

FCC Maximum Permissible RF Exposure (MPE) Estimation Report

In accordance with the requirements of
FCC 47 CFR Part 2(2.1091), ANSI/IEEE C95.1-1992 and
KDB 447498 D01

Product Name: Dual Channel Full HD Smart Dash Camera

Trademark: SCOSCHE

Model Name: NEXC2

Family Model: N/A

Report No.: S19032201910005

FCC ID: IKQNEXC2

Prepared for

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TEST RESULT CERTIFICATION

Applicant's name : Scosche Industries Inc
 Address : 1550 Pacific Ave Oxnard, CA 93033, United States
Manufacturer's Name : Scosche Industries Inc
 Address : 1550 Pacific Ave Oxnard, CA 93033, United States

Product description

Product name : Dual Channel Full HD Smart Dash Camera
 Trademark : SCOSCHE
 Model and/or type reference : NEXC2
 Family Model : N/A

Standards..... : FCC 47 CFR Part 1(1.1310)
 FCC 47 CFR Part 2(2.1091)
 ANSI/IEEE C95.1-1992
 KDB 447498 D01

This device described above has been tested by Shenzhen NTEK. Testing has shown that this device is capable of compliance with MPE specified in FCC 47 CFR Part 2(2.1091) and ANSI/IEEE C95.1-1992. The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

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Date of Test

Date (s) of performance of tests : 28 May. 2019 ~ 25 Jul. 2019
 Date of Issue : 26 Jul. 2019
 Test Result..... : **Pass**

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 (Test Engineer) : (Cheng Jiawen)

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 (Lab Manager) : (Sam Chen)

※ ※ **Revision History** ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	Jul. 26, 2019	Cheng Jiawen

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1 General Information

1.1 RF Exposure Requirements

1.1.1 RF Exposure Limits

Table - 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)
(A) Limits for Occupational/Controlled Exposure				
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
300-1,500			f/300	6
1,500-100,000			5	6
(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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

A rough estimation of the expected exposure in power flux density on a given point can be made with the following equation:

$$S = \frac{P_t * G_t}{4 * \pi * R^2}$$

Where:

S = Power density (mW/cm²)

P_t = Conducted output power (dBm)

G_t = numeric gain of the antenna in the direction of interest relative to an isotropic radiator (dBi)

R = distance to the centre of radiation of the antenna (cm)

EIRP = P_t * G_t

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. Therefore, the S of the device is calculated with R=20cm, and if it is below the limit S, then we can conclude the device complies with the rules.

1.1.2 Additional Description

An estimation of MPE in this application for product is used to ensure if it complies to the rules of the standard in the regulation list above.

Maximum permissible exposure (MPE) refers to the RF energy that is acceptable for human exposure. It is broken down into two categories, Occupational/controlled and General population/uncontrolled.

Occupational/controlled 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. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that 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.

We analysis if it comply with the limits for General population/uncontrolled exposure. The FCC's MPE limits for field strength and power density are given in 47CFR 1.1310(Table below).These limits are generally based on recommended exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP), and also partly based on guidelines recommended by the American National Standards Institute (ANSI) in Section 4.1 of ANSI/IEEE C95.1.

1.2 EUT Description

Device Information			
Product Name	Dual Channel Full HD Smart Dash Camera		
Trade Name	SCOSCHE		
Model Name	NEXC2		
Family Model	N/A		
FCC ID	IKQNEXC2		
Device Phase	Identical Prototype		
Exposure Category	General population / Uncontrolled environment		
Antenna Type	PCB Antenna		
Antenna Gain	1.9 dBi for WLAN2.4G and 1.6 dBi WLAN5G		
Device Operating Configurations			
Supporting Mode(s)	WLAN 2.4G/5.2G/5.8G		
Test Modulation	WLAN(DSSS/OFDM)		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	BT	2402-2480	
	WLAN 2.4G	2412-2462	
	WLAN 5.2G	5180-5240	
	WLAN 5.8G	5745-5825	

1.3 Test specification(s)

FCC 47 CFR Part 1(1.1310)
FCC 47 CFR Part 2(2.1091)
ANSI/IEEE C95.1-1992
KDB 447498 D01 General RF Exposure Guidance

1.4 Ambient Condition

Ambient temperature	20°C – 24°C
Relative Humidity	30% – 70%

2 RF Output Power

BR+EDR

Test Channel	Frequency	Power Setting	Peak Output Power	LIMIT	Verdict
	(MHz)		(dBm)	(dBm)	
1Mbps					
0	2402	Default	4.13	20.97	PASS
39	2441	Default	4.19	20.97	PASS
78	2480	Default	3.66	20.97	PASS
2Mbps					
0	2402	Default	4.12	20.97	PASS
39	2441	Default	4.18	20.97	PASS
78	2480	Default	3.64	20.97	PASS
3Mbps					
0	2402	Default	3.19	20.97	PASS
39	2441	Default	4.25	20.97	PASS
78	2480	Default	3.71	20.97	PASS

BLE

Test Channel	Frequency (MHz)	Power Setting	Peak Output Power (dBm)	LIMIT (dBm)	Verdict
1Mbps					
00	2402	Default	2.23	30	PASS
19	2440	Default	2.80	30	PASS
39	2480	Default	2.05	30	PASS

2.4Gwifi

Test Channel	Frequency (MHz)	Power Setting	Duty Cycle Factor (dB)	Peak Output Power (dBm)	Maximum Output Power(dBm)	LIMIT (dBm)	Verdict
802.11b							
1	2412	Default	0	13.1	13.1	30	PASS
6	2437	Default	0	13.9	13.9	30	PASS
11	2462	Default	0	13.9	13.9	30	PASS
802.11g							
1	2412	Default	0	11.5	11.5	30	PASS
6	2437	Default	0	11.1	11.1	30	PASS
11	2462	Default	0	11.3	11.3	30	PASS
802.11n HT20							
1	2412	Default	0	10.9	10.9	30	PASS
6	2437	Default	0	11.1	11.1	30	PASS
11	2462	Default	0	11.2	11.2	30	PASS
802.11n HT40							
3	2422	Default	0	10.8	10.8	30	PASS
6	2437	Default	0	10.7	10.7	30	PASS
9	2452	Default	0	10.9	10.9	30	PASS

5.2G wifi

Test Channel	Frequency	Maximum output power. Antenna port (AV)	LIMIT	Result
	(MHz)	(dBm)	dBm	
TX 802.11a Mode				
CH36	5180	9.3	23.98	Pass
CH40	5200	10.1	23.98	Pass
CH48	5240	10.7	23.98	Pass
TX 802.11 n20M Mode				
CH36	5180	9.7	23.98	Pass
CH40	5200	10	23.98	Pass
CH48	5240	10.5	23.98	Pass
TX 802.11 n40M Mode				
CH38	5190	9.7	23.98	Pass
CH46	5230	10.7	23.98	Pass
TX 802.11 ac20M Mode				
CH36	5180	8.8	23.98	Pass
CH40	5200	9.1	23.98	Pass
CH48	5240	9.5	23.98	Pass
TX 802.11 ac40M Mode				
CH38	5190	9.5	23.98	Pass
CH46	5230	10.3	23.98	Pass

5.8G wifi

Test Channel	Frequency	Maximum output power. Antenna port (AV)	LIMIT	Result
	(MHz)	(dBm)	dBm	
TX 802.11a Mode				
CH149	5745	11.1	30.00	Pass
CH157	5785	10.9	30.00	Pass
CH165	5825	10.9	30.00	Pass
TX 802.11 n20M Mode				
CH149	5745	10.4	30.00	Pass
CH157	5785	10.9	30.00	Pass
CH165	5825	11	30.00	Pass
TX 802.11 n40M Mode				
CH151	5755	10.6	30.00	Pass
CH159	5795	10.5	30.00	Pass
TX 802.11 ac20M Mode				
CH149	5745	10.9	30.00	Pass
CH157	5785	11.2	30.00	Pass
CH165	5825	11.1	30.00	Pass
TX 802.11 ac40M Mode				
CH151	5755	9.8	30.00	Pass
CH159	5795	10.5	30.00	Pass

3 RF Exposure Evaluation

3.1 Operation in BT

BDR+EDR

Antenna	Maximum output power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm ²)	MPE Limit (mW/cm ²)	Conclusion
Ant 1	15.9	1.9	17.9	61.66	20	0.0123	1	Pass

BLE

Antenna	Maximum output power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm ²)	MPE Limit (mW/cm ²)	Conclusion
Ant 1	15.9	1.9	17.9	61.66	20	0.0123	1	Pass

3.2 Operation in WLAN 2.4G

Antenna	Maximum output power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm ²)	MPE Limit (mW/cm ²)	Conclusion
Ant 1	15.9	1.9	17.9	61.66	20	0.0123	1	Pass

3.3 Operation in WLAN 5G

Antenna	Maximum output power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm ²)	MPE Limit (mW/cm ²)	Conclusion
Ant 1	15.6	1.6	17.6	57.54	20	0.0114	1	Pass

According to the Table above, we can conclude that the calculation results of all simultaneous transmission possibilities are less than 1, so it is into compliance.

Therefore the product also meets the requirements under multiple sources condition.

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