

## TEST REPORT

Product Name: NB-IoT module  
Trademark:   安信可科技  
Model Number: EC-01F, EC-01, EC-01G  
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Sample Received Date: Sep. 1, 2021  
Sample tested Date: Sep. 1, 2021 to Sep. 10, 2021  
Issue Date: Sep. 23, 2021  
Report No.: CTB210910045RHX  
Test Standards: EN 62311:2008  
Test Results: PASS

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*(Note: N/A means not applicable)*

## 1. VERSION

Report No.	Issue Date	Description	Approved
CTB210910045RHX	Sep. 23, 2021	Original	Valid



## 2. PRODUCT INFORMATION AND TEST SETUP

### 2.1 Product Information

Model(s):	EC-01F, EC-01, EC-01G
Model Description:	All the model are the same circuit and RF module, only for model name. Test sample model: EC-01F
Wi-Fi Specification:	IEEE 802.11b/g/n
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	FDD-LTE BAND 3: TX:1710-1785MHz, RX: 1805-1880 MHz FDD-LTE BAND 8: TX:880-915 MHz, RX: 925-960MHz
Max. RF output power:	FDD-LTE BAND 3: 23.02dBm FDD-LTE BAND 8: 22.65dBm
Type of Modulation:	LTE : BPSK, QPSK
Antenna installation:	LTE: SMA antenna
Antenna Gain:	LTE Band3:1 dBi LTE Band8:1 dBi
Ratings:	DC 5.0V charging from PC

### 3. HEALTH REQUIREMENTS

#### 3.1 Limits

According to Council Recommendation: the criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation.

Reference levels for electric, magnetic and electromagnetic fields (0Hz to 300GHz, unperturbed RMS values)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density Seq (W/m2)
0-1 Hz	-	$3.2 \times 10^4$	$4 \times 10^4$	-
1-8 Hz	10000	$3.2 \times 10^4 / f^2$	$4 \times 10^4 / f^2$	-
8-25 Hz	10000	$4000 / f$	$5000 / f$	-
0.025-0.8 kHz	$250 / f$	$4 / f$	$5 / f$	-
0.8-3 kHz	$250 / f$	5	6.25	-
3-150 kHz	87	5	6.25	-
0.15-1 MHz	87	$0.73 / f$	$0.92 / f$	-
1-10 MHz	$87 / f^{1/2}$	$0.73 / f$	$0.92 / f$	-
10-400 MHz	28	0.073	0.095	2
400-2000 MHz	$1.375 f^{1/2}$	$0.0037 f^{1/2}$	$0.0046 f^{1/2}$	$f / 200$
2-300 GHz	61	0.16	0.2	10

Note:

1. f as indicated in the frequency range column.
2. For frequencies between 100 kHz and 10 GHz, Seq, E<sup>2</sup>, H<sup>2</sup> and B<sup>2</sup> are to be averaged over any six-minute period.
3. For frequencies exceeding 10 GHz, Seq, E<sup>2</sup>, H<sup>2</sup> and B<sup>2</sup> are to be averaged over any  $68 / f^{1.05}$  minute period (f in GHz).

### 3.2 Exposure Evaluation

From Council Recommendation 1999/519/EC table 2, the maximum power density is 10 W/m<sup>2</sup>.

Power density (S) is calculated by the following formula:

$$S = PG * \text{Duty factor} / 4\pi R^2$$

P = Peak Power Input to antenna (Watts)

G =Antenna Gain (numeric)

R = distance to the center of radiation of antenna (in meter) = 0.20 m

Note:

1)  $P \text{ (Watts)} = (10^{(\text{dBm} / 10)}) / 1000$

2)  $G \text{ (Antenna gain in numeric)} = 10^{(\text{Antenna gain in dBi} / 10)}$

3) Duty factor=1.0

4)  $\pi = 3.142$

#### LTE Band 3

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (W)	Duty factor	Calculated RF Exposure (W/ m <sup>2</sup> )	Limit (W/ m <sup>2</sup> )
1.00	1.26	23.02	0.2004	1.00	0.5020	8.55

#### LTE Band 8

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (W)	Duty factor	Calculated RF Exposure (W/ m <sup>2</sup> )	Limit (W/ m <sup>2</sup> )
1.00	1.26	22.65	0.1841	1.00	0.4610	4.40



#### 4. EUT PHOTOGRAPHS

Refer to Report No.CTB210910043REX for EUT external and internal photos.

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