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TEST REPORT

Application No: SEWA2204000009RG Applicant: Fibocom Auto Inc.

13th Floor, Building A, Building 6, International Innovation Valley, Xili Street, **Address of Applicant:**

Shenzhen

Manufacturer: Fibocom Auto Inc.

13th Floor, Building A, Building 6, International Innovation Valley, Xili Street, **Address of Manufacturer:**

Shenzhen

EUT Description: 5G Module Model No.: AN958-NA **Trade Mark:** Fibocom

FCC ID: 2A8RBAN958NA Standards: 47 CFR Part 2.1091

FCC KDB 447498 D01 v06

Date of Receipt: 2022/08/30 Date of Issue: 2023/01/03

Test Result: PASS*

Authorized Signature:

Panta Sun Wireless Laboratory Manager



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In the configuration tested, the EUT complied with the standards specified above.



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1 Version

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

Prepared By	Nick VIII		
	(Nick Hu) / Test Engineer		
Checked By	men men,		
	(Well Wei) / Reviewer		



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2 General Information

2.1 Client Information

Applicant:	Fibocom Auto Inc.				
Address of Applicant:	13th Floor, Building A, Building 6, International Innovation Valley,Xili Street, Shenzhen				
Manufacturer:	Fibocom Auto Inc.				
Address of Manufacturer:	13th Floor, Building A, Building 6, International Innovation Valley,Xili Street, Shenzhen				

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:	5G Module									
Model No.:	AN958-NA									
Trade Mark:	Fibocom									
Hardware Version:	AN958-MAQC-NA-	AN958-MAQC-NA-00								
Software Version:	AN958-GA-NA_R2	AN958-GA-NA_R2.1_V.B.1.20								
Antenna Type:	Fixed External Anto	Fixed External Antenna								
	GSM850:	2.20dBi	GSM1900:	1.00dBi						
	WCDMA Band II:	2.31dBi	WCDMA Band IV:	2.33dBi						
	WCDMA Band V:	2.20dBi								
	LTE Band 2:	2.31dBi	LTE Band 4:	2.33dBi						
	LTE Band 5:	2.20dBi	LTE Band 7:	2.98dBi						
	LTE Band 12:	2.20dBi	LTE Band 14:	2.20dBi						
	LTE Band 17:	2.20dBi	LTE Band 25:	2.31dBi						
	LTE Band 26:	2.20dBi	LTE Band 41:	2.98dBi						
	LTE Band 42:	4.30dBi	LTE Band 66:	2.33dBi						
	LTE Band 71:	2.20dBi								
	NR Band n2:	2.31dBi	NR Band n5:	2.20dBi						
	NR Band n7:	2.98dBi	NR Band n12:	2.20dBi						
Antenna Gain:	NR Band n14:	2.20dBi	NR Band n25:	2.31dBi						
	NR Band n41:	2.98dBi	NR Band n48:	-3.00dBi						
	NR Band n66:	2.33dBi	NR Band n71:	2.20dBi						
	NR Band n77:	1.00dBi	NR Band n78:	1.00dBi						
	ENDC: DC_5A_n2A; DC_12A_n2A; DC_66A_n2A; DC_71A_n2A; DC_2A_n5A; DC_7A_n5A; DC_66A_n5A; DC_5A_n7A; DC_12A_n7A; DC_66A_n7A; DC_2A_n41A; DC_25A_n41A; DC_26A_n41A; DC_66A_n41A; DC_2A_n48A; DC_66A_n48A; DC_2A_n66A; DC_5A_n66A; DC_12A_n66A; DC_2A_n71A; DC_7A_n71A; DC_66A_n71A; DC_2A_n78A; DC_5A_n68A; DC_7A_n78A; DC_12A_n78A; DC_66A_n78A Note: The antenna gain are derived from the gain information report provided by the manufacturer.									

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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/cm2)	Averaging time (minutes)					
(A) Limits for Occupational/Controlled Exposures									
0.3-3.0	0.3-3.0 614 1.63 *(100)								
3.0-30	1842/f	4.89/f	*(900/f2)	6					
30-300	61.4	0.163	1.0 6						
300-1500	1	1	6						
1500-100,000	1	1	5	6					
(B) Limits for General Population/Uncontrolled Exposure									
0.3-1.34	0.3-1.34 614 1.63 *(100) 30								
1.34-30	824/f	2.19/f	*(180/f2)	30					
30-300	30-300 27.5		0.073 0.2						
300-1500	1	1	f/1500	30					
1500-100,000	/	1	1.0	30					

F=frequency in MHz

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: Pd = (Pout*G)/(4* Pi * R2)

Where

Pd = power density in mW/cm2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

Pd id 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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^{*=}Plane-wave equivalent power density



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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

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.0 / 2.0 in linear scale. 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/cm2)	Limit (mW/cm2)	Gain according to EIRP(ERP) (dBi)	Gain according to Pd (dBi)	Max Gain Allowed (dBi)	conclusio n
GSM850	824.2	2.2	35.00	35.05	38.45	0.1258	0.5495	5.60	-0.58	-0.58	Pass
GSM1900	1850.2	1	32.00	33.00	33.00	0.0478	1.0000	1.00	5.01	1.00	Pass
WCDMA B2	1852.4	2.31	25.70	28.01	33.01	0.1258	1.0000	7.31	11.31	7.31	Pass
WCDMA B4	1712.4	2.33	25.70	28.03	30.00	0.1264	1.0000	4.30	11.31	4.30	Pass
WCDMA B5	826.4	2.2	25.70	25.75	38.45	0.1227	0.5509	14.90	8.72	8.72	Pass
LTE B2	1850.7	2.31	25.70	28.01	33.00	0.1258	1.0000	7.30	11.31	7.30	Pass
LTE B4	1710.7	2.33	25.70	28.03	30.00	0.1264	1.0000	4.30	11.31	4.30	Pass
LTE B5	824.7	2.20	25.70	25.75	38.45	0.1227	0.5498	14.90	8.71	8.71	Pass
LTE B7	2502.5	2.98	25.70	28.68	33.00	0.1468	1.0000	7.30	11.31	7.30	Pass
LTE B12	699.7	2.20	25.70	25.75	34.77	0.1227	0.4665	11.22	8.00	8.00	Pass
LTE B14	790.5	2.20	25.70	25.75	34.77	0.1227	0.5270	11.22	8.53	8.53	Pass
LTE B17	706.5	2.20	25.70	25.75	34.77	0.1227	0.4710	11.22	8.04	8.04	Pass
LTE B25	1850.7	2.31	25.70	28.01	33.00	0.1258	1.0000	7.30	11.31	7.30	Pass
LTE B26(814- 824)	814.7	2.20	25.70	25.75	NA	0.1227	0.5431	NA	8.66	8.66	Pass
LTE B26(824- 849)	824.7	2.20	25.70	25.75	38.45	0.1227	0.5498	14.90	8.71	8.71	Pass
LTE B41	2498.5	2.98	25.70	28.68	33.00	0.1468	1.0000	7.30	11.31	7.30	Pass
LTE B42	3452.5	4.30	25.70	30.00	30.00	0.1989	1.0000	4.30	11.31	4.30	Pass
LTE B66	1710.7	2.33	25.70	28.03	30.00	0.1264	1.0000	4.30	11.31	4.30	Pass
LTE B71	665.5	2.20	25.70	25.75	34.77	0.1227	0.4437	11.22	7.78	7.78	Pass
NR Band n2	1852.5	2.31	26.00	28.31	33.00	0.1348	1.0000	7.00	11.01	7.00	Pass
NR Band n5	826.5	2.20	26.00	26.05	38.45	0.1314	0.5510	14.60	8.42	8.42	Pass
NR Band n7	2502.5	2.98	26.00	28.98	33.00	0.1573	1.0000	7.00	11.01	7.00	Pass
NR Band n12	701.5	2.20	26.00	26.05	34.77	0.1314	0.4677	10.92	7.71	7.71	Pass
NR Band n14	790.5	2.20	26.00	26.05	37.77	0.1314	0.5270	13.92	8.23	8.23	Pass
NR Band n25	1852.5	2.31	26.00	28.31	33.00	0.1348	1.0000	7.00	11.01	7.00	Pass
NR Band n41 NR Band	2506.0	2.98	29.00	31.98	33.00	0.3139	1.0000	4.00	8.01	4.00	Pass
n48(PC2)	3552.5	-3	26.00	23	23.00	0.0397	1.0000	-3.00	11.01	-3.00	Pass
NR Band n66	1712.5	2.33	26.00	28.33	30.00	0.1354	1.0000	4.00	11.01	4.00	Pass
NR Band n71	665.5	2.20	26.00	26.05	34.77	0.1314	0.4437	10.92	7.48	7.48	Pass
NR Band n77 (3450- 3550)(PC2)	3460.0	1.00	29.00	30.00	30.00	0.1989	1.0000	1.00	8.01	1.00	Pass
NR Band n77 (3700- 3980)(PC2)	3710.0	1.00	29.00	30.00	30.00	0.1989	1.0000	1.00	8.01	1.00	Pass
NR Band n78 (3450- 3550)(PC2)	3460.0	1.00	29.00	30.00	30.00	0.1989	1.0000	1.00	8.01	1.00	Pass
NR Band n78 (3700- 3800)(PC2)	3710.0	1.00	29.00	30.00	30.00	0.1989	1.0000	1.00	8.01	1.00	Pass



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Remark: Frame-average power=Burst power+ Division Factors (-9.19)

Due to the EUT support NR ENDC and CA

Both LTE and NR/LTE band can transmit simultaneously, the formula of the calculated the MPE is:

$$\sum_{i=1}^{n} \frac{S_{E_{i}}(dutyfactor)}{MPE_{E_{i}}} < 1$$

NOTE The corresponding MEs must be expressed in terms of power density in the above summation Therefore, the worst-case (DC 26A n41A) situation is 0.2232+0.3139=0.5371, which is less than "1", this confirmed that the device comply with MPE limit.

---End of Report---

