FCC TEST REPORT for Unintentional Radiator
No. 150801628SHA-006

Applicant	:	Haier Telecom (Qingdao) Co., Ltd. No1. Haier Road , Hi-tech Zone, Qingdao, 266101, China
Manufacturer	:	Haier Telecom (Qingdao) Co., Ltd. No1. Haier Road , Hi-tech Zone, Qingdao, 266101, China
Product Name	:	Mobile Phone
Type/Model	:	L51
TEST RESULT	**:**	**PASS**

SUMMARY

The equipment complies with the requirements according to the following standard(s) or specification:

47CFR Part 15 (2014): Radio Frequency Devices (Subpart B)

ANSI C63.4 (2014): American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

Date of issue: Aug 24, 2015

Prepared by: Reviewed by:

Wakeyou Wang (*Project Engineer*) Daniel Zhao (*Reviewer*)

Content

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product Name	:	Mobile Phone
Type/model	:	L51
Hardware version	:	MP
Software version	:	HL-L51-H01-S01
IMEI	:	867747020003024
FCC ID	:	SG71507L51
Sample received date	:	June 20, 2015
Date of test	:	June 20, 2015 ~ Aug 10, 2015
Category of EUT	:	Class B
EUT type	:	☒ Table top ☐ Floor standing
Port	:	USB, earphone

1.2 Description of Client

Applicant	:	Haier Telecom (Qingdao) Co., Ltd. No1. Haier Road , Hi-tech Zone, Qingdao, 266101, China
Name of contact	:	James Shi
Tel	:	+86-532-88936513
Fax	:	+86-532-88939585
Email	:	shi_jian@haier.com
Manufacturer	:	Haier Telecom (Qingdao) Co., Ltd. No1. Haier Road , Hi-tech Zone, Qingdao, 266101, China

1.3 Description of Test Facility

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Name	:	Intertek Testing Service Shanghai
Address	:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone	:	86 21 61278200
Telefax	:	86 21 54262353

Subcontractor:

☐

Name	:	Shanghai Institute of Measurement Technology
Address	:	716 Yishan Road, Shanghai 200233, P.R. China
Telephone	:	86 21 64700066
Telefax	:	

2 TEST SPECIFICATIONS

2.1 Standards or specification

47CFR Part 15 (2014): Radio Frequency Device: Subpart B

ANSI C63.4 (2014): Interim Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz.

2.2 Mode of operation during the test

Within this test report, EUT was tested with modulation and tested under its rating voltage and frequency.

2.3 Test software list

Test Items	Software	Manufacturer	Version
Conducted emission	ESxS-K1	R&S	V2.1.0
Radiated emission	ES-K1	R&S	V1.71

2.4 Test peripherals list

Item No	Description	Band and Model	S/No
1	Laptop computer	HP ProBook 6470b	NA
2	USB mouse	Microsoft 1113	NA
3	Parallel Printer	MICROS BR0186	NA

2.5 Instrument list

Equipment	Type	Manu.	Internal no.	Cal. Date	Due date
Test Receiver	ESCS 30	R&S	EC 2107	2014-10-21	2015-10-20
Test Receiver	ESIB 26	R&S	EC 3045	2014-10-20	2015-10-19
Test Receiver	ESCI 7	R&S	EC4501	2014-12-25	2015-12-24
Semi-anechoic chamber	-	Albatross project	EC 3048	2015-5-11	2016-5-10
High Pass Filter	WHKX 1.0/15G-10SS	Wainwright	EC4297-1	2015-1-8	2016-1-7
High Pass Filter	WHKX 2.8/18G-12SS	Wainwright	EC4297-2	2015-1-8	2016-1-7
High Pass Filter	WHKX 7.0/1.8G-8SS	Wainwright	EC4297-3	2015-1-8	2016-1-7
Band Reject Filter	WRCGV 2400/2483-2390/2493-35/10SS	Wainwright	EC4297-4	2015-1-8	2016-1-7
RF cable	SUCOFLEX 104	HUBER+SUHNER	/	2015-2-13	2016-2-12
Bilog Antenna	CBL 6112D	TESEQ	EC 4206	2015-4-27	2016-4-26
Horn antenna	HF 906	R&S	EC 3049	2015-4-27	2016-4-26
Pre-amplifier	Pre-amp 18	R&S	EC 3222	2015-4-20	2016-4-19
Spectrum analyzer	E7402A	Agilent	EC2254	2014-08-16	2015-08-15
Climate Chamber	SETH-Z-102U	ESPEC	EC4315	2015-4-9	2016-4-8
PXA Signal Analyzer	N9030A	Agilent	EC5338	2015-5-15	2016-4-14

2.6 Test Summary

This report applies to tested sample only. The test results have been compared directly with the limits, and the measurement uncertainty is recorded. This report shall not be reproduced in part without written approval of Intertek Testing Service Shanghai Limited.

TEST ITEM	FCC REFERANCE	RESULT
Conducted emission	15.107	Pass
Radiated emission	15.109	Pass

Notes: 1: NA =Not Applicable

3 Conducted emission

Test result: Pass

3.1 Limits

3.1.1 Limits for conducted emission of class A device

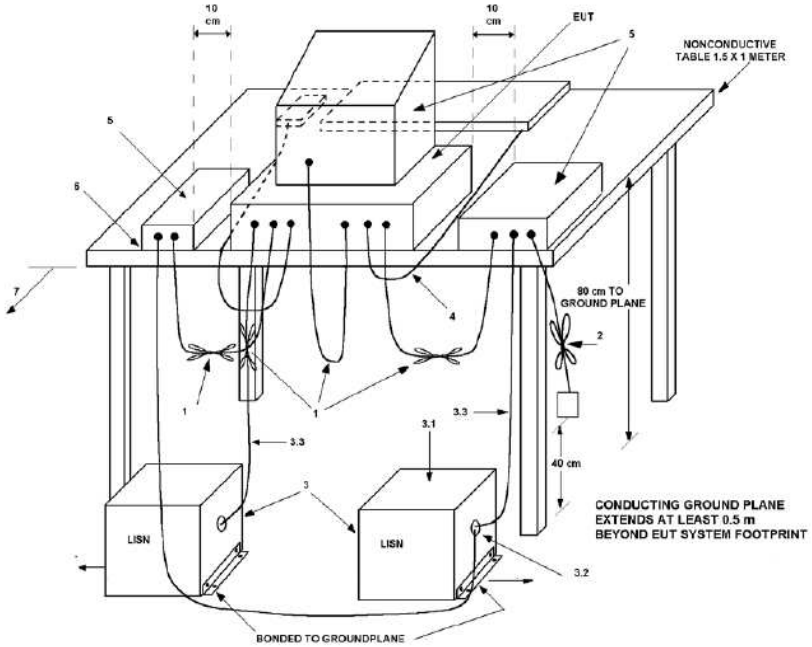
Frequency range (MHz)	Limits dB(μV) Quasi-peak	Average
0.15 ~ 0.5	79	66
0.5 ~ 30	73	60
Note: If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.		

3.1.2 Limits for conducted emission of class B device

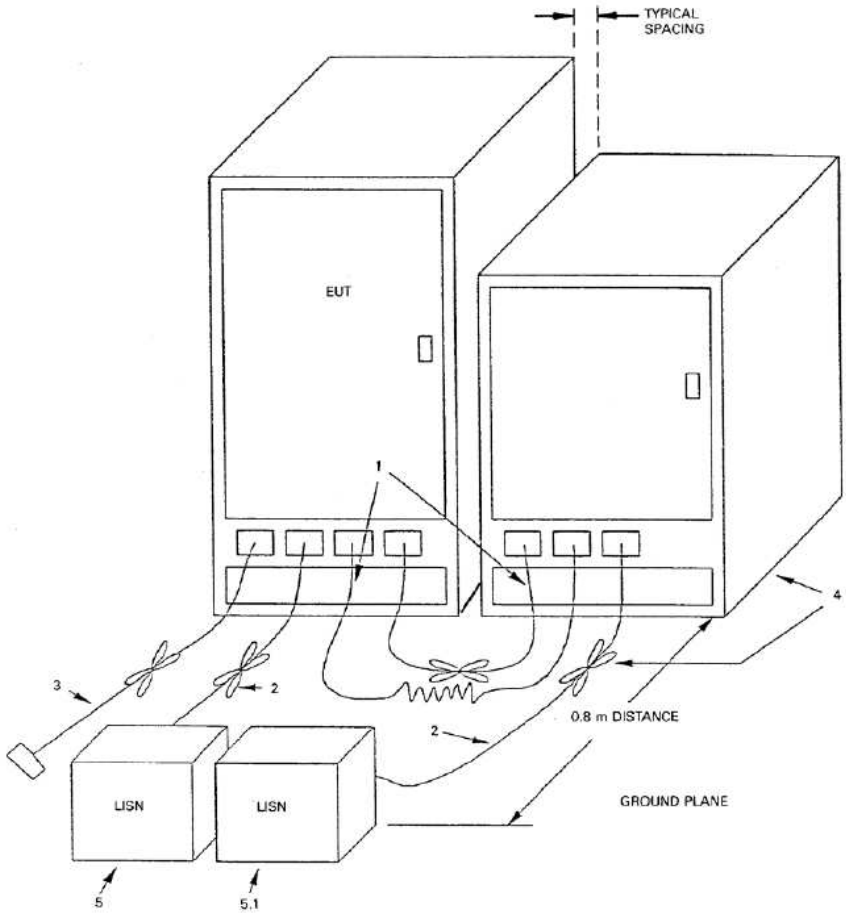
Frequency range (MHz)	Limits dB(μV) Quasi-peak	Average
0.15 ~ 0.5	66 ~ 56 *	56 ~ 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50
Note: 1. * Means the limit decreasing linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz 2. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.		

3.2 Test setup

☒ For table top equipment



☐ For floor standing equipment

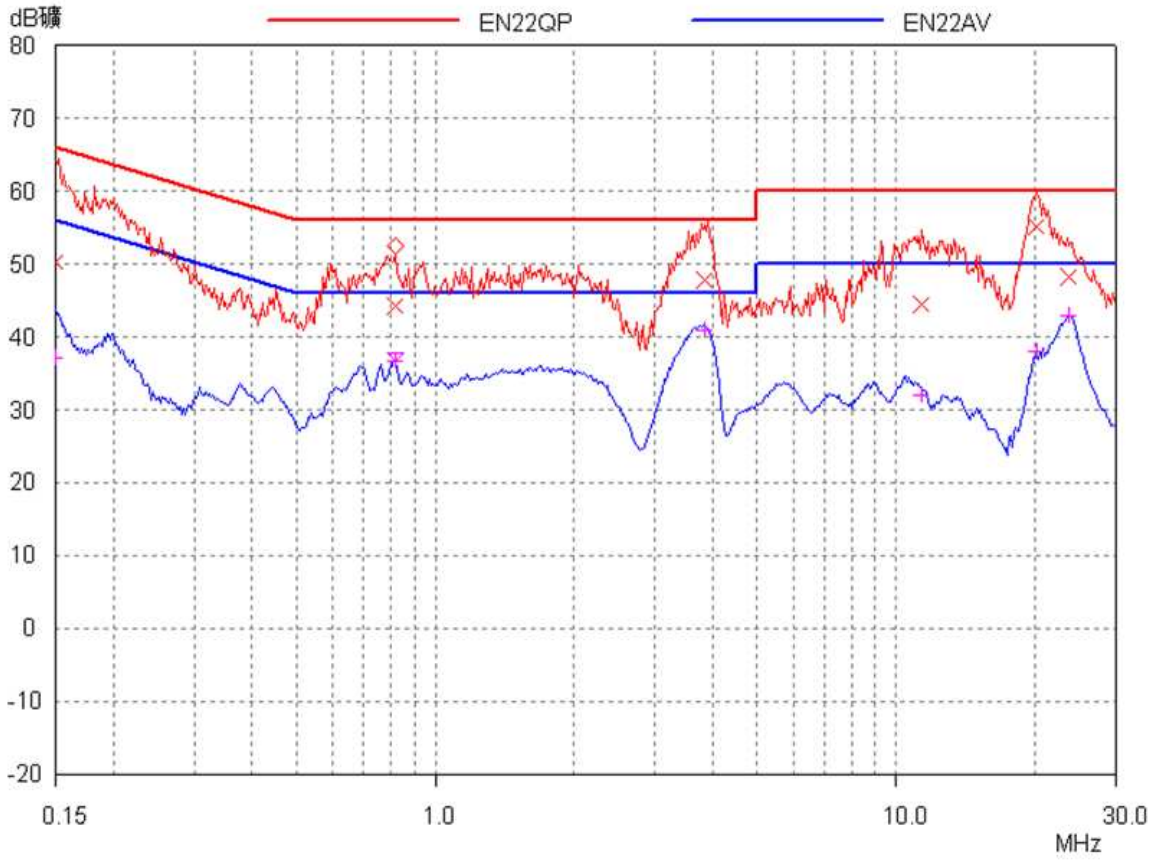


3.3 Test Setup and Test Procedure

Measurement was performed in shielded room, and instruments used were following clause 4 and clause 5 of ANSI 63.4.
Detailed test procedure was following clause 7.3 of ANSI 63.4.
EUT arrangement and operation conditions were according to clause 6 and clause 7 of ANSI 63.4.
Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9 kHz.

3.4 Test Protocol

Temperature : 25 °C
Relative Humidity : 55 %



Frequency	Correct Factor (dB)	Corrected Reading (dBuV) QP	AV	Limit (dBuV) QP	AV	Margin (dB) QP	AV
0.15(L)	3.00	50.34	37.14	66.00	56.00	15.66	18.86
0.82(L)	3.00	44.24	36.61	56.00	46.00	11.76	9.39
3.81 (N)	3.00	47.82	40.93	56.00	46.00	8.18	5.07
11.27 (L)	3.00	44.39	32.11	60.00	50.00	15.61	17.89
20.11 (N)	3.00	55.07	38.10	60.00	50.00	4.93	11.90
23.68 (L)	3.00	48.19	42.93	60.00	50.00	11.81	7.07
Remark: 1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB). 2. Margin (dB) = Limit - Corrected Reading.							

4 Radiated emission

Test result: Pass

4.1 Radiated emission limits

4.1.1 Limits for radiated emission of class A device

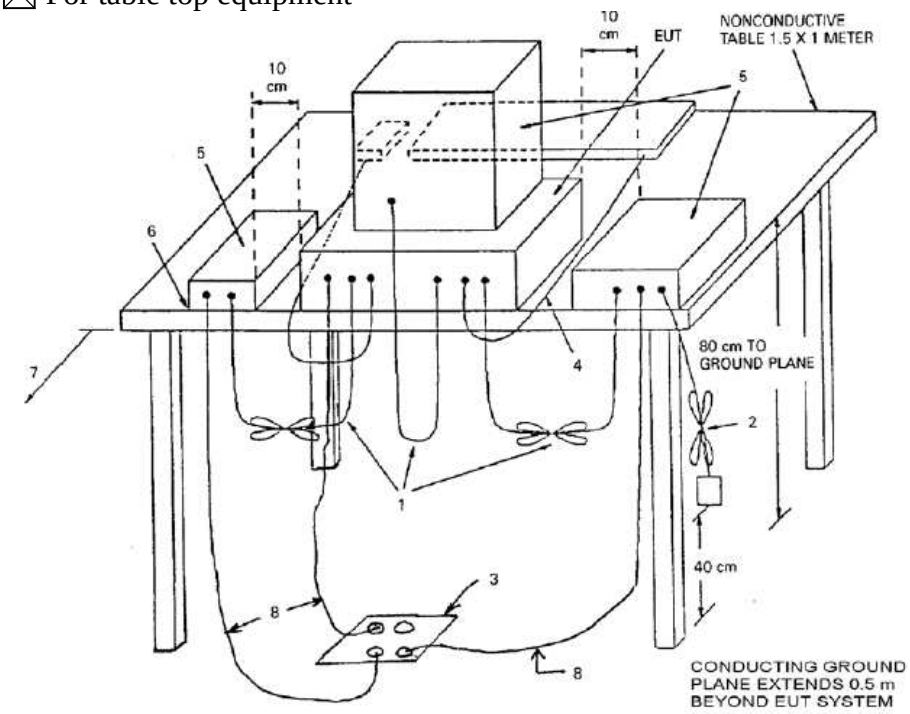
Frequency (MHz)	Permitted limit in dBμV/m (Quasi-peak) of Measurement Distance 10m
30 – 88	39
88 – 216	43.5
216 – 960	46.4
Above 960	49.5
Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.	

4.1.2 Limits for radiated emission of class B device

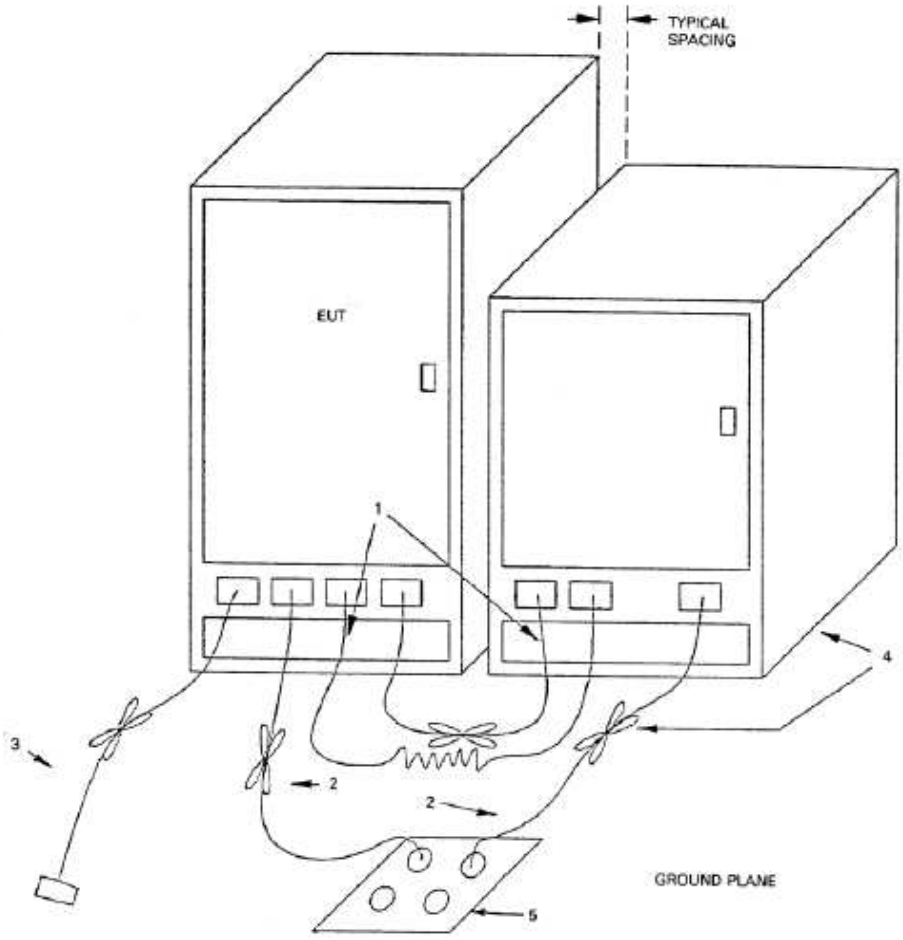
Frequency (MHz)	Permitted limit in dBμV/m (Quasi-peak) of Measurement Distance 3m
30 – 88	40.0
88 – 216	43.5
216 – 960	46.0
Above 960	54.0
Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.	

4.2 Block diagram and test set up

☒ For table top equipment



☐ For floor standing equipment



4.3 Test Setup and Test Procedure

The measurement was performed in a semi-anechoic chamber.
The distance from EUT to receiving antenna is **3** meter.
Measurement was performed according to clause 4 and clause 5 of ANSI 63.4.
Test procedure was according to clause 8.3 of ANSI 63.4.
EUT arrangement and operate condition were according to clause 6 and clause 8 of ANSI 63.4.
The bandwidth setting on R&S Test Receiver ESIB26 was 120 kHz.
The required measurement frequency range was checked.

4.4 Test Protocol

Temperature : 25 °C
Relative Humidity : 55 %

Antenna	Frequency (MHz)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
V	30.00	22.30	38.70	40.00	1.30	QP
V	111.64	15.70	34.00	43.50	9.50	PK
H	344.90	16.60	39.30	46.00	6.70	PK
H	480.98	20.10	45.00	46.00	1.00	PK
V	554.84	21.60	33.50	46.00	12.50	PK
V	3350.70	-7.60	47.90	54.00	6.10	PK

Remark: 1.Correct Factor = Antenna Factor + Cable Loss (+ Amplifier, for higher than 1GHz)
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB, Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10.00dBuV, limit = 40.00dBuV/m.
Then Correct Factor = 30.20 + 2.00 – 32.00 = 0.20dB/m; Corrected Reading = 10dBuV + 0.20dB/m = 10.20dBuV/m; Margin = 40.00dBuV/m - 10.20dBuV/m = 29.80dB.