

Launch Tech Co., Ltd.

golo³

Main Model: golo³

Serial Model: N/A

December 24, 2013

Report No.: 13070593-FCC-H2

(This report supersedes NONE)



Modifications made to the product : None

This Test Report is Issued Under the Authority of:

		
Herith Shi Compliance Engineer	Alex Liu Technical Manager	

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Test result presented in this test report is applicable to the representative sample only.

EMC Test Report
To:FCC 2.1091

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Korea	EMI, EMS, RF , Telecom, Safety
Japan	EMI, RF/Wireless, Telecom
Singapore	EMC , RF , Telecom
Europe	EMC, RF, Telecom , Safety

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1 EXECUTIVE SUMMARY & EUT INFORMATION

The purpose of this test programmers was to demonstrate compliance of the Launch Tech Co., Ltd., golo³ and Model: golo³ against the current Stipulated Standards. The golo³ has demonstrated compliance with the FCC 2.1091.

EUT Information

EUT Description : golo³

Main Model : golo³

Serial Model N/A

Antenna Gain : UMTS-FDD Band V/GPRS850: -4.95dBi
UMTS-FDD Band II/GPRS1900: 2.15dBi
Bluetooth: -1.2dBi
WIFI: -1.2dBi

Input Power : Input: DC 12V

Classification Per Stipulated Test Standard : Class B Emission Product Per
FCC 2.1091

2 TECHNICAL DETAILS

Purpose	Compliance testing of golo ³ with stipulated standards
Applicant / Client	Launch Tech Co., Ltd. Launch Industrial Park, North of Wuhe Rd., Banxuegang, Longgang, Shenzhen, China
Manufacturer	Launch Industrial Park, North of Wuhe Rd., Banxuegang, Longgang, Shenzhen, China
Laboratory performing the tests	SIEMIC (Shenzhen-China) Laboratories Zone A, Floor 1, Building 2, Wan Ye Long Technology Park, South Side of Zhoushi Road, Bao'an District, Shenzhen, Guangdong, China Tel: +86-0755-2601 4629 / 2601 4953 Fax: +86-0755-2601 4953-810 Email: China@siemic.com.cn
Test report reference number	13070593-FCC-H2
Date EUT received	December 06, 2013
Standard applied	FCC 2.1091
Dates of test (from – to)	December 09 to December 19, 2013
No of Units	#1
Equipment Category	DSS
Trade Name	LAUNCH
RF Operating Frequency (ies)	GPRS850 TX : 824.2 ~ 848.8 MHz; RX : 869.2 ~ 893.8 MHz GPRS1900 TX : 1850.2 ~ 1909.8 MHz; RX : 1930.2 ~ 1989.8 MHz UMTS-FDD Band V TX : 826.4 ~ 846.6 MHz; RX : 871.4 ~ 891.6 MHz UMTS-FDD Band II TX : 1852.4 ~ 1907.6 MHz; RX : 1932.4 ~ 1987.6 MHz 802.11b/g/n(20M): 2412-2462 MHz Bluetooth: 2402-2480 MHz
Number of Channels	299CH (GPRS1900) and 124CH (GPRS850) UMTS-FDD Band V : 102CH UMTS-FDD Band II : 277CH Bluetooth: 79CH 802.11b/g/n: 11CH
Modulation	GPRS: GMSK UMTS-FDD: QPSK 802.11b/g/n: DSSS/OFDM Bluetooth: GFSK& $\pi/4$ DQPSK&8DPSK
FCC ID	XUJRCUL

3 FCC §2.1091 - Maximum Permissible exposure (MPE)

3.1 Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

3.2 Test Data

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

GPRS 850MHz

Maximum peak output power at antenna input terminal: 33.00 (dBm)

Maximum peak output power at antenna input terminal: 1995.26(mW)

Prediction distance: >20 (cm)
Predication frequency: 848.8 (MHz)
Antenna Gain (typical): -4.95 (dBi)

Antenna Gain (typical): 0.32(numeric)

The worst case is power density at predication frequency at 20 cm: 0.127 (mW/cm²)

MPE limit for general population exposure at prediction frequency: 0.566 (mW/cm²)

$0.127 \text{ (mW/cm}^2\text{)} < 0.566 \text{ (mW/cm}^2\text{)}$

GPRS 1900MHz

Maximum peak output power at antenna input terminal: 30.00(dBm)

Maximum peak output power at antenna input terminal: 1000 (mW)

Prediction distance: >20 (cm)
Predication frequency: 1850.2(MHz)
Antenna Gain (typical): 2.15 (dBi)

Antenna Gain (typical): 1.641 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.326(mW/cm²)

MPE limit for general population exposure at prediction frequency: 1 (mW/cm²)

$0.326 \text{ (mW/cm}^2\text{)} < 1 \text{ (mW/cm}^2\text{)}$

2.4GHz
802.11b

Maximum peak output power at antenna input terminal: 18.50(dBm)

Maximum peak output power at antenna input terminal: 70.79 (mW)

Prediction distance: >20 (cm)
Predication frequency: 2412(MHz)
Antenna Gain (typical): -1.2 (dBi)

Antenna Gain (typical): 0.7586 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.011(mW/cm²)

MPE limit for general population exposure at prediction frequency: 1 (mW/cm²)

$0.011 \text{ (mW/cm}^2\text{)} < 1 \text{ (mW/cm}^2\text{)}$

2.4GHz
GFSK

Maximum peak output power at antenna input terminal: 7 (dBm)

Maximum peak output power at antenna input terminal: 5.01 (mW)

Prediction distance: >20 (cm)
Predication frequency: 2480(MHz)
Antenna Gain (typical): -1.2 (dBi)

Antenna Gain (typical): 0.7586 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.0008(mW/cm²)

MPE limit for general population exposure at prediction frequency: 1 (mW/cm²)

$$0.0008(\text{mW}/\text{cm}^2) < 1 (\text{mW}/\text{cm}^2)$$

GPRS 850MHz and 2.4GHz BT+WIFI total/sum MPE

GPRS 850MHz the worst case is power at predication frequency: 848.8 MHz at 20 cm: 0.127 (mW/cm²)

802.11b the worst case is power density at predication frequency 2412 MHz at 20 cm: 0.011 (mW/cm²)

BT the worst case is power density at predication frequency 2480MHz at 20 cm: 0.0008 (mW/cm²)

The worst case is total/sum=0.127 (mW/cm²) /0.565+

$$0.011(\text{mW}/\text{cm}^2)/1+0.0008(\text{mW}/\text{cm}^2)/1=0.235 (\text{mW}/\text{cm}^2)$$

MPE limit for general population exposure at prediction frequency: 1 (mW/cm²)

$$0.237(\text{mW}/\text{cm}^2) < 1 (\text{mW}/\text{cm}^2)$$

Result: Pass