



TEST REPORT

Report Number: C21T00088-SAR01-V02

Applicant	Cipia Vision Ltd
Product Name	Cipia-FS10
Model Name	FS10-LTE/FS10-LTE-ADS
Brand Name	Cipia
FCC ID	2AZIQFS10C
IC	27633-FS10C

Industrial Internet Innovation Center (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in FCC 47 CFR Part 2 2.1091, RSS 102.

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Issue Date

2021-12-06

Industrial Internet Innovation Center (Shanghai) Co., Ltd.

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11. After confirmation with the customer, the Max power and antenna gain information provided by the customer may affect the validity of the measurement results in this report, and the customer shall bear the impact and consequences.

Test Laboratory:

Industrial Internet Innovation Center (Shanghai) Co., Ltd.

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Revision Version

Report Number	Revision	Date	Memo
C21T00088-SAR01-V00	00	2021-10-22	Initial creation of test report
C21T00088-SAR01-V01	01	2021-11-30	Updated the information of 3.1
C21T00088-SAR01-V02	02	2021-12-06	Remove the photos

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1. Test Laboratory

1.1. Testing Location

Primary Lab:

Company Name	Industrial Internet Innovation Center (Shanghai) Co., Ltd.
Address	Building 4, No. 766 Jingang Rd, Pudong, Shanghai, China
FCC Registration No.	958356
FCC Designation No.	CN1177
IC Designation No.	10766A

1.2. Testing Environment

Normal Temperature	18°C~25°C
Relative Humidity	25%RH~75%RH

1.3. Project Information

Project Leader	Chen Minfei
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2. Client Information

2.1. Applicant Information

Company Name	Cipia Vision Ltd
Address	Maskit 8th st. Hertzelia, Israel
Telephone	+972-77-5047760

2.2. Manufacturer Information

Company Name	Cipia Vision Ltd
Address	Maskit 8th st. Hertzelia, Israel
Telephone	+972-77-5047760

3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Product Name	Cipia-FS10
Model name	FS10-LTE/FS10-LTE-ADS
Supported Radio Technology and Bands	GSM850/GSM900/DCS1800/PCS1900 WCDMA Band I/II/IV/V/VI/VIII/XIX LTE Band 1/2/3/4/5/7/8/12/13/18/19/20/25/26/28/38/39/40/41 BT4.2 BT5.0 WLAN 802.11 a/b/g/n/ac GPS
Hardware Version	Revision F
Software Version	0.0.0.23
FCC ID	2AZIQFS10C
IC	27633-FS10C

Note: Photographs of EUT are shown in ANNEX A of this test report.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of Receipt
N/A	N/A	N/A	N/A	N/A

*EUT ID: is internally used to identify the test sample in the lab.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Model	SN/Remark
N/A	N/A	N/A	N/A

*AE ID: is internally used to identify the test sample in the lab.

4. Reference Documents For FCC

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title
FCC 47 CFR Part 2 2.1091	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS. Section 2.1091 Radiofrequency radiation exposure evaluation: mobile devices

4.2. Criteria

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 limit for maximum permissible exposure. In accordance with the reference this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

Limits for Occupational / Controlled Exposure				
Frequency (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 (minitues)
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1824/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1	6
300 – 1500	--	--	F/300	6
1500 - 100000	--	--	5	6
Limits for General Population / Uncontrolled Exposure				
Frequency (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 (minitues)
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 equivalent power density.				
For the DUT, the limits for General Population / Uncontrolled Exposure are applicable.				

4.3. Reference Information from client

All technical documents are supplied by the client or manufacturer, which is the basis of testing. (such as antenna gain, etc.)

4.4. Calculation Method

For conservative evaluation consideration, only maximum power of each frequency band based on the tighter limits respectively are used to calculate the boundary power density.

Based on the FCC KDB 447498 D01 and 47 CFR §2.1091, the DUT is evaluated as a mobile device.

$$S = \frac{P \times G}{4\pi d^2}$$

Where

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

5. Test Summary For FCC

5.1. RF Power Output

Band	Max power(dBm)	Highest Output Power (dBm)	Antenna Gain(dBi)
GSM 850	35	25.97	2.29
GSM 1900	32	22.97	1.59
WCDMA Band II	25	25	1.59
WCDMA Band IV	25	25	2.00
WCDMA Band V	25	25	2.29
LTE Band 2	25	25	1.59
LTE Band 4	25	25	2.00
LTE Band 5	25	25	2.29
LTE Band 7	25	25	3.00
LTE Band 12	25	25	3.26
LTE Band 13	25	25	4.45
LTE Band 25	25	25	1.59
LTE Band 26	25	25	2.53
LTE Band 38	25	25	2.06
LTE Band 41	25	25	3.00
BT 5.0	7	7	1.82
BLE	7	7	1.82
WI-FI2.4G 802.11b	17	17	1.82
WI-FI2.4G 802.11g	16	16	1.82
WI-FI2.4G 802.11n	13	13	1.82
WI-FI5G U-NII-1 802.11a	7.5	7.5	-2.98
WI-FI5G U-NII-1 802.11n	8.5	8.5	-2.98
WI-FI5G U-NII-1 802.11ac	8.5	8.5	-2.98
WI-FI5G U-NII-3 802.11a	6	6	0.54
WI-FI5G U-NII-3 802.11n	6.5	6.5	0.54
WI-FI5G U-NII-3 802.11ac	11.5	11.5	0.54

5.2. Duty Cycle

Mode	Duty Cycle
GSM	1:8.3
WCDMA	1:1
LTE	1:1
BT	1:1
Wi-Fi	1:1

5.3. Summary of Evaluation Results

Band	Frequency	Highest Output Power (dBm)	Highest Output Power (mW)	Antenna Gain(dBi)	Numeric antenna gain	Power density at 20cm	Limit mW/cm ²
GSM 850	824.2	25.97	395.37	2.29	1.694	0.160	0.549
GSM 1900	1850.2	22.97	198.15	1.59	1.442	0.068	1.000
WCDMA Band II	1852.4	25	316.23	1.59	1.442	0.091	1.000
WCDMA Band IV	1712.4	25	316.23	2.00	1.585	0.100	1.000
WCDMA Band V	826.4	25	316.23	2.29	1.694	0.107	0.551
LTE Band 2	1850.7	25	316.23	1.59	1.442	0.091	1.000
LTE Band 4	1710.7	25	316.23	2.00	1.585	0.100	1.000
LTE Band 5	824.7	25	316.23	2.29	1.694	0.107	0.550
LTE Band 7	2502.5	25	316.23	3.00	1.995	0.126	1.000
LTE Band 12	699.7	25	316.23	3.26	2.118	0.133	0.466
LTE Band 13	779.5	25	316.23	4.45	2.786	0.175	0.520
LTE Band 25	1850.7	25	316.23	1.59	1.442	0.091	1.000
LTE Band 26	814.7	25	316.23	2.53	1.791	0.113	0.543
LTE Band 38	2572.5	25	316.23	2.06	1.607	0.101	1.000
LTE Band 41	2498.5	25	316.23	3.00	1.995	0.126	1.000
BT5.0	2402	7	5.01	1.82	1.521	0.002	1.000
BLE	2402	7	5.01	1.82	1.521	0.002	1.000
WI-FI2.4G 802.11b	2412	17	50.12	1.82	1.521	0.015	1.000
WI-FI2.4G 802.11g	2412	16	39.81	1.82	1.521	0.012	1.000
WI-FI2.4G 802.11n	2412	13	19.95	1.82	1.521	0.006	1.000
WI-FI5G U-NII-1 802.11a	5180	7.5	5.62	-2.98	0.504	0.001	1.000
WI-FI5G U-NII-1 802.11n	5180	8.5	7.08	-2.98	0.504	0.001	1.000
WI-FI5G U-NII-1 802.11ac	5180	8.5	7.08	-2.98	0.504	0.001	1.000
WI-FI5G U-NII-3 802.11a	5745	6	3.98	0.54	1.132	0.001	1.000
WI-FI5G U-NII-3 802.11n	5745	6.5	4.47	0.54	1.132	0.001	1.000
WI-FI5G U-NII-3 802.11ac	5745	11.5	14.13	0.54	1.132	0.003	1.000

The product is under the MPE limits. All is pass.

5.4. Simultaneous SAR Evaluation

Power density /Limit			Σ (Power density /Limit) of
1	2	4	
WWAN	BT	WI-FI	1+2+3
0.336	0.002	0.015	0.353

Note:

1. Σ (Power density /Limit) : This is a summation of [(Power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN+Wi-Fi+BT.
2. Considering the WWAN collocation with the Wi-Fi and BT transmitter of the Highest output power performance listed in the table above, the aggregated (Power density /Limit) is smaller than 1, and MPE collocated transmitters is compliant.

6. Reference Documents For IC

6.1. Reference Documents for evaluation

The following documents listed in this section are referred for evaluation.

Reference	Title	Version
RSS 102	Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands)	2015

6.2. Criteria

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

Frequency (MHz)	Base	Maximum e.i.r.p (w)
< 20	Source	1
20 – 48	Source	$22.48/f^{0.5}$
48 – 300	Source	0.6
300 – 6000	Source	$1.31 \times 10^{-2} \times f^{0.6834}$
> 6000	Source	5

Note:
f = frequency in MHz;
The result should be adjusted for tune-up tolerance.

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

6.3. Reference Information from client

All technical documents are supplied by the client or manufacturer, which is the basis of testing. (such as antenna gain, etc.)

6.4. Calculation Method

At or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz.

7. Test Summary For IC

7.1. RF Power Output

Band	Max power(dBm)	Highest Output Power (dBm)	Antenna Gain(dBi)
GSM 850	35	25.97	2.29
GSM 1900	32	22.97	1.59
WCDMA Band II	25	25	1.59
WCDMA Band IV	25	25	2.00
WCDMA Band V	25	25	2.29
LTE Band 2	25	25	1.59
LTE Band 4	25	25	2.00
LTE Band 5	25	25	2.29
LTE Band 7	25	25	3.00
LTE Band 12	25	25	3.26
LTE Band 13	25	25	4.45
LTE Band 25	25	25	1.59
LTE Band 26	25	25	2.53
LTE Band 38	25	25	2.06
LTE Band 41	25	25	3.00
BT 5.0	7	7	1.82
BLE	7	7	1.82
WI-FI2.4G 802.11b	17	17	1.82
WI-FI2.4G 802.11g	16	16	1.82
WI-FI2.4G 802.11n	13	13	1.82
WI-FI5G U-NII-1 802.11a	7.5	7.5	-2.98
WI-FI5G U-NII-1 802.11n	8.5	8.5	-2.98
WI-FI5G U-NII-1 802.11ac	8.5	8.5	-2.98
WI-FI5G U-NII-3 802.11a	6	6	0.54
WI-FI5G U-NII-3 802.11n	6.5	6.5	0.54
WI-FI5G U-NII-3 802.11ac	11.5	11.5	0.54

7.2. Duty Cycle

Mode	Duty Cycle
GSM	1:8.3
WCDMA	1:1
LTE	1:1
BT	1:1
Wi-Fi	1:1

7.3. Summary of Evaluation Results

Band	Frequency	Highest Output Power (dBm)	Highest Output Power (mW)	Antenna Gain(dBi)	Numeric antenna gain	e.i.r.p(W)	Limit mW/cm ²
GSM 850	824.2	25.97	395.37	2.29	1.694	0.397	1.289
GSM 1900	1850.2	22.97	198.15	1.59	1.442	0.200	2.239
WCDMA Band II	1852.4	25	316.23	1.59	1.442	0.318	2.241
WCDMA Band IV	1712.4	25	316.23	2.00	1.585	0.318	2.124
WCDMA Band V	826.4	25	316.23	2.29	1.694	0.318	1.291
LTE Band 2	1850.7	25	316.23	1.59	1.442	0.318	2.240
LTE Band 4	1710.7	25	316.23	2.00	1.585	0.318	2.122
LTE Band 5	824.7	25	316.23	2.29	1.694	0.318	1.289
LTE Band 7	2502.5	25	316.23	3.00	1.995	0.318	2.752
LTE Band 12	699.7	25	316.23	3.26	2.118	0.318	1.152
LTE Band 13	779.5	25	316.23	4.45	2.786	0.319	1.240
LTE Band 25	1850.7	25	316.23	1.59	1.442	0.318	2.240
LTE Band 26	814.7	25	316.23	2.53	1.791	0.318	1.278
LTE Band 38	2572.5	25	316.23	2.06	1.607	0.318	2.805
LTE Band 41	2498.5	25	316.23	3.00	1.995	0.318	2.749
BT 5.0	2402	7	5.01	1.82	1.521	0.007	2.676
BLE	2402	7	5.01	1.82	1.521	0.007	2.676
WI-FI2.4G 802.11b	2412	17	50.12	1.82	1.521	0.052	2.684
WI-FI2.4G 802.11g	2412	16	39.81	1.82	1.521	0.041	2.684
WI-FI2.4G 802.11n	2412	13	19.95	1.82	1.521	0.021	2.684
WI-FI5G U-NII-1 802.11a	5180	7.5	5.62	-2.98	0.504	0.006	4.525
WI-FI5G U-NII-1 802.11n	5180	8.5	7.08	-2.98	0.504	0.008	4.525
WI-FI5G U-NII-1 802.11ac	5180	8.5	7.08	-2.98	0.504	0.008	4.525
WI-FI5G U-NII-3 802.11a	5745	6	3.98	0.54	1.132	0.005	4.857
WI-FI5G U-NII-3 802.11n	5745	6.5	4.47	0.54	1.132	0.006	4.857
WI-FI5G U-NII-3 802.11ac	5745	11.5	14.13	0.54	1.132	0.015	4.857

The product is under the MPE limits. All is pass.

7.4. Simultaneous SAR Evaluation

e.i.r.p /Limit			Σ (e.i.r.p /Limit) of
1	2	4	
WWAN	BT	Wi-Fi	1+2+3
0.308	0.002	0.019	0.329

Note:

1. Σ (Power density /Limit) : This is a summation of [(Power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN+Wi-Fi+BT.
2. Considering the WWAN collocation with the Wi-Fi and BT transmitter of the Highest output power performance listed in the table above, the aggregated (Power density /Limit) is smaller than 1, and MPE collocated transmitters is compliant.

8. Statements

The FS10-LTE/FS10-LTE-ADS, manufactured by Cipia Vision Ltd is a new product for evaluation.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. has verified that the compliance of the evaluated device specified in section 3 of this evaluation report is successfully evaluated according to the procedure and evaluation methods as defined in type certification requirement listed in section 4 of this evaluation report.