency range	Maximum level	Measurement bandwidth	Comment	9 kHz ≤ f < 150 kHz	-36 dBm	1 kHz		150 kHz ≤ f < 30 MHz	-36 dBm	10 kHz		30 MHz ≤ f < 1 000 MHz	-36 dBm	100 kHz		1 GHz ≤ f < 12,75 GHz	-30 dBm	1 MHz		12,75 GHz ≤ f < 5 <sup>th</sup> harmonic of the upper frequency edge of the UL operating band in GHz	-30 dBm	1 MHz	See note																																																																																					
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1 GHz ≤ f < 12,75 GHz	-30 dBm	1 MHz																																																																																																												
12,75 GHz ≤ f < 5 <sup>th</sup> harmonic of the upper frequency edge of the UL operating band in GHz	-30 dBm	1 MHz	See note																																																																																																											
	<table><tr><th rowspan="2">E-UTRA Band</th><th rowspan="2">Protected band</th><th colspan="2">Spurious emission</th><th rowspan="2">Maximum Level (dBm)</th><th rowspan="2">MBW (MHz)</th><th rowspan="2">Comment</th></tr><tr><th colspan="2">Frequency range (MHz)</th></tr><tr><td rowspan="4">1</td><td>E-UTRA Band 1, 7, 8, 20, 38, 40, 42, 43</td><td>F<sub>DL_low</sub></td><td>-</td><td>F<sub>DL_high</sub></td><td>-50</td><td></td></tr><tr><td>E-UTRA Band 3, 34</td><td>F<sub>DL_low</sub></td><td>-</td><td>F<sub>DL_high</sub></td><td>-50</td><td>Note 3</td></tr><tr><td>Frequency range</td><td>1 900</td><td>-</td><td>1 915</td><td>-15,5</td><td>5</td></tr><tr><td>Frequency range</td><td>1 915</td><td>-</td><td>1 920</td><td>+1,6</td><td>5</td></tr><tr><td rowspan="4">3</td><td>E-UTRA Band 1, 7, 8, 20, 33, 34, 38, 43</td><td>F<sub>DL_low</sub></td><td>-</td><td>F<sub>DL_high</sub></td><td>-50</td><td></td></tr><tr><td>E-UTRA Band 3</td><td>F<sub>DL_low</sub></td><td>-</td><td>F<sub>DL_high</sub></td><td>-50</td><td>Note 3</td></tr><tr><td>E-UTRA Band 42</td><td>F<sub>DL_low</sub></td><td>-</td><td>F<sub>DL_high</sub></td><td>-50</td><td>Note 2</td></tr><tr><td>E-UTRA Band 1, 3, 7, 8, 20, 33, 34, 42, 43</td><td>F<sub>DL_low</sub></td><td>-</td><td>F<sub>DL_high</sub></td><td>-50</td><td></td></tr><tr><td rowspan="4">7</td><td>E-UTRA Band 1, 3, 7, 8, 20, 33, 34, 42, 43</td><td>F<sub>DL_low</sub></td><td>-</td><td>F<sub>DL_high</sub></td><td>-50</td><td></td></tr><tr><td>Frequency range</td><td>2 570</td><td>-</td><td>2 575</td><td>+1,6</td><td>Note 3</td></tr><tr><td>Frequency range</td><td>2 575</td><td>-</td><td>2 620</td><td>-15,5</td><td>Note 3</td></tr><tr><td>Frequency range</td><td>2 620</td><td>-</td><td>2 625</td><td>+1,6</td><td>Note 3</td></tr><tr><td rowspan="4">20</td><td>E-UTRA Band 1, 3, 7, 8, 33, 34, 43</td><td>F<sub>DL_low</sub></td><td>-</td><td>F<sub>DL_high</sub></td><td>-50</td><td></td></tr><tr><td>E-UTRA Band 20</td><td>F<sub>DL_low</sub></td><td>-</td><td>F<sub>DL_high</sub></td><td>-50</td><td>Note 3</td></tr><tr><td>E-UTRA Band 38, 42</td><td>F<sub>DL_low</sub></td><td>-</td><td>F<sub>DL_high</sub></td><td>-50</td><td>Note 2</td></tr><tr><td>E-UTRA Band 1, 3, 7, 8, 33, 34, 43</td><td>F<sub>DL_low</sub></td><td>-</td><td>F<sub>DL_high</sub></td><td>-50</td><td></td></tr></table>	E-UTRA Band	Protected band	Spurious emission		Maximum Level (dBm)	MBW (MHz)	Comment	Frequency range (MHz)		1	E-UTRA Band 1, 7, 8, 20, 38, 40, 42, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50		E-UTRA Band 3, 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	Note 3	Frequency range	1 900	-	1 915	-15,5	5	Frequency range	1 915	-	1 920	+1,6	5	3	E-UTRA Band 1, 7, 8, 20, 33, 34, 38, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50		E-UTRA Band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	Note 3	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	Note 2	E-UTRA Band 1, 3, 7, 8, 20, 33, 34, 42, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50		7	E-UTRA Band 1, 3, 7, 8, 20, 33, 34, 42, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50		Frequency range	2 570	-	2 575	+1,6	Note 3	Frequency range	2 575	-	2 620	-15,5	Note 3	Frequency range	2 620	-	2 625	+1,6	Note 3	20	E-UTRA Band 1, 3, 7, 8, 33, 34, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50		E-UTRA Band 20	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	Note 3	E-UTRA Band 38, 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	Note 2	E-UTRA Band 1, 3, 7, 8, 33, 34, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	
E-UTRA Band	Protected band			Spurious emission					Maximum Level (dBm)	MBW (MHz)		Comment																																																																																																		
		Frequency range (MHz)																																																																																																												
1	E-UTRA Band 1, 7, 8, 20, 38, 40, 42, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50																																																																																																									
	E-UTRA Band 3, 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	Note 3																																																																																																								
	Frequency range	1 900	-	1 915	-15,5	5																																																																																																								
	Frequency range	1 915	-	1 920	+1,6	5																																																																																																								
3	E-UTRA Band 1, 7, 8, 20, 33, 34, 38, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50																																																																																																									
	E-UTRA Band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	Note 3																																																																																																								
	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	Note 2																																																																																																								
	E-UTRA Band 1, 3, 7, 8, 20, 33, 34, 42, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50																																																																																																									
7	E-UTRA Band 1, 3, 7, 8, 20, 33, 34, 42, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50																																																																																																									
	Frequency range	2 570	-	2 575	+1,6	Note 3																																																																																																								
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	Frequency range	2 620	-	2 625	+1,6	Note 3																																																																																																								
20	E-UTRA Band 1, 3, 7, 8, 33, 34, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50																																																																																																									
	E-UTRA Band 20	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	Note 3																																																																																																								
	E-UTRA Band 38, 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	Note 2																																																																																																								
	E-UTRA Band 1, 3, 7, 8, 33, 34, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50																																																																																																									
Test Procedure:	<ol style="list-style-type: none"><li>SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C_RNTI to schedule the UL RMC according to TS 136 521-1 [1], table 6.6.3.1.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.</li><li>Send continuously up power control commands in the uplink scheduling information to the UE until the UE transmits at PUMAX level.</li><li>For each applicable requirement in tables 4.2.4.1.2-2, 4.2.4.1.2-3 and 4.2.4.1.2-4; Measure the power of the transmitted signal with a measurement filter of bandwidths. The center frequency of the filter shall be stepped in contiguous steps according to the tables. The measured power shall be verified for each step. The measurement period shall capture the active time slots.</li><li>Repeat for applicable test frequencies, channel bandwidths and operating band combinations.</li></ol>																																																																																																													

Remark:	Normal and extreme test conditions and all channel bandwidth types have been tested, only the measurement data of normal condition and 3MHz bandwidth (band 1), 3MHz bandwidth (band 3), 5MHz bandwidth (band 7), 5MHz bandwidth (band 20) are reported. Nothing emissions have been detected in the frequency range 9kHz to 30MHz
Test Instrument:	Refer to Item 3.3
Test Result:	PASS

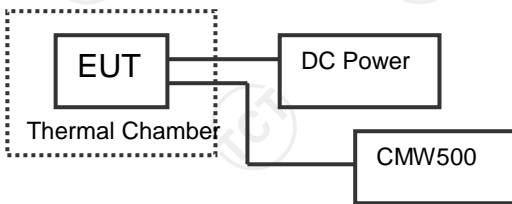
## 5.4. Transmitter Minimum Output Power

### 5.4.1. Test Specification

Test Requirement:	ETSI EN 301 908-13 clause 4.2.5																																									
Test Method:	ETSI EN 301 908-13 clause 5.2.6																																									
Test Setup:	 <pre>graph LR     DC[DC Power] --&gt; EUT[EUT]     EUT --&gt; CMW[CMW500]     subgraph Thermal Chamber         EUT     end</pre>																																									
Limit:	<table><tr><th colspan="7">Table 4.2.5.1.2-1: Minimum output power</th></tr><tr><th></th><th colspan="6">Channel bandwidth/minimum output power/measurement bandwidth</th></tr><tr><th></th><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr><tr><td>Minimum output power</td><td colspan="6">For carrier frequency <math>f \leq 3,0</math> GHz: <math>\leq -39</math> dBm For carrier frequency <math>3,0</math> GHz <math>&lt; f \leq 4,2</math> GHz: <math>\leq -38,7</math> dBm</td></tr><tr><td>Measurement bandwidth</td><td>1,08 MHz</td><td>2,7 MHz</td><td>4,5 MHz</td><td>9,0 MHz</td><td>13,5 MHz</td><td>18 MHz</td></tr></table>							Table 4.2.5.1.2-1: Minimum output power								Channel bandwidth/minimum output power/measurement bandwidth							1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Minimum output power	For carrier frequency $f \leq 3,0$ GHz: $\leq -39$ dBm For carrier frequency $3,0$ GHz $< f \leq 4,2$ GHz: $\leq -38,7$ dBm						Measurement bandwidth	1,08 MHz	2,7 MHz	4,5 MHz	9,0 MHz	13,5 MHz	18 MHz
Table 4.2.5.1.2-1: Minimum output power																																										
	Channel bandwidth/minimum output power/measurement bandwidth																																									
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz																																				
Minimum output power	For carrier frequency $f \leq 3,0$ GHz: $\leq -39$ dBm For carrier frequency $3,0$ GHz $< f \leq 4,2$ GHz: $\leq -38,7$ dBm																																									
Measurement bandwidth	1,08 MHz	2,7 MHz	4,5 MHz	9,0 MHz	13,5 MHz	18 MHz																																				
Test Procedure:	<ol style="list-style-type: none"><li>1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C_RNTI to schedule the UL RMC according to TS 136 521-1 [1], table 6.3.2.1.4.1-1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.</li><li>2. Send continuous uplink power control "down" commands in the uplink scheduling information to the UE to ensure that the UE transmits at its minimum output power.</li><li>3. Measure the mean power of the UE in the associated measurement bandwidth specified in table 4.5.2.1-1 for the specific channel bandwidth under test. The period of measurement shall be the continuous duration of one sub-frame (1ms). For TDD slots with transient periods are not under test.</li><li>4. Repeat for applicable test frequencies, channel bandwidths, operating band combinations and environmental conditions.</li></ol>																																									
Test Instrument:	Refer to Item 3.3																																									
Remark:	Normal and extreme test conditions have been tested, And we found out that normal condition is worst case, so only the measurement dada of normal condition in this report.																																									
Test Result:	PASS																																									

## 5.5. Transmitter Adjacent Channel Leakage Power Ratio

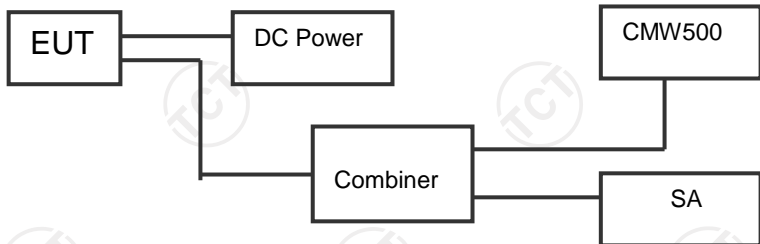
### 5.5.1. Test Specification

<b>Test Requirement:</b>	ETSI EN 301 908-13 clause 4.2.11
<b>Test Method:</b>	ETSI EN 301 908-13 clause 5.3.10
<b>Test Setup:</b>	
<b>Limit:</b>	See clause 4.2.4.11.1.2 of ETSI EN 301 908-13
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C_RNTI to schedule the UL RMC according to TS 136 521-1 [1], table 6.6.2.3.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.</li> <li>2. Send continuous uplink power control “up” commands in the uplink scheduling information to the UE to ensure that the UE transmits at PUMAX level.</li> <li>3. Measure the mean power of the UE in the channel bandwidth of the radio access mode according to the test configuration, which shall meet the requirements described in tables 4.2.11.1.2-1 and 4.2.11.1.2-2. The period of the measurement shall be at least the continuous duration of one sub-frame (1 ms). For TDD slots with transient periods are not under test.</li> <li>4. Measure the filtered mean power for E-UTRA.</li> <li>5. Measure the filtered mean power of the first E-UTRA adjacent channel.</li> <li>6. Measure the RRC filtered mean power of the first and the second UTRA adjacent channel.</li> <li>7. Calculate the ratio of the power between the values measured in step 4) over step 5) for E-UTRAACLR.</li> <li>8. Calculated the ratio of the power between the values measured in step 4) over step 6) for UTRAACLR1, UTRAACLR2.</li> <li>9. Repeat for applicable test frequencies, channel bandwidths, operating band combinations and environmental conditions.</li> </ol>
<b>Test Instrument:</b>	Refer to Item 3.3
<b>Remark:</b>	Normal and extreme test conditions have been tested, And we found out that normal condition is worst case, so only the measurement dada of normal condition in this report.



## 5.6. Control and Monitoring Functions (UE)

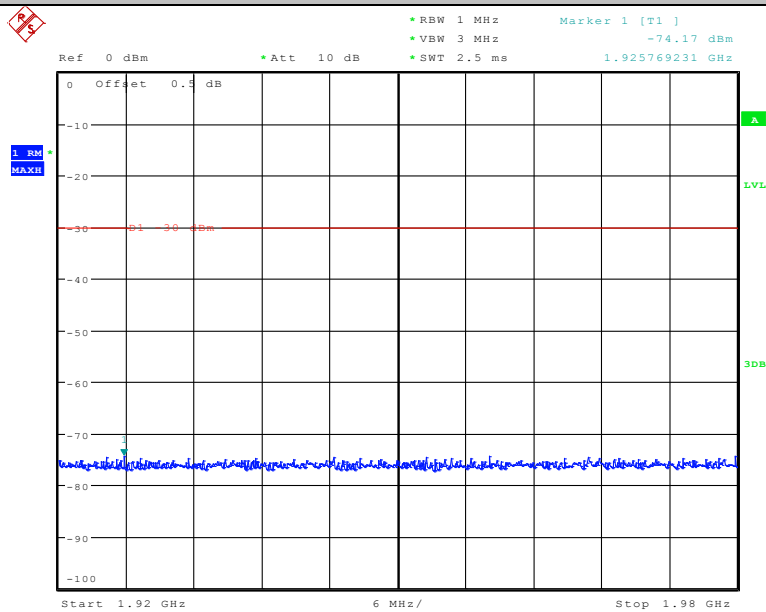
### 5.6.1. Test Specification

<b>Test Requirement:</b>	ETSI EN 301 908-1 clause 4.2.4
<b>Test Method:</b>	ETSI EN 301 908-2 clause 5.3.3
<b>Test Setup:</b>	 <pre> graph LR     EUT[EUT] --- DC[DC Power]     DC --- Combiner[Combiner]     CMW500[CMW500] --- Combiner     Combiner --- SA[SA]         </pre>
<b>Limit:</b>	The maximum measured power during the duration of the test shall not exceed -30dBm.
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. 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 <math>\mu</math>s of a CW signal being applied; - it shall record the maximum power measured.</li> <li>2. The UE shall be switched on for a period of approximately fifteen minutes, and then switched off.</li> <li>3. 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.</li> <li>4. The maximum power emitted from the UE throughout the duration of the test shall be recorded.</li> </ol>
<b>Test Instrument:</b>	Refer to Item 3.3
<b>Test Result:</b>	PASS

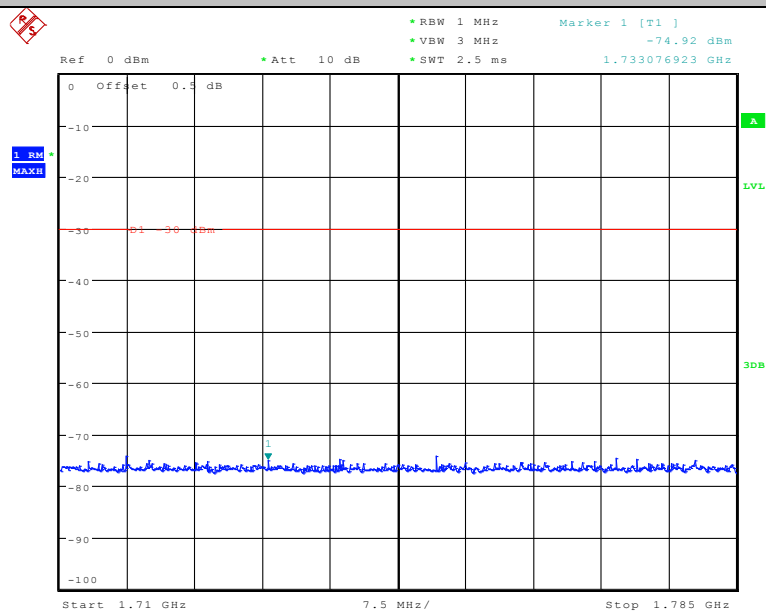


## 5.6.2. Test Data

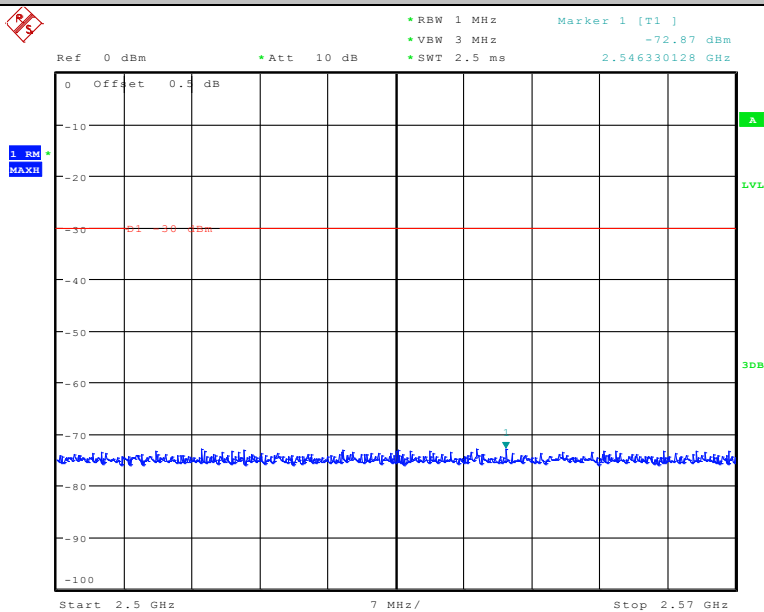
### Band 1



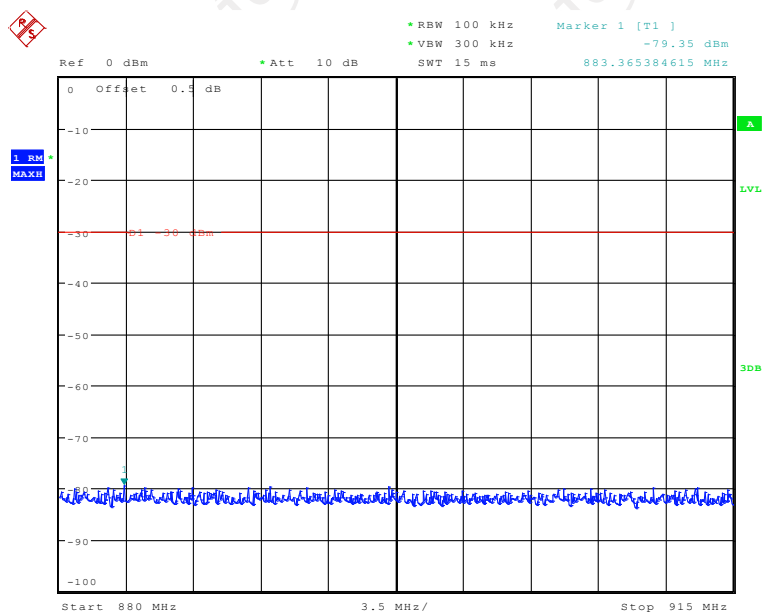
### Band 3



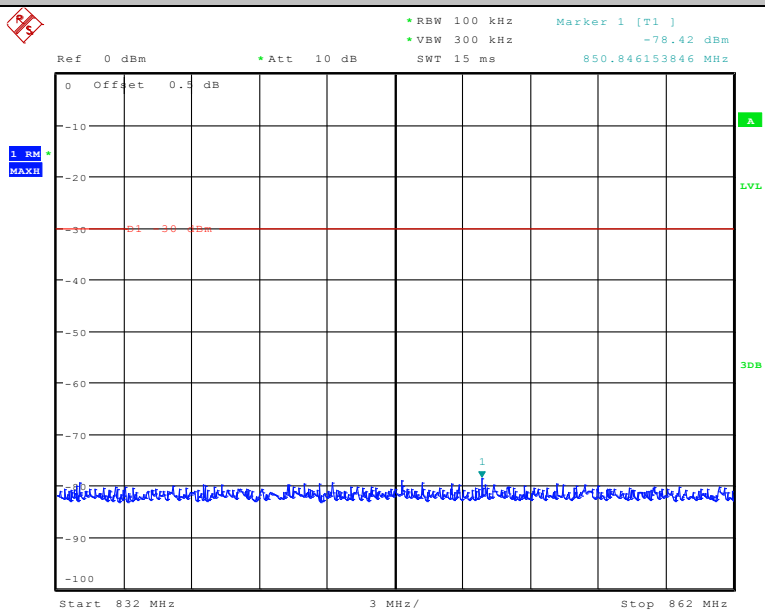
## Band 7



## Band 8

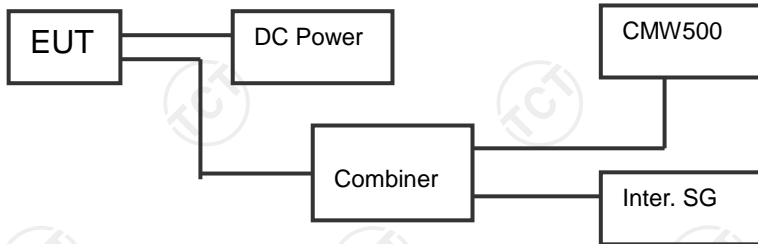


## Band 20



## 5.7. Receiver Adjacent Channel Selectivity (ACS)

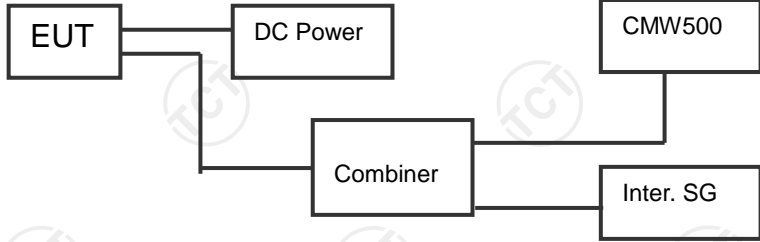
### 5.7.1. Test Specification

<b>Test Requirement:</b>	ETSI EN 301 908-13 clause 4.2.6
<b>Test Method:</b>	ETSI EN 301 908-13 clause 5.2.5
<b>Test Setup:</b>	 <pre> graph LR     EUT[EUT] --- DC_Power[DC Power]     DC_Power --- Combiner[Combiner]     CMW500[CMW500] --- Combiner     Combiner --- Inter_SG[Inter. SG]         </pre>
<b>Limit:</b>	The throughput $R_{av}$ shall be $\geq 95\%$
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. SS transmits PDSCH via PDCCH DCI format 1A for C_RNTI to transmit the DL RMC according to TS 136 521-1 [1], table 7.5.4.1-1. The SS sends downlink MAC padding bits on the DL RMC.</li> <li>2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C_RNTI to schedule the UL RMC according to TS 136 521-1 [1], table 7.5.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.</li> <li>3. Set the Downlink signal level to the value as defined in table 4.2.6.2-2 (Case 1). Send Uplink power control commands to the UE (less or equal to 1 dB step size should be used), to ensure that the UE output power is within +0, -3,4 dB of the target level in table 4.2.6.2-2 (Case 1) for carrier frequency <math>f \leq 3,0</math> GHz or within +0, -4,0 dB of the target level for carrier frequency <math>3,0</math> GHz <math>&lt; f \leq 4,2</math> GHz, for at least the duration of the Throughput measurement (obtain correct UE output power as specified in TS 136 521-1 [1]).</li> <li>4. Set the Interferer signal level to the value as defined in table 4.2.6.2-2 (Case 1) and frequency below the wanted signal, using a modulated interferer as defined in TS 136 521-1 [1], annex D.</li> <li>5. Measure the average throughput for a duration sufficient to achieve statistical significance according to clause G.2 of TS 136 521-1 [1].</li> <li>6. Set the Downlink signal level to the value as defined in table 4.2.6.2-3 (Case 2). Send Uplink power control commands to the UE (less or equal to 1 dB step size should be used), to ensure that the UE output power is within +0, -3,4 dB of the target level in table 4.2.6.2-3 (Case 2) for carrier frequency <math>f \leq 3,0</math> GHz or within +0, -4,0 dB of the target level for carrier frequency <math>3,0</math> GHz <math>&lt; f \leq 4,2</math> GHz.</li> </ol>

	<p>GHz, for at least the duration of the throughput measurement (obtain correct UE output power as specified in TS 136 521-1 [1]).</p> <ol style="list-style-type: none"> <li>Set the Interferer signal level to the value as defined in table 4.2.6.2-3 (Case 2) and frequency below the wanted signal, using a modulated interferer as defined in TS 136 521-1 [1], annex D.</li> <li>Measure the average throughput for a duration sufficient to achieve statistical significance according to TS 136 521-1 [1], annex G.</li> <li>Repeat for applicable channel bandwidths in both Case 1 and Case 2.</li> <li>Repeat for applicable test frequencies, channel bandwidths and operating band combinations.</li> </ol>
<b>Test Instrument:</b>	Refer to Item 3.3
<b>Test Result:</b>	PASS

## 5.8. Receiver Blocking Characteristics

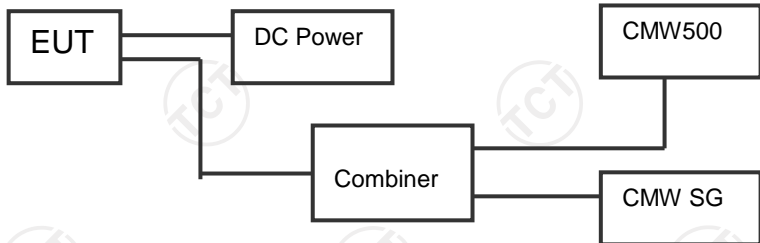
### 5.8.1. Test Specification

<b>Test Requirement:</b>	ETSI EN 301 908-13 clause 4.2.7
<b>Test Method:</b>	ETSI EN 301 908-13 clause 5.3.6
<b>Test Setup:</b>	 <pre> graph LR     EUT[EUT] --- DC_Power[DC Power]     DC_Power --- Combiner[Combiner]     CMW500[CMW500] --- Combiner     Combiner --- Inter_SG[Inter. SG]         </pre>
<b>Limit:</b>	The throughput $R_{av}$ shall be $\geq 95\%$
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. SS transmits PDSCH via PDCCH DCI format 1A for C_RNTI to transmit the DL RMC according to TS 136 521-1 [1], table 7.6.1.4.1-1. The SS sends downlink MAC padding bits on the DL RMC.</li> <li>2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C_RNTI to schedule the UL RMC according to TS 136 521-1 [1], table 7.6.1.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.</li> <li>3. Set the parameters of the signal generator for an interfering signal below the wanted signal in Case 1 according to tables 4.2.7.2-1 and 4.2.7.2-2 as specified in TS 136 521-1 [1].</li> <li>4. Set the downlink signal level according to the table 4.2.7.2-1. Send uplink power control commands to the UE (less or equal to 1 dB step size should be used), to ensure that the UE output power is within +0, -3,4 dB of the target level in table 4.2.7.2-1 for carrier frequency <math>f \leq 3,0</math> GHz or within +0, -4,0 dB of the target level for carrier frequency <math>3,0 \text{ GHz} &lt; f \leq 4,2 \text{ GHz}</math>, for at least the duration of the throughput measurement as specified in TS 136 521-1 [1].</li> <li>5. Measure the average throughput for a duration sufficient to achieve statistical significance according to clause G.2 of TS 136 521-1 [1].</li> <li>6. Repeat steps from 3 to 5, using an interfering signal above the wanted signal in Case 1 at step 3.</li> <li>7. Repeat steps from 3 to 6, using interfering signals in Case 2 at step 3) and 6). The ranges of case 2 are covered in steps equal to the interferer bandwidth. The test frequencies are chosen in analogy to TS 136 521-1 [1], table 7.6.1.4.2-1.</li> <li>8. Repeat for applicable test frequencies, channel bandwidths and operating band combinations.</li> </ol>

Test Instrument:	Refer to Item 3.3
Test Result:	PASS

## 5.9. Receiver Intermodulation Characteristics

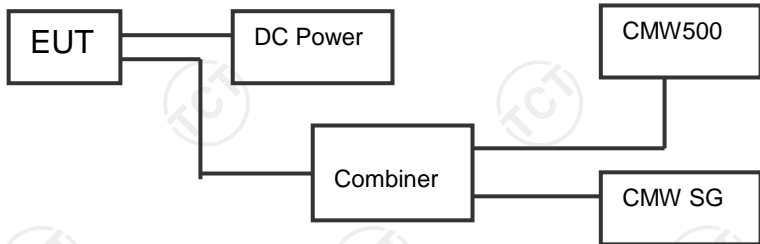
### 5.9.1. Test Specification

<b>Test Requirement:</b>	ETSI EN 301 908-13 clause 4.2.9
<b>Test Method:</b>	ETSI EN 301 908-13 clause 5.3.8
<b>Test Setup:</b>	 <pre> graph LR     EUT[EUT] --- DC_Power[DC Power]     DC_Power --- Combiner[Combiner]     Combiner --- CMW500[CMW500]     CMW500 --- CMW_SG[CMW SG]         </pre>
<b>Limit:</b>	The throughput $R_{av}$ shall be $\geq 95\%$
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. SS transmits PDSCH via PDCCH DCI format 1A for C_RNTI to transmit the DL RMC according to TS 136 521-1 [1], table 7.8.1.4.1-1. The SS sends downlink MAC padding bits on the DL RMC.</li> <li>2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C_RNTI to schedule the UL RMC according to TS 136 521-1 [1], table 7.8.1.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.</li> <li>3. Set the Downlink signal level to the value as defined in table 4.2.9.2-1. Send uplink power control commands to the UE (less or equal to 1 dB step size should be used), to ensure that the UE output power is within +0, -3,4 dB of the target level in table 4.2.9.2-1 for carrier frequency <math>f \leq 3,0</math> GHz or within +0, -4,0 dB of the target level for carrier frequency <math>3,0 \text{ GHz} &lt; f \leq 4,2 \text{ GHz}</math>, for at least the duration of the throughput measurement as specified in TS 136 521-1 [1].</li> <li>4. Set the Interfering signal levels to the values as defined in table 4.2.9.2-1, using a modulated interferer bandwidth as defined in annex D of TS 136 521-1 [1].</li> <li>5. Measure the average throughput for a duration sufficient to achieve statistical significance according to clause G.2 of TS 136 521-1 [1].</li> <li>6. Repeat for applicable test frequencies, channel bandwidths and operating band combinations.</li> </ol>
<b>Test Instrument:</b>	Refer to Item 3.3
<b>Test Result:</b>	PASS



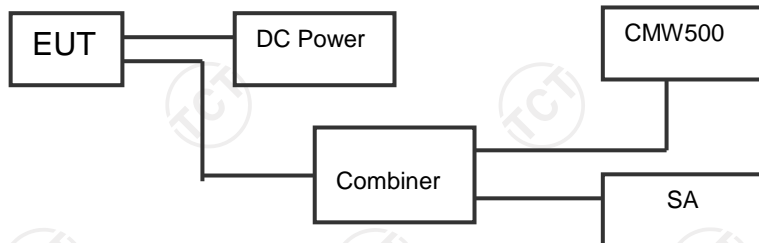
## 5.10. Receiver Spurious Response

### 5.10.1. Test Specification

<b>Test Requirement:</b>	ETSI EN 301 908-13 clause 4.2.8
<b>Test Method:</b>	ETSI EN 301 908-13 clause 5.3.7
<b>Test Setup:</b>	 <pre> graph LR     EUT[EUT] --- DC_Power[DC Power]     DC_Power --- Combiner[Combiner]     Combiner --- CMW500[CMW500]     CMW500 --- CMW_SG[CMW SG]         </pre>
<b>Limit:</b>	The throughput $R_{av}$ shall be $\geq 95\%$
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. SS transmits PDSCH via PDCCH DCI format 1A for C_RNTI to transmit the DL RMC according to TS 136 521-1 [1], table 7.6.2.4.1-1. The SS sends downlink MAC padding bits on the DL RMC.</li> <li>2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C_RNTI to schedule the UL RMC according to TS 136 521-1 [1], table 7.6.2.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.</li> <li>3. Set the parameters of the CW signal generator for an interfering signal according to table 4.2.8.2-2. The spurious frequencies are taken from step 5) records in clause 5.3.6.1.2.</li> <li>4. Set the downlink signal level according to the table 4.2.8.2-1. Send uplink power control commands to the UE (less or equal to 1 dB step size should be used), to ensure that the UE output power is within +0, -3,4 dB of the target level in table 4.2.8.2-1 for carrier frequency <math>f \leq 3,0</math> GHz or within +0, -4,0 dB of the target level for carrier frequency <math>3,0 \text{ GHz} &lt; f \leq 4,2 \text{ GHz}</math>, for at least the duration of the throughput measurement as specified in TS 136 521-1 [1].</li> <li>5. For the spurious frequency, measure the average throughput for a duration sufficient to achieve statistical significance.</li> </ol>
<b>Test Instrument:</b>	Refer to Item 3.3
<b>Test Result:</b>	PASS

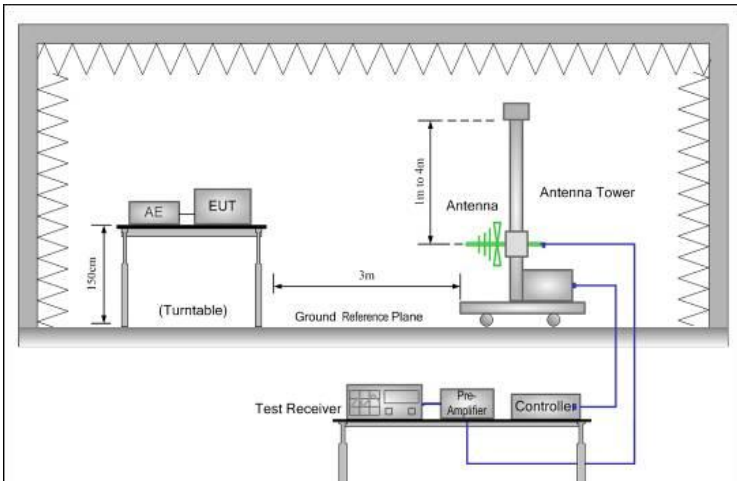
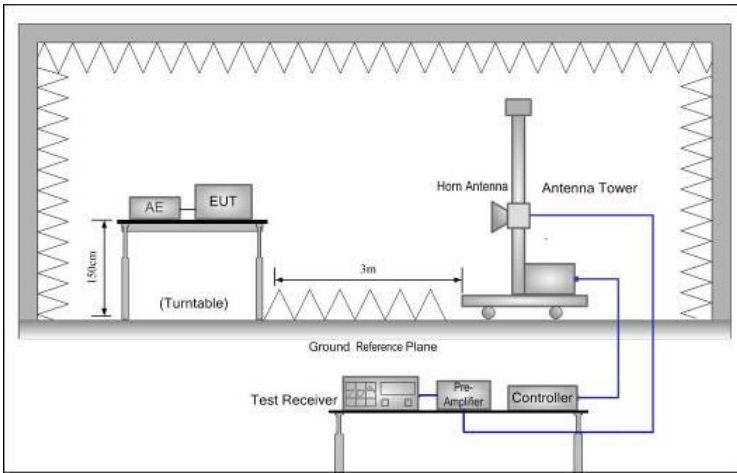
## 5.11. Receiver Spurious Emissions

### 5.11.1. Test Specification

Test Requirement:	ETSI EN 301 908-13 clause 4.2.10												
Test Method:	ETSI EN 301 908-13 clause 5.3.9												
Test Setup:	 <pre>graph LR; EUT --- DC_Power[DC Power]; EUT --- Combiner; DC_Power --- Combiner; Combiner --- CMW500; Combiner --- SA</pre>												
Limit:	<p>Table 4.2.10.2-1: General receiver spurious emission requirements</p> <table><tr><th>Frequency Band</th><th>Measurement bandwidth</th><th>Maximum level</th><th>Note</th></tr><tr><td>30 MHz ≤ f &lt; 1 GHz</td><td>100 kHz</td><td>-57 dBm</td><td></td></tr><tr><td>1 GHz ≤ f ≤ 12.75 GHz</td><td>1 MHz</td><td>-47 dBm</td><td></td></tr></table> <p>NOTE: Unused PDCCH resources are padded with resource element groups with power level given by PDCCH_RA/RB as defined in TS 136 101 [4] clause C.3.1.</p>	Frequency Band	Measurement bandwidth	Maximum level	Note	30 MHz ≤ f < 1 GHz	100 kHz	-57 dBm		1 GHz ≤ f ≤ 12.75 GHz	1 MHz	-47 dBm	
Frequency Band	Measurement bandwidth	Maximum level	Note										
30 MHz ≤ f < 1 GHz	100 kHz	-57 dBm											
1 GHz ≤ f ≤ 12.75 GHz	1 MHz	-47 dBm											
Test Procedure:	<ol style="list-style-type: none"><li>1. Sweep the spectrum analyzer (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.</li><li>2. Repeat step 1) for all E-UTRA Rx antennas of the UE.</li><li>3. Repeat for applicable test frequencies, channel bandwidths and operating band combinations.</li></ol>												
Test Instrument:	Refer to Item 3.3												
Remark:	Nothing emissions have been detected in the frequency range 9kHz to 30MHz, only show the worst test plots in this report, and the worst channel is middle range.												
Test Result:	PASS												

## 5.12. Radiated Emissions

### 5.12.1. Test Specification

Test Requirement:	ETSI EN 301 908-1 clause 4.2.2																																				
Test Method:	ETSI EN 301 908-1 clause 5.3.1																																				
Test Setup:	<p>Below 1GHz</p> 																																				
	<p>Above 1GHz</p> 																																				
Limit:	<p>Table 4.2.2.2-1: Radiated spurious emissions requirements (UE)</p> <table><tr><th>Frequency</th><th>Minimum requirement (e.r.p.)/ reference bandwidth idle mode</th><th>Minimum requirement (e.r.p.)/ reference bandwidth traffic mode</th><th>Applicability</th></tr><tr><td>30 MHz ≤ f &lt; 1 000 MHz</td><td>-57 dBm/100 kHz</td><td>-36 dBm/100 kHz</td><td>All</td></tr><tr><td>1 GHz ≤ f &lt; 12,75 GHz</td><td>-47 dBm/1 MHz</td><td>-30 dBm/1 MHz</td><td>All</td></tr><tr><td><math>f_c - 2,5 \times 5 \text{ MHz} &lt; f &lt; f_c + 2,5 \times 5 \text{ MHz}</math></td><td></td><td>Not defined</td><td>UTRA FDD, UTRA TDD, 3,84 Mcps option, cdma2000, spreading rate 3</td></tr><tr><td><math>f_c - 2,5 \times BW_{\text{Channel}} \text{ MHz} &lt; f &lt; f_c + 2,5 \times BW_{\text{Channel}} \text{ MHz}</math></td><td></td><td>Not defined</td><td>E-UTRA FDD, E-UTRA TDD, Mobile WiMAX, UMB</td></tr><tr><td><math>f_c - 2,5 \times 10 \text{ MHz} &lt; f &lt; f_c + 2,5 \times 10 \text{ MHz}</math></td><td></td><td>Not defined</td><td>UTRA TDD, 7,68 Mcps option</td></tr><tr><td><math>f_c - 4 \text{ MHz} &lt; f &lt; f_c + 4 \text{ MHz}</math></td><td></td><td>Not defined</td><td>UTRA TDD, 1,28 Mcps option cdma2000, spreading rate 1</td></tr><tr><td><math>f_c - 500 \text{ kHz} &lt; f &lt; f_c + 500 \text{ kHz}</math></td><td></td><td>Not defined</td><td>UWC 136, 200 kHz option</td></tr><tr><td><math>f_c - 250 \text{ kHz} &lt; f &lt; f_c + 250 \text{ kHz}</math></td><td></td><td>Not defined</td><td>UWC 136, 30 kHz option</td></tr></table> <p>NOTE: <math>f_c</math> is the UE transmit centre frequency.</p>	Frequency	Minimum requirement (e.r.p.)/ reference bandwidth idle mode	Minimum requirement (e.r.p.)/ reference bandwidth traffic mode	Applicability	30 MHz ≤ f < 1 000 MHz	-57 dBm/100 kHz	-36 dBm/100 kHz	All	1 GHz ≤ f < 12,75 GHz	-47 dBm/1 MHz	-30 dBm/1 MHz	All	$f_c - 2,5 \times 5 \text{ MHz} < f < f_c + 2,5 \times 5 \text{ MHz}$		Not defined	UTRA FDD, UTRA TDD, 3,84 Mcps option, cdma2000, spreading rate 3	$f_c - 2,5 \times BW_{\text{Channel}} \text{ MHz} < f < f_c + 2,5 \times BW_{\text{Channel}} \text{ MHz}$		Not defined	E-UTRA FDD, E-UTRA TDD, Mobile WiMAX, UMB	$f_c - 2,5 \times 10 \text{ MHz} < f < f_c + 2,5 \times 10 \text{ MHz}$		Not defined	UTRA TDD, 7,68 Mcps option	$f_c - 4 \text{ MHz} < f < f_c + 4 \text{ MHz}$		Not defined	UTRA TDD, 1,28 Mcps option cdma2000, spreading rate 1	$f_c - 500 \text{ kHz} < f < f_c + 500 \text{ kHz}$		Not defined	UWC 136, 200 kHz option	$f_c - 250 \text{ kHz} < f < f_c + 250 \text{ kHz}$		Not defined	UWC 136, 30 kHz option
Frequency	Minimum requirement (e.r.p.)/ reference bandwidth idle mode	Minimum requirement (e.r.p.)/ reference bandwidth traffic mode	Applicability																																		
30 MHz ≤ f < 1 000 MHz	-57 dBm/100 kHz	-36 dBm/100 kHz	All																																		
1 GHz ≤ f < 12,75 GHz	-47 dBm/1 MHz	-30 dBm/1 MHz	All																																		
$f_c - 2,5 \times 5 \text{ MHz} < f < f_c + 2,5 \times 5 \text{ MHz}$		Not defined	UTRA FDD, UTRA TDD, 3,84 Mcps option, cdma2000, spreading rate 3																																		
$f_c - 2,5 \times BW_{\text{Channel}} \text{ MHz} < f < f_c + 2,5 \times BW_{\text{Channel}} \text{ MHz}$		Not defined	E-UTRA FDD, E-UTRA TDD, Mobile WiMAX, UMB																																		
$f_c - 2,5 \times 10 \text{ MHz} < f < f_c + 2,5 \times 10 \text{ MHz}$		Not defined	UTRA TDD, 7,68 Mcps option																																		
$f_c - 4 \text{ MHz} < f < f_c + 4 \text{ MHz}$		Not defined	UTRA TDD, 1,28 Mcps option cdma2000, spreading rate 1																																		
$f_c - 500 \text{ kHz} < f < f_c + 500 \text{ kHz}$		Not defined	UWC 136, 200 kHz option																																		
$f_c - 250 \text{ kHz} < f < f_c + 250 \text{ kHz}$		Not defined	UWC 136, 30 kHz option																																		
	<p>Substitution method was performed to determine the actual ERP emission levels of the EUT.</p> <p>The following test procedure as below:</p>																																				

**Test Procedure:**

## 1&gt;.Below 1GHz test procedure:

1. On the test site as test setup graph above, the EUT shall be placed at the 1.5m support on the turntable and in the position closest to normal use as declared by the provider.
2. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter. The output of the test antenna shall be connected to the measuring receiver.
3. The transmitter shall be switched on, if possible, without modulation and the measuring receiver shall be tuned to the frequency of the transmitter under test.
4. The test antenna shall be raised and lowered from 1m to 4m until a maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
5. Repeat step 4 for test frequency with the test antenna polarized horizontally.
6. Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At the lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.
7. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.
8. Repeat step 7 with both antennas horizontally polarized for each test frequency.
9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps 7 and 8 by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:  
$$\text{ERP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dB)}$$
where:  
Pg is the generator output power into the

	<p>Substitution antenna.</p> <p>2&gt;.Above 1GHz test procedure: Different between above is the test site, change from Semi-Anechoic Chamber to fully Anechoic Chamber, and the test antenna do not need to raise from 1 to 4m, just test in 1.5m height.</p>
Test Instrument:	Refer to Item 3.3
Test Result:	PASS

## 5.12.2. Test Data

EUTRA Band 1, Middle Channel- traffic mode				
Frequency (MHz)	Spurious Emission		Limit dBm(EIRP)	Result
	Polarization	Level dBm(EIRP)		
364.31	Vertical	-51.31	Blew 1G: -36 Above 1G: -30	Pass
1910	V	-42.44		
3950	V	-44.93		
364.31	Horizontal	-48.54		
1910	H	-41.07		
3950	H	-46.38		
EUTRA Band 1, Middle Channel - idle mode				
Frequency (MHz)	Spurious Emission		Limit dBm(EIRP)	Result
	Polarization	Level dBm(EIRP)		
364.31	Vertical	-72.79	Below 1G: -57 Above 1G: -47	Pass
1910	V	-77.07		
3950	V	-64.86		
364.31	Horizontal	-73.51		
1910	H	-76.47		
3950	H	-66.58		

**Note:** The test frequency range is 30MHz to 12,75GHz, the reading of other frequencies emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

EUTRA Band 3, Middle Channel- traffic mode				
Frequency (MHz)	Spurious Emission		Limit dBm(EIRP)	Result
	Polarization	Level dBm(EIRP)		
252.06	Vertical	-49.06	Below 1G: -36 Above 1G: -30	PASS
3495	V	-41.36		
5242.5	V	-44.33		
252.06	Horizontal	-43.75		
3495	H	-39.62		
5242.5	H	-43.27		
EUTRA Band 3, Middle Channel- idle mode				
Frequency (MHz)	Spurious Emission		Limit dBm(EIRP)	Result
	Polarization	Level dBm(EIRP)		
252.06	Vertical	-73.33	Below 1G: -57 Above 1G: -47	PASS
3495	V	-76.01		
5242.5	V	-64.62		
252.06	Horizontal	-73.91		
3495	H	-75.54		
5242.5	H	-65.76		

**Note:** The test frequency range is 30MHz to 12,75GHz, the reading of other frequencies emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

EUTRA Band 7, Middle Channel- traffic mode				
Frequency (MHz)	Spurious Emission		Limit dBm(EIRP)	Result
	Polarization	Level dBm(EIRP)		
252.06	Vertical	-49.46	Below 1G: -36 Above 1G: -30	PASS
1795	V	-40.84		
2692.5	V	-46.86		
252.06	Horizontal	-47.63		
1795	H	-45.14		
2692.5	H	-45.41		
EUTRA Band 7, Middle Channel- idle mode				
Frequency (MHz)	Spurious Emission		Limit dBm(EIRP)	Result
	Polarization	Level dBm(EIRP)		
252.06	Vertical	-76.59	Below 1G: -57 Above 1G: -47	PASS
1795	V	-77.41		
2692.5	V	-65.83		
252.06	Horizontal	-78.00		
1795	H	-73.96		
2692.5	H	-67.67		

**Note:** The test frequency range is 30MHz to 12,75GHz, the reading of other frequencies emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.



EUTRA Band 8, Middle Channel- traffic mode				
Frequency (MHz)	Spurious Emission		Limit dBm(EIRP)	Result
	Polarization	Level dBm(EIRP)		
343.16	Vertical	-49.79	Below 1G: -36 Above 1G: -30	PASS
1180	V	-42.61		
2140	V	-45.97		
343.16	Horizontal	-48.47		
1180	H	-44.48		
2140	H	-46.63		
EUTRA Band 8, Middle Channel- idle mode				
Frequency (MHz)	Spurious Emission		Limit dBm(EIRP)	Result
	Polarization	Level dBm(EIRP)		
343.16	Vertical	-74.87	Below 1G: -57 Above 1G: -47	PASS
1180	V	-76.30		
2140	V	-66.67		
343.16	Horizontal	-79.27		
1180	H	-77.71		
2140	H	-65.94		

**Note:** The test frequency range is 30MHz to 12,75GHz, the reading of other frequencies emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

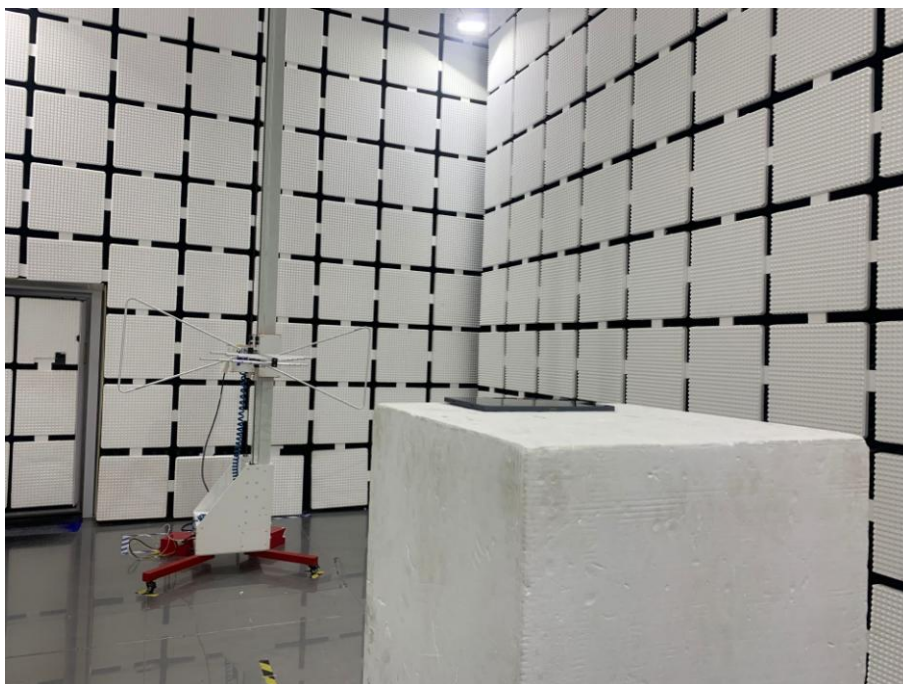


EUTRA Band 20, Middle Channel- traffic mode				
Frequency (MHz)	Spurious Emission		Limit dBm(EIRP)	Result
	Polarization	Level dBm(EIRP)		
252.06	Vertical	-48.68	Below 1G: -36 Above 1G: -30	PASS
3495	V	-40.50		
5242.5	V	-44.12		
252.06	Horizontal	-45.87		
3495	H	-41.01		
5242.5	H	-46.13		
EUTRA Band 20, Middle Channel- idle mode				
Frequency (MHz)	Spurious Emission		Limit dBm(EIRP)	Result
	Polarization	Level dBm(EIRP)		
252.06	Vertical	-76.16	Below 1G: -57 Above 1G: -47	PASS
3495	V	-77.39		
5242.5	V	-67.47		
252.06	Horizontal	-77.15		
3495	H	-78.02		
5242.5	H	-65.69		

**Note:** The test frequency range is 30MHz to 12,75GHz, the reading of other frequencies emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

## 6. Photographs of Test Configuration

### Radiated Emission



## 7. Photographs of EUT

Refer to the test report No. TCT220422E064

## 8. Test Data for LTE Band 1, LTE Band 3, LTE Band 7, LTE Band 8 and LTE Band 20

Refer to Appendix LTE Band 1, LTE Band 3, LTE Band 7, LTE Band 8 and LTE Band 20

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