



中国认可
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检测
TESTING
CNAS L0310



FCC

RF Test Report

Product Name: HUAWEI MediaPad M5

Model Number: SHT-W09

Report No: SYBH(Z-RF)001122017-2001

FCC ID: QISSHT-W09

Reliability Laboratory of Huawei Technologies Co.

(Global Compliance and Testing Center of Huawei Technologies Co., Ltd)

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Notice

1. The laboratory has Passed the accreditation by China National Accreditation Service for Conformity Assessment (CNAS). The accreditation number is L0310.
2. The laboratory has Passed the accreditation by The American Association for Laboratory Accreditation (A2LA). The accreditation number is 2174.01.
3. The laboratory has been recognized by the US Federal Communications Commission (FCC) to perform compliance testing subject to the Commission's Declaration Of Conformity (DOC) and Certification rules. The Designation Number is CN1173, and the Test Firm Registration Number is 294140.
4. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 6369A-1.
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9. The laboratory (Reliability Lab of Huawei Technologies Co., Ltd) is also named as "Global Compliance and Testing Center of Huawei Technologies Co., Ltd", the both names have coexisted since 2009.



Applicant: Huawei Technologies Co., Ltd.
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd.,
Bantian, Longgang District, Shenzhen, 518129, P.R.C

Date of Receipt Sample: 2017-11-24
Start Date of Test: 2017-11-24
End Date of Test: 2018-01-11

Test Result: Pass

Approved by Senior Engineer:	2018-01-12	Roger zhang	
	Date	Name	Signature

Prepared by:	2018-01-12	zhoulingbo	<i>zhou ling bo</i>
	Date	Name	Signature

CONTENT

1	General Information.....	5
1.1	Applied Standard.....	5
1.2	Test Location	5
1.3	Test Environment Condition	5
2	Test Summary	6
2.1	Measurement Technical Requirements.....	6
3	Description of the Equipment under Test (EUT)	8
3.1	General Description	8
3.2	EUT Identity	8
3.3	Technical Description.....	10
4	General Test Conditions / Configurations.....	12
4.1	Test Modes	12
4.2	EUT Configurations.....	12
4.3	Test Environments	14
4.4	Test Conditions	15
5	Main Test Instruments	16
6	Appendixes.....	16



1 General Information

1.1 Applied Standard

Applied Rules: 47 CFR FCC Part 2, Subpart J
47 CFR FCC Part 15, Subpart C
47 CFR FCC Part 15, Subpart E

Test Method: KDB 789033 D02 General UNII Test Procedures New Rules v01r04
FCC KDB 558074 D01 DTS Meas Guidance v04
ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices

1.2 Test Location

Test Location : Reliability Laboratory of Huawei Technologies Co., Ltd.
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

1.3 Test Environment Condition

Temperature: 15 to 30 °C (Ambient)
Relative Humidity: 20 to 85 % (Ambient)
Atmospheric Pressure: Not applicable

2 Test Summary

2.1 Measurement Technical Requirements

2.1.1 U-NII (5150-5250, 5250-5350, 5470-5725 MHz,5725-5850)

Test Item	Band	FCC Rule	Requirements	Test Result	Verdict
Emission Bandwidth	5150-5250	15.403(i) 15.407(a)(1)	No limit.	Appendix A	Pass
	5250-5350	15.403(i) 15.407(a)(2)			
	5470-5725	15.403(i) 15.407(a)(2)			
	5725-5850	15.403(i) 15.407(e)	≥ 500 kHz.		
Occupied Bandwidth	5150-5250 5250-5350 5470-5725 5725-5850	KDB 789033 §D	No limit	Appendix B	Pass
Duty Cycle	--	--	No limit.	Appendix C	Pass
Maximum Conducted Output Power	5150-5250	15.407(a)(1) 15.407(a)(4)	< 250mW (avg during transmission)	Appendix D	Pass
	5250-5350	15.407(a)(2) 15.407(a)(4)	<MIN{250mW,11dBm+10 *lg(EBW)} (avg during transmission)		
	5470-5725	15.407(a)(2) 15.407(a)(4)	<MIN{250mW,11dBm+10 *lg(EBW)} (avg during transmission)		
	5725-5850	15.407(a)(3)	< 1W (avg during transmission)		
maximum Peak Power Spectral Density	5150-5250	15.407(a)(1) 15.407(a)(4)	<11dBm/MHz (avg during transmission)	Appendix E	Pass
	5250-5350	15.407(a)(2) 15.407(a)(4)	<11dBm/MHz (avg during transmission)		
	5470-5725	15.407(a)(2) 15.407(a)(4)	<11dBm/MHz (avg during transmission)		
	5725-5850	15.407(a)(3) 15.407(a)(4)	<30dBm/500KHz (avg during transmission)		



Test Item	Band	FCC Rule	Requirements	Test Result	Verdict
Frequence Stability	5150-5250	15.407(g)	FCC Part 15.407(g)	Appendix F	Pass
	5250-5350				
	5470-5725				
	5725-5850				



3 Description of the Equipment under Test (EUT)

3.1 General Description

HUAWEI SHT-W09 is a smart tablet product developed by HUAWEI. It's based on the Google Android 8.0 Operating System, support Wi-Fi, Bluetooth, USB connection.

NOTE: Only 5G WIFI test data included in this report.

3.2 EUT Identity

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

3.2.1 Board

Board		
Description	Hardware Version	Software Version
Main Board	SH1SHUBTLM	SXX-W09A 8.0.1.1(C331)

3.2.2 Sub-Assembly

Sub-Assembly			
Sub-Assembly Name	Model	Manufacturer	Description
Adapter	HW-059200EHQ	Huawei Technologies Co., Ltd.	Input Voltage: 100-240V 50/60Hz 0.5A Output Voltage: 5V  2A or 9V  2A
Adapter	HW-059200BHQ	Huawei Technologies Co., Ltd.	Input Voltage: 100-240V 50/60Hz 0.5A Output Voltage: 5V  2A or 9V  2A
Adapter	HW-059200AHQ	Huawei Technologies Co., Ltd.	Input Voltage: 100-240V 50/60Hz 0.5A Output Voltage: 5V  2A or 9V  2A
Adapter	HW-059200UHQ	Huawei Technologies Co., Ltd.	Input Voltage: 100-240V 50/60Hz 0.5A Output Voltage: 5V  2A or 9V  2A
Battery	HB2899C0ECW	Huawei Technologies Co., Ltd.	Rated capacity: 4980mAh Nominal Voltage:  +3.82V Charging limited Voltage:  4.4V

3.3 Technical Description

Characteristics	Description	
IEEE 802.11 WLAN Mode Supported	☒ 802.11a (20 MHz channel bandwidth), ☒ 802.11n (20 MHz channel bandwidth), ☒ 802.11n (40 MHz channel bandwidth), ☒ 802.11ac (20 MHz channel bandwidth), ☒ 802.11ac (40 MHz channel bandwidth), ☒ 802.11ac (80 MHz channel bandwidth),	
TX/RX Operating Range	All	$f_c = 5000 \text{ MHz} + N * 5 \text{ MHz}$, where: - f_c = "Operating Frequency" in MHz, - N = "Channel Number".
	5150-5250 MHz (U-NII)	$N = 36$ to 48 with step of 4 for the 20 MHz channel bandwidth. $N = 38$ to 46 with step of 4 for the 40 MHz channel bandwidth. $N = 42$ for the 80 MHz channel bandwidth.
	5250-5350 MHz (U-NII)	$N = 52$ to 64 with step of 4 for the 20 MHz channel bandwidth. $N = 54$ to 62 with step of 4 for the 40 MHz channel bandwidth. $N = 58$ for the 80 MHz channel bandwidth.
	5470-5650 MHz (U-NII)	$N = 100$ to 120 with step of 4 for the 20 MHz channel bandwidth. $N = 102$ to 110 with step of 4 for the 40 MHz channel bandwidth. $N = 106$ for the 80 MHz channel bandwidth.
	5650-5725 MHz (U-NII)	$N = 132$ to 144 with step of 4 for the 20 MHz channel bandwidth. $N = 134$ to 142 with step of 4 for the 40 MHz channel bandwidth. $N = 138$ for the 80 MHz channel bandwidth.
	5725-5850 MHz (U-NII)	$N = 149$ to 165 with step of 4 for the 20 MHz channel bandwidth. $N = 151$ to 159 with step of 4 for the 40 MHz channel bandwidth. $N = 155$ for the 80 MHz channel bandwidth.
Modulation Type	BPSK/QPSK/16QAM/64QAM (OFDM).	
Emission Designator	U-NII(5150-5250, 5250-5350, 5470-5725.)	20M1G7D (for 802.11a mod) 20M6G7D (for 802.11n 20 MHz mode) 39M8G7D (for 802.11n 40 MHz mode) 20M5G7D (for 802.11ac 20 MHz mode) 39M6G7D (for 802.11ac 40 MHz mode) 81M3G7D (for 802.11ac 80 MHz mode)
	U-NII(5725-5850)	16M4G7D (for 802.11a mod) 17M6G7D (for 802.11n 20 MHz mode) 35M7G7D (for 802.11n 40 MHz mode) 17M6G7D (for 802.11ac 20 MHz mode) 35M7G7D (for 802.11ac 40 MHz mode) 75M2G7D (for 802.11ac 80 MHz mode)
TPC	☐ Supported, ☒ Not Supported	
Antenna	Type	☐ External, ☒ Integrated
	Ports	☒ Ant 1, ☐ Ant 2, ☐ Ant 3, ☐ Ant 4
	Smart System	☒ SISO (for 802.11a/n/ac), ☐ CDD (for 802.11a),



Characteristics	Description		
		☐ MIMO (for 802.11n/ac), ☐ Diversity (for 802.11a) : Tx & Rx	
	Gain	Ant1:0.5dBi (per antenna port, max.)	
	Remark	When the EUT is put into service, the practical maximum antenna gain should NOT exceed the value as described above.	
Power Supply	Type	☒ AC/DC Adapter	☐ PoE: ☐ Other:

4 General Test Conditions / Configurations

4.1 Test Modes

NOTE: Worst cases for each IEEE 802.11 mode are selected to perform tests.

Test Mode	Test Modes Description
11A	IEEE 802.11a with data rate of 6 Mbps using SISO mode.
11N20	IEEE 802.11n with data rate of MCS0 and bandwidth of 20 MHz using SISO mode.
11N40	IEEE 802.11n with data rate of MCS0 and bandwidth of 40 MHz using SISO mode.
11AC20	IEEE 802.11ac with data rate of MCS0 and bandwidth of 20 MHz using SISO mode.
11AC40	IEEE 802.11ac with data rate of MCS0 and bandwidth of 40 MHz using SISO mode.
11AC80	IEEE 802.11ac with data rate of MCS0 and bandwidth of 80 MHz using SISO mode.

4.2 EUT Configurations

4.2.1 General Configurations

Configuration	Description
Test Antenna Ports	Until otherwise specified, - All TX tests are performed at all TX antenna ports of the EUT, and - All RX tests are performed at all RX antenna ports of the EUT.
Multiple RF Sources	Other than the tested RF source of the EUT, other RF source(s) are disabled or shutdown during measurements.

4.2.2 Customized Configurations

4.2.2.1 U-NII

Test Mode	Test Channel	Frequency [MHz]	Antenna Port	Power Conf., per Port	Duty cycle [%]
11A	36	5180	Ant 1	16	97.6
11A	48	5240	Ant 1	16	97.6
11A	52	5260	Ant 1	16	97.6
11A	64	5320	Ant 1	16	97.6
11A	100	5500	Ant 1	16	97.6
11A	140	5700	Ant 1	16	97.6
11A	144	5720	Ant 1	16	97.6
11A	149	5745	Ant 1	16	97.6
11A	165	5825	Ant 1	16	97.6

11N20	36	5180	Ant 1	14	97.5
11N20	48	5240	Ant 1	14	97.5
11N20	52	5260	Ant 1	14	97.5
11N20	64	5320	Ant 1	14	97.5
11N20	100	5500	Ant 1	14	97.5
11N20	140	5700	Ant 1	14	97.5
11N20	144	5720	Ant 1	14	97.5
11N20	149	5745	Ant 1	14	97.5
11N20	165	5825	Ant 1	14	97.5
11N40	38	5190	Ant 1	13	95
11N40	46	5230	Ant 1	13	95
11N40	54	5270	Ant 1	13	95
11N40	62	5310	Ant 1	13	95
11N40	102	5510	Ant 1	13	95
11N40	134	5670	Ant 1	13	95
11N40	142	5710	Ant 1	13	95
11N40	151	5755	Ant 1	13	95
11N40	159	5795	Ant 1	13	95
11AC20	36	5180	Ant 1	14	97.5
11AC20	48	5240	Ant 1	14	97.5
11AC20	52	5260	Ant 1	14	97.5
11AC20	64	5320	Ant 1	14	97.5
11AC20	100	5500	Ant 1	14	97.5
11AC20	140	5700	Ant 1	14	97.5
11AC20	144	5720	Ant 1	14	97.5
11AC20	149	5745	Ant 1	14	97.5
11AC20	165	5825	Ant 1	14	97.5
11AC40	38	5190	Ant 1	13	95.8
11AC40	46	5230	Ant 1	13	95.8
11AC40	54	5270	Ant 1	13	95.8
11AC40	62	5310	Ant 1	13	95.8
11AC40	102	5510	Ant 1	13	95.8
11AC40	134	5670	Ant 1	13	95.8
11AC40	142	5710	Ant 1	13	95.8
11AC40	151	5755	Ant 1	13	95.8
11AC40	159	5795	Ant 1	13	95.8
11AC80	42	5210	Ant 1	12	94.8
11AC80	58	5290	Ant 1	12	94.8
11AC80	106	5530	Ant 1	12	94.8
11AC80	138	5690	Ant 1	12	94.8
11AC80	155	5775	Ant 1	12	94.8



4.3 Test Environments

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Temperature	TN	Ambient
Voltage	VL	3.6V
	VN	3.82V
	VH	4.4V

NOTE: VL= lower extreme test voltage
VN= nominal voltage
VH= upper extreme test voltage
TN= normal temperature

4.4 Test Conditions

4.4.1 U-NII

Test Case	Test Conditions	
	Configuration	Description
Emission Bandwidth (EBW)	Meas. Method	FCC KDB 789033 §C).
	Test Env.	NT/NV
	Test Setup	Test Setup 1
	EUT Conf.	All EUT conf. with Tx modes.
Occupied Bandwidth (OBW)	Meas. Method	FCC KDB 789033 §D).
	Test Env.	NT/NV
	Test Setup	Test Setup 1
	EUT Conf.	All EUT conf. with Tx modes.
Maximum Conducted Output Power	Meas. Method	FCC KDB 789033 §E)2)b) Method SA-1 and d) Method SA-2.
	Test Env.	NT/NV
	Test Setup	Test Setup 1
	EUT Conf.	All EUT conf. with Tx modes.
Maximum Peak Power Spectral Density	Meas. Method	FCC KDB 789033 §F).
	Test Env.	NT/NV
	Test Setup	Test Setup 1
	EUT Conf.	All EUT conf. with Tx modes.
Frequency Stability	Meas. Method	15.407(g) Frequency Stability
	Test Env.	(1)VL, VN and VH of Rated Voltage at Ambient Climate. (2) -5 °C,5°C,15°C,-25°C,35°C,45°C,50°C
	Test Setup	Test Setup 1
	EUT Conf.	Ch.36,Ch.165

5 Main Test Instruments

NOTE: Unless otherwise specified, the calibration intervals for test instruments were Annual (per year). The other intervals, if applicable, are marked with (##y), which denotes ## years calibration interval.

Main Test Equipments					
Equipment Name	Manufacturer	Model	Serial Number	Cal Date	Cal- Due
Power supply	KEITHLEY	2303	000500E	2017/5/31	2018/5/30
Wireless Communication Test set	Agilent	N4010A	MY49081592	2017/7/31	2018/7/30
Universal Radio Communication Tester	R & S	CMW500	126854	2017/10/19	2018/10/18
Signal Analyzer	R&S	FSQ31	200021	2017/7/31	2018/7/30
Spectrum Analyzer	Agilent	N9030A	MY49431698	2017/7/31	2018/7/30
Temperature Chamber	ESPEC	MW3030	06114003	2017/2/22	2018/2/21
Signal generator	Agilent	E8257D	MY49281095	2017/7/31	2018/7/30
Vector Signal Generator	R&S	SMU200A	104162	2017/7/31	2018/7/30

6 Appendixes

Appendix No.	Description
SYBH(Z-RF)001122017-2001-A	Appendix for 5G WLAN

END