

TEST REPORT

FCC ID: 2ARTB-ZLTS500

Product: CDMA Fixed wireless telephone

Model No.: ZLT S500

Additional Model No.: N/A

Trade Mark: zhilingtong

Report No.: TCT181012E006

Issued Date: Nov. 21, 2018

Issued for:

**Shenzhen Tozed Technologies Co., Ltd
4F Tianji Building, Tian An Cyber Park, Futian District, Shenzhen,
Guangdong 518040, China**

Issued By:

**Shenzhen Tongce Testing Lab.
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Appendix A: Photographs of Test Setup**Appendix B: Photographs of EUT**

1. Test Certification

Product:	CDMA Fixed wireless telephone
Model No.:	ZLT S500
Additional Model:	N/A
Trade Mark:	zhilingtong
Applicant:	Shenzhen Tozed Technologies Co., Ltd
Address:	4F Tianji Building, Tian An Cyber Park, Futian District, Shenzhen, Guangdong 518040, China
Manufacturer:	Shenzhen Tozed Technologies Co., Ltd
Address:	4F Tianji Building, Tian An Cyber Park, Futian District, Shenzhen, Guangdong 518040, China
Date of Test:	Oct. 15, 2018 - Nov. 20, 2018
Applicable Standards:	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part22

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:

Brews Xu

Date:

Nov. 20, 2018

Brews Xu

Reviewed By:

Beryl Zhao

Date:

Nov. 21, 2018

Approved By:

Tomsin

Date:

Nov. 21, 2018

Tomsin



2. Test Result Summary

Requirement	CFR 47 Section	Result
Conducted Output Power	§22.913; §2.1046	PASS
Peak-to-Average Ratio	§2.1046;	PASS
Effective Radiated Power	§2.1046; §22.913(a)	PASS
Equivalent Isotropic Radiated Power	§2.1046; §22.913(a)	PASS
Occupied Bandwidth	§2.1049	PASS
Band Edge	§2.1051 §22.917(a)	PASS
Conducted Spurious Emission	§2.1051; §22.917	PASS
Field Strength of Spurious Radiation	§2.1053; §22.917(a)	PASS
Frequency Stability for Temperature & Voltage	§2.1055; §22.355	PASS

Note:

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

3. EUT Description

Product:	CDMA Fixed wireless telephone
Model No.:	ZLT S500
Additional Model:	N/A
Trade Mark:	zhilingtong
Hardware Version:	REV:1.0 KHM
Software Version:	V1.2.11
Tx Frequency:	CDMA BC0: 824.70 MHz ~ 848.31 MHz
Rx Frequency:	CDMA BC0: 869.70 MHz ~ 893.31 MHz
Maximum Output Power to Antenna:	CDMA BC0: 23.61dBm
99% Occupied Bandwidth:	CDMA: 1M27F9W
Type of Modulation:	QPSK
Antenna Type:	Integral Antenna
Antenna Gain:	2.5dBi
Power Supply:	Rechargeable Li-ion Battery DC 3.7V

4. General Information

4.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Operation mode:	Keep the EUT in communication with CMU200 and select channel with modulation
Remark: This product has a built-in rechargeable battery, so in an independent test, the EUT battery was fully-charged.	
The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.	

Description Operation Frequency

CDMA BC0	
Channel:	Frequency (MHz)
1013	824.70
1014	824.73
....
383	836.49
384	836.52
385	836.55
...	...
776	848.28
777	848.31

4.2. Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems D01v03 with maximum output power. Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

30 MHz to 10000 MHz for CDMA

All modes and data rates and positions were investigated.

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

Test Mode		
Band	Radiated TCs	Conducted TCs
CDMA BC0	1xRTT Link	1xRTT Link

4.3. Description of Support Units

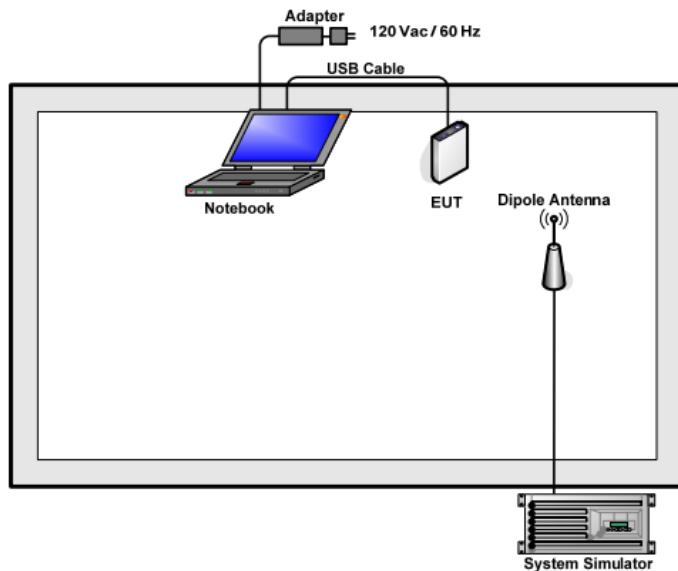
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

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.

4.4. Configuration of Tested System



4.5. Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level. The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 3 dB and a 5dB attenuator.

Example: $\text{Offset (dB)} = \text{RF cable loss (dB)} + \text{attenuator factor (dB)}$.
= 8(dB)

5. Facilities and Accreditations

5.1. Facilities

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

- FCC - Registration No.: 645098

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber 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

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

Shenzhen Tongce Testing Lab

Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

5.3. Measurement Uncertainty

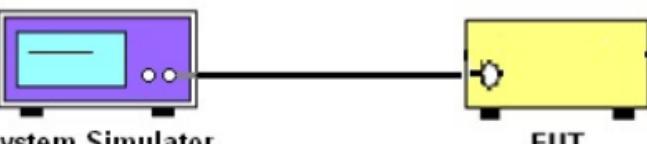
The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.12\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.92\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^\circ\text{C}$
7	Humidity	$\pm 1.0\%$

6. Test Results and Measurement Data

6.1. Conducted Output Power Measurement

6.1.1. Test Specification

Test Requirement:	FCC part 22.913(a)
Test Method:	FCC part 2.1046
Operation mode:	Refer to item 4.1
Limits:	CDMA BC0: 7W
Test Setup:	
Test Procedure:	<ol style="list-style-type: none">1. The transmitter output port was connected to the system simulator.2. Set EUT at maximum power through system simulator.3. Select lowest, middle, and highest channels for each band and different modulation.4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.
Test Result:	PASS

6.1.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 20, 2019
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 20, 2019
Antenna Connector	TCT	RFC-02	N/A	Sep. 20, 2019

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.1.3. Test data

Conducted Power Measurement Results:

Average Conducted Power (*Unit: dBm)			
Band	CDMA BC0		
Channel	1013	384	777
Frequency(MHz)	824.70	836.52	848.31
RC1 SO55	23.47	23.60	23.50
RC3 SO55	23.44	23.61	23.48
RC3 SO32(F+SCH)	23.39	23.58	23.45
RC3 SO32(+SCH)	23.38	23.57	23.41

6.2. Peak to Average Ratio

6.2.1. Test Specification

Test Requirement:	FCC part 22.913;
Test Method:	FCC KDB 971168 D01v03 Section 5.7.1
Operation mode:	Refer to item 4.1
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup:	<p>The diagram illustrates the test setup. A 'System Simulator' (represented by a purple box with a blue line and three dots) and a 'Spectrum Analyzer' (represented by a green box with a blue line and three dots) are connected to a 'Power Divider' (represented by a black rectangle). The 'Power Divider' then connects to the 'EUT' (represented by a yellow box with a blue line and three dots).</p>
Test Procedure:	<ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 D01v03 Section 5.7.1. 2. The EUT was connected to spectrum analyzer and system simulator via a power divider. 3. Set EUT to transmit at maximum output power. 4. For GSM/EGPRS operating modes, signal gating is implemented on the spectrum analyzer by triggering from the system simulator. 5. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer. <p>Record the maximum PAPR level associated with a probability of 0.1%.</p>
Test Result:	PASS

6.2.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 20, 2019
Spectrum Analyzer	R&S	FSU	200054	Sep. 20, 2019
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 20, 2019
Antenna Connector	TCT	RFC-02	N/A	Sep. 20, 2019

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

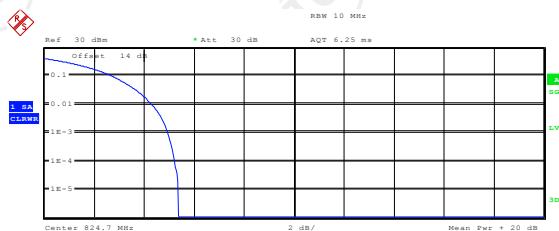
6.2.3. Test Data

Cellular Band			
Mode	CDMA BC0		
Channel	1013	384	777
Frequency (MHz)	824.70	836.52	848.31
Peak-to-Average Ratio (dB)	4.94	5.32	4.84

Test plots as follows:

CDMA BC0

Peak-to-Average Ratio on Channel 1013



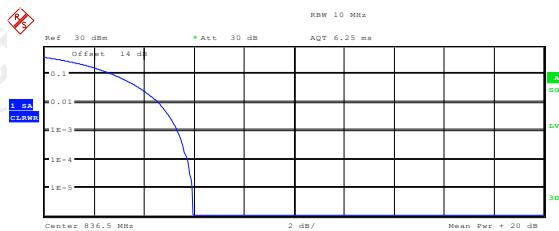
Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

Trace 1
Mean 22.58 dBm
Peak 27.96 dBm
Crest 5.38 dB

10 % 2.69 dB
1 % 4.29 dB
.1 % 4.94 dB
.01 % 5.22 dB

Date: 13.NOV.2018 10:54:01

Peak-to-Average Ratio on Channel 384



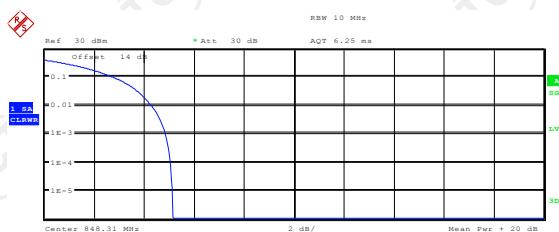
Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

Trace 1
Mean 22.60 dBm
Peak 28.55 dBm
Crest 5.95 dB

10 % 2.72 dB
1 % 4.55 dB
.1 % 5.32 dB
.01 % 5.74 dB

Date: 13.NOV.2018 10:59:38

Peak-to-Average Ratio on Channel 777



Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

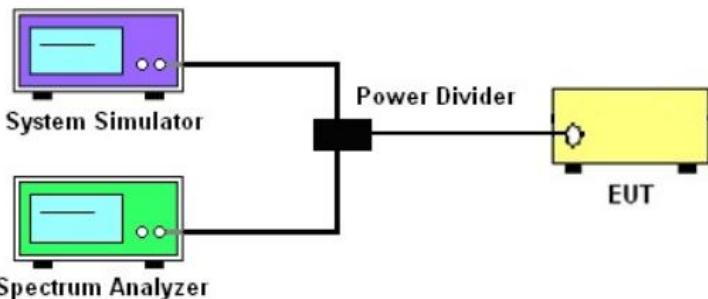
Trace 1
Mean 22.63 dBm
Peak 27.78 dBm
Crest 5.15 dB

10 % 2.76 dB
1 % 4.26 dB
.1 % 4.84 dB
.01 % 5.06 dB

Date: 13.NOV.2018 11:01:13

6.3. 99% Occupied Bandwidth and 26dB Bandwidth Measurement

6.3.1. Test Specification

Test Requirement:	FCC part 2.1049
Test Method:	FCC part 2.1049
Operation mode:	Refer to item 4.1
Limit:	N/A
Test Setup:	
Test Procedure:	<ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 D01v03 Section 4.2. 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider. 3. The RF output of the EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. 4. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3*RBW, sample detector, trace maximum hold. 5. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3*RBW, peak detector, trace maximum hold.
Test Result:	PASS

6.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 20, 2019
Spectrum Analyzer	R&S	FSU	200054	Sep. 20, 2019
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 20, 2019
Antenna Connector	TCT	RFC-02	N/A	Sep. 20, 2019

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.3.3. Test data

Cellular Band			
Mode	CDMA BC0		
Channel	1013	384	777
Frequency (MHz)	824.70	836.52	848.31
99% OBW (kHz)	1269.0	1269.0	1269.0
26dB BW (kHz)	1423.1	1418.3	1423.1

Test plots as follows:

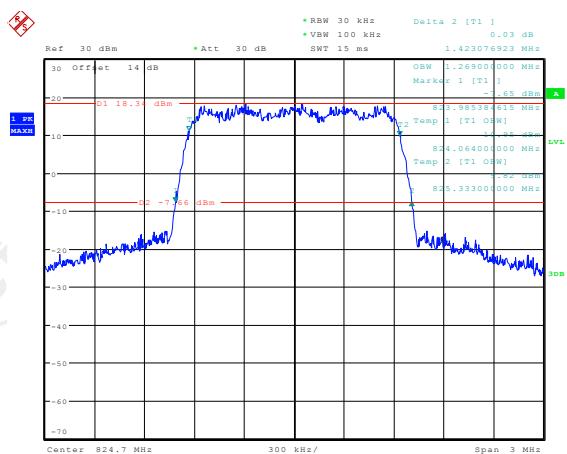
Band:

CDMA BC0

Test Mode:

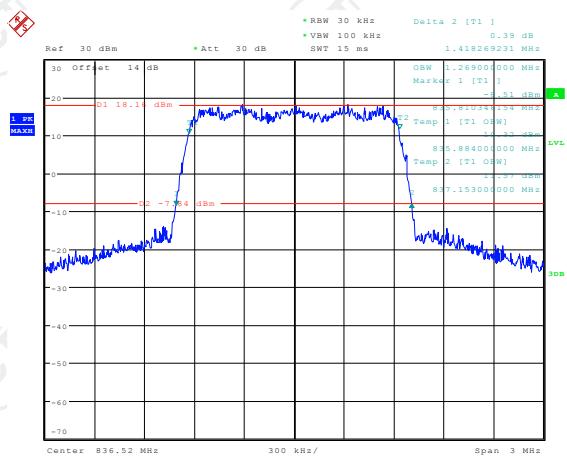
1xRTT Link

26dB&99% Occupied Bandwidth Plot on Channel 1013



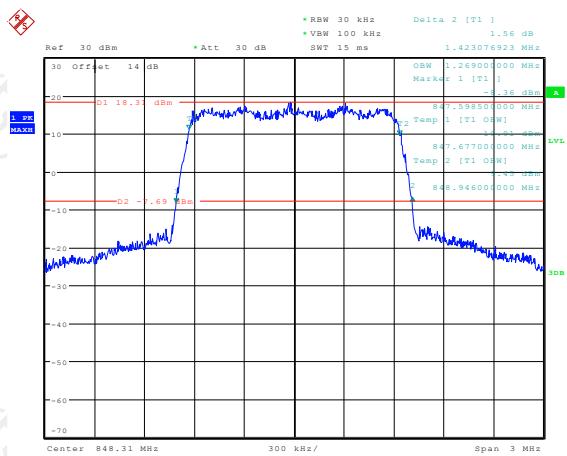
Date: 13.NOV.2018 11:14:04

26dB&99% Occupied Bandwidth Plot on Channel 384



Date: 13.NOV.2018 11:16:32

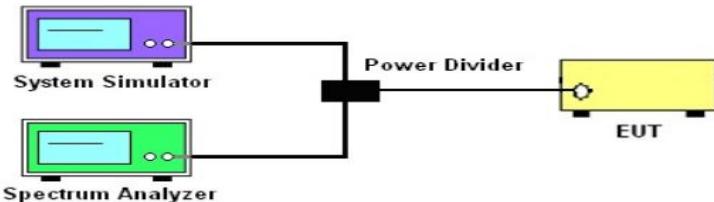
26dB&99% Occupied Bandwidth Plot on Channel 777



Date: 13.NOV.2018 11:47:18

6.4. Band Edge and Conducted Spurious Emission Measurement

6.4.1. Test Specification

Test Requirement:	FCC part22.917(a)
Test Method:	FCC part2.1051
Operation mode:	Refer to item 4.1
Limit:	-13dBm
Test Setup:	
Test Procedure:	<ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 D01v03 Section 6.0. 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider. 3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement. 4. The band edges of low and high channels for the highest RF powers were measured. 5. The conducted spurious emission for the whole frequency range was taken. 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band. 7. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power $P(\text{Watts}) = P(W) - [43 + 10\log(P)] \text{ (dB)} = [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)} = -13\text{dBm}.$
Test Result:	PASS

6.4.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 20, 2019
Spectrum Analyzer	R&S	FSU	200054	Sep. 20, 2019
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 20, 2019
Antenna Connector	TCT	RFC-02	N/A	Sep. 20, 2019

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.4.3. Test data

Test plots as follows:

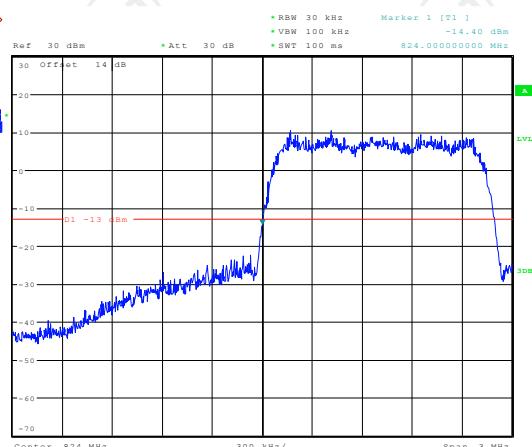
Band:

CDMA BC0

Test Mode:

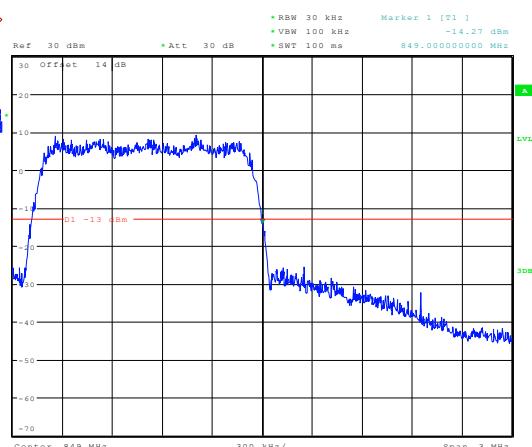
1xRTT Link

Lower Band Edge Plot on Channel 1013



Date: 20.NOV.2018 10:58:02

Higher Band Edge Plot on Channel 777



Date: 20.NOV.2018 10:59:15

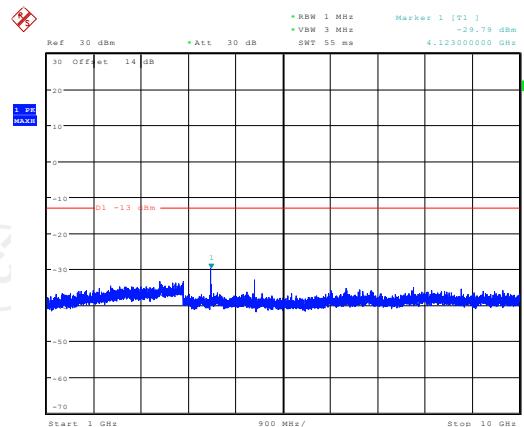
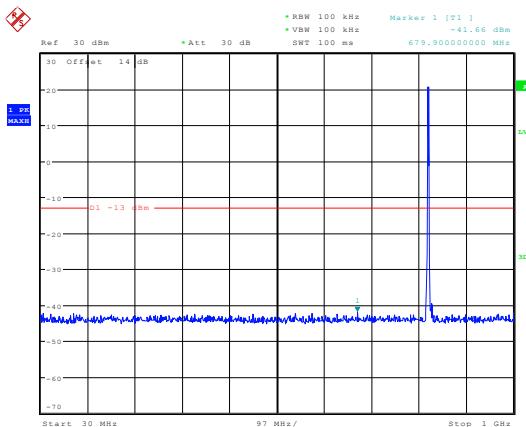
Band:

CDMA BC0

Test Mode:

1xRTT Link

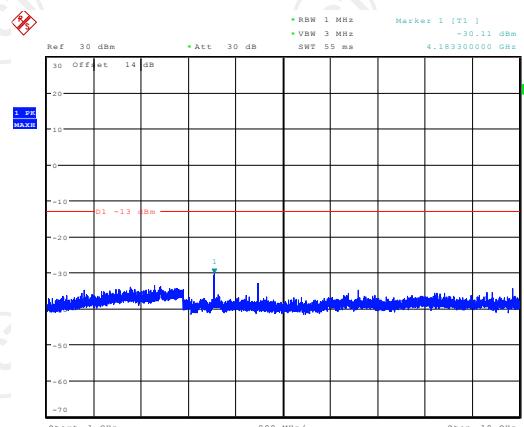
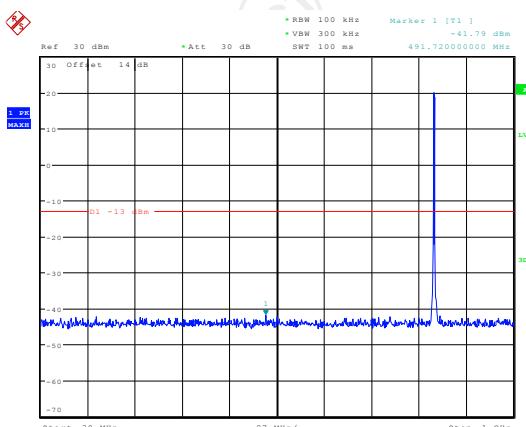
Conducted Spurious Emission on Channel 1013



Date: 13.NOV.2018 11:54:54

Date: 13.NOV.2018 11:55:41

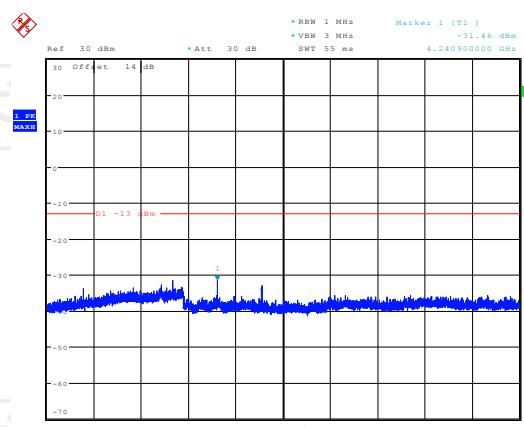
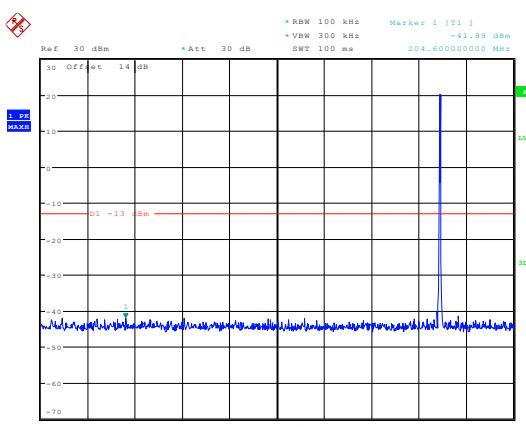
Conducted Spurious Emission on Channel 384



Date: 13.NOV.2018 11:56:29

Date: 13.NOV.2018 11:56:20

Conducted Spurious Emission on Channel 777

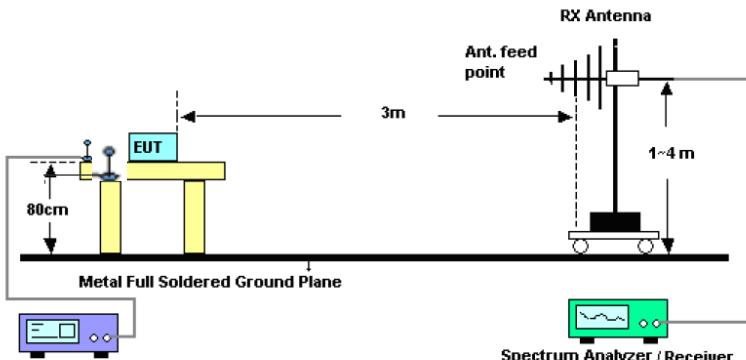
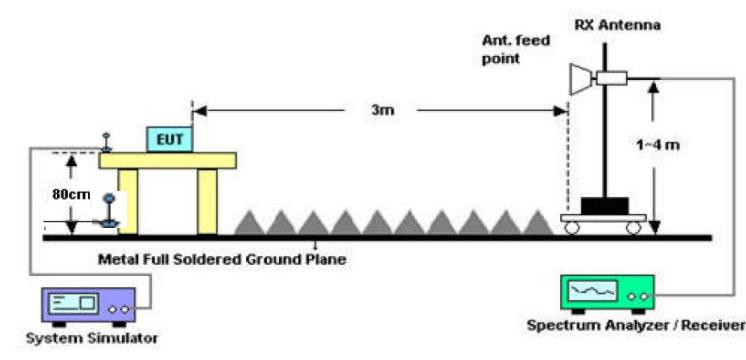


Date: 13.NOV.2018 11:58:02

Date: 13.NOV.2018 11:57:32

6.5. Effective Radiated Power and Effective Isotropic Radiated Power Measurement

6.5.1. Test Specification

Test Requirement:	FCC part 22.913(a)																								
Test Method:	FCC part 2.1046																								
Receiver Setup:	<table border="1"> <thead> <tr> <th></th><th>GSM/GPRS/EDGE</th><th>WCDMA/HSPA</th></tr> </thead> <tbody> <tr> <td>SPAN</td><td>500kHz</td><td>10MHz</td></tr> <tr> <td>RBW</td><td>10kHz</td><td>100kHz</td></tr> <tr> <td>VBW</td><td>30kHz</td><td>300kHz</td></tr> <tr> <td>Detector</td><td>RMS</td><td>RMS</td></tr> <tr> <td>Trace</td><td>Average</td><td>Average</td></tr> <tr> <td>Average Type</td><td>Power</td><td>Power</td></tr> <tr> <td>Sweep Count</td><td>100</td><td>100</td></tr> </tbody> </table>		GSM/GPRS/EDGE	WCDMA/HSPA	SPAN	500kHz	10MHz	RBW	10kHz	100kHz	VBW	30kHz	300kHz	Detector	RMS	RMS	Trace	Average	Average	Average Type	Power	Power	Sweep Count	100	100
	GSM/GPRS/EDGE	WCDMA/HSPA																							
SPAN	500kHz	10MHz																							
RBW	10kHz	100kHz																							
VBW	30kHz	300kHz																							
Detector	RMS	RMS																							
Trace	Average	Average																							
Average Type	Power	Power																							
Sweep Count	100	100																							
Limit:	CDMA BC0: 7W ERP																								
Test Setup:	<p>From 30MHz to 1GHz</p>  <p>Above 1GHz</p> 																								
Test Procedure:	<ol style="list-style-type: none"> The testing follows FCC KDB 971168 D01v03 Section 5.8. and ANSI / TIA-603-D-2010 Section 2.2.17. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic 																								

	<p>chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01v03.</p> <ol style="list-style-type: none"> 3. Key the transmitter, then rotate the EUT 360° azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading at each angular increment. 4. Replace the transmitter under test with a substitution antenna. The center of the antenna should be at the same location as the center of the antenna under test. 5. Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading. <p>LOSS = Generator Output Power (dBm) - Analyzer reading (dBm)</p> <ol style="list-style-type: none"> 6. Determine the effective radiated output power at each angular position from the readings in steps 3) and 5) using the following equation: $\text{ERP (dBm)} = \text{LVL (dBm)} + \text{LOSS (dB)}$ <ol style="list-style-type: none"> 7. The maximum ERP is the maximum value determined in the preceding step. 8. Calculating ERP: $\text{ERP (dBm)} = \text{Output Power (dBm)} - \text{Losses (dB)} + \text{Antenna Gain (dBd)}$ $\text{Antenna Gain (dBd)} = \text{Antenna Gain (dBi)} - 2.15$ $\text{EIRP} = \text{ERP} - 2.15$
Test results:	PASS

6.5.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 20, 2019
Spectrum Analyzer	ROHDE&SCHW ARZ	R&S	FSQ40	Sep. 20, 2019
Signal Generator	Agilent	83623B	3614A00396	Sep. 16, 2019
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 02, 2019
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Oct. 20, 2019
Broadband Antenna	Schwarzbeck	VULB9163	412	Sep. 02, 2019
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Oct. 20, 2019
Dipole Antenna	TCT	TCT-RF	N/A	Sep. 20, 2019
Coax cable (9kHz-1GHz)	TCT	RE-low-01	N/A	Sep. 16, 2019
Coax cable (9kHz-40GHz)	TCT	RE-high-02	N/A	Sep. 16, 2019
Coax cable (9kHz-1GHz)	TCT	RE-low-03	N/A	Sep. 16, 2019
Coax cable (9kHz-40GHz)	TCT	RE-High-04	N/A	Sep. 16, 2019
Antenna Mast	Keleto	RE-AM	N/A	N/A
EMI Test Software	Shurples Technology	EZ-EMC	N/A	N/A

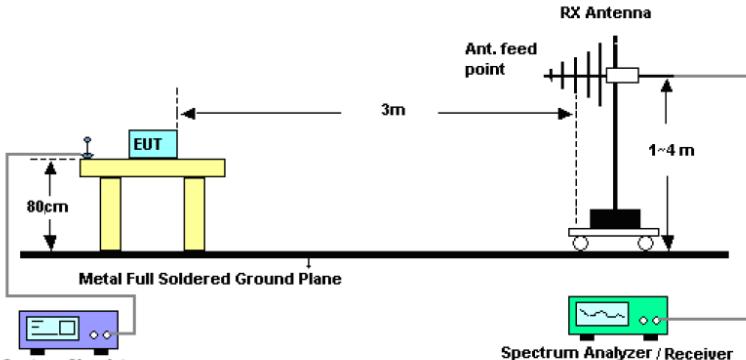
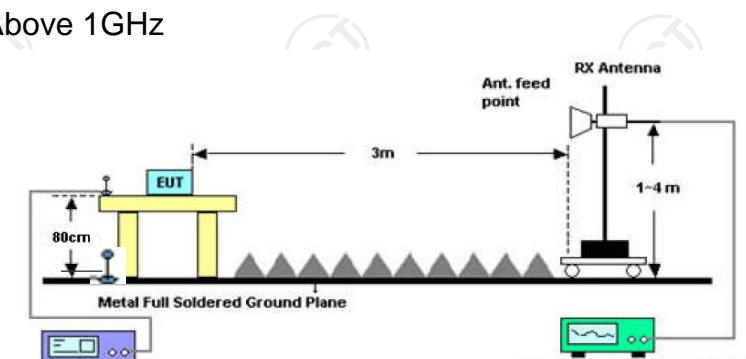
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.5.3. Test Data**Test Result of ERP**

CDMA BC0 Radiated Power ERP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.70	H	1.75	21.66	23.41	0.22
836.52	H	1.72	21.54	23.26	0.21
848.31	H	2.07	21.46	23.53	0.23
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.70	H	1.72	21.66	23.38	0.22
836.52	H	1.90	21.54	23.44	0.22
848.31	H	2.06	21.46	23.52	0.22

6.6. Field Strength of Spurious Radiation Measurement

6.6.1. Test Specification

Test Requirement:	FCC part 22.917(a)
Test Method:	FCC part 2.1053
Operation mode:	Refer to item 4.1
Limit:	-13dBm
Test setup:	<p>For 30MHz~1GHz</p>  <p>Above 1GHz</p> 
Test Procedure:	<ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 D01v03 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12. 2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground. 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower. 4. The table was rotated 360 degrees to determine the position of the highest spurious emission. 5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations. 6. Make the measurement with the spectrum analyzer's

	<p>RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.</p> <p>7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.</p> <p>8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.</p> <p>9. Taking the record of output power at antenna port.</p> <p>10. Repeat step 7 to step 8 for another polarization.</p> <p>11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain</p> <p>12. ERP (dBm) = EIRP - 2.15</p> <p>13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.</p> <p>14. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)</p> $= P(W) - [43 + 10\log(P)] \text{ (dB)}$ $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$ $= -13\text{dBm}.$
Test results:	PASS
Remark:	All modulations have been tested, but only the worst modulation show in this test item.

6.6.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 20, 2019
Spectrum Analyzer	ROHDE&SCHW ARZ	R&S	FSQ40	Sep. 20, 2019
Signal Generator	Agilent	83623B	3614A00396	Sep. 16, 2019
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 02, 2019
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Oct. 20, 2019
Broadband Antenna	Schwarzbeck	VULB9163	412	Sep. 02, 2019
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Oct. 20, 2019
Dipole Antenna	TCT	TCT-RF	N/A	Sep. 20, 2019
Coax cable (9kHz-1GHz)	TCT	RE-low-01	N/A	Sep. 16, 2019
Coax cable (9kHz-40GHz)	TCT	RE-high-02	N/A	Sep. 16, 2019
Coax cable (9kHz-1GHz)	TCT	RE-low-03	N/A	Sep. 16, 2019
Coax cable (9kHz-40GHz)	TCT	RE-High-04	N/A	Sep. 16, 2019
Antenna Mast	Keleto	RE-AM	N/A	N/A
EMI Test Software	Shurples Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.6.3. Test Data

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dB μ V/m)	Limit@3m (dB μ V/m)
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--	--	--
--	--	--
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Note: 1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

Band	CDMA BC0		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1649.40	Vertical	-42.51	-13.00	PASS
2474.10	V	-39.49		
3298.80	V	-51.25		
1649.40	Horizontal	-42.68		
2474.10	H	-38.02		
3298.80	H	-51.33		
Band	CDMA BC0		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.04	Vertical	-41.78	-13.00	PASS
2509.56	V	-44.53		
3346.08	V	-52.20		
1673.04	Horizontal	-41.19		
2509.56	H	-39.47		
3346.08	H	-52.36		
Band	CDMA BC0		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1696.62	Vertical	-40.17	-13.00	PASS
2544.93	V	-44.25		
3393.24	V	-52.86		
1696.62	Horizontal	-41.99		
2544.93	H	-40.30		
3393.24	H	-52.45		

6.7. Frequency Stability Measurement

6.7.1. Test Specification

Test Requirement:	FCC Part 2.1055 ; FCC Part 22.355 ;
Test Method:	FCC Part 2.1055(a)(1)(b)
Operation mode:	Refer to item 4.1
Limit:	± 2.5 ppm
Test Setup:	
Test Procedure:	<p>Test Procedures for Temperature Variation</p> <ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 D01v03 Section 9.0. 2. The EUT was set up in the thermal chamber and connected with the system simulator. 3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute. 4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute. <p>Test Procedures for Voltage Variation</p> <ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 v02r02 Section 9.0. 2. The EUT was placed in a temperature chamber at $25\pm 5^{\circ}\text{C}$ and connected with the system simulator. 3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT. 4. The variation in frequency was measured for the worst case.
Test Result:	PASS
Remark:	All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.

6.7.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 20, 2019
Programable temprature and humidity chamber	JQ	JQ-2000	N/A	Sep. 16, 2019
DC power supply	Kingrang	KR3005K	N/A	Sep. 16, 2019
RF cable (9kHz-40GHz)	TCT	RE-04	N/A	Sep. 20, 2019
Antenna Connector	TCT	RFC-03	N/A	Sep. 20, 2019

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.7.3. Test Data

Test Result of Temperature Variation

Band :	CDMA BC0	Channel:	384	
Limit (ppm) :	2.5	Frequency:	836.52MHz	
Temperature (°C)	Deviation (ppm)		Result	
50	0.015		PASS	
40	0.013			
30	0.014			
20	0.010			
10	0.013			
0	0.015			
-10	0.011			
-20	0.012			
-30	0.014			

Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Deviation (ppm)	Limit (ppm)	Result
CDMA BC0	CDMA	4.2	+0.018	2.5	PASS
		3.7	+0.011		
		BEP	+0.014		

Note:

1. Normal Voltage = 3.7V.
2. Battery End Point (BEP) = 3.40V.
3. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Appendix A: Photographs of Test Setup

Product: CDMA Fixed wireless telephone

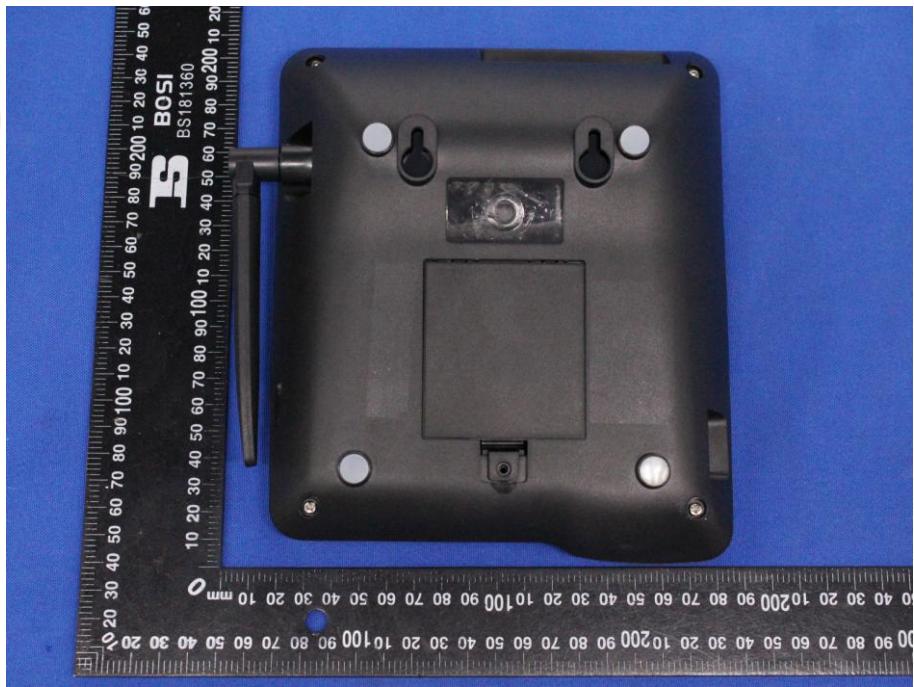
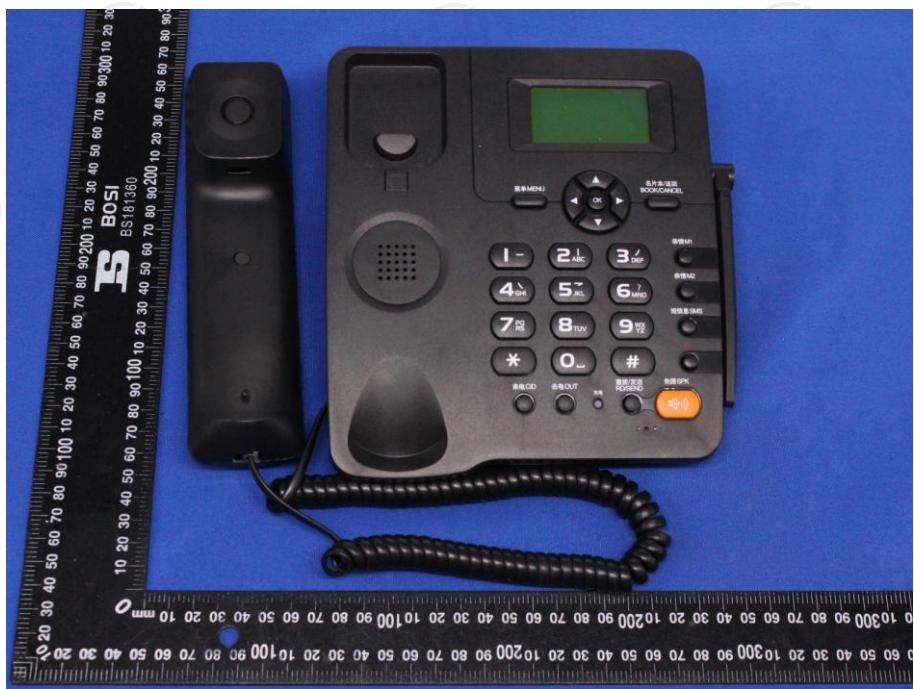
Model: ZLT S500

Radiated Emission

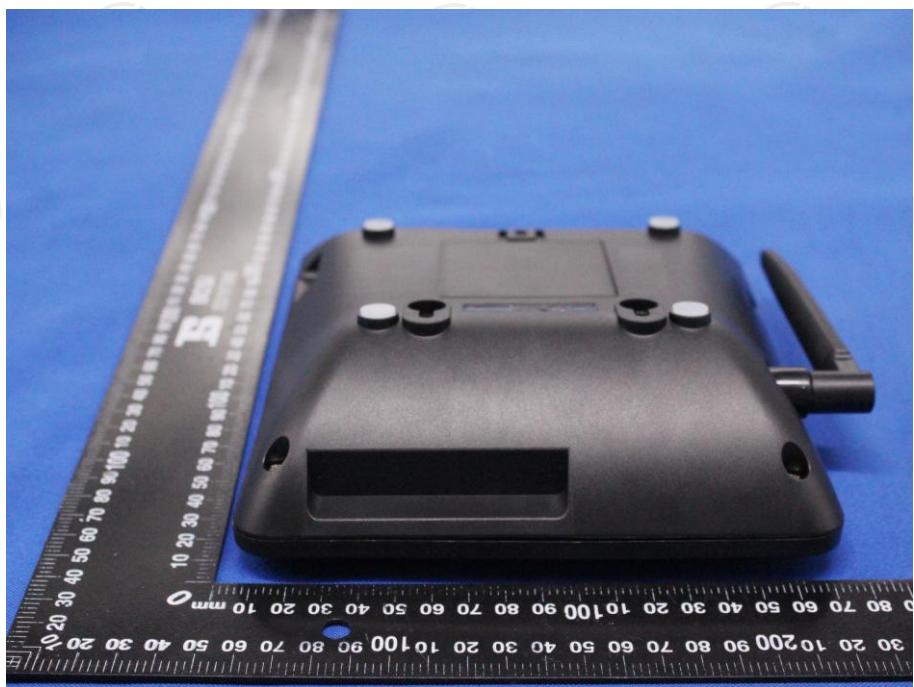


Appendix B: Photographs of EUT
Product: CDMA Fixed wireless telephone
Model: ZLT S500
External Photos

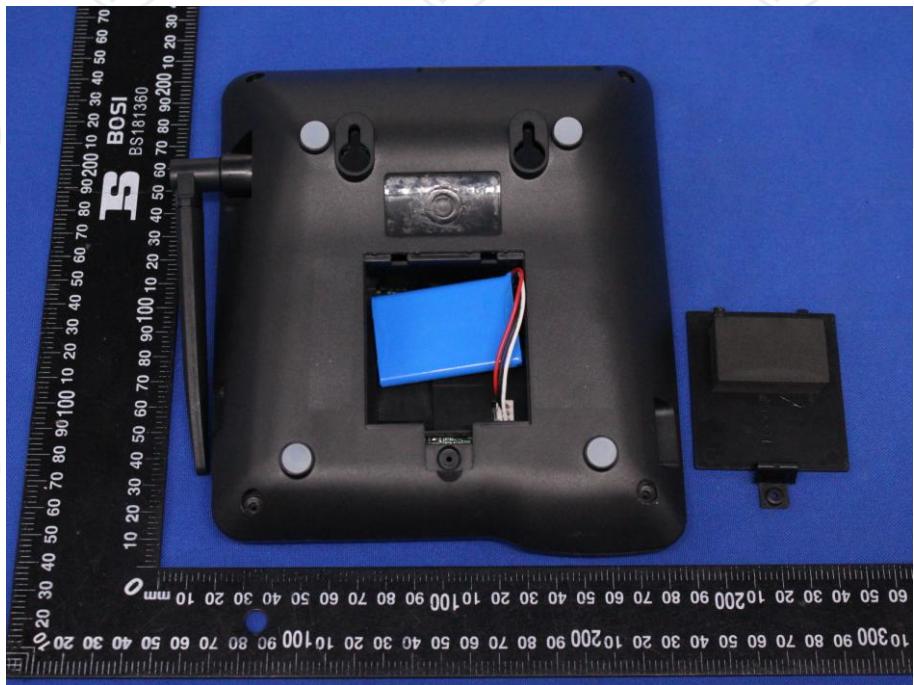


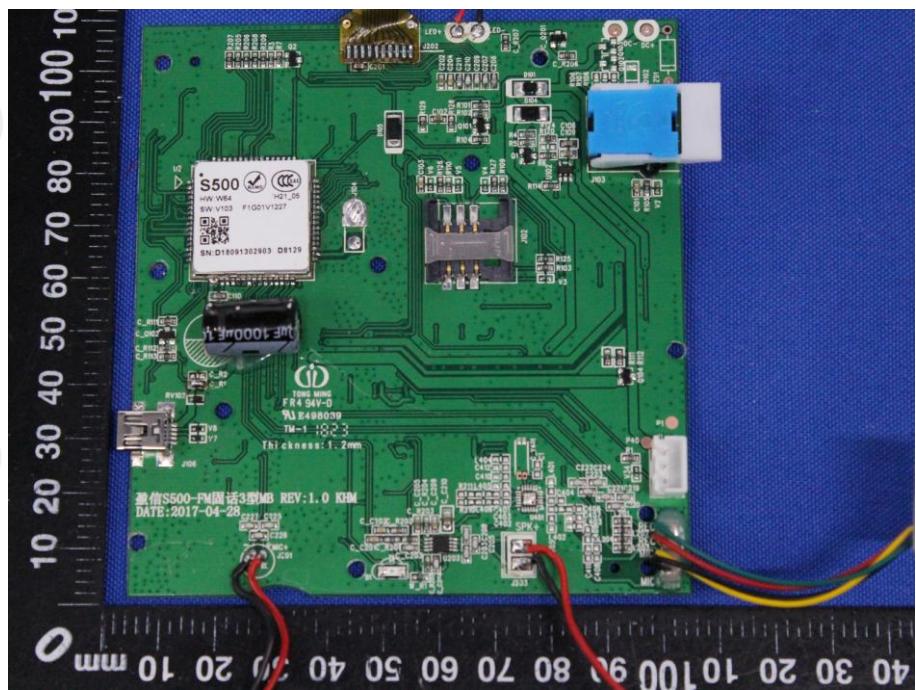
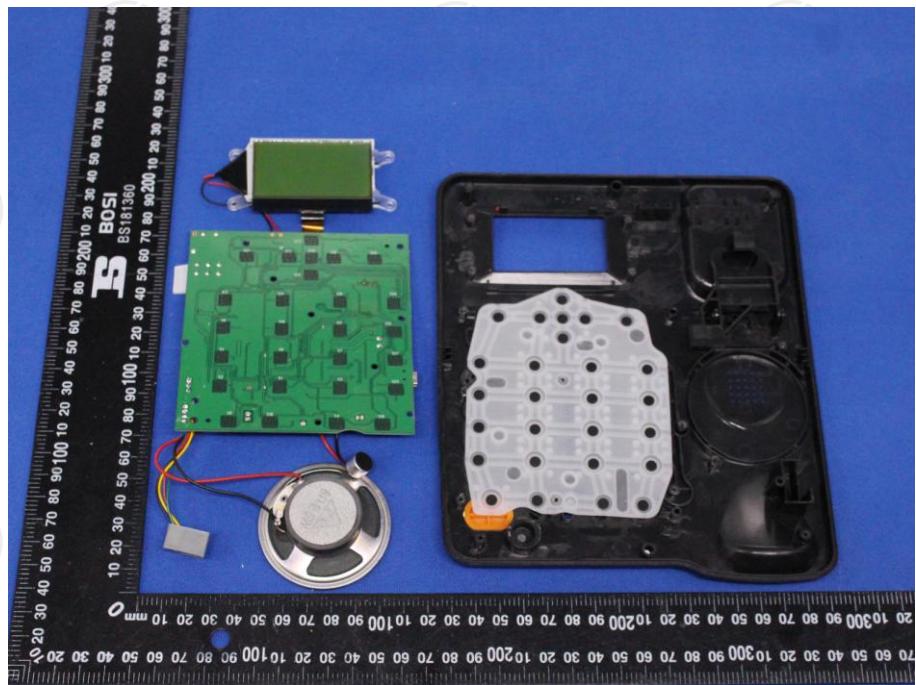


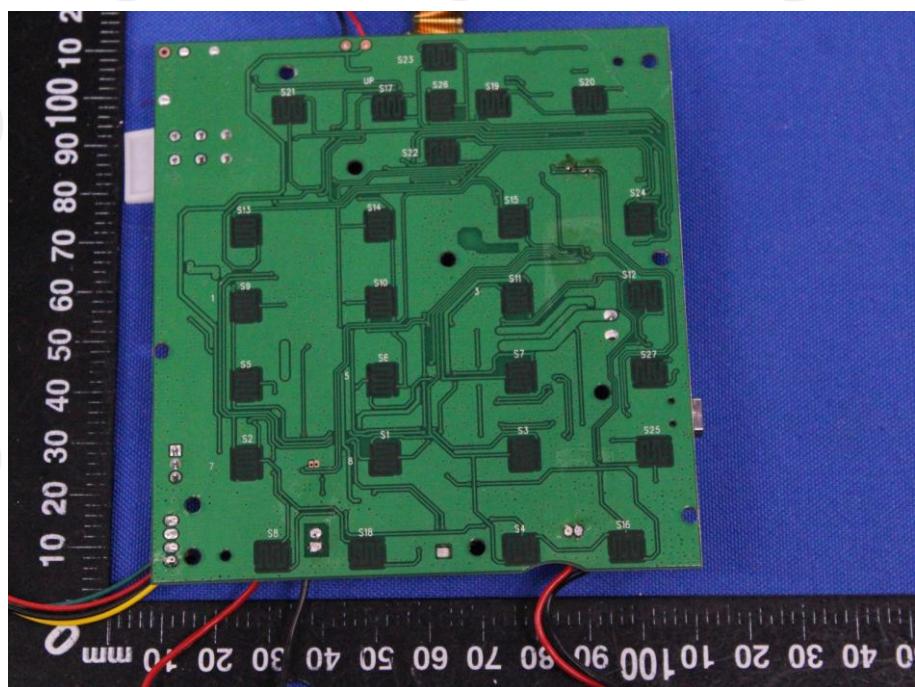
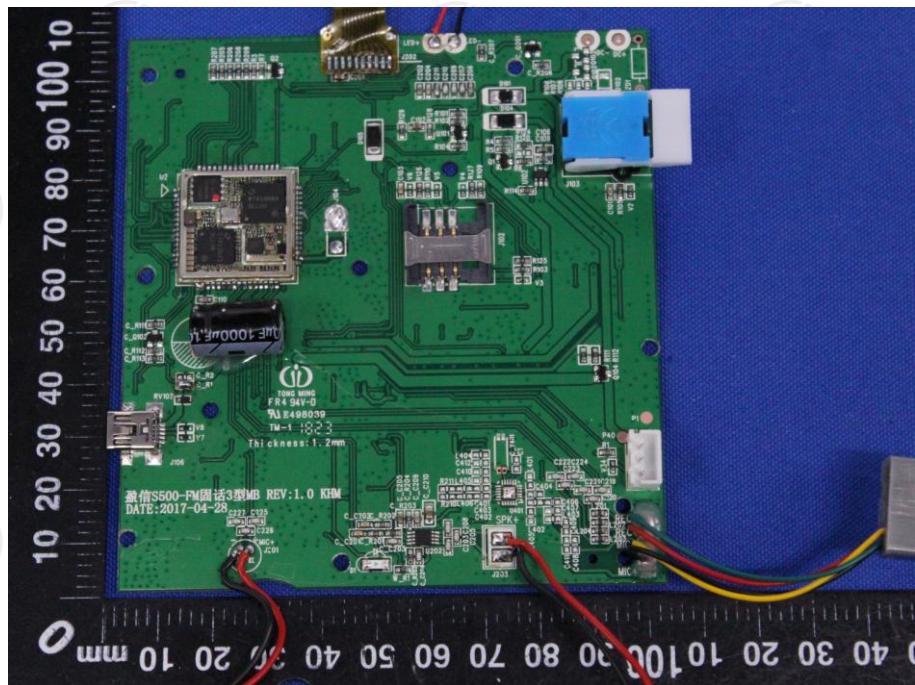


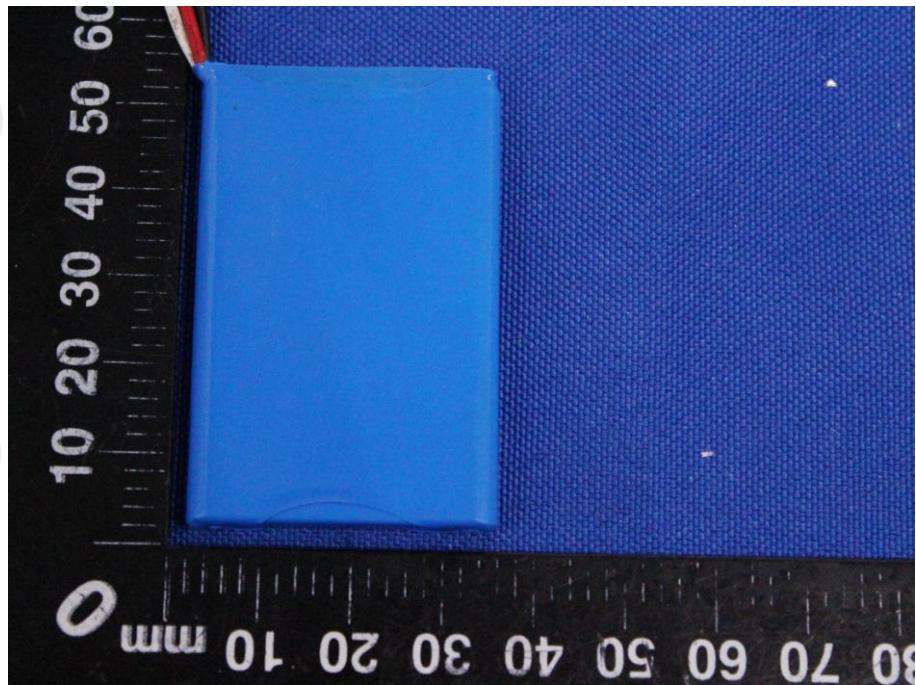


Product: CDMA Fixed wireless telephone
Model: ZLT S500
Internal Photos









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