

No. 1 Workshop, M-10, Middle section, Science & Technology Park,

Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053 Report No.: HR/2018/B000304

Fax: +86 (0) 755 2671 0594 Page: 1 of 24
Email: ee.shenzhen@sgs.com

TEST REPORT

Application No.: HR/2018/B0003

Applicant: Huawei Technologies Co., Ltd

Address of Applicant: Administration Buliding Headquarters of Huawei Technologies Co., Ltd.

Bantian, longgang District 518129 Shenzhen PEOPLE'S REPUBLIC OF

CHINA

Manufacturer: Huawei Technologies Co., Ltd

Address of Manufacturer: Administration Buliding Headquarters of Huawei Technologies Co., Ltd.

Bantian, longgang District 518129 Shenzhen PEOPLE'S REPUBLIC OF

CHINA

Equipment Under Test (EUT):

EUT Name: Mobile WiFi
Model No.: HW-01L
Trade mark: HUAWEI
FCC ID: QISHW-01L

Standard(s): 47 CFR Part 15, Subpart B

Date of Receipt: 2018-11-09

Date of Test: 2018-11-15 to 2018-11-22

Date of Issue: 2018-11-26

Test Result: Pass*



EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) are retained for 30 days only.

^{*} In the configuration tested, the EUT complied with the standards specified above.



Report No.: HR/2018/B000304

Page: 2 of 24

	Revision Record							
Version Chapter Date Modifier Re								
01		2018-11-26		Original				

Authorized for issue by:		
	landew	
	Leo Lai /Project Engineer	_
	EvicFu	
	Eric Fu /Reviewer	_



Report No.: HR/2018/B000304

Page: 3 of 24

2 Test Summary

Emission Part							
Item	Standard	Method	Requirement	Result			
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass			
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass			
Radiated Emissions (above 1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass			

Internal Source	Upper Frequency
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower



Report No.: HR/2018/B000304

Page: 4 of 24

3 Contents

			Page
1	CO	VER PAGE	1
2	TES	ST SUMMARY	9
_			
3	CO	NTENTS	4
4	GE	NERAL INFORMATION	5
	4.1	DETAILS OF E.U.T.	5
	4.2	DESCRIPTION OF SUPPORT UNITS	
	4.3	Measurement Uncertainty	
	4.4	TEST LOCATION	5
	4.5	TEST FACILITY	
	4.6	DEVIATION FROM STANDARDS	
	4.7	ABNORMALITIES FROM STANDARD CONDITIONS	
	4.8	OPERATION PROCEDURE	6
5	EQ	UIPMENT LIST	7
_		IONION TEST DESIGNED	
6	EIVI	ISSION TEST RESULTS	
	6.1	CONDUCTED EMISSIONS AT MAINS TERMINALS (150KHz-30MHz)	
	-	1 E.U.T. Operation	
	6.1.	3 - 3 - 3 - 3	
	6.1.		
	6.2 6.2.	RADIATED EMISSIONS (30MHz-1GHz)	
	6.2.		
	6.2.		
	6.3	RADIATED EMISSIONS (ABOVE 1GHz)	
	6.3.	· ·	
	6.3.		
	6.3.	3 Measurement Data	19
7	PHO	OTOGRAPHS	24
	7.1	CONDUCTED EMISSIONS AT AC POWER LINE (150kHz-30MHz) TEST SETUP	24
	7.2	EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)	



Report No.: HR/2018/B000304

Page: 5 of 24

4 General Information

4.1 Details of E.U.T.

Power supply:	DC 3.8V from internal battery or AC/DC adapter
Cable:	Type C USB cable: 100cm shielded
	Factory:
	1. HONGLIN TECHNOLOGY CO., LTD.
	2. Luxshare Precision Industry CO., Ltd.
Battery:	HB494590EBC-B
	Factory: SCUD(Fujian) Electronics CO., Ltd.
Cradle:	HW02
	Factory: Huawei Technologies CO., Ltd.
Hardware Version:	CL1SB08M01
Software Version:	8.0.1.31 (60SP11C736)

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	T430u	REF. No.SEA1800
Mouse	Lenovo	M-U0025-O	REF. No.SEA2400
Router	NETGEAR	DGN2200	REF. No.SEA2200
Adapter	Huawei	HW-050200U02	

4.3 Measurement Uncertainty

No.	Item Measurement Uncertai		
1	Conduction Emission	± 3.0dB (150kHz to 30MHz)	
2	Dedicted Engineer	± 4.5dB (30MHz-1GHz)	
2	Radiated Emission	± 4.8dB (1GHz-6GHz)	
3	Temperature test	± 1°C	
4	Humidity test	± 3%	

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.



Report No.: HR/2018/B000304

Page: 6 of 24

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

VCC

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC -Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 Operation Procedure

- 1. Set up EUT with support units and turn on the power of all equipment.
- 2. Pre-test the EUT in all modes by each mode, then figure out the worst case.
- 3. Operate EUT under normal operation pattern.

All modes during testing as below:

- e: WCDMA Band V + BT + battery + adapter
- f: LTE band 5 + BT + WLAN + battery + adapter
- g: LTE band 12 + BT + WLAN + battery + adapter
- h: LTE band 17 + BT + WLAN + battery + adapter
- i: Transfer data between the EUT and the PC (without Base station)
- j: Transfer data between the EUT and the PC via RJ 45 port (with Base station)



Report No.: HR/2018/B000304

Page: 7 of 24

5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Shielding Room	ChangZhou ZhongYu	GB-88	SEM001-06	2017-05-10	2020-05-09	
Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A	
Coaxial Cable	SGS	N/A	SEM024-01	2018-07-12	2019-07-11	
LISN	Rohde & Schwarz	ENV216	SEM007-01	2018-09-25	2019-09-24	
LISN	ETS-LINDGREN	3816/2	SEM007-02	2018-04-02	2019-04-01	
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2018-04-02	2019-04-01	

Radiated Emissions (30MHz-1GHz)						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-08-05	2020-08-04	
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A	
Coaxial Cable	SGS	N/A	SEM025-01	2018-07-12	2019-07-11	
EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2018-09-25	2019-09-24	
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2017-06-27	2020-06-26	
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2018-04-02	2019-04-01	

Radiated Emissions (above 1GHz)						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12	
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A	
Coaxial Cable	SGS	N/A	SEM026-01	2018-07-12	2019-07-11	
EXA Spectrum Analyzer	AgilentTechnologies Inc	N9010A	SEM004-09	2018-04-13	2019-04-12	
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12	
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2018-09-27	2019-09-26	



Report No.: HR/2018/B000304

Page: 8 of 24

General used equipment						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2018-09-27	2019-09-26	
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2018-09-27	2019-09-26	
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2018-09-27	2019-09-26	
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2018-04-08	2019-04-07	



Report No.: HR/2018/B000304

Page: 9 of 24

6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014 Frequency Range: 150kHz to 30MHz

Limit:

0.15M-0.5MHz 66dB(μ V)-56dB(μ V) quasi-peak, 56dB(μ V)-46dB(μ V) average

0.5M-5MHz 56dB(μ V) quasi-peak, 46dB(μ V) average 5M-30MHz 60dB(μ V) quasi-peak, 50dB(μ V) average

Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.9 °C Humidity: 63.9 % RH Atmospheric Pressure: 1015 mbar

Pretest these e: WCDMA Band V + BT + battery + adapter f: LTE band 5 + BT + WLAN + battery + adapter q: LTE band 12 + BT + WLAN + battery + adapter

h: LTE band 12 + BT + WLAN + battery + adapter h: LTE band 17 + BT + WLAN + battery + adapter

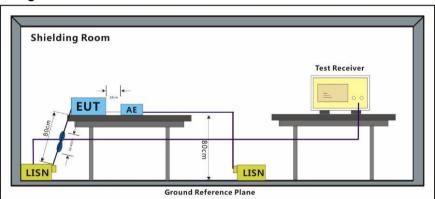
i: Transfer data between the EUT and the PC (without Base station)

j: Transfer data between the EUT and the PC via RJ 45 port (with Base station)

The worst case i: Transfer data between the EUT and the PC (without Base station)

for final test: j: Transfer data between the EUT and the PC via RJ 45 port (with Base station)

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

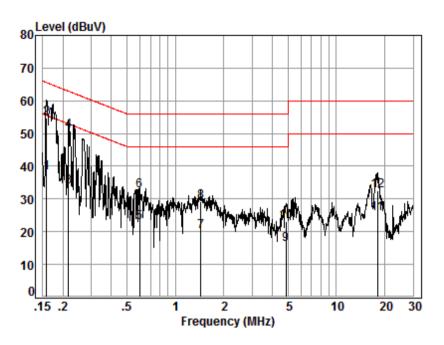
An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.



Report No.: HR/2018/B000304

Page: 10 of 24

Mode:i; Line:Live Line



Site : Shielding Room

Condition: Line Job No. : B0003

Test mode: i

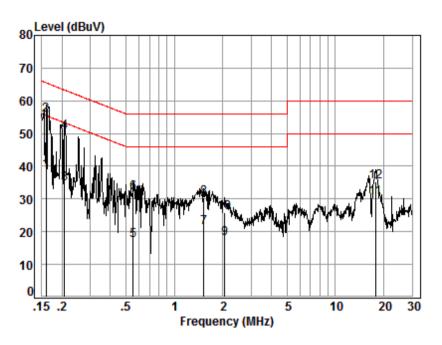
	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16	0.01	9.66	28.31	37.98	55.56	-17.58	Average
2	0.16	0.01	9.66	45.10	54.77	65.56	-10.79	QP
3	0.22	0.03	9.66	24.22	33.91	52.92	-19.01	Average
4	0.22	0.03	9.66	41.19	50.88	62.92	-12.04	QP
5	0.60	0.07	9.67	13.10	22.84	46.00	-23.16	Average
6	0.60	0.07	9.67	22.91	32.65	56.00	-23.35	QP
7	1.44	0.13	9.73	10.36	20.22	46.00	-25.78	Average
8	1.44	0.13	9.73	19.28	29.14	56.00	-26.86	QP
9	4.85	0.17	9.74	6.26	16.17	46.00	-29.83	Average
10	4.85	0.17	9.74	13.06	22.97	56.00	-33.03	QP
11	18.04	0.23	10.16	15.11	25.50	50.00	-24.50	Average
12	18.04	0.23	10.16	22.01	32.40	60.00	-27.60	QP



Report No.: HR/2018/B000304

Page: 11 of 24

Mode:i; Line:Neutral Line



Site : Shielding Room

Condition: Neutral Job No. : B0003

Test mode: i

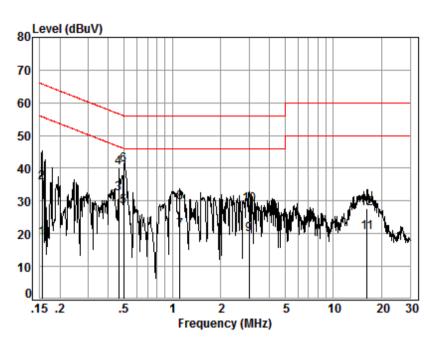
	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16	0.01	9.64	28.95	38.60	55.47	-16.87	Average
2	0.16	0.01	9.64	46.04	55.69	65.47	-9.78	QP
3	0.21	0.02	9.64	25.06	34.72	53.32	-18.60	Average
4	0.21	0.02	9.64	40.86	50.52	63.32	-12.80	QP
5	0.56	0.06	9.64	7.69	17.39	46.00	-28.61	Average
6	0.56	0.06	9.64	22.37	32.07	56.00	-23.93	QP
7	1.53	0.13	9.70	11.58	21.41	46.00	-24.59	Average
8	1.53	0.13	9.70	20.48	30.31	56.00	-25.69	QP
9	2.05	0.16	9.69	8.16	18.01	46.00	-27.99	Average
10	2.05	0.16	9.69	15.94	25.79	56.00	-30.21	QP
11	17.75	0.23	10.22	19.84	30.29	50.00	-19.71	Average
12	17.75	0.23	10.22	24.89	35.34	60.00	-24.66	QP



Report No.: HR/2018/B000304

Page: 12 of 24

Mode:j; Line:Live Line



Site : Shielding Room

Condition: Line Job No. : B0003

Test mode: j

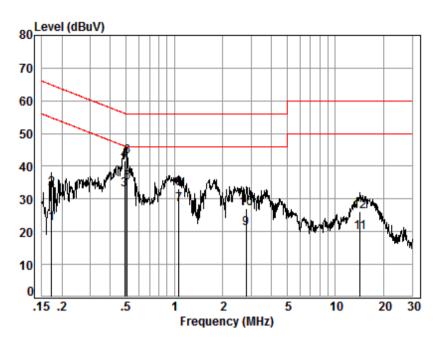
		Cable	LISN	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.15	0.01	9.66	8.96	18.63	55.74	-37.11	Average
2	0.15	0.01	9.66	25.77	35.44	65.74	-30.30	QP
3	0.46	0.06	9.67	22.56	32.29	46.63	-14.34	Average
4	0.46	0.06	9.67	30.54	40.27	56.63	-16.36	QP
5	0.50	0.06	9.67	18.45	28.18	46.01	-17.83	Average
6	0.50	0.06	9.67	31.32	41.05	56.01	-14.96	QP
7	1.12	0.10	9.73	11.25	21.08	46.00	-24.92	Average
8	1.12	0.10	9.73	19.72	29.55	56.00	-26.45	QP
9	2.99	0.16	9.71	9.91	19.78	46.00	-26.22	Average
10	2.99	0.16	9.71	18.97	28.84	56.00	-27.16	QP
11	16.23	0.22	10.27	9.91	20.40	50.00	-29.60	Average
12	16.23	0.22	10.27	17.09	27.58	60.00	-32.42	QP



Report No.: HR/2018/B000304

Page: 13 of 24

Mode:j; Line:Neutral Line



Site : Shielding Room

Condition: Neutral Job No. : B0003

Test mode: j

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17	0.02	9.64	12.78	22.44	54.86	-32.42	Average
2	0.17	0.02	9.64	23.40	33.06	64.86	-31.80	QP
3	0.49	0.06	9.64	23.14	32.84	46.14	-13.30	Average
4	0.49	0.06	9.64	32.09	41.79	56.14	-14.35	QP
5	0.51	0.06	9.64	25.28	34.98	46.00	-11.02	Average
6	0.51	0.06	9.64	33.19	42.89	56.00	-13.11	QP
7	1.07	0.10	9.71	18.46	28.27	46.00	-17.73	Average
8	1.07	0.10	9.71	23.41	33.22	56.00	-22.78	QP
9	2.79	0.16	9.68	11.10	20.94	46.00	-25.06	Average
10	2.79	0.16	9.68	17.09	26.93	56.00	-29.07	QP
11	14.29	0.21	10.32	9.19	19.72	50.00	-30.28	Average
12	14.29	0.21	10.32	15.71	26.24	60.00	-33.76	QP



Report No.: HR/2018/B000304

Page: 14 of 24

6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014 Frequency Range: 30MHz to 1GHz

Measurement Distance: 3m

Limit:

30 MHz - 88 MHz $40.0 (\text{dB}\mu\text{V/m})$ quasi-peak 88 MHz - 216 MHz $43.5 (\text{dB}\mu\text{V/m})$ quasi-peak 216 MHz - 960 MHz $46.0 (\text{dB}\mu\text{V/m})$ quasi-peak 960 MHz - 1000 MHz $54.0 (\text{dB}\mu\text{V/m})$ quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.7 °C Humidity: 57.1 % RH Atmospheric Pressure: 1015 mbar

Pretest these e: WCDMA Band V + BT + battery + adapter f: LTE band 5 + BT + WLAN + battery + adapter g: LTE band 12 + BT + WLAN + battery + adapter

h: LTE band 17 + BT + WLAN + battery + adapter

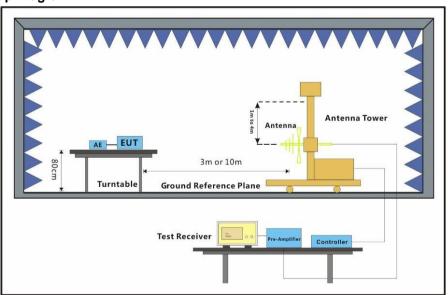
i: Transfer data between the EUT and the PC (without Base station)

j: Transfer data between the EUT and the PC via RJ 45 port (with Base station)

The worst case i: Transfer data between the EUT and the PC (without Base station)

for final test: j: Transfer data between the EUT and the PC via RJ 45 port (with Base station)

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

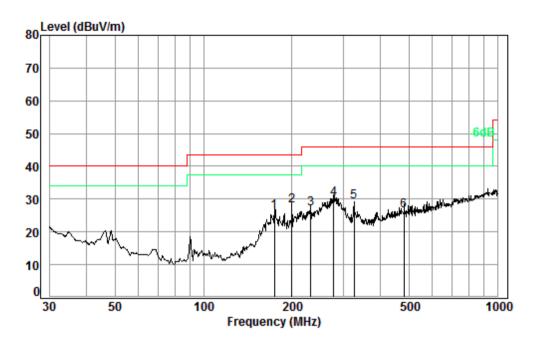
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



Report No.: HR/2018/B000304

Page: 15 of 24

Mode:i; Polarization:Horizontal



Condition: 3m HORIZONTAL

Job No. : B0003

Test mode: i

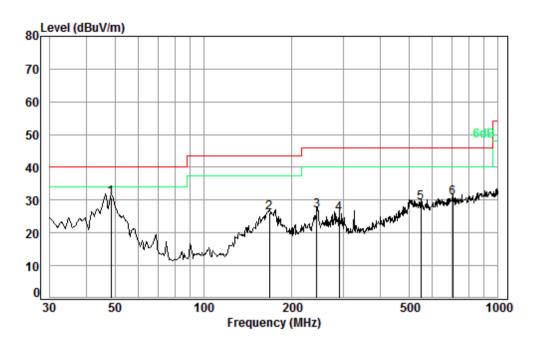
		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
_								
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
4	474 42	4.36	45 70	27 52	26.44	26.06	43.50	47.44
1	174.42	1.36	15.79	27.53	36.44	26.06	43.50	-1/.44
2 pp	199.99	1.40	16.50	27.53	37.75	28.12	43.50	-15.38
3	231.72	1.58	18.15	27.53	34.86	27.06	46.00	-18.94
4	277.09	1.80	18.84	27.54	37.13	30.23	46.00	-15.77
5	324.46	1.98	20.36	27.59	34.50	29.25	46.00	-16.75
6	480.53	2.53	24.21	27.85	27.71	26.60	46.00	-19.40



Report No.: HR/2018/B000304

Page: 16 of 24

Mode:i; Polarization:Vertical



Condition: 3m VERTICAL

Job No. : B0003

Test mode: i

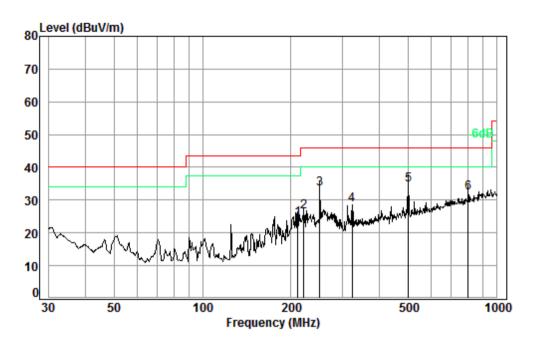
C2 C II	iloue. I							
		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	48.50	0.77	14.65	27.60	43.05	30.87	40.00	-9.13
2	167.82	1.35	15.66	27.52	36.58	26.07	43.50	-17.43
3	242.53	1.64	18.84	27.53	33.77	26.72	46.00	-19.28
4	289.00	1.85	19.17	27.54	32.50	25.98	46.00	-20.02
5	547.10	2.65	25.59	27.79	28.87	29.32	46.00	-16.68
6	701.76	2.91	27.91	27.55	27.60	30.87	46.00	-15.13



Report No.: HR/2018/B000304

Page: 17 of 24

Mode:j; Polarization:Horizontal



Condition: 3m HORIZONTAL

Job No. : B0003

Test mode: j

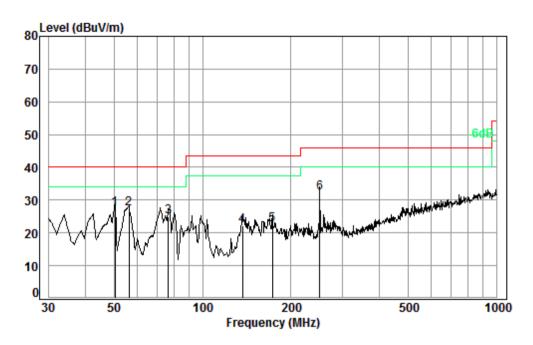
	Freq			Preamp Factor				
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	210.79	1.46	16.89	27.53	33.57	24.39	43.50	-19.11
2	221.39	1.52	17.32	27.53	35.11	26.42	46.00	-19.58
3	250.30	1.68	18.96	27.54	40.47	33.57	46.00	-12.43
4	322.19	1.97	20.29	27.59	33.84	28.51	46.00	-17.49
5 pp	501.18	2.60	24.63	27.88	35.23	34.58	46.00	-11.42
6	798.98	3.20	28.49	27.42	28.04	32.31	46.00	-13.69



Report No.: HR/2018/B000304

Page: 18 of 24

Mode:j; Polarization:Vertical



Condition: 3m VERTICAL

Job No. : B0003

Test mode: j

	_	Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
_								
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	50.41	0.80	14.16	27.60	39.94	27.30	40.00	-12.70
2	56.20	0.80	13.56	27.58	40.50	27.28	40.00	-12.72
3	76.51	1.00	12.27	27.51	39.26	25.02	40.00	-14.98
4	136.94	1.29	13.61	27.52	34.90	22.28	43.50	-21.22
5	172.60	1.36	15.76	27.52	32.80	22.40	43.50	-21.10
6	250.30	1.68	18.96	27.54	38.99	32.09	46.00	-13.91



Report No.: HR/2018/B000304

Page: 19 of 24

6.3 Radiated Emissions (above 1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014 Frequency Range: Above 1GHz

Measurement Distance: 3m

Limit:

Above 1GHz 74(dBµV/m) peak, 54(dBµV/m) average

Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 60.1 % RH Atmospheric Pressure: 1015 mbar

Pretest these e: WCDMA Band V + BT + WLAN + battery + adapter f: LTE band 5 + BT + WLAN + battery + adapter q: LTE band 12 + BT + WLAN + battery + adapter

g: LTE band 12 + BT + WLAN + battery + adapter h: LTE band 17 + BT + WLAN + battery + adapter

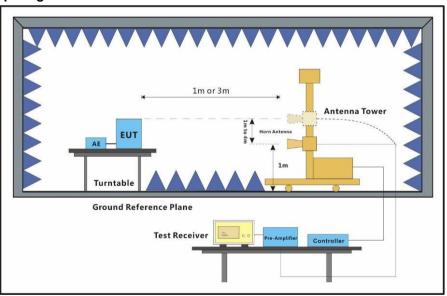
i: Transfer data between the EUT and the PC (without Base station)

j: Transfer data between the EUT and the PC via RJ 45 port (with Base station)

The worst case i: Transfer data between the EUT and the PC (without Base station)

for final test: j: Transfer data between the EUT and the PC via RJ 45 port (with Base station)

6.3.2 Test Setup Diagram



6.3.3 Measurement Data

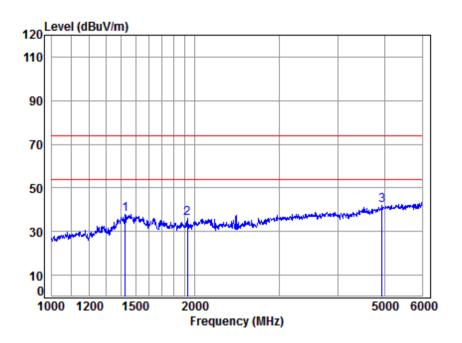
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.



Report No.: HR/2018/B000304

Page: 20 of 24

Mode:i; Polarization:Horizontal



Site : chamber

Condition: 3m Horizontal

Job No : B0003

Mode : i

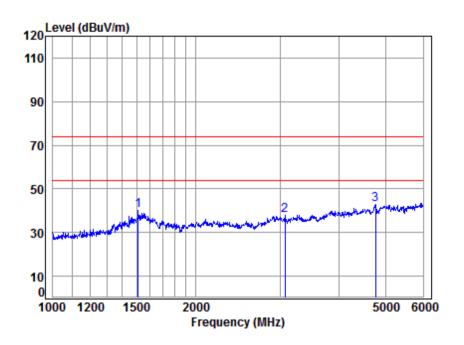
	Freq			Preamp Factor					Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1425.850	5.24	25.52	41.36	48.27	37.67	74.00	-36.33	Peak
2	1926.652	4.98	27.54	41.66	45.02	35.88	74.00	-38.12	Peak
3	4944.370	8.03	34.14	42.49	42.08	41.76	74.00	-32.24	Peak



Report No.: HR/2018/B000304

Page: 21 of 24

Mode:i; Polarization:Vertical



Site : chamber Condition: 3m VERTICAL

Job No : B0003 Mode : i

> 1 2 3

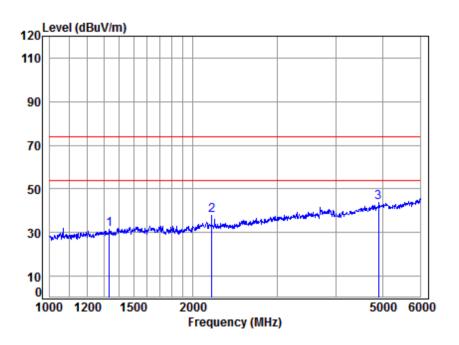
Freq			Preamp Factor					Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1512.700 3075.395			41.41 42.12					
4761.785	7.84	33.92	42.46	43.39	42.69	74.00	-31.31	Peak



Report No.: HR/2018/B000304

Page: 22 of 24

Mode:j; Polarization:Horizontal



Site : chamber

Condition: 3m HORIZONTAL

Job No : B0003

Mode : i

2

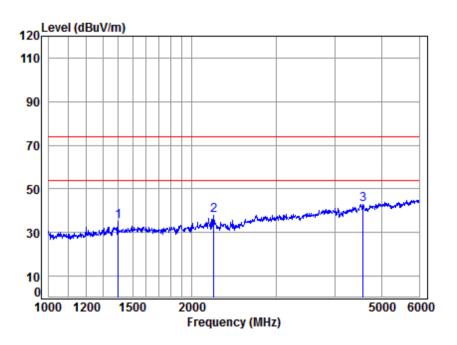
_	Freq			Preamp Factor					Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
				41.29					
	2188.024	5.19	28.16	41.78	46.17	37.74	74.00	-36.26	Peak
	4909.060	8.00	34.10	42.49	44.36	43.97	74.00	-30.03	Peak



Report No.: HR/2018/B000304

Page: 23 of 24

Mode:j; Polarization:Vertical



Site : chamber Condition: 3m VERTICAL

Job No : B0003

Mode : j

	Freq			Preamp Factor					Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1398.023	5.14	25.42	41.34	45.92	35.14	74.00	-38.86	Peak
2	2219.613	5.24	28.22	41.80	46.03	37.69	74.00	-36.31	Peak
3	4577.732	7.65	33.70	42.43	44.08	43.00	74.00	-31.00	Peak



Report No.: HR/2018/B000304

Page: 24 of 24

7 Photographs

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz) Test Setup
Refer to Setup Photos

7.2 EUT Constructional Details (EUT Photos)

Refer to EUT external and internal photos

- End of the Report -