





EMC Test Report

Product Name: HUAWEI MediaPad M1 8.0

Model Number: S8-301u

Report No: SYBH(Z-EMC)039022014

FCC ID: QISS8-301U

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Notice

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- 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 listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 97456.
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Operator

(Test Engineer)

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 Test Item:** Feb.24, 2014 **Start Date of Test:** Feb.24, 2014 **End Date of Test:** Mar.5, 2014 **Test Result: Pass** Liu Chuntin <u>Liuchunli</u>n **Approved By** 2014-03-05 Signature (Lab Manager) Date Name

Xu Wenen

Name

XIL Werwer

Signature

2014-03-05

Date



Modification Record

No. Last Report No.		Last Report No.	Modification Description
	1	NA	First report



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1 General Information

1.1 EUT Description

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EUT Description				
Product Name	HUAWEI MediaPad M1 8.0			
Model Number	S8-301u			
Serials Number	A8Z01A9412300066			
Working Voltage	5Vdc			
TX Frequency	Bluetooth:2402MHz To 2480MHz WIFI:2412MHz To 2462MHz GSM850:824MHz To 849MHz PCS1900:1850MHz To 1910MHz WCDMA850:824MHz To 849MHz WCDMA1900:1850MHz To 1910MHz			
RX Frequency	Bluetooth:2402MHz To 2480MHz WIFI:2412MHz To 2462MHz GPS:1570MHz To 1580MHz GSM850:869MHz To 894MHz PCS1900:1930MHz To 1990MHz WCDMA850:869MHz To 894MHz WCDMA1900:19300MHz To 1990MHz			
HW Version	SH1S8301LM			
SW Version	S8-301uV100R001C001			
	EUT Accessory			
Data cable	BRAND: Huawei Technologies Co., Ltd. Data Cable USB Male to Mini USB Male,			
Adapter	BRAND: HUAWEI Model: HW-050200U3W Input voltage: 100V-240V ~50-60Hz, 0.5A Output voltage: +5V 2A S/N: HWHKAACC1801709			
Rechargeable Li-ion	BRAND: HUAWEI Battery Model: HB3080G1EBC Rated capacity: 4800 mAh Nominal Voltage: === +3.8V Charging Voltage: === +4.35V			

Remark: The information of the EUT is declared by the manufacturer. Please refer to the specifications or user manual for details.



1.2 Test Site Information

Test Site 1:	RELIABILITY LABORATORY OF HUAWEI TECHNOLOGIES CO., LTD.
Test Site Location:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

1.3 Applied Standards

APPLIED STANDARD

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47 CFR FCC Part 15:2013, Subpart B



2 Summary of Results

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Summary of Results								
Test Items	Test Mode	Performance Class & Required Performance Criteria	Site					
Radiated Emissions	Mode2	CLASS B	Daga	Site1				
Enclosure Port	Mode3		Pass	Site				
Conducted Emissions □DC Power Port □AC Power Port □Telecommunication Ports	Mode1 Mode2	CLASS B	Pass	Site1				
Note: 1, Measurement taken is within the uncertainty of test system. 2, The item has been tested; The item has not been tested.								

During the measurement, the environmental conditions complied with the range listed as below.

Item	Required
Ambient temperature	15°C∼35°C
Relative humidity	25%~75%
Atmospheric pressure	86kPa∼106kPa



3 System Configuration during EMC Test

3.1 Test Mode

The EUT was configured, installed, arranged and operated in a manner consistent with typical application; the following mode(s) were applied during the compliance test.

Test Mode						
Mode 1: Adapter (charge) + TF Card + earphone + Camera on +wireless service traffic mode						
Mode 2: Adapter (charge) + TF Card + earphone + Camera on +wireless service IDLE mo						
Mode 3:	PC (Power supply and USB copy) + TF card + earphone + wireless service IDLE mode					

Remark: If there is more than one adapter, each one should be applied throughout the compliance test respectively, however, only the worst case will be recorded in this report.

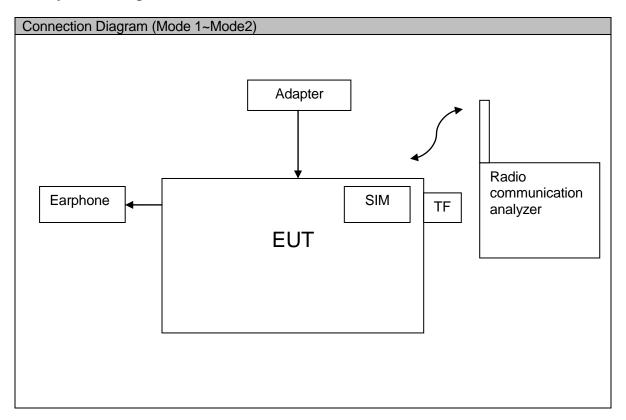
Traffic Mode:

State of EUT when switched on and with Radio Resource Control (RRC) connection established

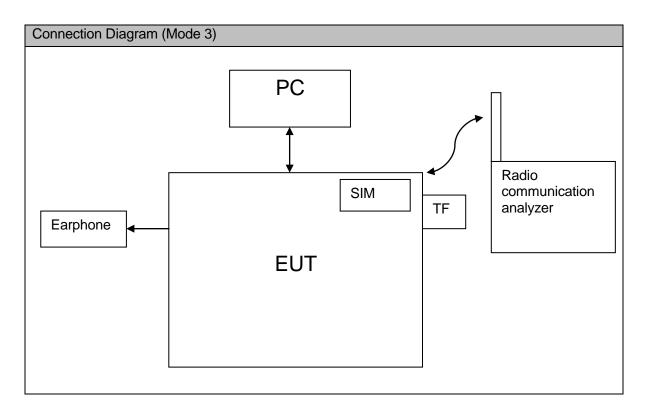
IDLE Mode:

State of EUT when switched on but with no Radio Resource Control (RRC) connection

3.2 Test System Configuration







3.3 Cables Used during Test

Cable	Cable Quantity		Type of Cable	
USB	1	<3m	shielded	
Earphone	1	<3m	unshielded	

3.4 Associated Equipment Used during Test

Name	ame Model Manufacturer		S/N	Calibrated dateline	Cal interval (month)	
Radio Communication Tester	CMU200	R&S	117057	2014-10-28	12	
PC	X200	Lenovo	3108052581	/	/	
TF Card	2G	Kingston	1040RE5672k	/	/	



4 Electromagnetic Interference (EMI)

4.1 Radiated Disturbance 30MHz to 18GHz

4.1.1 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4-2009. The test distance was 3m.The set-up and test methods were according to ANSI C63.4-2009.

A preliminary scan and a final scan of the emissions were made from 30 MHz to18 GHz by using test script of software; The emissions were measured using Quasi-Peak Detector (30MHz~1GHz) and AV/PK detector (above 1GHz). The maximal emission value was acquired by adjusting the antenna height, polarisation and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m. The azimuth range of turntable was 0°to 360°. The receiving antenna has two polarizations V and H.

Measurement bandwidth (RBW) for 30MHz to 1000 MHz: 120 kHz; Measurement bandwidth (RBW) for 1000MHz to 18000 MHz: 1MHz;

EUT was configured in idle mode and the test performed at worst emission state.

4.1.2 Test setup

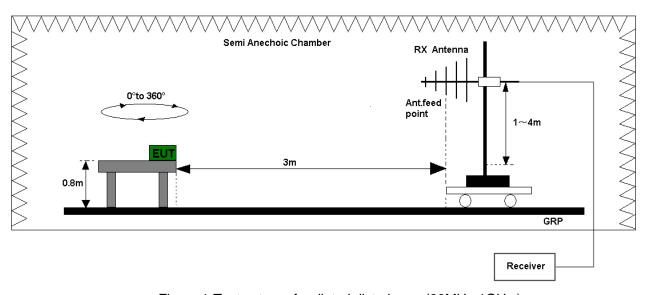


Figure 1. Test set-up of radiated disturbance (30MHz-1GHz)



Figure 2.

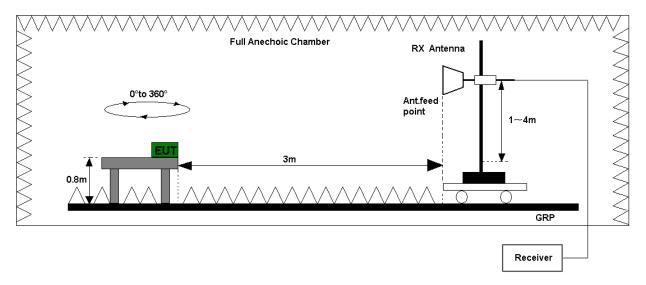


Figure 3. Test set-up of radiated disturbance (above 1GHz)

4.1.3 Test Results

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The EUT has met the requirements for Radiated Emission of enclosure port. Refer to the section 7.1 of this report for test data.

Test Limits (Class B)						
Frequency of Emission Radiated Limit (MHz)						
(1711 12)	Unit(µ	ıV/m)	Unit(dBµV/m)			
30-88	10	0	40			
88-216	15	0	43.5			
216-960	20	0	46			
Above 960	500		54			
Above 1000	AV PK		AV	PK		
	500	5000	54	74		



4.2 Conducted Disturbance 0.15 MHz to 30MHz

4.2.1 Test Procedure

The Table-top EUT was placed upon a non-metallic table 0.8 m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm away from LISN. The set-up and test methods were according to ANSI C63.4-2009. Conducted Disturbance at AC Port measurements were undertaken on the L and N Lines. The emissions were measured using a Quasi-Peak Detector and Average Detector.

EUT was communicated with the simulator through Air interface, the simulator controls the EUT to transmitter the maximum power which defined in specification of product. The EUT operated on the typical channel.

Measurement bandwidth (RBW) for 150 kHz to 30 MHz: 9 kHz;

The EUT was set in the shielded chamber and operated under nominal conditions.

4.2.2 Test Setup

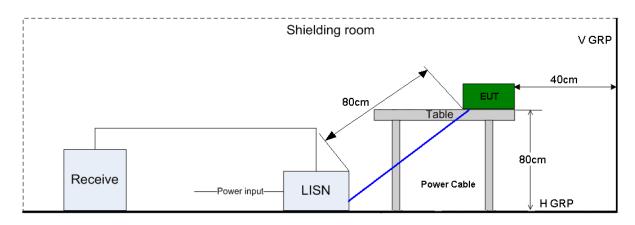


Figure 4. Test Set-up of conducted disturbance

4.2.3 Test Results

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The EUT has met requirements for Conducted disturbance of power lines. Refer to the section 7 .2of this report for test data.

Test Limit of AC Power Port					
Frequency range	150kHz ~ 30MHz				
Fraguency	Voltage limits				
Frequency	QP (dBμV)	AV (dBμV)			
0.15MHz~0.5MHz	66-56	56-46			
0.5MHz-5MHz	56	46			
5MHz~30MHz	60	50			



5 <u>Main Test Instruments</u>

Main Test Equipments									
Test item	l Ma			odel	S/N	Manufactur er		Calibrated Deadline	Cal interval
		EMI Test receiver		SU26	100387	R&S		Jun.05, 2014	12
RE	Broadband Antenna		VULB 9163		9163-491	SCHWARZ BECK		Feb.01, 2015	24
	Horn Antenna		HF907		10305	R&S		Feb.01,2015	24
	EMI Test receiver		ESCI		101163	R&S		Dec.23, 2014	12
CE	1	Artificial Mains Network		V216	100382	R&S		Dec.23, 2014	12
		tificial Mains Network		V216	101176	R&S		Dec.23, 2014	12
				Soft	ware Informat	tion			
Test Ite	em	Software N	Name		Manufacturer		Version		
RE		EMC 3	2	R&S			V8.40.0		
CE		EMC 3	2	R&S			V8.40.0		



6 System Measurement Uncertainty

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For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty							
Items Extended Uncertainty							
RE(30MHz-1GHz)	Field strength (dBµV/m)	U=4.2dB; k=2					
RE(1GHz-18GHz)	Field strength (dBµV/m)	U=5.3dB; k=2					
CE	Disturbance Voltage (dBµV)	U=2.6dB; k=2					

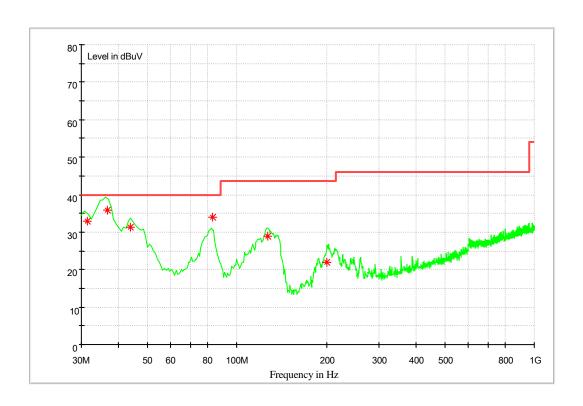


7 Test Data and Graph

Only the worst test results were shown

7.1 Radiated Disturbance

7.1.1 30MHz~1GHz



MEASUREMENT RESULT: QP Detector

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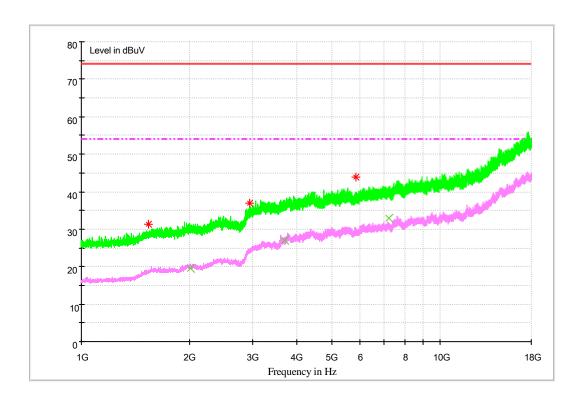
Frequency	Level	Transducer	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBµV/m	dB	dBµV/m	dB	cm	deg	Polatisation
31.490694	33.0	14.0	40.0	7.0	100.0	223.0	VERTICAL
36.784000	35.7	14.8	40.0	4.3	100.0	207.0	VERTICAL
43.847040	31.2	15.3	40.0	8.8	100.0	187.0	VERTICAL
82.716160	33.9	11.0	40.0	6.1	203.0	110.0	HORIZONTAL
127.173120	29.0	11.1	43.5	14.5	100.0	26.0	VERTICAL
201.140480	22.1	12.9	43.5	21.4	100.0	329.0	VERTICAL

Note:

Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain) The reading level is calculated by software which is not shown in the sheet.



7.1.2 1GHz~18GHz



MEASUREMENT RESULT: PK Detector

Frequency	Level	Transducer	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBµV/m	dB	dBµV/m	dB	cm	deg	Polarisation
1544.029333	31.3	-11.8	74.0	42.7	114.0	189.0	HORIZONTAL
2954.413333	37.0	-6.1	74.0	37.0	113.0	47.0	HORIZONTAL
5846.748000	43.8	1.4	74.0	30.2	100.0	169.0	VERTICA

MEASUREMENT RESULT: AV Detector

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Frequency	Level	Transducer	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBµV/m	dB	dBµV/m	dB	cm	deg	Polarisation
2011.729333	19.5	-9.0	54.0	34.5	100.0	331.0	VERTICAL
3694.907333	27.1	-3.1	54.0	26.9	100.0	310.0	VERTICAL
7205.734667	33.0	4.6	54.0	21.0	100.0	8.0	HORIZONTAL

Note:

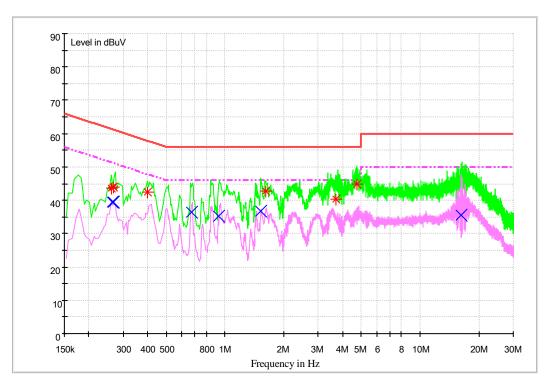
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain) The reading level is calculated by software which is not shown in the sheet.



7.2 Conducted Disturbance

7.2.1 AC Port Test Data

CLASS B Voltage with ENV216



MEASUREMENT RESULT: QP Detector

Frequency	Level	Transd	Limit	Margin	Line	PE	
MHz	dΒμV	dB	dΒμV	dB	Line	FL	
0.261823	43.6	9.7	61.4	17.8	L1	FLO	
0.266674	43.8	9.7	61.2	17.4	L1	FLO	
0.401134	42.4	9.7	57.8	15.4	L1	FLO	
1.610936	42.6	9.7	56.0	13.4	L1	FLO	
3.717386	40.5	9.7	56.0	15.5	N	FLO	
4.764540	44.7	9.8	56.0	11.3	L1	FLO	

MEASUREMENT RESULT: AV Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dΒμV	dB	dΒμV	dB	Line	
0.265920	39.5	9.7	51.2	11.7	L1	FLO
0.267371	39.5	9.7	51.2	11.7	L1	FLO
0.671356	36.3	9.7	46.0	9.7	L1	FLO
0.931362	35.1	9.7	46.0	10.9	L1	FLO
1.526306	36.6	9.7	46.0	9.4	L1	FLO
16.243507	35.5	10.1	50.0	14.5	N	FLO

Note:

Level= Reading level+ Transd (cable loss + correction factor)

The reading level is calculated by software which is not shown in the sheet.

-END: