



FCC PART 22H, PART 24E  
MEASUREMENT AND TEST REPORT

For

**SENWA MEXICO,S.A.DE C.V**

CARRETERA MEXICO-TOLUCA No. 5324, INT. PLANTA BAJA COL. EL YAQUI,  
DELEGACION CUAJIMALPA DE MORELOS CIUDAD DE MEXICO, Mexico

**FCC ID: 2AAA6-S130L**

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<b>Report Number:</b> RSZ180703002-00C	
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**Note:** This report must not be used by the customer to claim product certification, approval, or endorsement by A2LA\* or any agency of the Federal Government. \* This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk “\*”.

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## GENERAL INFORMATION

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### Product Description for Equipment under Test (EUT)

The *SENWA MEXICO,S.A.DE C.V's* product, model number: *S130L (FCC ID: 2AAA6-S130L)* or the "EUT" in this report was a *Mobile Phone*, which was measured approximately: 20 cm (L) \* 13 cm (W) \* 2.8 cm (H) for base, 20 cm (L) \* 4.8 cm (W) \* 2.4 cm (H) for handset, rated with input voltage: DC 3.7 V from battery or DC 5.0V from adapter.

#### Adapter Information:

Model: SENWAC07MA

Input: 100-240V ~ 50/60Hz, 0.15A

Output: 5V, 700 mA

*\*All measurement and test data in this report was gathered from production sample serial number: 180703002. (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2018-07-03.*

### Objective

This type approval report is prepared on behalf of *SENWA MEXICO,S.A.DE C.V* in accordance with Part 2, Part 22-Subpart H, Part 24-Subpart E of the Federal Communication Commission's rules.

The objective is to determine the compliance of EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability, and band edge.

### Related Submittal(s)/Grant(s)

FCC Part 15.247 DSS submissions with FCC ID: 2AAA6-S130L.

### Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-Part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services

Part 24 Subpart E - Personal Communication Services

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

**Measurement Uncertainty**

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF output power, conducted		±1.5dB
Unwanted Emission, conducted		±1.5dB
Emissions, radiated	Below 1GHz	±4.70dB
	Above 1GHz	±4.80dB
Temperature		±1 °C
Supply voltages		±0.4%

**Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The EUT was configured for testing according to TIA/EIA-603-D.

The final qualification test was performed with the EUT operating at normal mode.

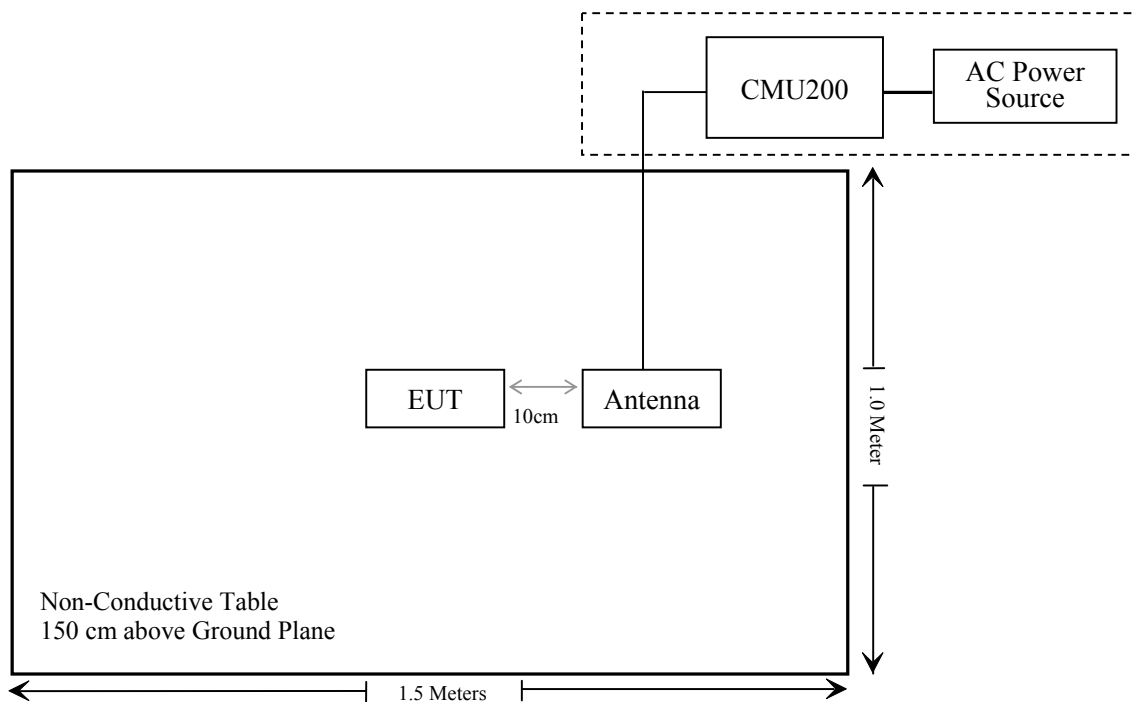
### Equipment Modifications

No modification was made to the EUT.

### Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891

### Block Diagram of Test Setup



## SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307, §2.1093	RF Exposure (SAR)	Compliance*
§2.1046; § 22.913 (a); § 24.232 (c)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238	Occupied Bandwidth	Compliance**
§ 2.1051; § 22.917 (a); § 24.238 (a)	Spurious Emissions at Antenna Terminal	Compliance**
§ 2.1053; § 22.917 (a); § 24.238 (a)	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a)	Band Edge	Compliance**
§ 2.1055; § 22.355; § 24.235	Frequency stability	Compliance**

Compliance\*: Please refer to SAR report released by BACL, report number: RSZ180703002-20.

Compliance\*\*: The EUT is identical to a certified product (Model number: S130, FCC ID is 2AAA6-S130). The difference is the Wi-Fi module was removed by the manufacturer. These items can be referred to the application of FCC ID: 2AAA6-S130, approved on 2016-11-16.

**TEST EQUIPMENT LIST**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Radiated Emission Test</b>					
Sunol Sciences	Horn Antenna	DRH-118	A052604	2017-12-22	2020-12-21
Rohde & Schwarz	Signal Analyzer	FSEM	845987/005	2018-04-24	2019-04-24
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2017-12-22	2020-12-21
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2018-05-21	2019-05-21
HP	Amplifier	HP8447E	1937A01046	2018-05-21	2018-11-19
Anritsu	Signal Generator	68369B	004114	2017-12-24	2018-12-24
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2018-01-11	2019-01-11
COM POWER	Dipole Antenna	AD-100	041000	NCR	NCR
A.H. System	Horn Antenna	SAS-200/571	135	2015-08-18	2018-08-17
Ducommun technologies	RF Cable	UFA210A-1-4724-30050U	MFR64369 223410-001	2018-05-21	2018-11-19
Ducommun technologies	RF Cable	104PEA	218124002	2018-05-21	2018-11-19
Ducommun technologies	RF Cable	RG-214	1	2018-05-21	2018-11-19
Ducommun technologies	RF Cable	RG-214	2	2018-05-22	2018-11-22
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-04	2017-12-29	2020-12-28
Ducommun technologies	Horn Antenna	ARH-4223-02	1007726-03	2017-12-29	2020-12-28
Ducommun technologies	Pre-amplifier	ALN-22093530-01	991373-01	2017-08-03	2018-08-03

\* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

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## **FCC §1.1307(b) & §2.1093 - RF EXPOSURE INFORMATION**

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### **Applicable Standard**

FCC§1.1310 and §2.1093.

### **Test Result**

Compliance, please refer to the SAR report: RSZ180703002-20.



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## **FCC §2.1047 - MODULATION CHARACTERISTIC**

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According to FCC § 2.1047(d), Part 22H, 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

## **FCC § 2.1046, § 22.913 (a) & § 24.232 (c) - RF OUTPUT POWER**

### **Applicable Standard**

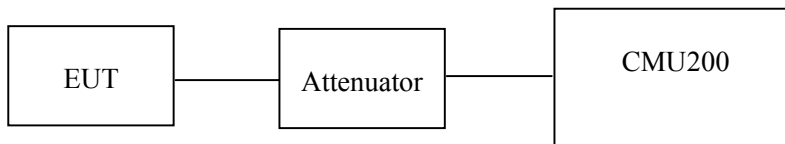
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

### **Test Procedure**

*Conducted method:*

The RF output of the transmitter was connected to the CMU200 through sufficient attenuation.



*Radiated method:*

TIA 603-D section 2.2.17

### **Test Data**

#### **Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Nancy Wang on 2018-07-08.*

**Radiated Power****GSM Mode:**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dBi)			
ERP for Cellular Band (Part 22H), Middle Channel										
836.6	88.14	6	1.6	H	25.7	0.7	0.0	25.00	38.45	13.45
836.6	92.96	52	1.3	V	32.5	0.7	0.0	31.80	38.45	6.65
EIRP for PCS Band (Part 24E), Middle Channel										
1880.00	89.51	122	1.0	H	19.5	1.30	9.40	27.60	33	5.40
1880.00	88.96	65	1.4	V	18.7	1.30	9.40	26.80	33	6.20

**WCDMA Mode:**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dBi)			
ERP for WCDMA Band V (Part 22H), Middle Channel										
836.6	79.87	158	1.9	H	17.5	0.7	0.0	16.80	38.45	21.65
836.6	84.23	6	1.3	V	23.8	0.7	0.0	23.10	38.45	15.35
EIRP for WCDMA Band II (Part 24E), Middle Channel										
1880.00	82.66	302	1.4	H	12.6	1.30	9.40	20.70	33.00	12.30
1880.00	77.91	127	2.4	V	7.6	1.30	9.40	15.70	33.00	17.30

**Note:**

All above data were tested with no amplifier.

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit - Absolute Level

**FCC § 2.1053; § 22.917 (a);§ 24.238 (a) -SPURIOUS RADIATED EMISSIONS****Applicable Standard**

FCC § 2.1053, §22.917(a) and § 24.238(a).

**Test Procedure**

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TX pwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log<sub>10</sub> (power out in Watts)

**Test Data****Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Nancy Wang on 2018-07-08.*

*EUT operation mode: Transmitting*

Pre-scan with Low, Middle and High channel, the worst case as below:

**30 MHz ~ 10 GHz:**

**Cellular Band (Part 22H)**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi)			
GSM Mode, Middle channel										
226.84	30.37	213	1.9	H	-66.6	0.31	0	-66.91	-13	53.91
226.84	31.76	18	2.2	V	-65.2	0.31	0	-65.51	-13	52.51
1673.20	61.59	267	2.3	H	-45.5	1.30	8.90	-37.90	-13	24.90
1673.20	59.65	261	1.4	V	-46.8	1.30	8.90	-39.20	-13	26.20
2509.80	53.52	85	1.6	H	-50.0	2.60	10.20	-42.40	-13	29.40
2509.80	51.24	168	1.2	V	-51.7	2.60	10.20	-44.10	-13	31.10
WCDMA Mode, Middle channel										
226.84	31.17	169	1.2	H	-65.8	0.31	0	-66.11	-13	53.11
226.84	31.23	333	2.2	V	-65.8	0.31	0	-66.11	-13	53.11
1673.20	43.61	238	1.4	H	-63.5	1.30	8.90	-55.90	-13	42.90
1673.20	45.57	89	1.9	V	-60.9	1.30	8.90	-53.30	-13	40.30

**30 MHz ~ 20 GHz:**

**PCS Band (Part 24E)**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi)			
GSM Mode, Middle channel										
226.84	31.20	227	1.6	H	-65.8	0.31	0	-66.11	-13	53.11
226.84	30.82	16	1.8	V	-66.2	0.31	0	-66.51	-13	53.51
3760.00	55.48	359	1.3	H	-45.7	1.50	11.80	-35.40	-13	22.40
3760.00	53.73	103	1.5	V	-47.0	1.50	11.80	-36.70	-13	23.70
WCDMA Mode, Middle channel										
226.84	31.57	135	1.9	H	-65.4	0.31	0	-65.71	-13	52.71
226.84	30.27	95	2.1	V	-66.7	0.31	0	-67.01	-13	54.01
3760.00	57.46	178	1.6	H	-43.8	1.50	11.80	-33.50	-13	20.50
3760.00	52.78	76	1.1	V	-48.0	1.50	11.80	-37.70	-13	24.70

**Note:**

- 1) Absolute Level = Substituted Level - Cable loss + Antenna Gain
- 2) Margin = Limit - Absolute Level

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