



REPORT No. : SZ18080124S01

RF EXPOSURE EVALUATION REPORT

APPLICANT : Social Bicycles LLC

PRODUCT NAME : Clarion Module

MODEL NAME : Clarion Module R6

BRAND NAME : JUMP Bikes

FCC ID : 2ADEK1808R6

STANDARD(S) : 47CFR 2.1091
KDB 447498

ISSUE DATE : 2018-10-15

Reviewed by: Gan Yueming
Gan yueming (Reviewer)

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Peng Huarui (Supervisor)

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Version No.	Date	Description
1.0	2018-10-15	Original

Tested By	
Test engineer:	Su Jinhai



1. Technical Information

Note: Provide by manufacturer.

1.1 Applicant and Manufacturer Information

Applicant:	Social Bicycles LLC
Applicant Address:	55 Prospect ST. Suite 410 Brooklyn, New York 11201, United States
Manufacturer:	E-BUSINESS INTERNATIONAL TECHNOLOGY(SHENZHEN) CO.LTD
Manufacturer Address:	Floor 2, Tower A, New Energy Building, Nanhai Road, Nanshan, Shenzhen, China

1.2 Equipment Under Test (EUT) Description

EUT Type:	Clarion Module
Hardware Version:	R6
Software Version:	1.0.3_rc1
Frequency Bands:	WCDMA Band II: 1852.4 MHz ~1907.6 MHz WCDMA Band IV: 1712.4 MHz ~1752.6 MHz WCDMA Band V: 826.4 MHz ~846.6 MHz LTE Band 2: 1850 MHz ~1910 MHz LTE Band 4: 1710 MHz ~1755 MHz LTE Band 5: 824 MHz ~849 MHz LTE Band 12: 699 MHz ~716 MHz Bluetooth: 2402MHz~2480 MHz
Modulation Mode:	WCDMA: QPSK LTE: QPSK/16QAM Bluetooth LE: GFSK
Antenna Type:	Chip Antenna
Antenna Gain:	LET/WCDMA : 1dBi BLE 1.3dBi

1.3 Photographs of the EUT

1. EUT front view



2. EUT rear view





1.3.1 Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	R6	1.0.3_rc1

1.4 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1091	Radio frequency Radiation Exposure Evaluation: mobile devices
2	KDB 447498 D01v06	General RF Exposure Guidance

2. Device Category and RF Exposure Limit

Per user manual, Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

Mobile Devices:

47CFR 2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

GENERAL POPULATION / UNCONTROLLED EXPOSURE

The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(B) Limits for General Population/Uncontrolled Exposure				
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. Measurement of RF Output Power

3.1 WCDMA Conducted Power

Band		WCDMA II			Tune-up Limit (dBm)
TX Channel		9262	9400	9538	
Rx Channel		9662	9800	9938	
Frequency (MHz)		1852.4	1880	1907.6	
3GPP Rel 99	RMC 12.2Kbps	22.27	22.92	22.20	23.50
3GPP Rel 6	HSDPA Subtest-1	22.27	23.05	22.49	23.50
3GPP Rel 6	HSDPA Subtest-2	22.23	23.02	22.49	23.50
3GPP Rel 6	HSDPA Subtest-3	21.79	22.51	21.87	23.00
3GPP Rel 6	HSDPA Subtest-4	21.77	22.51	21.85	23.00
3GPP Rel 6	HSUPA Subtest-1	22.25	22.93	22.47	23.00
3GPP Rel 6	HSUPA Subtest-2	20.33	21.02	20.39	21.50
3GPP Rel 6	HSUPA Subtest-3	21.22	21.88	21.43	22.00
3GPP Rel 6	HSUPA Subtest-4	20.35	21.04	20.37	21.50
3GPP Rel 6	HSUPA Subtest-5	22.27	22.92	22.46	23.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	22.11	22.78	22.12	23.00

Band		WCDMA IV			Tune-up Limit (dBm)
TX Channel		1312	1413	1513	
Rx Channel		1537	1638	1738	
Frequency (MHz)		1712.4	1732.6	1752.6	
3GPP Rel 99	RMC 12.2Kbps	23.32	23.14	23.04	23.50
3GPP Rel 6	HSDPA Subtest-1	23.32	23.14	23.04	23.50
3GPP Rel 6	HSDPA Subtest-2	23.22	23.12	23.16	23.50
3GPP Rel 6	HSDPA Subtest-3	22.75	22.54	22.59	23.00
3GPP Rel 6	HSDPA Subtest-4	22.72	22.57	22.56	23.00
3GPP Rel 6	HSUPA Subtest-1	23.32	23.14	23.04	23.50
3GPP Rel 6	HSUPA Subtest-2	21.23	21.06	21.01	21.50
3GPP Rel 6	HSUPA Subtest-3	22.22	22.15	22.09	22.50
3GPP Rel 6	HSUPA Subtest-4	21.24	21.10	21.06	21.50
3GPP Rel 6	HSUPA Subtest-5	23.22	23.16	23.12	23.50
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	23.24	23.08	23.05	23.50



Band		WCDMA V			Tune-up Limit (dBm)
TX Channel		4132	4182	4233	
Rx Channel		4357	4407	4458	
Frequency (MHz)		826.4	836.4	846.6	
3GPP Rel 99	RMC 12.2Kbps	24.41	24.35	24.46	24.50
3GPP Rel 6	HSDPA Subtest-1	24.35	24.29	24.36	24.50
3GPP Rel 6	HSDPA Subtest-2	24.33	24.21	24.34	24.50
3GPP Rel 6	HSDPA Subtest-3	23.89	23.75	23.83	24.00
3GPP Rel 6	HSDPA Subtest-4	23.78	23.69	23.79	24.00
3GPP Rel 6	HSUPA Subtest-1	24.38	24.35	24.48	25.00
3GPP Rel 6	HSUPA Subtest-2	22.40	22.33	22.45	22.50
3GPP Rel 6	HSUPA Subtest-3	23.44	23.35	23.57	24.00
3GPP Rel 6	HSUPA Subtest-4	22.45	22.32	22.47	22.50
3GPP Rel 6	HSUPA Subtest-5	24.38	24.35	24.48	24.50
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	24.34	24.36	24.44	24.50

3.2. LTE Conducted Power

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				18700	18900	19100	
Frequency (MHz)				1860	1880	1900	
20	QPSK	1	0	23.76	24.05	23.67	24.5
20	QPSK	1	49	23.55	23.56	23.65	
20	QPSK	1	99	23.93	23.61	23.71	
20	QPSK	50	0	23.85	23.56	23.83	24.5
20	QPSK	50	24	23.94	23.87	23.57	
20	QPSK	50	50	23.97	24.11	23.84	
20	QPSK	100	0	23.26	23.98	24	
20	16QAM	1	0	23.48	23.97	23.86	24.5
20	16QAM	1	49	23.44	23.9	24.13	
20	16QAM	1	99	23.71	24.06	23.84	
20	16QAM	50	0	24.16	23.67	23.54	24.5
20	16QAM	50	24	23.93	23.65	23.97	
20	16QAM	50	50	24.10	23.71	24.06	
20	16QAM	100	0	23.79	23.83	23.83	
Channel				18675	18900	19125	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1880	1902.5	
15	QPSK	1	0	23.55	23.85	23.44	24.5
15	QPSK	1	37	23.93	23.94	23.71	
15	QPSK	1	74	23.85	23.97	24.16	
15	QPSK	36	0	23.94	23.26	23.93	23.5
15	QPSK	36	20	23.97	23.48	24.1	
15	QPSK	36	39	23.26	23.44	23.79	
15	QPSK	75	0	23.48	23.71	24.05	
15	16QAM	1	0	23.44	24.16	23.56	23.5
15	16QAM	1	37	23.71	23.93	23.61	
15	16QAM	1	74	24.16	24.1	23.56	



15	16QAM	36	0	23.93	23.79	23.87	22.5
15	16QAM	36	20	24.1	24.05	24.11	
15	16QAM	36	39	23.79	23.56	23.98	
15	16QAM	75	0	24.05	23.61	23.97	
Channel				18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1905	
10	QPSK	1	0	23.55	24.16	23.87	24.5
10	QPSK	1	25	23.93	23.93	24.11	
10	QPSK	1	49	23.85	24.1	23.98	
10	QPSK	25	0	23.94	23.79	23.97	23.5
10	QPSK	25	12	23.97	24.05	24.1	
10	QPSK	25	25	23.26	23.56	23.79	
10	QPSK	50	0	23.48	23.61	24.05	
10	16QAM	1	0	23.44	23.56	23.56	23.5
10	16QAM	1	25	23.71	23.93	23.61	
10	16QAM	1	49	24.16	24.1	23.56	
10	16QAM	25	0	23.93	23.79	23.87	22.5
10	16QAM	25	12	24.1	24.05	24.11	
10	16QAM	25	25	23.79	23.56	23.98	
10	16QAM	50	0	24.05	23.61	23.97	
Channel				18625	18900	19175	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1880	1907.5	
5	QPSK	1	0	23.55	23.26	23.44	24.5
5	QPSK	1	12	23.93	23.48	23.85	
5	QPSK	1	24	23.85	23.44	23.94	
5	QPSK	12	0	23.94	23.71	23.97	24.5
5	QPSK	12	7	23.97	23.48	23.26	
5	QPSK	12	13	23.26	23.44	23.79	
5	QPSK	25	0	23.48	23.71	24.05	
5	16QAM	1	0	23.44	23.56	23.56	23.5
5	16QAM	1	12	23.71	23.61	23.61	
5	16QAM	1	24	24.16	23.56	23.56	
5	16QAM	12	0	23.93	23.87	23.87	22.5



5	16QAM	12	7	24.1	24.11	24.11	
5	16QAM	12	13	23.79	23.56	23.98	
5	16QAM	25	0	24.05	23.61	23.97	
Channel				18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1908.5	
3	QPSK	1	0	23.55	23.85	24.10	24.5
3	QPSK	1	8	23.93	23.94	23.79	
3	QPSK	1	14	23.85	23.97	24.05	
3	QPSK	8	0	23.94	23.26	23.56	24.5
3	QPSK	8	4	23.97	23.55	23.61	
3	QPSK	8	7	23.26	23.93	23.56	
3	QPSK	15	0	23.48	23.85	24.05	
3	16QAM	1	0	23.44	23.94	23.56	24.5
3	16QAM	1	8	23.71	23.97	23.61	
3	16QAM	1	14	24.16	23.26	23.56	
3	16QAM	8	0	23.93	23.48	23.87	24.5
3	16QAM	8	4	24.1	23.44	24.11	
3	16QAM	8	7	23.79	23.56	23.98	
3	16QAM	15	0	24.05	23.61	23.97	
Channel				18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1909.3	
1.4	QPSK	1	0	23.55	23.48	23.44	24.5
1.4	QPSK	1	3	23.93	23.44	23.71	
1.4	QPSK	1	5	23.85	23.71	24.16	
1.4	QPSK	3	0	23.94	24.16	23.93	
1.4	QPSK	3	1	23.79	23.93	24.1	
1.4	QPSK	3	3	24.05	24.1	23.79	
1.4	QPSK	6	0	23.56	23.79	24.05	24.5
1.4	16QAM	1	0	23.61	24.05	23.56	24.5
1.4	16QAM	1	3	23.56	23.93	23.61	
1.4	16QAM	1	5	23.87	24.1	23.56	
1.4	16QAM	3	0	24.11	23.79	23.87	
1.4	16QAM	3	1	24.1	24.05	24.11	



1.4	16QAM	3	3	23.79	23.56	23.98	
1.4	16QAM	6	0	24.05	23.61	23.97	24.5

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20050	20175	20300	
Frequency (MHz)				1720	1732.5	1745	
20	QPSK	1	0	24.11	24.27	23.99	25
20	QPSK	1	49	24.12	23.99	24.4	
20	QPSK	1	99	24.23	24.25	24.12	
20	QPSK	50	0	23.75	24.24	23.81	24.5
20	QPSK	50	24	23.74	24.25	23.99	
20	QPSK	50	50	24.04	24.31	24.25	
20	QPSK	100	0	23.91	24.49	24.24	
20	16QAM	1	0	23.78	24.03	24.25	24.5
20	16QAM	1	49	24.12	23.74	24.31	
20	16QAM	1	99	24.36	24.14	23.74	
20	16QAM	50	0	24.26	23.92	24.03	25
20	16QAM	50	24	24.50	23.76	23.92	
20	16QAM	50	50	24.01	24.13	23.76	
20	16QAM	100	0	23.59	24.23	24.13	
Channel				20025	20175	20325	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1732.5	1747.5	
15	QPSK	1	0	23.81	24.27	23.99	25
15	QPSK	1	37	23.99	23.99	24.4	
15	QPSK	1	74	24.27	24.25	24.12	
15	QPSK	36	0	23.99	24.24	23.81	24.5
15	QPSK	36	20	24.25	24.25	23.99	
15	QPSK	36	39	24.24	24.31	24.25	
15	QPSK	75	0	24.25	24.49	24.24	
15	16QAM	1	0	24.31	24.03	24.25	24.5
15	16QAM	1	37	24.49	23.74	24.31	



15	16QAM	1	74	24.36	24.14	24.49	25
15	16QAM	36	0	24.26	23.92	24.03	
15	16QAM	36	20	24.5	23.76	23.74	
15	16QAM	36	39	24.01	24.13	23.76	
15	16QAM	75	0	23.59	24.23	24.13	
Channel				20000	20175	20350	Tune-up limit (dBm)
Frequency (MHz)				1715	1732.5	1750	
10	QPSK	1	0	24.12	24.24	24.24	25
10	QPSK	1	25	23.81	24.25	24.25	
10	QPSK	1	49	23.99	24.31	24.31	
10	QPSK	25	0	24.25	23.74	24.49	24.5
10	QPSK	25	12	23.74	24.25	23.99	
10	QPSK	25	25	24.04	24.31	24.25	
10	QPSK	50	0	23.91	24.49	24.24	
10	16QAM	1	0	23.78	24.03	24.25	24.5
10	16QAM	1	25	24.12	23.74	24.31	
10	16QAM	1	49	24.36	24.14	23.74	
10	16QAM	25	0	24.26	23.92	24.03	25
10	16QAM	25	12	24.5	23.76	23.92	
10	16QAM	25	25	24.01	24.13	23.76	
10	16QAM	50	0	23.59	24.23	24.13	
Channel				19975	20175	20375	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1732.5	1752.5	
5	QPSK	1	0	23.76	24.27	23.99	24.5
5	QPSK	1	12	24.13	23.99	24.4	
5	QPSK	1	24	24.23	24.25	24.11	
5	QPSK	12	0	24.24	24.24	24.12	24.5
5	QPSK	12	7	24.25	24.25	24.23	
5	QPSK	12	13	24.31	24.31	23.75	
5	QPSK	25	0	24.49	24.49	23.74	
5	16QAM	1	0	24.03	24.03	24.04	24.5
5	16QAM	1	12	23.74	23.74	23.91	
5	16QAM	1	24	24.14	24.14	23.78	



5	16QAM	12	0	24.26	23.92	24.03	25
5	16QAM	12	7	24.5	23.76	23.92	
5	16QAM	12	13	24.01	24.13	23.76	
5	16QAM	25	0	23.59	24.23	24.13	
Channel				19965	20175	20385	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1732.5	1753.5	
3	QPSK	1	0	24.25	24.4	24.31	25
3	QPSK	1	8	24.24	24.12	23.74	
3	QPSK	1	14	24.25	23.81	24.03	
3	QPSK	8	0	24.31	23.99	23.92	24.5
3	QPSK	8	4	24.49	24.25	23.76	
3	QPSK	8	7	24.03	24.24	24.13	
3	QPSK	15	0	23.74	24.25	24.24	
3	16QAM	1	0	24.14	24.31	24.25	24.5
3	16QAM	1	8	23.92	23.74	24.31	
3	16QAM	1	14	24.36	24.03	23.74	
3	16QAM	8	0	24.26	23.92	24.03	25
3	16QAM	8	4	24.5	23.76	23.92	
3	16QAM	8	7	24.01	24.13	23.76	
3	16QAM	15	0	23.59	24.23	24.13	
Channel				19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1732.5	1754.3	
1.4	QPSK	1	0	24.24	23.99	23.99	25
1.4	QPSK	1	3	24.25	24.4	24.4	
1.4	QPSK	1	5	24.31	24.12	24.12	
1.4	QPSK	3	0	24.49	23.81	23.81	
1.4	QPSK	3	1	24.03	23.99	23.99	
1.4	QPSK	3	3	23.74	24.25	24.25	
1.4	QPSK	6	0	24.14	24.24	24.24	24.5
1.4	16QAM	1	0	23.78	24.25	24.25	24.5
1.4	16QAM	1	3	24.25	24.31	24.31	
1.4	16QAM	1	5	24.31	24.14	23.74	
1.4	16QAM	3	0	23.74	23.92	24.03	



1.4	16QAM	3	1	24.03	23.76	23.92	
1.4	16QAM	3	3	23.92	24.13	23.76	
1.4	16QAM	6	0	23.76	24.23	24.13	24.5

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20450	20525	20600	
Frequency (MHz)				829	836.5	844	
10	QPSK	1	0	24.97	25.18	25.26	
10	QPSK	1	25	25.21	24.74	25.18	25.5
10	QPSK	1	49	25.07	24.95	24.24	
10	QPSK	25	0	25.39	25.02	24.25	
10	QPSK	25	12	24.82	24.97	24.31	25.50
10	QPSK	25	25	25.18	25.13	23.74	
10	QPSK	50	0	24.92	25.25	25.13	
10	16QAM	1	0	25.1	25.31	25.25	25.5
10	16QAM	1	25	25.35	25.1	25.31	
10	16QAM	1	49	25.24	25.24	25.1	
10	16QAM	25	0	25.15	24.89	25.24	25.5
10	16QAM	25	12	25	25.02	25.26	
10	16QAM	25	25	24.94	25.23	25.18	
10	16QAM	50	0	25.07	25.26	25.23	
Channel				20425	20525	20625	
Frequency (MHz)				826.5	836.5	846.5	
5	QPSK	1	0	24.95	24.31	25.26	25.5
5	QPSK	1	12	25.02	23.74	25.18	
5	QPSK	1	24	24.97	25.13	24.24	
5	QPSK	12	0	25.13	25.25	24.25	25.5
5	QPSK	12	7	25.25	25.31	24.31	
5	QPSK	12	13	25.31	25.1	23.74	
5	QPSK	25	0	25.1	25.13	25.13	
5	16QAM	1	0	25.1	25.31	25.25	



5	16QAM	1	12	25.35	25.1	25.31	
5	16QAM	1	24	25.24	25.24	25.1	
5	16QAM	12	0	25.15	24.89	25.24	25.5
5	16QAM	12	7	25	25.02	25.26	
5	16QAM	12	13	24.94	25.23	25.18	
5	16QAM	25	0	25.07	25.26	25.23	
Channel				20415	20525	20635	Tune-up limit (dBm)
Frequency (MHz)				825.5	836.5	847.5	
3	QPSK	1	0	24.74	25.31	25.26	25.5
3	QPSK	1	8	24.95	25.02	25.18	
3	QPSK	1	14	25.02	25.23	25.23	
3	QPSK	8	0	24.97	25.26	24.25	25.5
3	QPSK	8	4	25.13	24.24	24.31	
3	QPSK	8	7	25.25	24.25	23.74	
3	QPSK	15	0	25.31	24.31	25.13	
3	16QAM	1	0	25.1	23.74	25.25	
3	16QAM	1	8	25.35	25.13	25.31	25.5
3	16QAM	1	14	25.24	25.25	25.1	
3	16QAM	8	0	25.15	25.31	25.24	
3	16QAM	8	4	25	25.02	25.26	25.5
3	16QAM	8	7	24.94	25.23	25.18	
3	16QAM	15	0	25.07	25.26	25.23	
Channel				20407	20525	20643	Tune-up limit (dBm)
Frequency (MHz)				824.7	836.5	848.3	
1.4	QPSK	1	0	25.24	25.24	25.02	25.5
1.4	QPSK	1	3	24.89	25.26	24.97	
1.4	QPSK	1	5	25.02	25.18	25.13	
1.4	QPSK	3	0	25.39	25.23	25.25	
1.4	QPSK	3	1	24.24	24.97	25.31	
1.4	QPSK	3	3	24.25	25.13	25.1	
1.4	QPSK	6	0	24.31	25.25	25.24	25.05
1.4	16QAM	1	0	24.56	25.31	24.89	25.5
1.4	16QAM	1	3	25.13	25.1	25.31	



1.4	16QAM	1	5	25.25	25.24	25.1	
1.4	16QAM	3	0	25.15	24.89	25.24	
1.4	16QAM	3	1	25	25.02	25.26	
1.4	16QAM	3	3	24.94	25.23	25.18	
1.4	16QAM	6	0	25.07	25.26	25.23	25.5

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				23060	23095	23130	
Frequency (MHz)				704	707.5	711	
10	QPSK	1	0	24.36	24.55	24.55	25
10	QPSK	1	25	24.51	24.48	24.66	
10	QPSK	1	49	24.31	24.55	24.59	
10	QPSK	25	0	24.72	24.66	24.47	25
10	QPSK	25	12	24.70	24.59	24.7	
10	QPSK	25	25	24.80	24.47	24.36	
10	QPSK	50	0	24.45	24.7	24.35	
10	16QAM	1	0	24.51	24.36	24.63	25
10	16QAM	1	25	24.67	24.35	24.14	
10	16QAM	1	49	24.77	24.63	24.13	
10	16QAM	25	0	24.52	24.14	24.51	25
10	16QAM	25	12	24.64	24.13	24.33	
10	16QAM	25	25	24.26	24.51	24.25	
10	16QAM	50	0	24.21	24.33	24.73	
Channel				23035	23095	23155	Tune-up limit (dBm)
Frequency (MHz)				701.5	707.5	713.5	
5	QPSK	1	0	24.36	24.55	24.55	25
5	QPSK	1	12	24.51	24.48	24.66	
5	QPSK	1	24	24.31	24.55	24.59	
5	QPSK	12	0	24.72	24.66	24.47	25
5	QPSK	12	7	24.7	24.59	24.7	
5	QPSK	12	13	24.8	24.47	24.36	



5	QPSK	25	0	24.45	24.7	24.35	
5	16QAM	1	0	24.51	24.36	24.63	25
5	16QAM	1	12	24.67	24.35	24.14	
5	16QAM	1	24	24.77	24.63	24.13	
5	16QAM	12	0	24.52	24.54	24.51	25
5	16QAM	12	7	24.64	24.13	24.33	
5	16QAM	12	13	24.26	24.51	24.25	
5	16QAM	25	0	24.21	24.33	24.73	
Channel				23025	23095	23165	Tune-up limit (dBm)
Frequency (MHz)				700.5	707.5	714.5	
3	QPSK	1	0	24.36	24.55	24.55	25
3	QPSK	1	8	24.51	24.48	24.66	
3	QPSK	1	14	24.31	24.56	24.59	
3	QPSK	8	0	24.72	24.66	24.47	25
3	QPSK	8	4	24.7	24.59	24.7	
3	QPSK	8	7	24.8	24.47	24.36	
3	QPSK	15	0	24.45	24.7	24.35	
3	16QAM	1	0	24.51	24.36	24.63	25
3	16QAM	1	8	24.67	24.35	24.14	
3	16QAM	1	14	24.77	24.68	24.13	
3	16QAM	8	0	24.52	24.14	24.51	25
3	16QAM	8	4	24.64	24.13	24.33	
3	16QAM	8	7	24.26	24.51	24.25	
3	16QAM	15	0	24.21	24.33	24.73	
Channel				23017	23095	23173	Tune-up limit (dBm)
Frequency (MHz)				699.7	707.5	715.3	
1.4	QPSK	1	0	24.21	24.55	24.55	25
1.4	QPSK	1	3	24.51	24.48	24.66	
1.4	QPSK	1	5	24.31	24.55	24.59	
1.4	QPSK	3	0	24.72	24.66	24.47	
1.4	QPSK	3	1	24.7	24.59	24.79	
1.4	QPSK	3	3	24.8	24.47	24.36	
1.4	QPSK	6	0	24.57	24.7	24.35	25

1.4	16QAM	1	0	24.51	24.38	24.63	25
1.4	16QAM	1	3	24.67	24.35	24.14	
1.4	16QAM	1	5	24.77	24.63	24.13	
1.4	16QAM	3	0	24.52	24.14	24.51	
1.4	16QAM	3	1	24.64	24.13	24.33	
1.4	16QAM	3	3	24.26	24.51	24.25	
1.4	16QAM	6	0	24.21	24.33	24.73	25

3.3. Bluetooth Conducted Power

Mode	Channel	Frequency (MHz)	Peak power (dBm)
			GFSK
LE	CH 00	2402	-1.38
	CH 19	2440	-0.73
	CH 39	2480	-0.62
Tune-up Limit			0.00

4. RF Exposure Evaluation

Standalone transmission MPE evaluation

Bands	Frequency (MHz)	Maximum Tune-up Limit (dBm)	Antenna Gain (dBi)	EIRP (mW)	Power density (mW/cm ²)	Limit for MPE (mW/cm ²)
WCDMA II	1880	23.50	1.0	281.84	0.056	1
WCDMA IV	1712.4	23.50	1.0	281.84	0.056	1
WCDMA V	846.6	25.00	1.0	398.11	0.079	0.564
LTE Band 2	1860	24.50	1.0	354.81	0.071	1
LTE Band 4	1720	25.00	1.0	398.11	0.079	1
LTE Band 5	829	25.50	1.0	446.68	0.089	0.553
LTE Band 12	704	25.00	1.0	398.11	0.079	0.469
Bluetooth	2480	0.00	1.3	1.350	0.000	1

MPE transmit simultaneously evaluation:

Transmit Condition	Power density 1 (mW/cm ²)	Limit 1 (mW/cm ²)	Power density 2 (mW/cm ²)	Limit 2 (mW/cm ²)	Result	Limit
WCDMA II+Bluetooth	0.056	1	0.000	1	0.056	1.0
WCDMA IV+Bluetooth	0.056	1	0.000	1	0.056	1.0
WCDMA V+Bluetooth	0.079	0.564	0.000	1	0.140	1.0
LTE Band 2+Bluetooth	0.071	1	0.000	1	0.071	1.0
LTE Band 4+Bluetooth	0.079	1	0.000	1	0.079	1.0
LTE Band 5+Bluetooth	0.089	0.553	0.000	1	0.161	1.0
LTE Band 12+Bluetooth	0.079	0.469	0.000	1	0.168	1.0

Note:

- Only the worst condition for WWAN&Bluetooth is calculated for transmit simultaneously in this report.

Formula: Result=Power density 1/ limit 1 + power density 2/ limit 2

- MPE calculation method

$$\text{Power Density} = \text{EIRP}/4\pi R^2$$

Where: EIRP = P+G

P = Output Power (dBm)

G = Antenna Gain (dBi)

R = Separation Distance (20cm)



Annex A General Information

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Department:	Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, Guangdong Province, P. R. China
Responsible Test Lab Manager:	Mr. Su Feng
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, Guangdong Province, P. R. China

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