

FCC MPE Evaluation Report

Report No: WD-RF-R-190639-D0

Product Name : 20MP Box Camera
Model Name : SR-C-U20-NITIDA-M
Series Model Name : SR-C-U20-NITIDA-M-FR
FCC ID : 2ATPWNITIDA20
Applicant : SPARK S.R.L.
Received Date : May. 17, 2019
Tested Date : Sep. 25, 2019 ~ Oct. 09, 2019
Applicable Standard : 47 CFR FCC Part 2.1091
47 CFR FCC Part 1.1310
KDB 447498 D01
OET Bulletin 65 Supplement C



Wendell Industrial Co., Ltd
Wendell Electrical Testing Lab.

Caution:

This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment.

Please note that the measurement uncertainty are provided for informational purpose only and are not used in determining the Pass/Fail results.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of Wendell Industrial Co., Ltd..

Test Report

Issued Date: October 09, 2019

Project No.: 19Q051701

Product Name	20MP Box Camera
Trade Name	Spark
Model Name	SR-C-U20-NITIDA-M
Series Model Name	SR-C-U20-NITIDA-M-FR
FCC ID	2ATPWNITIDA20
Applicant	SPARK S.R.L.
Manufacturer	SPARK S.R.L.
EUT Rated Voltage	AC 24V , DC 12V , PoE
EUT Test Voltage	AC 120V / 60Hz (DC 12V Adapter)
EUT Supports Radios Application	WLAN 802.11b/g WLAN 802.11n (HT20/HT40)
Applicable Standard	47 CFR FCC Part 2.1091 47 CFR FCC Part 1.1310 KDB 447498 D01 OET Bulletin 65 Supplement C
RF Evaluation	0.0409 mW/cm ²
Test Result	Complied

Documented :



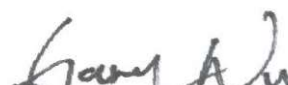
(Specialist / Emma Lu)

Technical Engineer :



(Deputy Section Manager / Jack Chang)

Approved :



(Project Manager / Gary Wu)

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Document Revision History

Report No.	Issue date	Description
WD-RF-R-190639-D0	October 09, 2019	Initial report

Reference Testing Standard

Standard	Description	Version
47 CFR FCC Part 2.1091	Radiofrequency radiation exposure evaluation: mobile devices.	--
47 CFR FCC Part 1.1310	Radiofrequency radiation exposure limits.	--
KDB 447498 D01	RF Exposure procedures and equipment authorization policies for mobile and portable devices.	V06
OET Bulletin 65 Supplement C	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields.	Edition 01-01

1 Generation Information

1.1 Applicant

SPARK S.R.L.
VIA ANTONIO GRAMSCI, 86/A 42124 REGGIO EMILIA (ITALY)

1.2 Manufacturer

SPARK S.R.L.
VIA ANTONIO GRAMSCI, 86/A 42124 REGGIO EMILIA (ITALY)

1.3 Description of Equipment under Test

Product Name	20MP Box Camera
Model No.	SR-C-U20-NITIDA-M
Series Model Name	SR-C-U20-NITIDA-M-FR
FCC ID	2ATPWNITIDA20
Frequency Range	802.11b/g/n-20MHz: 2412~2462MHz 802.11n-40MHz: 2422~2452MHz
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7
Antenna Information	Refer to the table “Antenna List”

The above equipment was tested by Wendell Electrical Testing Lab. For compliance with the requirements set forth in 47 CFR § 2.1091 / 47 CFR § 1.1310. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties

Antenna List

No.	Manufacturer	Model No.	Antenna Type	Peak Gain
1	N/A	N/A	PCB Antenna	1 dBi for 2.4GHz

Note:

1. This device is a SR-C-U20-NITIDA-M with a built-in Wi-Fi transceiver.
2. The difference between the main model and the serial model is whether or not the intelligent analysis function of the software is supported. The serial model features FR software with the ability to support intelligent image analysis.

1.4 Test Facility

Items	Required (IEC 60068-1)	Actual
Temperature (°C)	15-35	25
Humidity (% RH)	25-75	65
Barometric pressure (mbar)	860-1060	1001

Description: Accredited by TAF

Accredited Number: 2965

Issued by: Wendell Industrial Co., Ltd

Lab Address: 6F/6F-1, No.188, Baoqiao Rd., Xindian Dist.,
New Taipei City 23145, Taiwan R.O.C

Test Lab: Wendell Electrical Testing Lab.

Test Location: No.67-9, Shimen Rd., Tucheng Dist.,
New Taipei City 236, Taiwan R.O.C

FCC Accreditation Number: TW2965

2 Mobile device Assessment Procedure

In 47 CFR § 2.1091, 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.

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.

3 RF Exposure Assessment

Estimation of the expected exposure in power density can be made with the following equation:

$$S = \frac{P \times G}{4\pi \times R^2} = \frac{\text{EIRP}}{4\pi \times R^2}$$

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna.

EIRP: Effective Isotropic Radiated Power

4 Limit Requirement

In 47 CFR § 1.1310, use of the device as based upon the user's awareness and ability to exercise control over human exposure. The two categories defined are Occupational/Controlled Exposure and General Population/Uncontrolled. These two categories are defined as follow:

Occupational/Controlled Exposure:

Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

General Population/Uncontrolled:

General population/uncontrolled exposure limits apply in 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 fully aware of the potential for exposure or cannot exercise control over their 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 Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1,842 / f	4.89 / f	(900 / f ²)*	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f / 300	6
1,500-100,000	--	--	5	6

Note :

- (1) f = frequency in MHz
- (2) * = Plane-wave equivalent power density

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 Time 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 / 1,500	30
1,500-100,000	--	--	1.0	30

Note :

- (1) f = frequency in MHz
- (2) * = Plane-wave equivalent power density

5 Test Results

Mode	Max. Average Power (E.I.R.P)		Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
	dBm	mW				
WLAN 2.4G	24.47	279.90	20	0.05568	1	Pass

Note :

- * The Numeric Gain calculated by $10^{(\text{dBi}/10)}$.
- * Each Function of the max power which perform MPE of any configurations.
- * The allowed Frequency (Range) of the WLAN 2.4G function is 2400~2483.5MHz, and the exemption limit is e.i.r.p. less than or equal to 1mW.
- * The limit is equal to the minimum value.
- * The Max total MPE = WLAN 2.4G = 0.0409 (mW/cm²)

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