

FCC RF EXPOSURE EVALUATION REPORT

Product Name: DP CONNECTING KIT(SMART CONTROLLER)
Trade Mark: N/A
Model No.: 2042811
Report Number: 180919023RFC-2
Test Standards: FCC 47 CFR Part 1 Subpart I
FCC ID: 2ALCP2042811S
Test Result: PASS
Date of Issue: October 18, 2018


Prepared for:

LF Beauty Limited
2/F., HK Spinners Industrial Building, Phases I & II, 800 Cheung ShaWan Road, Kowloon, Hong Kong

Prepared by:

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Version

| Version No. | Date | Description |
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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

| | |
|---------------------------------|--|
| Applicant: | LF Beauty Limited |
| Address of Applicant: | 2/F., HK Spinners Industrial Building, Phases I & II, 800 Cheung ShaWan Road, Kowloon, Hong Kong |
| Manufacturer: | LF Beauty Limited |
| Address of Manufacturer: | 2/F., HK Spinners Industrial Building, Phases I & II, 800 Cheung ShaWan Road, Kowloon, Hong Kong |

1.2 EUT INFORMATION

| | | |
|-------------------------------|--|--------------------------|
| Product Name: | DP CONNECTING KIT(SMART CONTROLLER) | |
| Model No.: | 2042811 | |
| Add. Model No.: | N/A | |
| Trade Mark: | N/A | |
| DUT Stage: | Identical Prototype | |
| EUT Supports Function: | GSM Bands: | GSM850/1900 |
| | UTRA Bands: | Band II/ Band V |
| | 2.4 GHz ISM Band: | Bluetooth V4.0 (Only LE) |
| Sample Received Date: | September 19, 2018 | |
| Sample Tested Date: | September 19, 2018 to October 16, 2018 | |

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

| | |
|----------------------------|------------------------|
| For BT LE | |
| Frequency Band: | 2400 MHz to 2483.5 MHz |
| Frequency Range: | 2402 MHz to 2480 MHz |
| Bluetooth Version: | Bluetooth LE |
| Type of Modulation: | GFSK |
| Number of Channels: | 40 |
| Channel Separation: | 2 MHz |
| Antenna Type: | External Antenna |
| Antenna Gain: | 6 dBi |
| Maximum Peak Power: | -4.22 dBm |

| | | |
|-----------------------------|-----------------|------------------------|
| For WWAN | | |
| Type of Modulation: | GPRS: | GMSK |
| | EDGE: | GMSK, 8PSK |
| | WCDMA | BPSK |
| | HSDPA: | QPSK |
| | HSUPA: | QPSK |
| Frequency Range: | GPRS/EDGE 850: | 824.2-848.8 MHz |
| | GPRS/EDGE 1900: | 1850.2-1909.8 MHz |
| | WCDMA Band II: | 1852.4-1907.6 MHz |
| | WCDMA Band V: | 826.4-846.6 MHz |
| Max RF Output Power: | GPRS 850: | 32.14 dBm |
| | EDGE 850: | 26.29 dBm |
| | GPRS 1900: | 29.10 dBm |
| | EDGE 1900: | 25.70 dBm |
| | WCDMA Band II: | 23.70 dBm |
| | WCDMA Band V: | 23.24 dBm |
| Max RF Output Power: | GPRS 850: | 1TS*(1/8): 33 dBm ±3dB |
| | | 2TS*(2/8): 32 dBm ±3dB |
| | | 3TS*(3/8): 31 dBm ±3dB |
| | | 4TS*(4/8): 29 dBm ±3dB |
| | GPRS 1900: | 1TS*(1/8): 30 dBm ±3dB |

| | | |
|----------------------|------------------|--------------------------|
| | | 2TS*(2/8): 29.5 dBm ±3dB |
| | | 3TS*(3/8): 28.5 dBm ±3dB |
| | | 4TS*(4/8): 27.0 dBm ±3dB |
| | WCDMA Band II: | 24 dBm ±3dB |
| | WCDMA Band V: | 24 dBm ±3dB |
| Antenna Type: | External Antenna | |
| Antenna Gain: | GSM 850: | 2 dBi |
| | GSM 1900: | 2 dBi |
| | WCDMA Band II: | 2 dBi |
| | WCDMA Band V: | 2 dBi |

1.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC 47 CFR Part 1 Subpart I

All test items have been performed and recorded as per the above standards

1.5 TEST LOCATION

All tests were performed at:

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China 518109
 Telephone: +86 (0) 755 2823 0888
 Fax: +86 (0) 755 2823 0886

1.6 TEST FACILITY

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

CNAS-Lab Code: L9069

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

IC-Registration No.: 21600-1

The 3m Semi-anechoic chamber of Shenzhen UnionTrust Quality and Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 21600-1.

A2LA-Lab Certificate No.: 4312.01

Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC Accredited Lab.

Designation Number: CN1194

Test Firm Registration Number: 259480

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China

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[Http://www.uttlab.com](http://www.uttlab.com)

1.7 DEVIATION FROM STANDARDS

None.

1.8 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

2. EQUIPMENT LIST

Please refer to the RF test report.



3. MPE EVALUATION

3.1 REFERENCE DOCUMENTS FOR EVALUATION

| No. | Identity | Document Title |
|-----|---|---|
| 1 | FCC 47 CFR Part 1 Subpart I | PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 |
| 2 | KDB 447498 D01 General RF Exposure Guidance v06 | RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES |

3.2 MPE COMPLIANCE REQUIREMENT

3.2.1 Limits

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

Limits for Occupational / Controlled Exposure

| Frequency range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm ²) | Averaging Times E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|---|--|
| 0.3-3.0 | 614 | 1.63 | (100)* | 6 |
| 3.0-30 | 1842/f | 4.89/f | (900/f)* | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | / | / | F/300 | 6 |
| 1500-100000 | / | / | 5 | 6 |

Limits for General Population / Uncontrolled Exposure

| Frequency range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm ²) | Averaging Times E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|---|--|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | (180/f)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | / | / | F/1500 | 30 |
| 1500-100000 | / | / | 1 | 30 |

Note: f = frequency in MHz; * = Plane-wave equivalents power density.

3.2.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3.3 MPE CALCULATION METHOD

$$S = PG/4\pi R^2 = EIRP/4\pi R^2$$

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 (in appropriate units, e.g., cm)

3.4 MPE CALCULATION RESULTS

Note: For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

3.4.1 For BLE

For BLE function, operating at 2402MHz to 2480 MHz

3.4.1.1 Antenna Type:

Chain 0: External Antenna

3.4.1.2 Antenna Gain:

Chain 0: 2402MHz to 2480 MHz: 6 dBi

3.4.1.3 Results for BLE

| Operating Mode | Freq. | Declared maximum conducted average output power | Max. positive tolerance according manufacturer | Antenna Gain | Calculated maximum EIRP | Declared maximum EIRP | MPE Limit | MPE Value |
|----------------|-----------|---|--|--------------|-------------------------|-----------------------|-----------------------|-----------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (mW) | (mw/cm ²) | |
| LE | 2402-2480 | -6 | 3 | 6 | 3 | 1.9953 | 1 | 0.0004 |

3.4.2 For WWAN

For GPRS/EDGE function, operating at 850/1900 bands for GMSK and 8PSK and
 For WCDMA function, operating at band II/ IV/ V for BPSK and QPSK

3.4.2.1 Antenna Type:

Chain 0: External Antenna

3.4.2.2 Antenna Gain:

Chain 0: 2 dBi

3.4.2.3 Results for WWAN

| Operating Mode | Freq. | Declared maximum conducted output power | Max. positive tolerance according manufacturer | Antenna Gain | Calculated maximum EIRP | Duty cycle | Equivalent EIRP | MPE Limit | MPE Value |
|---------------------|---------------|---|--|--------------|-------------------------|------------|-----------------|-----------------------|-----------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (%) | (mW) | (mw/cm ²) | |
| GPRS 850 1TS*(1/8) | 824.2-848.8 | 33 | 3 | 2 | 38 | 12.5 | 788.6967 | 0.5493 | 0.1569 |
| GPRS 850 2TS*(2/8) | | 32 | 3 | 2 | 37 | 25 | 1252.9681 | 0.5493 | 0.2493 |
| GPRS 850 3TS*(3/8) | | 31 | 3 | 2 | 36 | 37.5 | 1492.9019 | 0.5493 | 0.2970 |
| GPRS 850 4TS*(4/8) | | 29 | 3 | 2 | 34 | 50 | 1255.9432 | 0.5493 | 0.2499 |
| GPRS 1900 1TS*(1/8) | 1850.2-1909.8 | 30 | 3 | 2 | 35 | 12.5 | 395.2847 | 1 | 0.0786 |
| GPRS 1900 2TS*(2/8) | | 29.5 | 3 | 2 | 34.5 | 25 | 704.5957 | 1 | 0.1402 |
| GPRS 1900 3TS*(3/8) | | 28.5 | 3 | 2 | 33.5 | 37.5 | 839.5204 | 1 | 0.1670 |
| GPRS 1900 4TS*(4/8) | | 27.0 | 3 | 2 | 32 | 50 | 792.4466 | 1 | 0.1576 |
| WCDMA FDD Band II | 1852.4-1907.6 | 24 | 3 | 2 | 29 | 100 | 794.3282 | 1 | 0.1580 |
| WCDMA FDD Band V | 826.4-846.6 | 24 | 3 | 2 | 29 | 100 | 794.3282 | 0.5493 | 0.1580 |

Note 1: Calculated maximum EIRP = Declared maximum conducted output power + Max. positive tolerance according manufacturer + Antenna Gain.
 Note 2: Declared maximum EIRP = $10^{\left(\frac{\text{Calculated maximum EIRP}}{10}\right)}$.
 Note 3: Equivalent EIRP = Declared maximum EIRP * Duty cycle.
 Note 4: Margin = MPE Limit - MPE Value.

3.4.3 Simultaneous Multi-band Transmission MPE Analysis

3.4.4.1 List of Mode for Simultaneous Multi-band Transmission

| No. | Configurations | Support/Not Support |
|-----|----------------|---------------------|
| 1 | WWAN + BT | Support |

3.4.4.2 Results for transmit simultaneously

| No. | Configurations | Maximum MPE Value (mw/cm ²) | | | Limits (mw/cm ²) |
|-----|--------------------|---|--------|-------------------------|------------------------------|
| | | WWAN | BT | Transmit simultaneously | |
| 1 | GPER 850 + BT | 0.2970 | 0.0004 | 0.5411 | 1 |
| 2 | GPER 1900 + BT | 0.1670 | 0.0004 | 0.1674 | 1 |
| 3 | WCDMA Band II + BT | 0.1580 | 0.0004 | 0.1584 | 1 |
| 4 | WCDMA Band V + BT | 0.1580 | 0.0004 | 0.2880 | 1 |

Note 1: According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

$$\text{Transmit simultaneously MPE} = \Sigma \text{ of MPE ratios}$$

$$\text{MPE ratios} = \text{Field strengths or power density} / \text{MPE limit at the test frequency}$$

APPENDIX 1 PHOTOS OF TEST SETUP

N/A

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal photos.

*** End of Report ***

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of UnionTrust, this report can't be reproduced except in full.
