



Variant FCC RF Test Report

APPLICANT : Acer Incorporated
EQUIPMENT : Smart HandHeld
BRAND NAME : Acer
MODEL NAME : T04
MARKETING NAME : Liquid Z630S
FCC ID : HLZDMZ630S
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DSS) Spread Spectrum Transmitter

The product was received on Sep. 07, 2015 and testing was completed on Sep. 20, 2015. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China



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REVISION HISTORY



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(d)	RSS-247 5.5	Conducted Spurious Emission	$\leq 20\text{dBc}$	Pass	-
3.2	15.203 & 15.247(b)	N/A	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Acer Incorporated

8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 22181, Taiwan (R.O.C)

1.2 Manufacturer

Shanghai Sunrise Simcom Limited

No.888,Shengli Rd.,Qingpu,Shanghai, P.R.China 201700

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Smart HandHeld
Brand Name	Acer
Model Name	T04
Marketing Name	Liquid Z630S
FCC ID	HLZDMZ630S
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/HSPA+/LTE WLAN2.4GHz 802.11b/g/n HT20/HT40 Bluetooth v3.0 + EDR/Bluetooth v4.0 LE
IMEI Code	Conducted: 354843070000000/354843070000067
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz
Number of Channels	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
Antenna Type	IFA Antenna with gain 2.40 dBi
Type of Modulation	Bluetooth BR (1Mbps) : GFSK Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK Bluetooth EDR (3Mbps) : 8-DPSK



1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958
Test Site No.	Sporton Site No. TH01-KS

Note: The test site complies with ANSI C63.4 2009 requirement.

1.7 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC Public Notice DA 00-705
- ANSI C63.10-2013
- IC RSS-247 Issue 1
- IC RSS-Gen Issue 4

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. FCC permits the use of the 1.5 meter table as an alternative in C63.10-2013 through inquiry tracking number 961829.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



2 Test Configuration of Equipment Under Test

2.1 Test Mode

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases			
Test Item	Data Rate / Modulation		
	Bluetooth BR 1Mbps GFSK	Bluetooth EDR 2Mbps $\pi/4$ -DQPSK	Bluetooth EDR 3Mbps 8-DPSK
Conducted Test Cases	Mode 1: CH39_2441 MHz	Mode 2: CH39_2441 MHz	Mode 3: CH39_2441 MHz



2.2 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Base Station	R&S	CBT	N/A	N/A	Unshielded, 1.8 m

2.3 EUT Operation Test Setup

For Bluetooth function, the engineering test program was provided and enabled to make EUT connect with Bluetooth base station to continuous transmit/receive.

2.4 Measurement Results Explanation Example

For all conducted test items:

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

Example:

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 5.5 dB.

$Offset(dB) = RF\ cable\ loss(dB) = 5.5\ (dB)$

3 Test Result

3.1 Conducted Spurious Emission Measurement

3.1.1 Limit of Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

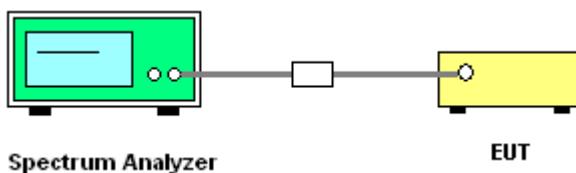
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedure

1. The testing follows the guidelines in Spurious RF Conducted Emissions of FCC Public Notice DA 00-705 Measurement Guidelines
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW = 300kHz, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

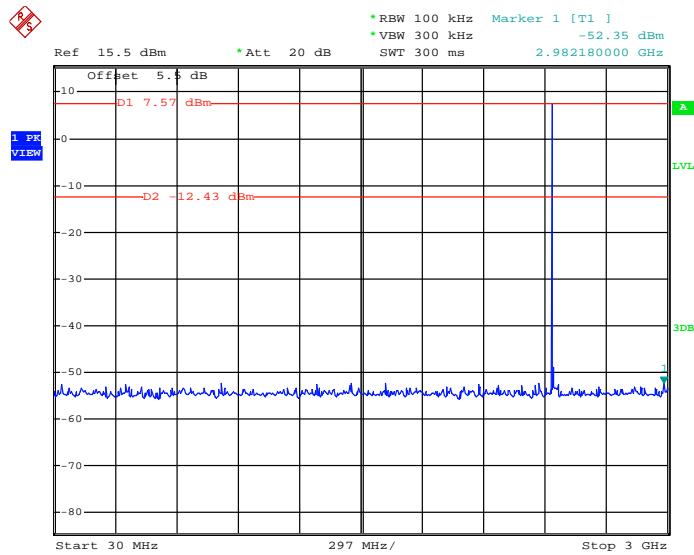
3.1.4 Test Setup



3.1.5 Test Result of Conducted Spurious Emission

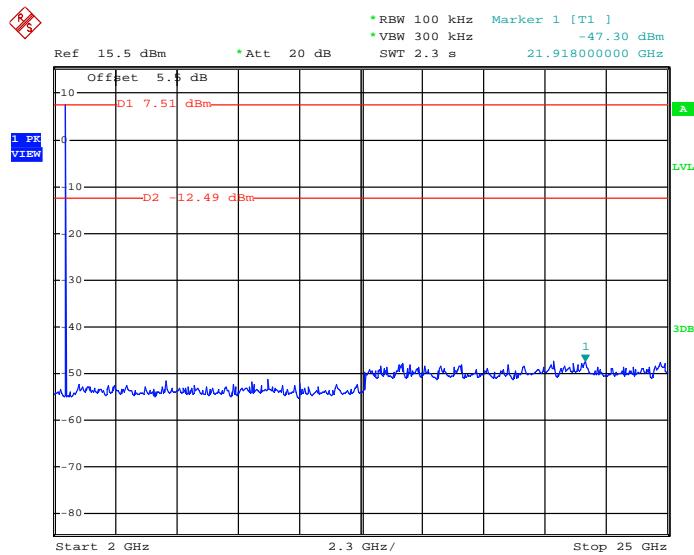
Test Mode :	1Mbps	Temperature :	24~25°C
Test Channel :	39	Relative Humidity :	49~51%
		Test Engineer :	Issac Song

1Mbps CSE Plot on Ch 39 between 30MHz ~ 3 GHz



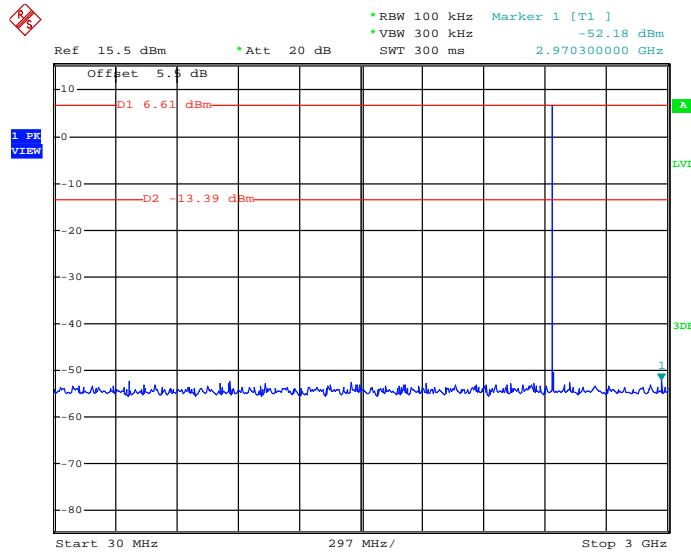
Date: 20.SEP.2015 12:08:47

1Mbps CSE Plot on Ch 39 between 2 GHz ~ 25 GHz

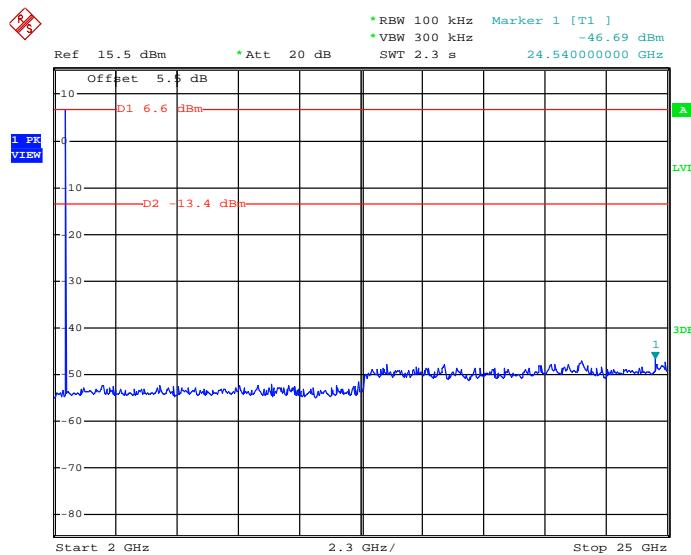


Date: 20.SEP.2015 12:09:09

Test Mode :	2Mbps	Temperature :	24~25°C
Test Channel :	39	Relative Humidity :	49~51%
		Test Engineer :	Issac Song

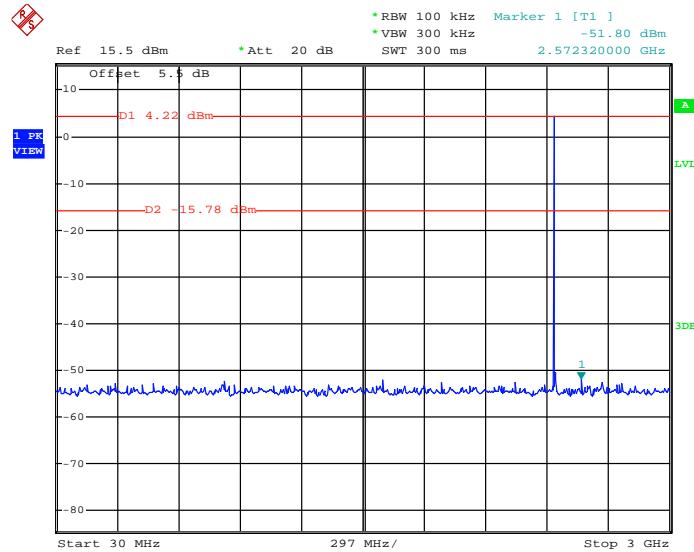
2Mbps CSE Plot on Ch 39 between 30MHz ~ 3 GHz


Date: 20.SEP.2015 12:20:42

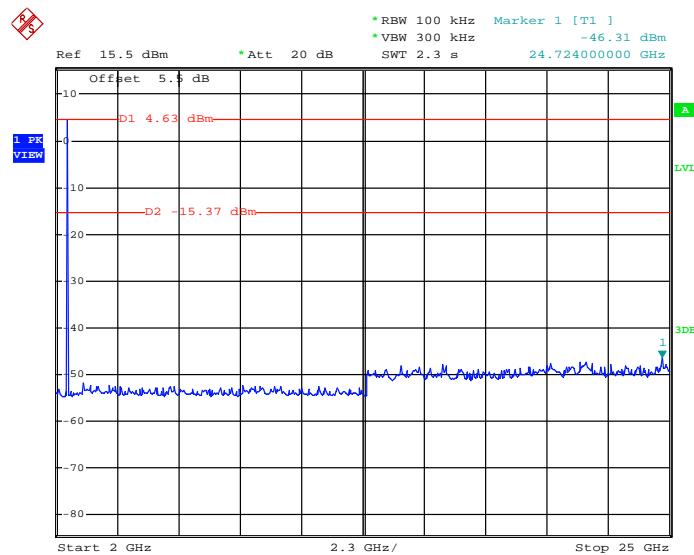
2Mbps CSE Plot on Ch 39 between 2 GHz ~ 25 GHz


Date: 20.SEP.2015 12:19:58

Test Mode :	3Mbps	Temperature :	24~25°C
Test Channel :	39	Relative Humidity :	49~51%
		Test Engineer :	Issac Song

3Mbps CSE Plot on Ch 39 between 30MHz ~ 3 GHz


Date: 20.SEP.2015 12:14:41

3Mbps CSE Plot on Ch 39 between 2 GHz ~ 25 GHz


Date: 20.SEP.2015 12:16:06



3.2 Antenna Requirements

3.2.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.2.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.2.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Oct. 28, 2014	Sep. 20, 2015	Oct. 27, 2015	Conducted (TH01-KS)