



STU Standard Technology Union Co., Ltd.

No.202,Building A,Yushu Industrial Park,Science City, GuangZhou,Guangdong,China

Telephone: +86 (0) 20 82019555
Fax: +86 (0) 20 82019556
Email: Marketing@stu-lab.com
Website: www.stu-lab.com

Report No.: STUGZEMO120514398RF2
Page: 1 of 13

FCC ID TEST REPORT

Application No.: STUGZEMO120514398RF2

Applicant: Hi-Target Surveying Instrument Co., Ltd

Address: 10th Floor, Chuangxin Building, Tian'an Technology Zone, No.555,
the North of Panyu Road, Panyu District, Guangzhou City, China

Equipment Under Test (EUT):

EUT Name: GIS DATA COLLECTOR

Trade Mark: HI-TARGET

Model No.: QminiM1, QminiM3, QminiMP, QminiMT

Serial No.: Not supplied by client

FCC ID: O39ZHDQMINI

Standards: FCC PART 15B

Date of Receipt: Jun.25, 2012

Date of Test: Jun.25, 2012 to Jul.05, 2012

Test Result :

PASS*

Tested By:

David Li / Test Engineer.....

David Li

Reviewed By :

Jimmy Yao / EMC Manager...

Jimmy Yao





TABLE OF CONTENTS

1. VERIFICATION OF COMPLIANCE	3
2. TEST FACILITY	4
3. SUPPORT EQUIPMENT LIST	4
4. SYSTEM DESCRIPTION	4
5. FCC LINE CONDUCTED EMISSION TEST	5
5.1. TEST EQUIPMENT OF LINE CONDUCTED EMISSION TEST.....	5
5.2 .LIMITS OF LINE CONDUCTED EMISSION TEST	5
5.3. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST	5
5.4. PROCEDURE OF LINE CONDUCTED EMISSION TEST	6
6. FCC RADIATED EMISSION TEST	9
6.1. TEST EQUIPMENT OF RADIATED EMISSION	9
6.2. LIMITS OF RADIATED EMISSION TEST	9
6.3 BLOCK DIAGRAM OF RADIATED EMISSION TEST	10
6.4 PROCEDURE OF RADIATED EMISSION TEST	11
6.5 TEST RESULT OF RADIATED EMISSION TEST	12



1. VERIFICATION OF COMPLIANCE

EUT Name:	GIS DATA COLLECTOR
Trade Mark:	HI-TARGET
Model No.:	QminiM1, QminiM3, QminiMP, QminiMT
Model Difference:	All are completely same except for the model name and position of camera on housing. Hi-Target Surveying Instrument Co., Ltd
Applicant:	10th Floor, Chuangxin Building, Tian'an Technology Zone, No.555, the North of Panyu Road, Panyu District, Guangzhou City, China Hi-Target Surveying Instrument Co., Ltd
Manufacturer:	10th Floor, Chuangxin Building, Tian'an Technology Zone, No.555, the North of Panyu Road, Panyu District, Guangzhou City, China
Type of Test:	FCC Class B
File Number:	STUGZEMO120514398RF2
Date of test:	Jun.25, 2012 to Jul.05, 2012
Deviation:	None
Condition of Test Sample:	Normal

The above equipment was tested by STU Standard Technology Union Co., Ltd. For compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2003 This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,GuangZhou,Guangdong, China

Tel: +86-20-822019555, Fax: +86-20-82019556, E-mail: marketing@stu-lab.com, website: www.stu-lab.com



2. TEST LOCATION

All measurement facilities used to collect the measurement data are located at
Guangdong Electronic & Electrical Products Inspection and Supervision Institute (CGEL)
45 Cunnan Street, Shayongnan, Sanyuanli District, Guangzhou, Guangdong, China

The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003.

FCC Registration No.: 597719.

Industry Canada (IC) Assigned No.: 6664A.

China National Accreditation Service for Conformity Assessment (CNAS) No.: L0307.

3. SUPPORT EQUIPMENT LIST

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
--	--	--	--	--	--

****Note:** All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

4. SYSTEM DESCRIPTION

EUT test procedure:

1. Connect EUT and peripheral devices (if any).
2. Power on the EUT, then EUT begins to work.
3. Make sure the EUT works normally during the test.

Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,GuangZhou,Guangdong, China

Tel: +86-20-822019555, Fax: +86-20-82019556, E-mail: marketing@stu-lab.com, website: www.stu-lab.com

5. FCC LINE CONDUCTED EMISSION TEST

5.1. TEST EQUIPMENT OF LINE CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	N/A	06/29/20112	06/28/2013
LISN	R&S	ESH3-Z5	N/A	06/29/20112	06/28/2013
AMN	R&S	ESH2-Z5	862060/020	06/29/20112	06/28/2013

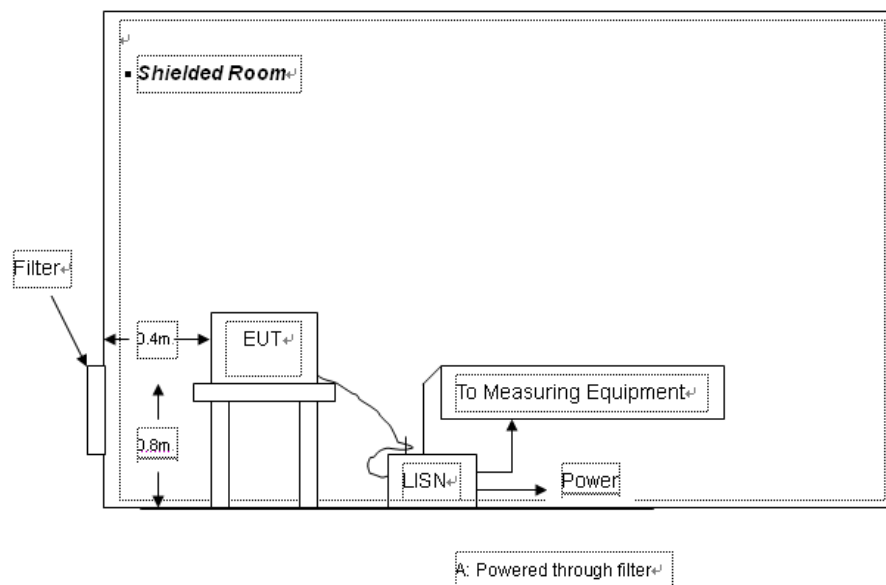
5.2 .LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

**Note: 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

5.3. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,GuangZhou,Guangdong, China

Tel: +86-20-822019555, Fax: +86-20-82019556, E-mail: marketing@stu-lab.com, website: www.stu-lab.com



5.4. PROCEDURE OF LINE CONDUCTED EMISSION TEST

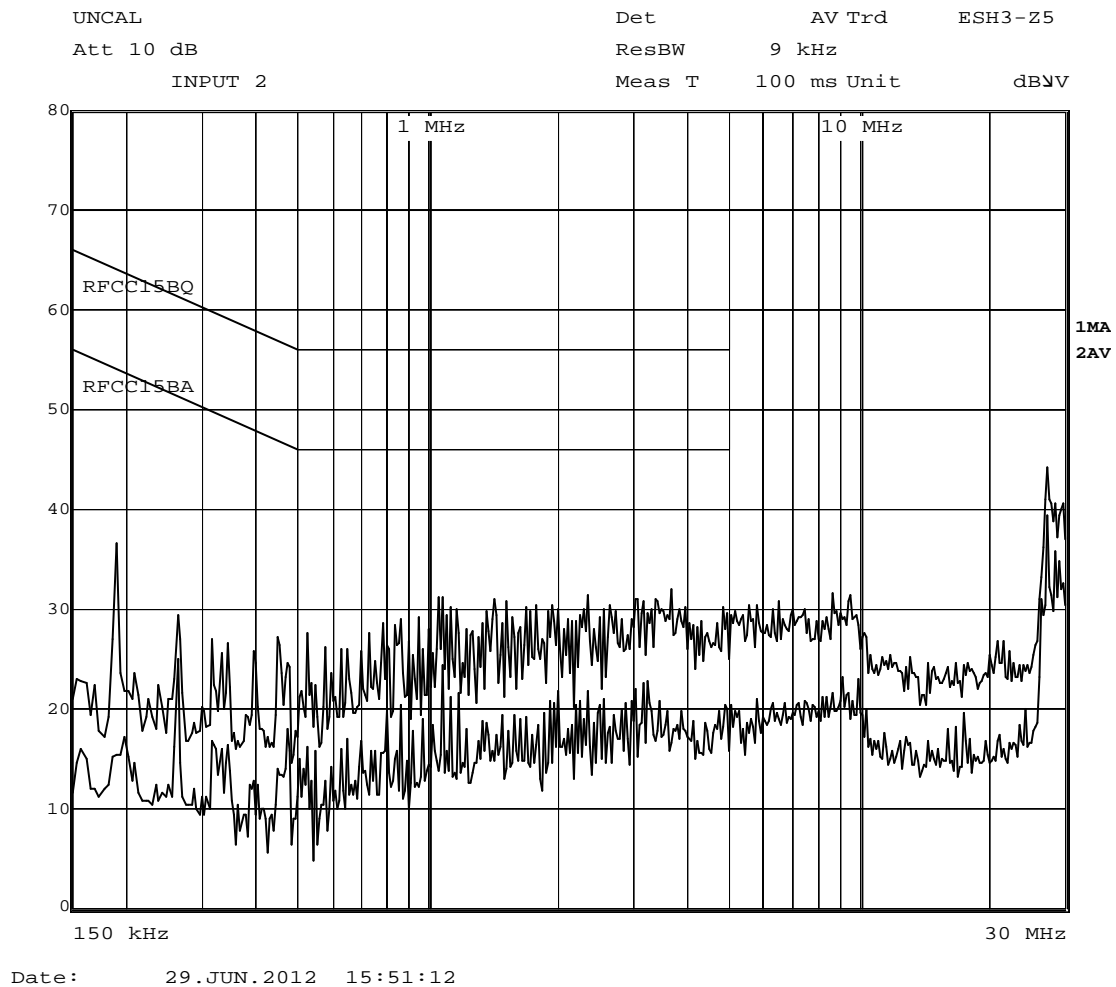
- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, was placed as per ANSI C63.4.
- 3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4) PC, one support equipment received AC power through a Line Impedance Stabilization Network (LISN) that was grounded to the protect earth.
- 5) Monitor, the other support equipment received AC power from a second LISN.
- 6) The EUT test program was started. Emissions were measured on each current carrying line of the PC using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8) During the above scans, the emissions were maximized by cable manipulation.
- 9) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.
- 10) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 11) The test data of the worst case condition(s) was reported on the Summary Data page.



5.5 TEST RESULT OF LINE CONDUCTED EMISSION TEST

Charging mode is the worst mode. Test data as following:

CONDUCTED EMISSION TEST-L



Quasi-peak and Average measurement:

TRACE	FREQUENCY	LEVEL dBV	DELTA LIMIT dB
1 Quasi Peak	27.4460 MHz	37.04 L1 gnd	-22.95
2 Average	27.4460 MHz	24.18 L1 gnd	-25.82

Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

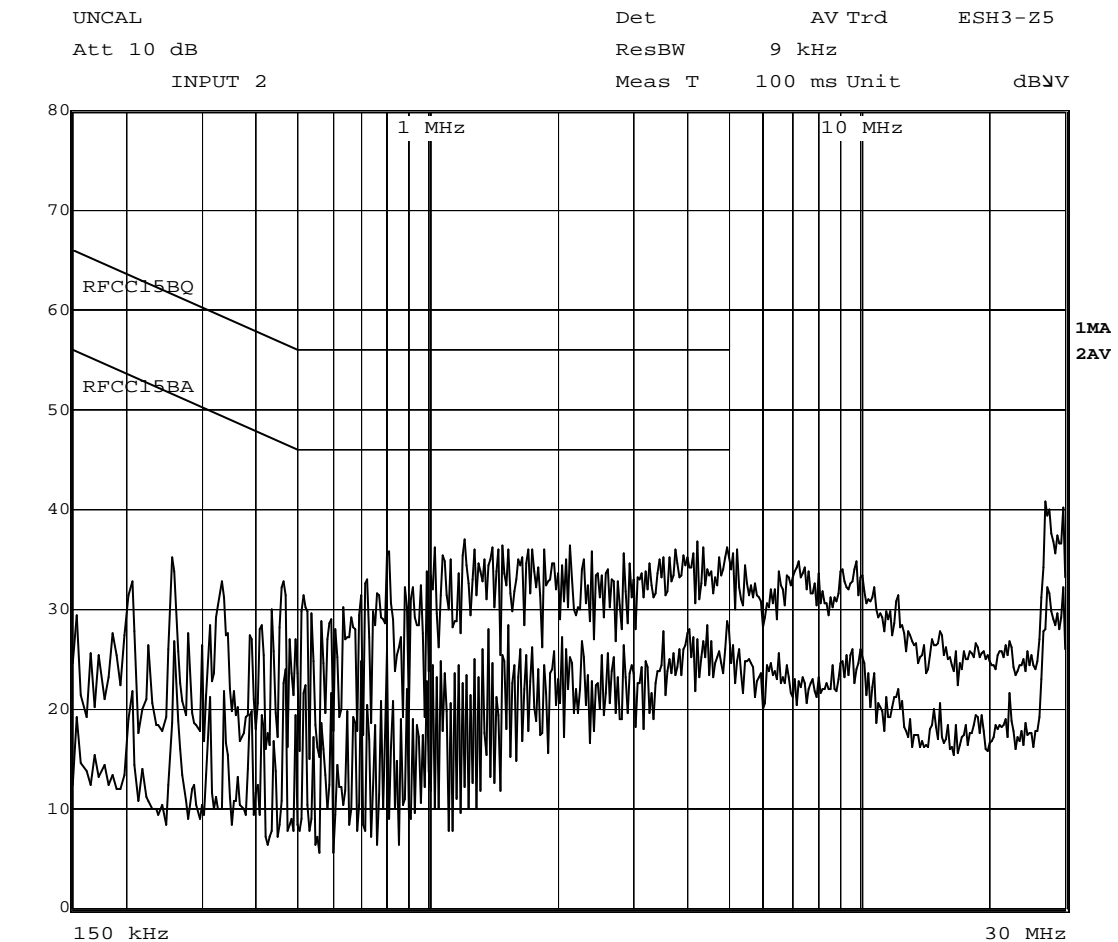
STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,GuangZhou,Guangdong, China

Tel: +86-20-822019555, Fax: +86-20-82019556, E-mail: marketing@stu-lab.com, website: www.stu-lab.com



CONDUCTED EMISSION TEST-N



Date: 29.JUN.2012 15:49:29

Quasi-peak and Average measurement:

TRACE	FREQUENCY	LEVEL dBV	DELTA LIMIT dB
1 Quasi Peak	1.2220 MHz	27.59 N gnd	-28.40
2 Average	1.5420 MHz	14.48 N gnd	-31.51
1 Quasi Peak	4.2460 MHz	27.38 N gnd	-28.61
2 Average	4.9500 MHz	15.37 N gnd	-30.62
1 Quasi Peak	27.1100 MHz	37.97 N gnd	-22.02
2 Average	29.9380 MHz	25.44 N gnd	-24.55

Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,GuangZhou,Guangdong, China

Tel: +86-20-822019555, Fax: +86-20-82019556, E-mail: marketing@stu-lab.com, website: www.stu-lab.com



6. FCC RADIATED EMISSION TEST

6.1. TEST EQUIPMENT OF RADIATED EMISSION

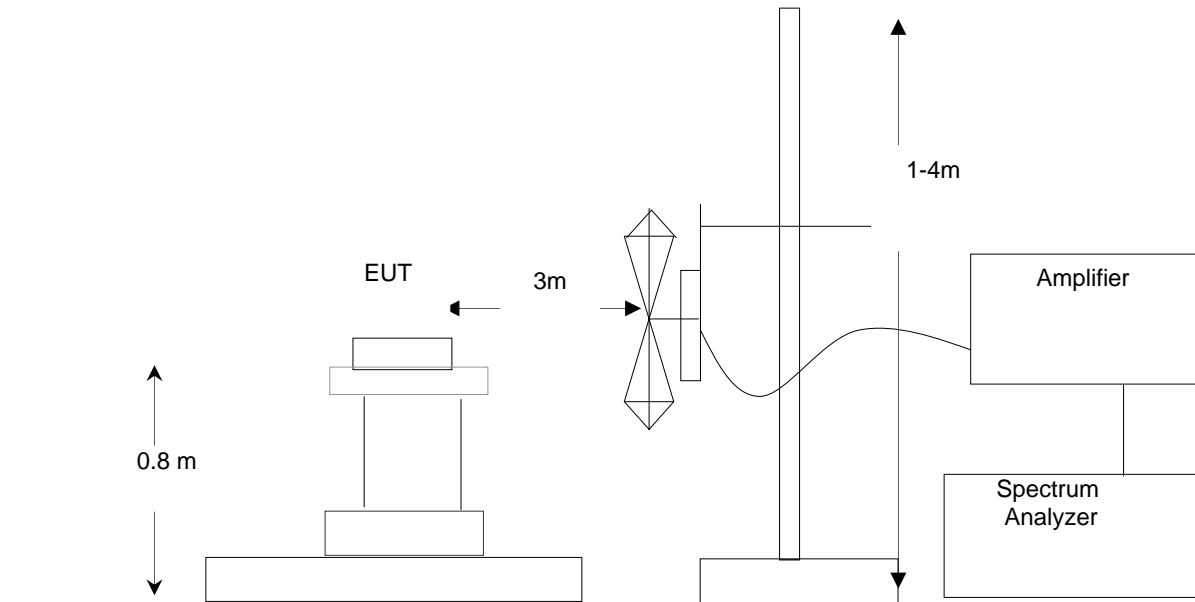
Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
PSA SERIES SPECTRUM ANALYZER	AGILENT	E4440A	N/A	06/29/2012	06/28/2013
ANTENNA	A.H.	SAS-521-4	N/A	06/29/2012	06/28/2013
HORN ANTENNA	EM	EM-AH-10180	N/A	06/29/2012	06/28/2013
AMPLIFIER	EM	EM30180	0607030	06/29/2012	06/28/2013
POSITIONING CONTROLLER	MF	MF-7802	N/A	06/29/2012	06/28/2013

6.2. LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
Above 960	3	54.0

**Note: The lower limit shall apply at the transition frequency.

6.3 BLOCK DIAGRAM OF RADIATED EMISSION TEST





6.4 PROCEDURE OF RADIATED EMISSION TEST

- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, was placed as per ANSI C63.4.
- 3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4) The EUT is linked to the support equipments. All support equipments received AC 120V/60Hz power from socket under the turntable.
- 5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
- 6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- 7) The test mode(s) were scanned during the test:
- 8) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.

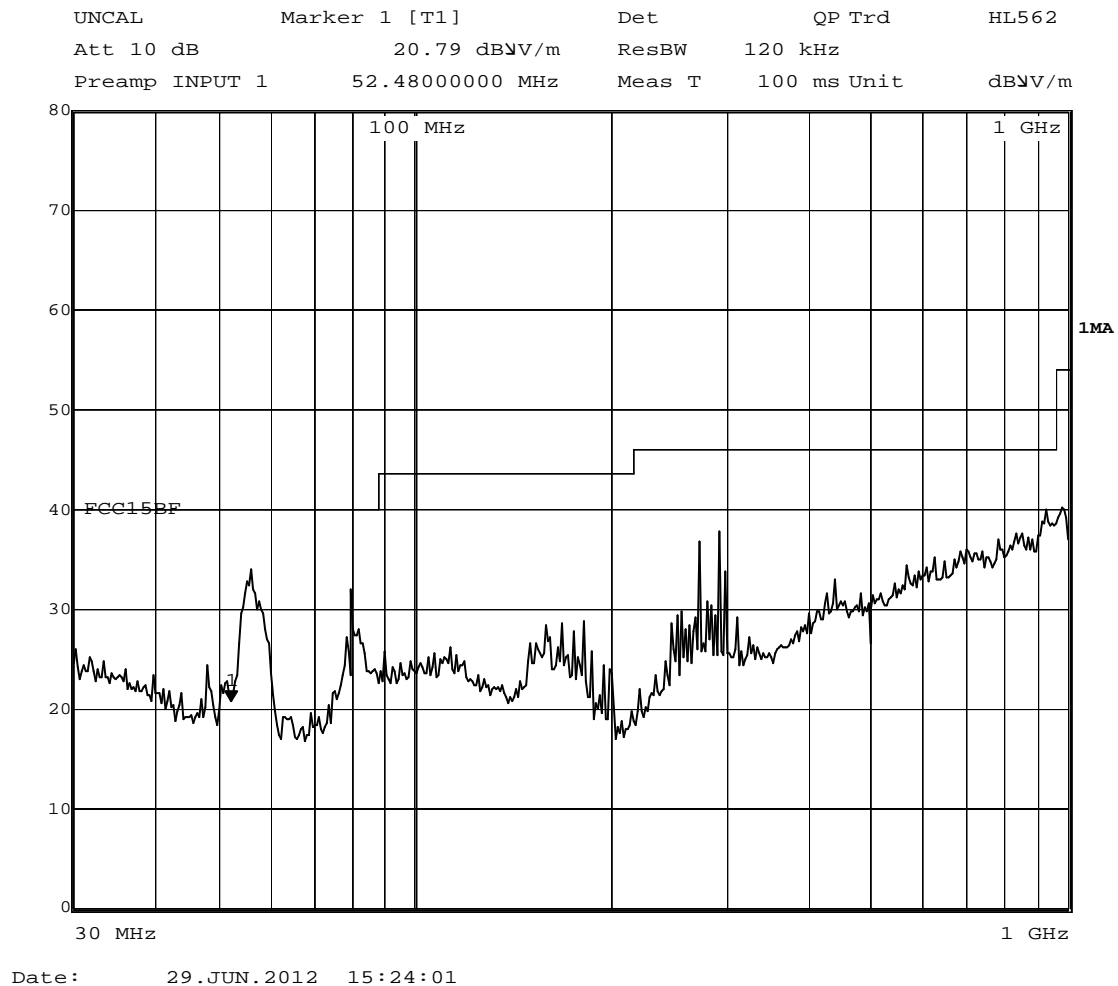
The test data of the worst case condition(s) was reported on the Summary Data page.



6.5 TEST RESULT OF RADIATED EMISSION TEST

Charging mode is the worst mode. Test data as following:

RADIATED EMISSION HORIZONTAL AT 3M



Quasi-peak measurement

TRACE	FREQUENCY	LEVEL dB μ V/m	DELTA LIMIT dB
1 Quasi Peak	55.6000 MHz	27.81	-12.18
1 Quasi Peak	56.2800 MHz	29.89	-10.10
1 Quasi Peak	80.1600 MHz	22.05	-17.94
1 Quasi Peak	292.4800 MHz	34.63	-11.36
1 Quasi Peak	835.7200 MHz	32.04	-13.95
1 Quasi Peak	927.4000 MHz	33.52	-12.47

Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

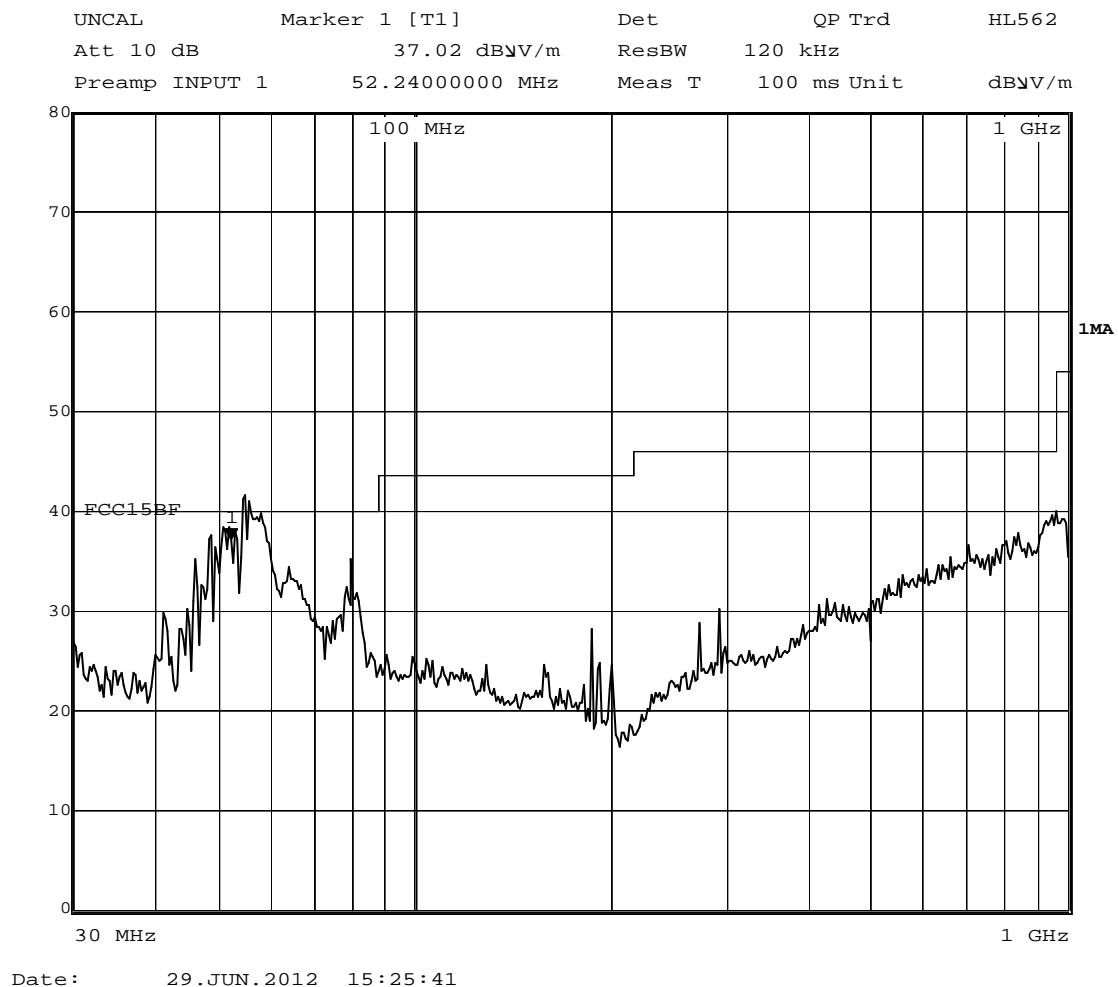
STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,GuangZhou,Guangdong, China

Tel: +86-20-822019555, Fax: +86-20-82019556, E-mail: marketing@stu-lab.com, website: www.stu-lab.com



RADIATED EMISSION VERTICAL AT 3M



Quasi-peak measurement

TRACE	FREQUENCY	LEVEL dB μ V/m	DELTA LIMIT dB
1 Quasi Peak	48.7600 MHz	33.67	-6.32
1 Quasi Peak	49.6400 MHz	31.79	-8.20
1 Quasi Peak	52.0400 MHz	30.27	-9.72
1 Quasi Peak	54.8800 MHz	38.13	-1.86
1 Quasi Peak	56.0000 MHz	38.25	-1.74
1 Quasi Peak	80.0800 MHz	26.33	-13.66

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

Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,GuangZhou,Guangdong, China

Tel: +86-20-822019555, Fax: +86-20-82019556, E-mail: marketing@stu-lab.com, website: www.stu-lab.com