

FCC RF EXPOSURE EVALUATION REPORT

Product Name: Coffee maker
Trade Mark: NESCAFE
Model No.: 9778
Report Number: 170921037RFC-3
Test Standards: FCC 47 CFR Part 1 Subpart I
FCC ID: A679778
Test Result: PASS
Date of Issue: October 20, 2017

Prepared for:

WIK Far East Ltd.

Unit B, 23/F, 169 Electric Road, North Point, Hong Kong, China

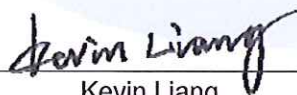
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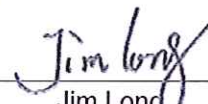
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Tested by:



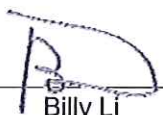
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Version

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V1.0	October 20, 2017	Original

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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	WIK Far East Ltd.
Address of Applicant:	Unit B, 23/F, 169 Electric Road, North Point, Hong Kong, China
Manufacturer:	WIK Far East Ltd.
Address of Manufacturer:	Unit B, 23/F, 169 Electric Road, North Point, Hong Kong, China

1.2 EUT INFORMATION

Product Name:	Coffee maker	
Model No.:	9778	
Add. Model No.:	N/A	
Trade Mark:	NESCAFE	
DUT Stage:	Identical Prototype	
EUT Supports Function:	2.4 GHz ISM Band:	IEEE 802.11b/g/n
	NFC:	13.553 MHz to 13.567 MHz
Sample Received Date:	September 22, 2017	
Sample Tested Date:	September 22, 2017 to October 17, 2017	

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

For 2.4 GHz ISM Band of Wi-Fi	
Frequency Band:	2400 MHz to 2483.5 MHz
Operation Frequency:	2412 MHz to 2462 MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n-HT20
Type of Modulation:	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n-HT20: OFDM(64QAM, 16QAM, QPSK, BPSK)
Data Rate:	IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS7
Number of Channels:	IEEE 802.11b: 11 IEEE 802.11g: 11 IEEE 802.11n-HT20: 11
Channel Separation:	5 MHz
Antenna Type:	PCB Antenna
Antenna Gain:	3.3 dBi
Maximum Conducted Output Power:	IEEE 802.11b: 19.22 dBm IEEE 802.11g: 19.97 dBm IEEE 802.11n-HT20: 19.63 dBm

For NFC	
Frequency Band:	13.110 MHz to 14.010 MHz
Operation Frequency:	13.56 MHz
Data Rate:	Up to 424 Kbps
Type of Modulation:	ASK
Antenna Type:	Loop internal Antenna
Maximum Field Strength:	28.2 dBμV/m at 30 meter

1.4 OTHER INFORMATION

None.

1.5 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

1.6 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
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1.7 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

1.8 DEVIATION FROM STANDARDS

None.

1.9 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.10 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 ²)*	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 ²)*	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 WLAN and NFC

For WiFi function, operating at 2412MHz to 2462 MHz for IEEE802.11b/g/n

For NFC function, operating at 13.110 MHz to 14.010 MHz.

3.4.1.1 Antenna Type:

WiFi: Chain 0: PCB Antenna

NFC: Chain 0: Loop Antenna

3.4.1.2 Antenna Gain:

WLAN: 2412MHz to 2462 MHz: 3.3 dBi

NFC: 13.56MHz: 0dBi

3.4.1.3 Results for WLAN

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	Pass / Fail
	(MHz)	(dBm)		(dBi)	(dBm)	(mW)	(mw/cm ²)		
IEEE 802.11b	2412-2462	16.0	2.0	3.3	21.3	134.896	1	0.0268	PASS
IEEE 802.11g		15.5	2.0	3.3	20.8	120.226	1	0.0239	PASS
IEEE 802.11n-HT20		14.5	2.5	3.3	20.3	107.152	1	0.0213	PASS

3.4.1.4 Results for NFC

Operating Mode	Freq.	Declared maximum field strength	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum field strength	Declared maximum field strength	MPE Limit	MPE Value	Pass / Fail
	(MHz)	(dBμV/m at 3 meter)		(dBi)	(dBm)	(mW)	(mw/cm ²)		
NFC	13.56	68.2	1.0	0	-28.2	0.002	0.979	3.979 x 10 ⁻⁷	PASS

3.4.1.5 Results for Simultaneous

Operating Mode	Freq.(MHz)	Max. MPE Value	MPE ratios	Sum	Limit	Pass / Fail
IEEE 802.11b	2412-2462	0.0268	0.0268	0.0268	≤1	PASS
NFC	13.56	3.979 x 10 ⁻⁷	4.064 x 10 ⁻⁷			

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 ***

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