MPE TEST REPORT

Applicant	Emerson White-Rodgers
FCC ID	2A4JN-ST76
Product	Sensi Touch 2
Brand	Sensi
Model	1F96U-42WFB; 1F96U-42WF; ST76; ST76W; ST76U; ST76WU; 1F96U-42WFBC; 1F96U-42WFC; ST76C; ST76WC
Report No.	R2112A1148-M1
Issue Date	March 3, 2022

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC 47 CFR Part 1 1.1310.** The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Fangying Wei

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1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
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1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

2 Description of Equipment under Test

Client Information

Applicant	Emerson White-Rodgers
Applicant address	8100 West Florissant Ave St. Louis/United States of America
Manufacturer	Emerson White-Rodgers
Manufacturer address	8100 West Florissant Ave St. Louis/United States of America

General Technologies

Model	1F96U-42WFB; 1F96U-42WF; ST76; ST76W; ST76U; ST76WU; 1F96U-42WFBC; 1F96U-42WFC; ST76C; ST76WC	
Lab internal SN	R2112A1148/S01	
Hardware Version	0059-5337 REV.E	
Software Version	Wi-Fi/ Bluetooth	0170-1581v02_03
	Model 900MHz	0170-1582v02_03
Date of Sample Received	December 17, 2021	

Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.
2. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.
3. The main test model is ST76 in this report.

Model Difference Table				
Model Number	**Description**	**Color**	**Channel**	**Instructions**
1F96U-42WFB	Sensi Touch 2	Black	Pro	English
1F96U-42WF	Sensi Touch 2	White	Pro	English
ST76	Sensi Touch 2	Black	Retail	English
ST76W	Sensi Touch 2	White	Retail	English
ST76U	Sensi Touch 2	Black	Utility	English
ST76WU	Sensi Touch 2	White	Utility	English
1F96U-42WFBC	Sensi Touch 2	Black	Pro	French / English
1F96U-42WFC	Sensi Touch 2	White	Pro	French / English
ST76C	Sensi Touch 2	Black	Retail	French / English
ST76WC	Sensi Touch 2	White	Retail	French / English
Note: The customer declares that the models have the same PCB assembly, the only difference is color, package and sale channels.				

3 Maximum Tune up Power (measured) and antenna Gain

The numeric gain (G) of the antenna with a gain specified in dB is determined by
Numeric gain (G)=10^(antenna gain/10)

Band		Maximum Tune up Power		Antenna Gain (dBi)	Numeric gain
		(dBm)	(mW)		
Model 900MHz		18	63.096	-0.68	0.855
Wi-Fi 2.4G		20	100.000	2.88	1.941
Wi-Fi 5G	U-NII-1	12	15.849	3.87	2.438
	U-NII-2A	10	10.000	3.50	2.239
	U-NII-2C	12	15.849	1.62	1.452
	U-NII-3	7	5.012	1.40	1.380
Bluetooth (Low Energy)		-2	0.631	2.88	1.941

4 Test Result

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following

TABLE 1 – LIMITS FOR MAXIMUN PERMISSIBLE EXPOSURE (MPE)

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	614	1.63	*(100)	6
3-30	1842/f	4.89/f	*(900/f2)	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/f2)	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

Note1. 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.

Note2: 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 can not exercise control over their exposure.

The maximum permissible exposure for 300~1500 MHz is f/1500, for 1500~100,000MHz is 1.0.So

Band	The maximum permissible exposure (mW/cm^2)
Model 900MHz	0.601
Wi-Fi 2.4GHz	1.000
Wi-Fi 5GHz	1.000
Bluetooth (Low Energy)	1.000

RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided. This calculation is based on the conducted power, considering maximum power and antenna gain. The formula shown in KDB 447498 D01 is used in the calculation.

Equation from KDB 447498 D01 General RF Exposure Guidance v06 (10/23/2015) is:

$$S = PG / 4\pi R^2$$

Where: S = power density (in appropriate units, e.g. mW/cm^2)

P = Time-average maximum tune up procedure (in appropriate units, e.g., mW)

G = the numeric gain of the antenna

R = distance to the center of radiation of the antenna (20 cm = limit for MPE)

Band	Antenna Gain (dBi)	Maximum tune up (dBm)	Maximum EIRP (dBm)	PG (mW)	Test Result (mW/cm^2)	Limit Value (mW/cm^2)
Model 900MHz	-0.68	18.00	17.320	53.951	0.01073	0.601
Wi-Fi 2.4G	2.88	20.00	22.880	194.089	0.03861	1.000
Wi-Fi 5G (UNII-1)	3.87	12.00	15.870	38.637	0.00769	1.000
Wi-Fi 5G (UNII-2A)	3.50	10.00	13.500	22.387	0.00445	1.000
Wi-Fi 5G (UNII-2C)	1.62	12.00	13.620	23.014	0.00458	1.000
Wi-Fi 5G (UNII-3)	1.40	7.00	8.400	6.918	0.00138	1.000
Bluetooth (Low Energy)	2.88	-2.00	0.880	1.225	0.00024	1.000
Note: **R** = 20cm **π**= 3.1416						

Model 900MHz and BT/ Wi-Fi antenna can't transmit simultaneously.

Note: For transmitters, minimum separation distance is 20cm, even if calculations indicate MPE distance is less.

********END OF REPORT ********

ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.