

Report No.: SEWA2208000038RG06

Rev.: 01

Page: 1 of 8

TEST REPORT

Application No.: SEWA2208000038RG
Applicant: SmartWitness USA, LLC
Address of Applicant: 1016 Lunt Avenue Schaumburg, IL 60193 United States
Manufacturer: SmartWitness USA, LLC
Address of Manufacturer: 1016 Lunt Avenue Schaumburg, IL 60193 United States
EUT Description: Dash Camera
Model No.: DC4026-NAD011
Trade Mark: Sensata
FCC ID: 2AQ2S-DC402X
Standards: 47 CFR Part 2.1091
 FCC KDB 447498 D01 v06
Date of Receipt: 2023/02/10
Date of Issue: 2023/03/27

Test Result:	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Panta Sun
Wireless Laboratory Manager



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1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2023/03/27		Original

Prepared By		 <hr/> (Nick Hu) / Test Engineer
Checked By		 <hr/> (Well Wei) / Reviewer



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2 General Information

2.1 Client Information

Applicant:	SmartWitness USA, LLC
Address of Applicant:	1016 Lunt Avenue Schaumburg, IL 60193 United States
Manufacturer:	SmartWitness USA, LLC
Address of Manufacturer:	1016 Lunt Avenue Schaumburg, IL 60193 United States

2.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 6336.01)**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

• **FCC –Designation Number: CN1312**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327



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2.3 General Description of EUT

EUT Description:	Dash Camera			
Model No.:	DC4026-NAD011			
Trade Mark:	Sensata			
Hardware Version:	V1.2			
Software Version:	SC600YNAPAR06A04_BP03.006_QDM039			
Antenna Type:	IFA Antenna			
Antenna Gain:	LTE Band 2:	2.87dBi (Ant0)	LTE Band 4:	2.45dBi (Ant0)
	LTE Band 5:	2.00dBi (Ant0)	LTE Band 7:	3.04dBi (Ant0)
	LTE Band 12:	-3.62dBi (Ant0)	LTE Band 13:	1.85dBi (Ant0)
	LTE Band 14:	2.10dBi (Ant0)	LTE Band 17:	-3.62dBi (Ant0)
	LTE Band 25:	2.87dBi (Ant0)	LTE Band 26:	2.17dBi (Ant0)
	LTE Band 41:	4.20dBi (Ant0)	LTE Band 66:	2.64dBi (Ant0)
	LTE Band 71:	-5.59dBi (Ant0)		
	BT/BLE:	2.65dBi (Ant2)	2.4G WIFI:	2.65dBi (Ant2)
	Note:	The antenna gain are derived from the gain information report provided by the manufacturer.		
Remark:	As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.			



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3 RF Exposure Evaluation

3.1 RF Exposure Compliance Requirement

3.1.1 Limits

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 Exposures				
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
300-1500	/	/	f/300	6
1500-100,000	/	/	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
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

F=frequency in MHz
 *=Plane-wave equivalent power density
 RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.



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3.1.2 Test Procedure

Software provided by client enabled the EUT to transmit data at lowest, middle and highest channel individually

3.1.3 EUT RF Exposure Evaluation

Output Power Into Antenna & RF Exposure Evaluation Distance:

This confirmed that the device comply with MPE limit.

Operating Band	Frequency (MHz)	Antenna Gain (dBi)	Max Conducted Average Output Power (dBm)	EIRP(ERP) (dBm)	EIRP(ERP) Limit (dBm)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	conclusion
LTE Band 2	1850.7	2.87	25.00	27.87	33.00	0.1218	1.0000	Pass
LTE Band 4	1710.7	2.45	25.00	27.45	30.00	0.1106	1.0000	Pass
LTE Band 5	824.7	2.00	25.00	24.85	38.45	0.0997	0.5498	Pass
LTE Band 7	2502.5	3.04	25.00	28.04	33.00	0.1267	1.0000	Pass
LTE Band 12	699.7	-3.62	25.00	19.23	34.77	0.0273	0.4665	Pass
LTE Band 13	779.5	1.85	25.00	24.70	34.77	0.0963	0.5197	Pass
LTE Band 14	790.5	2.10	25.00	24.95	34.77	0.1020	0.5270	Pass
LTE Band 17	706.5	-3.62	25.00	19.23	34.77	0.0273	0.4710	Pass
LTE Band 25	1850.7	2.87	25.00	27.87	33.00	0.1218	1.0000	Pass
LTE Band 26(814-824)	814.7	2.17	25.00	25.02	NA	0.1037	0.5431	Pass
LTE Band 26(824-849)	824.7	2.17	25.00	25.02	38.45	0.1037	0.5498	Pass
LTE Band 41	2498.5	4.20	25.00	29.20	33.00	0.1655	1.0000	Pass
LTE Band 66	1710.7	2.64	25.00	27.64	30.00	0.1155	1.0000	Pass
LTE Band 71	665.5	-5.59	25.00	17.26	34.77	0.0174	0.4437	Pass
Bluetooth	2402.0	2.65	11.00	13.65	30.00	0.0046	1.0000	Pass
2.4G WiFi	2412.0	2.65	18.50	21.15	30.00	0.0259	1.0000	Pass



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3.1.4 Exposure calculations for multiple sources

When a number of sources at different frequencies, and/or broadband sources, contribute to the total exposure, it becomes necessary to weigh each contribution relative to the MPE in accordance with the provisions of Table(A) and Table(B). To comply with the MPE, the fraction of the MPE in terms of E2, H2 (or power density) incurred within each frequency interval should be determined and the sum of all such fractions should not exceed unity.

In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity. That is

$$\sum_{i=1}^n \frac{S_i}{MPE_i} \leq 1$$

The product also has multiple transmitters The Simultaneous Transmission Possibilities are as below:

Simultaneous Tx Combination	Configuration
1	WWAN+ WiFi 2.4G
2	WWAN+ Bluetooth

No.	Mode	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)	Result Ratio	Total Ratio	Limit	Result
1	LTE Band 13	0.0963	0.5197	0.1853	0.2112	1.0000	Pass
	WiFi 2.4G	0.0259	1.0000	0.0259			
2	LTE Band 13	0.0963	0.5197	0.1853	0.1899	1.0000	Pass
	Bluetooth	0.0046	1.0000	0.0046			

---End of Report---



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