FCC SAR TEST REPORT

Report No:	HR/2020/30021
Applicant:	Huawei Technologies Co., Ltd.
Manufacturer:	Huawei Technologies Co., Ltd.
Product Name:	Smart Phone
Model No.(EUT):	YAL-L21
Trade Mark:	HUAWEI
FCC ID:	QISYAL-L21
Standards:	FCC 47CFR §2.1093
Date of Receipt:	2019-04-09
Date of Test:	2019-04-10 to 2019-04-23
Date of Issue:	2020-04-08
Test conclusion:	**PASS ***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:

Derek Yang

Wireless 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.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

REVISION HISTORY

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-04-08		Original

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd.
Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product specific 10g SAR
GSM850	0.72	0.25	0.55	/
GSM1900	0.61	0.16	0.47	/
WCDMA Band II	0.80	0.23	0.54	/
WCDMA Band IV	0.79	0.27	0.74	/
WCDMA Band V	0.76	**0.36**	0.61	/
LTE Band 2	0.68	0.29	**0.96**	/
LTE Band 4	0.74	0.23	0.70	/
LTE Band 5	**0.92**	0.31	0.61	/
LTE Band 7	0.52	0.27	0.64	/
LTE Band 26	0.50	0.24	0.51	/
LTE Band 38	0.80	0.17	0.47	/
LTE Band 41	0.69	0.19	0.50	/
WI-FI (2.4GHz)	0.31	0.12	0.38	/
WI-FI (5GHz)	0.26	0.12	0.33	**1.29**
BT	0.18	0.14	0.51	/
SAR Limited(W/kg)	1.6			4.0
Maximum Simultaneous Transmission SAR (W/kg)				
Scenario	Head	Body-worn	Hotspot	Product specific 10g SAR
Sum SAR	1.46	0.74	1.31	1.29
SPLSR	N/A	N/A	N/A	N/A
SPLSR Limited	0.04			0.1

Note:
The Simultaneous transmission SAR is the same test position of the main/second antenna + WiFi/BT antenna.

Approved & Released by

Simon Ling

Simon Ling

SAR Manager

Tested by

Jackson Li

Jackson Li

SAR Engineer

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Member of the SGS Group (SGS SA)

CONTENTS

1 GENERAL INFORMATION 6
1.1 DETAILS OF CLIENT 6
1.2 TEST LOCATION 6
1.3 TEST FACILITY 7
1.4 GENERAL DESCRIPTION OF EUT 8
1.4.1 DUT Antenna Locations 11
1.4.2 Dynamic antenna switching specification 12
1.4.3 Downlink LTE CA additional specification 13
1.4.4 Power reduction specification 19
1.5 TEST SPECIFICATION 22
1.6 RF EXPOSURE LIMITS 23
2 LABORATORY ENVIRONMENT 24
3 SAR MEASUREMENTS SYSTEM CONFIGURATION 25
3.1 THE SAR MEASUREMENT SYSTEM 25
3.2 ISOTROPIC E-FIELD PROBE EX3DV4 26
3.3 DATA ACQUISITION ELECTRONICS (DAE) 27
3.4 SAM TWIN PHANTOM 27
3.5 ELI PHANTOM 28
3.6 DEVICE HOLDER FOR TRANSMITTERS 29
3.7 MEASUREMENT PROCEDURE 30
3.7.1 Scanning procedure 30
3.7.2 Data Storage 32
3.7.3 Data Evaluation by SEMCAD 32
4 SAR MEASUREMENT VARIABILITY AND UNCERTAINTY 34
4.1 SAR MEASUREMENT VARIABILITY 34
4.2 SAR MEASUREMENT UNCERTAINTY 35
5 DESCRIPTION OF TEST POSITION 36
5.1 HEAD EXPOSURE CONDITION 36
5.1.1 SAM Phantom Shape 36
5.1.2 EUT constructions 37
5.1.3 Definition of the “cheek” position 38
5.1.4 Definition of the “tilted” position 39
5.2 BODY EXPOSURE CONDITION 40
5.2.1 Body-worn accessory exposure conditions 40
5.2.2 Wireless Router exposure conditions 41
5.3 EXTREMITY EXPOSURE CONDITIONS 41
6 SAR SYSTEM VERIFICATION PROCEDURE 42
6.1 TISSUE SIMULATE LIQUID 42
6.1.1 Recipes for Tissue Simulate Liquid 42
6.1.2 Measurement for Tissue Simulate Liquid 43
6.2 SAR SYSTEM CHECK 45
6.2.1 Justification for Extended SAR Dipole Calibrations 46
6.2.2 Summary System Check Result(s) 47

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

6.2.3 Detailed System Check Results 47

7 TEST CONFIGURATION 48

7.1 3G SAR TEST REDUCTION PROCEDURE 48
7.2 OPERATION CONFIGURATIONS 48
7.2.1 GSM Test Configuration 48
7.2.2 WCDMA Test Configuration 49
7.2.3 WiFi Test Configuration 55
7.2.4 LTE Test Configuration 64

8 TEST RESULT 67

8.1 MEASUREMENT OF RF CONDUCTED POWER 67
8.1.1 Conducted Power of Main Antenna 67
8.1.2 Conducted Power of Second Antenna 93
8.1.3 Conducted Power of Downlink LTE CA 182
8.1.4 Conducted Power of WIFI and BT 188
8.2 STAND-ALONE SAR TEST EVALUATION 205
8.3 MEASUREMENT OF SAR DATA 206
8.3.1 SAR Result of GSM850 206
8.3.2 SAR Result of GSM1900 208
8.3.3 SAR Result of WCDMA Band II 210
8.3.4 SAR Result of WCDMA Band IV 212
8.3.5 SAR Result of WCDMA Band V 214
8.3.6 SAR Result of LTE Band 2 216
8.3.7 SAR Result of LTE Band 4 218
8.3.8 SAR Result of LTE Band 5 220
8.3.9 SAR Result of LTE Band 7 223
8.3.10 SAR Result of LTE Band 26 226
8.3.11 SAR Result of LTE Band 38 228
8.3.12 SAR Result of LTE Band 41 230
8.3.13 SAR Result of WIFI 2.4G 232
8.3.14 SAR Result of WIFI 5G 234
8.3.15 SAR Result of BT 236
8.4 MULTIPLE TRANSMITTER EVALUATION 237
8.4.1 Simultaneous SAR SAR test evaluation 237
8.4.2 Simultaneous Transmission SAR Summation Scenario 240

9 EQUIPMENT LIST 241

10 CALIBRATION CERTIFICATE 242

11 PHOTOGRAPHS 242

APPENDIX A: DETAILED SYSTEM CHECK RESULTS 242

APPENDIX B: DETAILED TEST RESULTS 242

APPENDIX C: CALIBRATION CERTIFICATE 242

APPENDIX D: PHOTOGRAPHS 242

APPENDIX E: ANTENNA LOCATIONS 242

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EMC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

1 General Information

1.1 Details of Client

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

1.2 Test Location

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
Post code:	518057
Telephone:	+86 (0) 755 2601 2053
Fax:	+86 (0) 755 2671 0594
E-mail:	ee.shenzhen@sgs.com

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Member of the SGS Group (SGS SA)

1.3 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.

• VCCI

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 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.

• Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EMC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86–755) 26012053 f (86–755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M–10栋一号厂房 邮编: 518057 t (86–755) 26012053 f (86–755) 26710594 sgs.china@sgs.com

Member of the SGS Group (SGS SA)

1.4 General Description of EUT

Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Name:	Smart Phone		
Model No.(EUT):	YAL-L21		
FCC ID:	QISYAL-L21		
Trade Mark:	HUAWEI		
Product Phase:	production unit		
SN:	NXE119320000096/ NXE119320000087/ NXE119320000003		
Hardware Version:	HL2YALEM01		
Software Version:	10.0.0.100(C900E100R1P1)		
Antenna Type:	Inner Antenna		
Device Operating Configurations :			
Modulation Mode:	**GSM:** GMSK, 8PSK; **WCDMA:** QPSK; **LTE:** QPSK,16QAM,64QAM **WIFI:** DSSS, OFDM; **BT:** GFSK, π/4DQPSK,8DPSK		
Device Class:	B		
GPRS Multi-slots Class:	12	EGPRS Multi-slots Class:	12
HSDPA UE Category:	14	HSUPA UE Category	6
DC-HSDPA UE Category:	24		
Power Class	4,tested with power level 5(GSM850)		
	1,tested with power level 0(GSM1900)		
	3, tested with power control “all 1”(WCDMA Band II/IV/V)		
	3, tested with power control Max Power(LTE Band 2/4/5/7/26/38/41)		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	GSM850	824~849	869~894
	GSM1900	1850~1910	1930~1990
	WCDMA Band II	1850~1910	1930~1990
	WCDMA Band IV	1710~1755	2110~2155
	WCDMA Band V	824~849	869~894
	LTE Band 2	1850 ~1910	1930 ~1990
	LTE Band 4	1710~1755	2110~2155
	LTE Band 5	824~849	869-894
	LTE Band 7	2500~2570	2620~2690
	LTE Band 26	814~849	859-894
	LTE Band 38	2570~2620	2570~2620
	LTE Band 41	2545~2655	2545~2655
	Bluetooth	2400~2483.5	2400~2483.5
	Wi-Fi 2.4G	2400~2483.5	2400~2483.5
	Wi-Fi 5G	5150~5250	5150~5250
		5250~5350	5250~5350
		5470~5725	5470~5725
		5725~5850	5725~5850
	NFC	13.56	13.56

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd.
Shenzhen Branch Testing Center EEC Laboratory.
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Battery Information 1#:	Model:	HB386589ECW
	Normal Voltage:	+3.82V
	Rated capacity:	3650mAh
	Manufacturer:	Huawei Technologies Co., Ltd.(Manufacturer: Desay)
Battery Information 2#:	Model:	HB386589ECW
	Normal Voltage:	+3.82V
	Rated capacity:	3650mAh
	Manufacturer:	Huawei Technologies Co., Ltd.(Manufacturer: SCUD)
Headset Information 1#:	Model:	618017
	Manufacturer:	Foster Electric Co.,(GuangZhou) LTD.
Headset Information 2#:	Model:	MEND1632B729000580C00
	Manufacturer:	Jiangxi Lianchuang Hongsheng Electronic Co., LTD.
Headset Information 3#:	Model:	1331-3301-6001-TC-296
	Manufacturer:	Boluo County Quancheng Electronic Co., Ltd.
Headset Information 4#:	Model:	Windy-C
	Manufacturer:	Goertek Inc.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

The difference between YAL-L21 before and after is show in the below table:

	Model	before	after
Licensed Frequency	LTE BAND	The same	The same
	UMTS BAND	The same	The same
	GSM	The same	The same
	IC	The same	The same
	Antenna	The same	The same
	FM	The same	The same
	NFC	The same	The same
Unlicensed Frequency	Bluetooth	Not support BT UHD function	Support BT UHD function by upgrade software, BT UHD has 5 kinds mode, which are BLE UHD 1M GFSK, BLE UHD 2M GFSK, BLE UHD 2M π/4-DQPSK, BLE UHD 4M π/4-DQPSK, BLE UHD 2M 8DQPSK
	Wi-Fi 2.4G	The same	The same
	Antenna	The same	The same
Hardware	Ram / Rom	The same	The same
	Camera	The same	The same
	PCB	The same	The same
	USB Port	The same	The same
	SIM	The same	The same
RF	RF circuit	The same	The same
	RF conducted power	The same	The same
Appearance	Dimension	The same	The same
	Color	The same	The same
Accessory	Battery	The same	The same
	External Charger	The same	The same
	USB label	The same	The same
	Earphone	The same	The same
	Adapter	The same	The same

Remark:
According to the difference above, the test data in this report are only update the power of BT UHD and other same bands are refer to original report (Report No.: HR/2019/7000111).

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

1.4.1 DUT Antenna Locations

Please see the Appendix E.

The test device is a smart phone. The overall diagonal dimension of this device is 169.4 mm.

According to the distance between LTE/WCDMA/GSM&WIFI&BT antennas and the sides of the EUT we can draw the conclusion that:

EUT Sides for SAR Testing							
Mode	Exposure Condition	Front	Back	Left	Right	Top	Bottom
Ant.1(Main Ant.)	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	Yes	No	Yes
Ant.2(Second Ant.)	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
WIFI 2.4G Ant.1 (core0) &BT Ant.	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No
WIFI 2.4G Ant.2 (core1) &WIFI 5G Ant.	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No

Table 1： EUT Sides for SAR Testing

Note:

1) When the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.
2) main antenna(Ant1) and Secondary antenna（Ant 2） can't transmit simultaneously which will be chosen based on the RSSI. Only one antenna can be used for 2G/3G/4G transmission at a time.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

1.4.2 Dynamic antenna switching specification

The device has two 2G/3G/4G Tx antennas (Main Antenna and Second Antenna). It can transmit from either Main Antenna or Second Antenna, but they cannot transmit simultaneously.

SAR test procedure for dynamic antenna switching is as below:

The Main Antenna and Second Antenna are set to the MAX transmit power level respectively and test the SAR respectively in all applicable RF exposure conditions. Some commands or test scripts are supplied to fix the operation state and choose the antenna so that only one TX antenna is chosen and tested at a time. All independent antennas will be completely covered by the appropriate SAR measurements and all simultaneous transmission possibilities will be fully considered to ensure SAR compliance.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

1.4.3 Downlink LTE CA additional specification

The device supports downlink LTE Carrier Aggregation (CA) only. When carrier aggregation applies, implementation and measurement details for the following are necessary.

a) Intra-band and inter-band carrier aggregation requirements for downlink.

b) Support of contiguous and non-contiguous component carriers for intra-band aggregation.

The possible downlink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.101 V12.5.0. The conducted power measurement results of downlink LTE CA are provided in Section 8.3 of this report per 3GPP TS 36.521-1 V12.3.0. The downlink LTE CA SAR test is not required since the maximum output power for downlink LTE CA was not more than 0.25dB higher than the maximum output power for without downlink LTE CA.

Intra-band contiguous CA operating bands：

E-UTRA CA Band	E-UTRA Band	Uplink (UL) operating band BS receive / UE transmit F_{UL_low}	–	F_{UL_high}	Downlink (DL) operating band BS transmit / UE receive F_{DL_low}	–	F_{DL_high}	Duplex Mode
CA_5	5	824 MHz	–	849 MHz	869 MHz	–	894MHz	FDD
CA_7	7	2500 MHz	–	2570 MHz	2620 MHz	–	2690 MHz	FDD
CA_38	38	2570 MHz	–	2620 MHz	2570 MHz	–	2620 MHz	TDD
CA_41	41	2545 MHz	–	2655 MHz	2545 MHz	–	2655 MHz	TDD

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

contiguous intra-band CA：

	E-UTRA CA configuration / Bandwidth combination set						
E-UTRA CA configuration	Uplink CA configurations (NOTE 3)	Component carriers in order of increasing carrier frequency				Maximum aggregated bandwidth [MHz]	Bandwidth combination set
		Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]		
CA_5B	NA	5, 10	10			20	0
		10	5				
		3	5			8	1
		5	3				
CA_7C	NA	15	15			40	0
		20	20				
		10	20			40	1
		15	15, 20				
		20	10, 15, 20				
		15	10, 15			40	2
		20	15, 20				
CA_38C	NA	15	15			40	0
		20	20				
CA_41C	CA_41C	10	20			40	0
		15	15, 20				
		20	10, 15, 20				
		5, 10	20			40	1
		15	15, 20				
		20	5, 10, 15, 20				
		10	15, 20			40	2
		15	10, 15, 20				
		20	10, 15, 20				
		10	20			40	3
		20	20				

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

Test frequencies for CA_5B

Range	CC-Combo / N_{RB_agg} [RB]	CC1 Note1					CC2 Note1				
		BW [RB]	N_{UL}	f_{UL} [MHz]	N_{DL}	f_{DL} [MHz]	BW [RB]	N_{UL}	f_{UL} [MHz]	N_{DL}	f_{DL} [MHz]
Low	25+50	25	20428	826.8	2428	871.8	50	20500	834	2500	879
	50+25	50	20450	829	2450	874	25	20522	836.2	2522	881.2
	50+50	50	20450	829	2450	874	50	20549	838.9	2549	883.9
Mid	25+50	25	20478	831.8	2478	876.8	50	20550	839	2550	884
	50+25	50	20500	834	2500	879	25	20572	841.2	2572	886.2
	50+50	50	20476	831.6	2476	876.6	50	20575	841.5	2575	886.5
High	25+50	25	20528	836.8	2528	881.8	50	20600	844	2600	889
	50+25	50	20550	839	2550	884	25	20622	846.2	2622	891.2
	50+50	50	20501	834.1	2501	879.1	50	20600	844	2600	889
Note 1: Carriers in increasing frequency order.											

Test frequencies for CA_7C：

Range	CC-Combo / NRB_agg [RB]	CC1 Note1					CC2 Note1				
		BW [RB]	N_{UL}	f_{UL} [MHz]	N_{DL}	f_{DL} [MHz]	BW [RB]	N_{UL}	f_{UL} [MHz]	N_{DL}	f_{DL} [MHz]
Low	50+100	50	20805	2505.5	2805	2625.5	100	20949	2519.9	2949	2639.9
		100	20850	2510	2850	2630	50	20994	2524.4	2994	2644.4
	75+75	75	20825	2507.5	2825	2627.5	75	20975	2522.5	2975	2642.5
	75+100	75	20828	2507.8	2828	2627.8	100	20999	2524.9	2999	2644.9
		100	20850	2510	2850	2630	75	21021	2527.1	3021	2647.1
	100+100	100	20850	2510	2850	2630	100	21048	2529.8	3048	2649.8
Mid	50+100	50	21006	2525.6	3006	2645.6	100	21150	2540	3150	2660
		100	21051	2530.1	3051	2650.1	50	21195	2544.5	3195	2664.5
	75+75	75	21025	2527.5	3025	2647.5	75	21175	2542.5	3175	2662.5
	75+100	75	21003	2525.3	3003	2645.3	100	21174	2542.4	3174	2662.4
		100	21026	2527.6	3026	2647.6	75	21197	2544.7	3197	2664.7
	100+100	100	21001	2525.1	3001	2645.1	100	21199	2544.9	3199	2664.9
High	50+100	50	21206	2545.6	3206	2665.6	100	21350	2560	3350	2680
		100	21251	2550.1	3251	2670.1	50	21395	2564.5	3395	2684.5
	75+75	75	21225	2547.5	3225	2667.5	75	21375	2562.5	3375	2682.5
	75+100	75	21179	2542.9	3179	2662.9	100	21350	2560	3350	2680
		100	21201	2545.1	3201	2665.1	75	21372	2562.2	3372	2682.2
	100+100	100	21152	2540.2	3152	2660.2	100	21350	2560	3350	2680
Note 1: Carriers in increasing frequency order.											

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Test frequencies for CA_38C：

Range	CC-Combo / NRB_agg [RB]	CC1 Note1			CC2 Note1		
		BW [RB]	$N_{UL/DL}$	$f_{UL/DL}$ [MHz]	BW [RB]	$N_{UL/DL}$	$f_{UL/DL}$ [MHz]
Low	75+75	75	37825	2577.5	75	37975	2592.5
	100+100	100	37850	2580	100	38048	2599.8
Mid	75+75	75	37925	2587.5	75	38075	2602.5
	100+100	100	37901	2585.1	100	38099	2604.9
High	75+75	75	38025	2597.5	75	38175	2612.5
	100+100	100	37952	2590.2	100	38150	2610
Note 1: Carriers in increasing frequency order.							

Test frequencies for CA_41C：

Range	CC-Combo / N_{RB_agg} [RB]	CC1 Note1			CC2 Note1		
		BW [RB]	$N_{UL/DL}$	$f_{UL/DL}$ [MHz]	BW [RB]	$N_{UL/DL}$	$f_{UL/DL}$ [MHz]
Low	25+100	25	40165	2547.5	100	40282	2559.2
		100	40240	2555	25	40357	2566.7
	50+100	50	40190	2550	100	40334	2564.4
		100	40240	2555	50	40384	2569.4
	75+75	75	40215	2552.5	75	40365	2567.5
	75+100	75	40215	2552.5	100	40386	2569.6
		100	40240	2555	75	40411	2572.1
	100+100	100	40240	2555	100	40438	2574.8
Mid	25+100	25	40598	2590.8	100	40715	2602.5
		100	40665	2597.5	25	40782	2609.2
	50+100	50	40596	2590.6	100	40740	2565.0
		100	40641	2595.1	50	40785	2609.5
	75+75	75	40615	2592.5	75	40765	2607.5
	75+100	75	40593	2590.3	100	40764	2607.4
		100	40616	2592.6	75	40787	2609.7
	100+100	100	40591	2590.1	100	40789	2609.9
High	25+100	25	41023	2633.3	100	41140	2645
		100	41098	2640.8	25	41215	2652.5
	50+100	50	40996	2630.6	100	41140	2645
		100	41046	2635.6	50	41190	2650
	75+75	75	41014	2632.5	75	41165	2647.5
	75+100	75	40969	2627.9	100	41140	2645
		100	40994	2630.4	75	41165	2647.5
	100+100	100	40942	2625.2	100	41140	2645
Note 1: Carriers in increasing frequency order.							

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Inter-band CA operating bands (two bands):

E-UTRA CA Band	E-UTRA Band	Uplink (UL) operating band BS receive / UE transmit F_{UL_low} – F_{UL_high}			Downlink (DL) operating band BS transmit / UE receive F_{DL_low} – F_{DL_high}			Duplex Mode
CA_4-7	4	1710 MHz	–	1755 MHz	2110 MHz	–	2155 MHz	FDD
	7	2500 MHz	–	2570 MHz	2620 MHz	–	2690 MHz	
CA_5-7	5	824 MHz	–	849 MHz	869 MHz	–	894MHz	FDD
	7	2500 MHz	–	2570 MHz	2620 MHz	–	2690 MHz	
CA_2-5	2	1850 MHz	–	1910 MHz	1930 MHz	–	1990 MHz	FDD
	5	824 MHz	–	849 MHz	869 MHz	–	894MHz	
CA_4-5	4	1710 MHz	–	1755 MHz	2110 MHz	–	2155 MHz	FDD
	5	824 MHz	–	849 MHz	869 MHz	–	894MHz	

inter-band CA (two bands):

	E-UTRA CA configuration / Bandwidth combination set									
E-UTRA CA Configuration	Uplink CA configurations	E-UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_4A-7A	NA	4			Yes	Yes			30	0
		7			Yes	Yes	Yes	Yes		
		4			Yes	Yes	Yes	Yes	40	1
		7			Yes	Yes	Yes	Yes		
CA_4A-5A	NA	4			Yes	Yes			20	0
		5			Yes	Yes				
		4			Yes	Yes	Yes	Yes	30	1
		5			Yes	Yes				
CA_5A-7A	NA	5	Yes	Yes	Yes	Yes			30	0
		7				Yes	Yes	Yes		
		5			Yes	Yes			30	1
		7				Yes	Yes	Yes		
CA_2A-5A	NA	2			Yes	Yes	Yes	Yes	30	0
		5			Yes	Yes				
		2			Yes	Yes			20	1
		5			Yes	Yes				

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

non-contiguous intra-band CA:

E-UTRA CA Band	E-UTRA Band	Uplink (UL) operating band BS receive / UE transmit F_{UL_low} – F_{UL_high}			Downlink (DL) operating band BS transmit / UE receive F_{DL_low} – F_{DL_high}			Duplex Mode
CA_7-7	7	2500 MHz	–	2570 MHz	2620 MHz	–	2690 MHz	FDD

E-UTRA CA configuration / Bandwidth combination set						
E-UTRA CA configuration	Uplink CA configurations	Component carriers in order of increasing carrier frequency			Maximum aggregated bandwidth [MHz]	Bandwidth combination set
		Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]		
CA_7A-7A	NA	5	15		40	0
		10	10, 15			
		15	15, 20			
		20	20			
		5, 10, 15, 20	5, 10, 15, 20		40	1
		5, 10, 15, 20	5, 10		30	2
		10, 15, 20	10, 15, 20		40	3

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

1.4.4 Power reduction specification

This device uses a single fixed level of power reduction through static table look-up for SAR compliance and it is triggered by a single event or operation

1) A fixed level power reduction is applied for some frequency bands when hotspot mode becomes active. When the hotspot is disabled, the power value will be recovered.

2) A fixed level power reduction is applied for some frequency bands when simultaneously transmitting with the other antennas in certain simultaneous transmission conditions. The standalone SAR compliance still uses the standalone SAR results tested at the maximum output power level without any power reduction

3) A fixed level power reduction is applied for some frequency bands when handset operate "held to the ear" condition, the power reduction triggered by audio receiver detection. The audio receiver detection is used to determine head or body scenario.

The following tables summarize the key power reduction information. The detailed full power which is the Max. power the state can use and reduced tune-up specifications and conducted power measurement results are provided in Section 8 of this report.

Second antenna												
Power Reduction Scenario	GSM 850	GSM 1900	UMTS Band II	UMTS Band IV	UMTS Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 26	LTE Band 38	LTE Band 41
Full Power Receiver off Receiver off+BT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Receiver on Receiver on+BT	3.2	0.0	4.5	4.5	3.0	3.5	5.0	2.5	5.5	3.5	3.5	4.0
Second antenna+WiFi 2.4G(Rec off) Second antenna+WiFi 2.4G(Rec off)+BT	0.5	0.0	0.0	2.0	1.5	0.0	4.5	1.5	4.0	2.0	0.0	4.5
Second antenna+WiFi 2.4G(Rec on) Second antenna+WiFi 2.4G(Rec on)+BT	3.7	0.0	4.5	6.5	4.5	3.5	9.2	4.0	9.5	5.5	3.5	8.5
Second antenna+WiFi 5G(Rec off) Second antenna+WiFi 5G(Rec off)+BT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0
Second antenna+WiFi 5G(Rec on) Second antenna+WiFi 5G(Rec on)+BT	3.2	0.0	4.5	4.5	3.0	3.5	5.0	3.5	6.5	3.5	3.5	4.0
Second antenna+WiFi 2.4G+5G(Rec off) Second antenna+WiFi 2.4G+5G(Rec off)+BT	1.0	0.0	0.0	2.0	1.5	0.0	4.5	2.0	4.0	2.0	0.5	4.5
Second antenna+WiFi 2.4G+5G(Rec on) Second antenna+WiFi 2.4G+5G(Rec on)+BT	4.2	0.0	4.5	6.5	4.5	3.5	9.2	4.5	9.5	5.5	4.0	8.5

Main antenna												
Power Reduction Scenario	GSM 850	GSM 1900	UMTS Band II	UMTS Band IV	UMTS Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 26	LTE Band 38	LTE Band 41
Full Power Receiver on Receiver on+BT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Receiver off Receiver off+BT	0.0	0.0	2.5	0.5	0.0	0.0	0.5	0	1.0	0.0	0.0	0.0

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

WiFi antenna			
Power Reduction Scenario		wifi only (Receiver off)	Second antenna +WiFi 2.4G/5G station/WiFi (rec on) or Second antenna+2.4G/5G Hotspot（rec on）or Second antenna+ 2.4G/5G P2P（rec on） wifi only(Receiver on)
WiFi 2.4G Ant1	802.11 b	0.0	6.9
	802.11 g	0.0	6.5
	802.11 n	0.0	6.0
WiFi 2.4G Ant2	802.11 b	0.0	6.9
	802.11 g	0.0	6.5
	802.11 n	0.0	6.0
WiFi 2.4G MIMO	802.11 g	0.0	6.5
	802.11 n	0.0	6.0
WiFi 5G	802.11a ch36&ch64&ch100&ch140&ch149&ch165	0.0	0.0
	802.11a others	0.0	4.9
	802.11n HT20 ch36&ch64&ch100&ch140&ch149&ch165	0.0	0.0
	802.11n HT20 others	0.0	4.0
	802.11n HT40 ch38&ch62&ch102&ch134&ch151&ch159	0.0	0.0
	802.11n HT40 others	0.0	4.0
	802.11ac HT20 ch36&ch64&ch100&ch140&ch149&ch165	0.0	0.0
	802.11ac HT20 others	0.0	4.0
	802.11ac HT40 ch38&ch62&ch102&ch134&ch151&ch159	0.0	0.0
	802.11ac HT40 others	0.0	4.0
	802.11ac HT80 ch42&ch58&ch106&ch122&ch155	0.0	0.0
	802.11ac HT80 others	0.0	4.0
	802.11ac HT160 ch50&ch114	0.0	0.0

Note: For Head SAR test of 2G/3G/4G Antenna and WiFi 2.4G Antenna, Standalone Head SAR should be evaluated at with audio receiver on. As the audio receiver only works in voice mode when the user is making a call in head scenario, and the lack of the third-party VoIP server and the unstandardized VOIP operating characteristics, so a test script is used to trigger the receiver on during the test. The test script function is only used to trigger audio receiver on and simulate voice and VOIP usage scene. It can be ensured that the unmodified settings in production units, including maximum output power, amplifier gain and other RF performance or tuning parameters, are used for SAR measurement.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

4) This device uses the mobile country code (MCC) to indicate whether the users in CE countries or FCC countries. The selection between CE countries and FCC countries power levels is based on the country code detection mechanism. It can determine the countries where users are and set the relevant power level for 4G and WiFi antennas accordingly. The conducted power measurement results are provided in Section 8.1 of this report.

Band/Mode(Ant)	MCC OF CE COUNTRY (CE standard)	MCC OF FCC COUNTRY (FCC standard)
	Receiver on	Receiver on
LTE Band 7 (Second antenna)	Power Level A1	Power Level B1
LTE Band 38 (Second antenna)	Power Level A2	Power Level B2
WiFi 2.4G	Power Level A3	Power Level B3
WiFi 5G	Power Level A4	Power Level B4

For FCC SAR test, SAR test should be evaluated at the power level of FCC mobile country code for each exposure conditions.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Member of the SGS Group (SGS SA)

1.5 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
IEEE Std C95.1 – 1991	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.
IEEE 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB 941225 D01	3G SAR Measurement Procedures v03r01
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D05A	LTE Rel.10 KDB Inquiry Sheet v01r02
KDB 941225 D06	Hotspot Mode SAR v02r01
KDB 248227 D01	SAR Guidance for IEEE 802 11 Wi-Fi SAR v02r02
KDB 648474 D04	Handset SAR v01r03
KDB447498 D01	General RF Exposure Guidance v06
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02
KDB 690783 D01	SAR Listings on Grants v01r03

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86–755) 26012053 f (86–755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M–10栋一号厂房 邮编: 518057 t (86–755) 26012053 f (86–755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

1.6 RF exposure limits

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR* (Brain*Trunk)	**1.60 mW/g**	8.00 mW/g
Spatial Average SAR** (Whole Body)	0.08 mW/g	0.40 mW/g
Spatial Peak SAR*** (Hands/Feet/Ankle/Wrist)	**4.00 mW/g**	20.00 mW/g

Notes:

* The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time

** The Spatial Average value of the SAR averaged over the whole body.

*** The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation.)

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Member of the SGS Group (SGS SA)

2 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.	

Table 2： The Ambient Conditions

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory.
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Member of the SGS Group (SGS SA)

3 SAR Measurements System Configuration

3.1 The SAR Measurement System

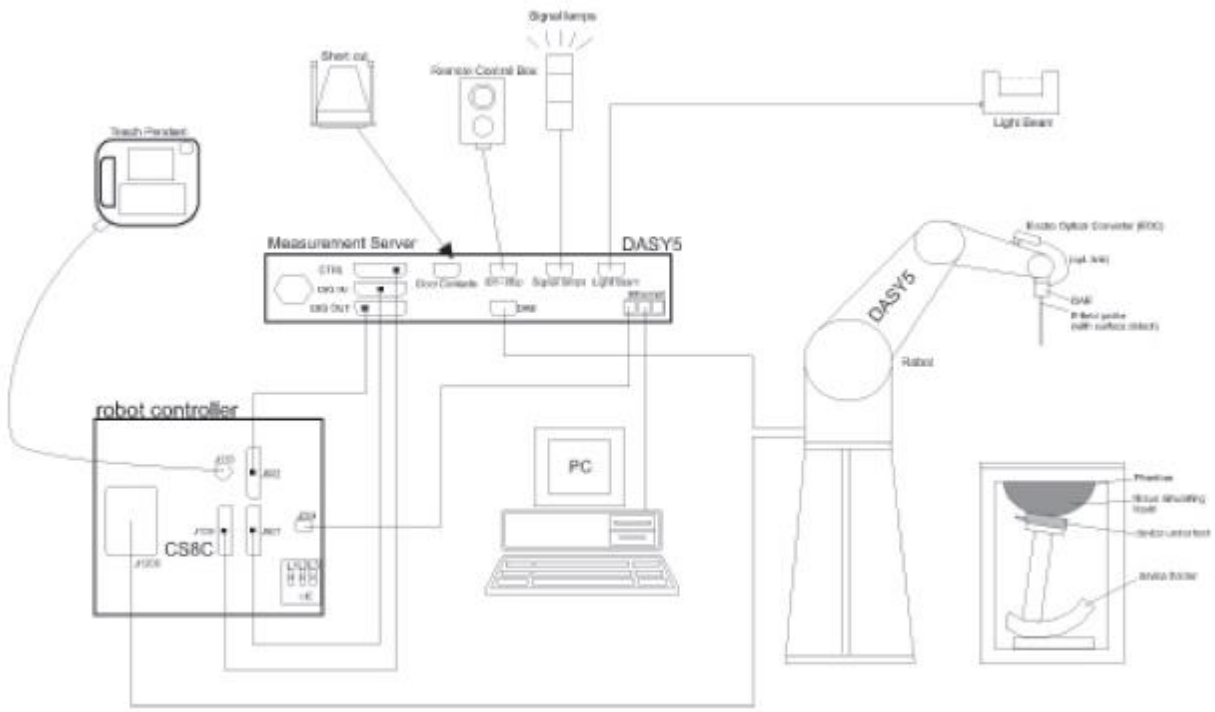
This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY5 professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|2)/ ρ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

The DASY5 system for performing compliance tests consists of the following items:
A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software .An arm extension for accommodation the data acquisition electronics (DAE).

A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.

A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.



F-1. SAR Measurement System Configuration

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

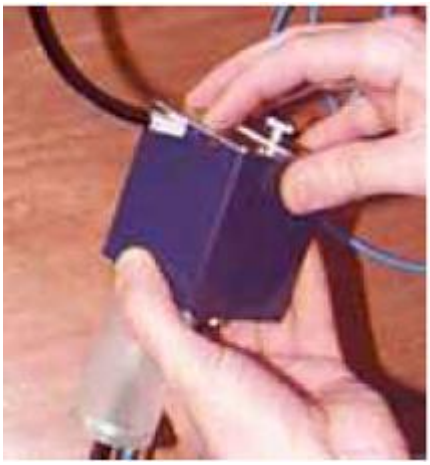
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand, right-hand and Body Worn usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validating the proper functioning of the system.

3.2 Isotropic E-field Probe EX3DV4

	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

3.3 Data Acquisition Electronics (DAE)

Model	DAE	
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY4/5 embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.	
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV,400mV)	
Input Offset Voltage	< 5µV (with auto zero)	
Input Bias Current	< 50 f A	
Dimensions	60 x 60 x 68 mm	

3.4 SAM Twin Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)	
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)	
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)	
Dimensions (incl. Wooden Support)	Length: 1000 mm Width: 500 mm Height: adjustable feet	
Filling Volume	approx. 25 liters	
Wooden Support	SPEAG standard phantom table	

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.

Twin SAM V5.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

3.5 ELI Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)	
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)	
Shell Thickness	2.0 ± 0.2 mm (bottom plate)	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	
Filling Volume	approx. 30 liters	
Wooden Support	SPEAG standard phantom table	

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.

ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

3.6 Device Holder for Transmitters

F-2. **Device Holder for Transmitters**

- The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centres for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.
- The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity ε=3 and loss tangent δ=0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

3.7 Measurement procedure

3.7.1 Scanning procedure

Step 1: Power reference measurement

The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure.

Step 2: *Area scan*

The SAR distribution at the exposed side of the head was measured at a distance of 4mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15mm*15mm or 12mm*12mm or 10mm*10mm.Based on the area scan data, the area of the maximum absorption was determined by spline interpolation.

Step 3: *Zoom scan*

Around this point, a volume of 32mm*32mm*30mm (f≤2GHz), 30mm*30mm*30mm (f for 2-3GHz) and 24mm*24mm*22mm (f for 5-6GHz) was assessed by measuring 5x5x7 points (f≤2GHz), 7x7x7 points (f for 2-3GHz) and 7x7x12 points (f for 5-6GHz). On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

The data at the surface was extrapolated, since the centre of the dipoles is 2.0mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. (This can be variable. Refer to the probe specification).The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The volume was integrated with the trapezoidal algorithm. One thousand points were interpolated to calculate the average. All neighbouring volumes were evaluated until no neighboring volume with a higher average value was found.

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std. 1528-2013.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Step 4: Power reference measurement (drift)

The Power Drift Measurement job measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The indicated drift is mainly the variation of the DUT's output power and should vary max. ± 5 %

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86–755) 26012053 f (86–755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M–10栋一号厂房 邮编: 518057 t (86–755) 26012053 f (86–755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

3.7.2 Data Storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DAE4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [m W/g], [m W/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

3.7.3 Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters: - Sensitivity Normi, ai0, ai1, ai2
- Conversion factor ConvFi
- Diode compression point Dcpi
Device parameters: - Frequency f
- Crest factor cf
Media parameters: - Conductivity ε
- Density ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot cf / dcp_i$$

With Vi = compensated signal of channel i (i = x, y, z)
Ui = input signal of channel i (i = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcp i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes:

$$E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$$

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

H-field probes:

$$H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$$

With Vi = compensated signal of channel i (i = x, y, z)
Normi = sensor sensitivity of channel I (i = x, y, z)
[mV/(V/m)2] for E-field Probes
ConvF = sensitivity enhancement in solution
aij = sensor sensitivity factors for H-field probes
f = carrier frequency [GHz]
Ei = electric field strength of channel i in V/m
Hi = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (Etot^2 \cdot \sigma) / (\varepsilon \cdot 1000)$$

with SAR = local specific absorption rate in mW/g
Etot = total field strength in V/m
σ= conductivity in [mho/m] or [Siemens/m]
ε= equivalent tissue density in g/cm3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}^2{}_2 / 3770 \quad \text{or} \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

with Ppwe = equivalent power density of a plane wave in mW/cm2
Etot = total electric field strength in V/m
Htot = total magnetic field strength in A/m

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

4 SAR measurement variability and uncertainty

4.1 SAR measurement variability

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.

2) When the original highest measured SAR is ⩾ 0.80 W/kg, repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ⩾ 1.45 W/kg (~ 10% from the 1-g SAR limit).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ⩾1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

4.2 SAR measurement uncertainty

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory.
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Member of the SGS Group (SGS SA)

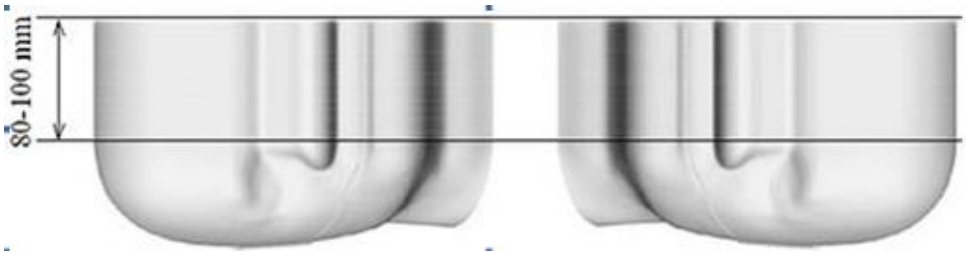
5 Description of Test Position

5.1 Head Exposure Condition

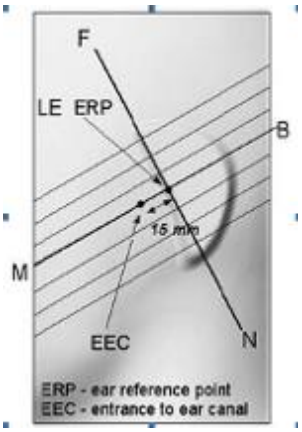
5.1.1 SAM Phantom Shape

F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

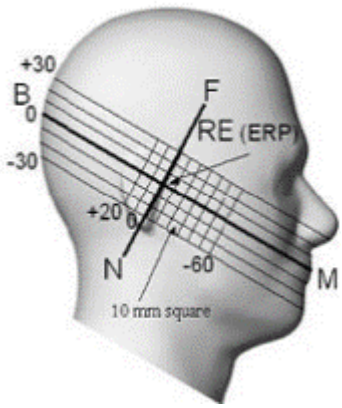
Note: The centre strip including the nose region has a different thickness tolerance.



F-4. Sagittally bisected phantom with extended perimeter (shown placed on its side as used for SAR measurements)



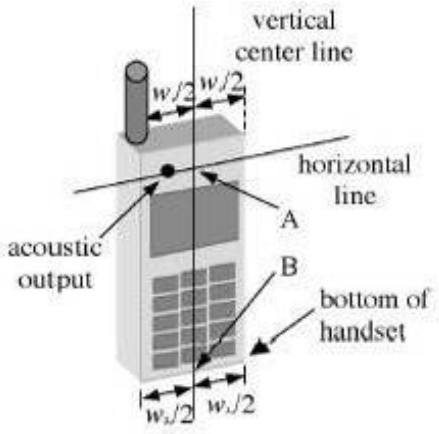
F-5. Close-up side view of phantom, showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations



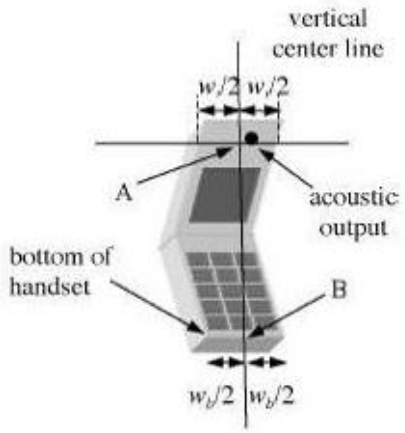
F-6. Side view of the phantom showing relevant markings and seven cross-sectional plane locations

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

5.1.2 EUT constructions



F-7. Handset vertical and horizontal reference lines-“fixed case”



F-8. Handset vertical and horizontal reference lines-“clam-shell case”

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

5.1.3 Definition of the “cheek” position

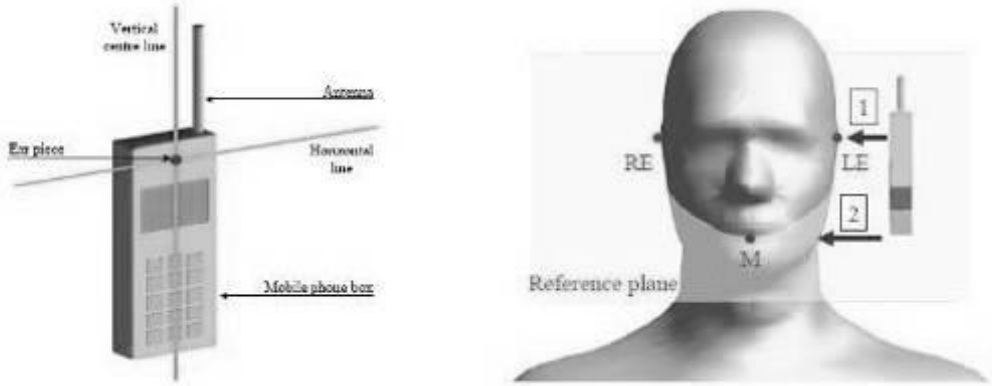
a) Position the device with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagittal plane of the phantom ("initial position"). While maintaining the device in this plane, align the vertical centre line with the reference plane containing the three ear and mouth reference points (M, RE and LE) and align the centre of the ear piece with the line RE-LE.
b) Translate the mobile phone box towards the phantom with the ear piece aligned with the line LE-RE until telephone touches the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the box until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

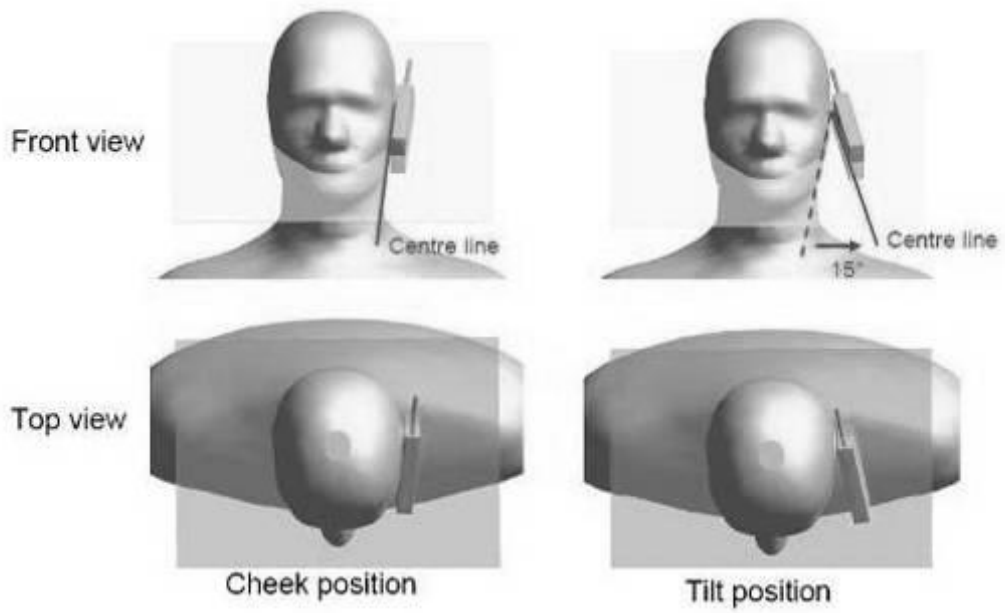
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

5.1.4 Definition of the "tilted" position

a) Position the device in the "cheek" position described above;
b) While maintaining the device in the reference plane described above and pivoting against the ear, move it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost.



F-9. **Definition of the reference lines and points, on the phone and on the phantom and initial position**



F-10. **"Cheek" and "tilt" positions of the mobile phone on the left side**

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

5.2 Body Exposure Condition

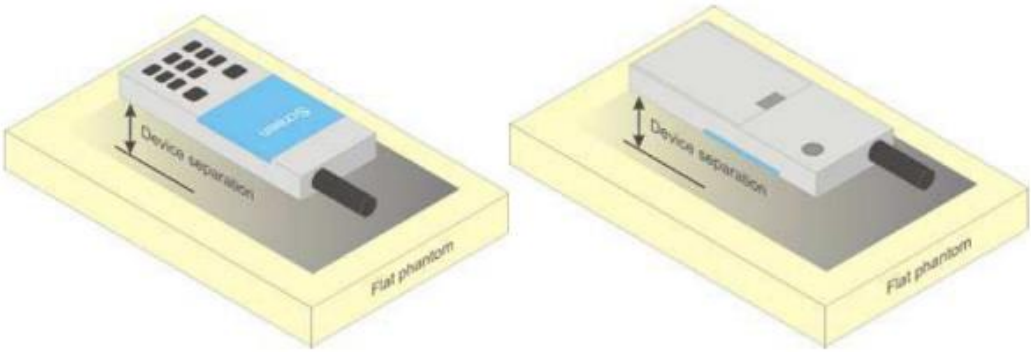
5.2.1 Body-worn accessory exposure conditions

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations.

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. Per FCC KDB Publication 648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented. Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.



F-11. **Test positions for body-worn devices**

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

5.2.2 Wireless Router exposure conditions

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. For devices with form factors smaller than 9 cm x 5 cm, a test separation distance of 5 mm is required.

5.3 Extremity exposure conditions

Per FCC KDB 648474D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the device is marketed as “Phablet”.
The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for Product Specific 10-g SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

Due to the SAR result, the main/second antenna frequency bands are not required to test with 0mm for the Product Specific 10-g SAR.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

6 SAR System Verification Procedure

6.1 Tissue Simulate Liquid

6.1.1 Recipes for Tissue Simulate Liquid

The bellowing tables give the recipes for tissue simulating liquids to be used in different frequency bands：

Ingredients (% by weight)	Frequency (MHz)							
	450		700-950		1700-2000		2300-2700	
Tissue Type	**Head**	**Body**	**Head**	**Body**	**Head**	**Body**	**Head**	**Body**
Water	38.56	51.16	40.30	50.75	55.24	70.17	55.00	68.53
Salt (NaCl)	3.95	1.49	1.38	0.94	0.31	0.39	0.2	0.1
Sucrose	56.32	46.78	57.90	48.21	0	0	0	0
HEC	0.98	0.52	0.24	0	0	0	0	0
Bactericide	0.19	0.05	0.18	0.10	0	0	0	0
Tween	0	0	0	0	44.45	29.44	44.80	31.37
Salt: 99+% Pure Sodium Chloride Water: De-ionized, 16 MΩ+ resistivity Tween: Polyoxyethylene (20) sorbitan monolaurate					Sucrose: 98+% Pure Sucrose HEC: Hydroxyethyl Cellulose			
HSL5GHz is composed of the following ingredients: Water: 50-65% Mineral oil: 10-30% Emulsifiers: 8-25% Sodium salt: 0-1.5%								
MSL5GHz is composed of the following ingredients: Water: 64-78% Mineral oil: 11-18% Emulsifiers: 9-15% Sodium salt: 2-3%								

Table 3： Recipe of Tissue Simulate Liquid

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

6.1.2 Measurement for Tissue Simulate Liquid

The dielectric properties for this Tissue Simulate Liquids were measured by using the Agilent Model 85070E Dielectric Probe in conjunction with Agilent E5071C Network Analyzer (300 KHz-8500 MHz). The Conductivity (σ) and Permittivity (ρ) are listed in bellow table. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was 22±2°C.

Tissue Type	Measured Frequency (MHz)	Target Tissue (±5%)		Measured Tissue		Liquid Temp.(℃)	Measured Date
		ε_r	σ(S/m)	ε_r	σ(S/m)		
835 Head	835	41.5 (39.43~43.58)	0.90 (0.86~0.95)	40.943	0.914	22.1	2019/4/11
835 Body	835	55.2 (52.44~57.96)	0.97 (0.92~1.02)	55.389	0.986	22.1	2019/4/12
835 Body	835	55.2 (52.44~57.96)	0.97 (0.92~1.02)	56.266	0.993	22.1	2019/4/14
1750 Head	1750	40.1 (38.10~42.11)	1.37 (1.30~1.44)	40.403	1.316	22.2	2019/4/16
1750 Body	1750	53.4 (50.73~56.07)	1.49 (1.42~1.56)	52.209	1.494	22.2	2019/4/17
1900 Head	1900	40.0 (38.00~42.00)	1.40 (1.33~1.47)	38.560	1.384	22.3	2019/4/12
1900 Body	1900	53.3 (50.64~55.97)	1.52 (1.44~1.60)	52.651	1.499	22.3	2019/4/11
1900 Body	1900	53.3 (50.64~55.97)	1.52 (1.44~1.60)	53.480	1.524	22.3	2019/4/13
2450 Head	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	40.409	1.797	22.0	2019/4/16
2450 Head	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	41.039	1.811	22.0	2019/4/20
2450 Head	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	40.738	1.784	22.0	2019/4/23
2450 Body	2450	52.70 (50.07~55.34)	1.95 (1.85~2.05)	52.708	1.970	22.0	2019/4/17
2450 Body	2450	52.70 (50.07~55.34)	1.95 (1.85~2.05)	50.375	1.984	22.0	2019/4/18
2600 Head	2600	39.0 (37.05~40.95)	1.96 (1.86~2.06)	39.429	1.994	22.1	2019/4/10
2600 Body	2600	52.50 (49.88~55.13)	2.16 (2.05~2.27)	50.348	2.127	22.1	2019/4/14
2600 Body	2600	52.50 (49.88~55.13)	2.16 (2.05~2.27)	52.234	2.161	22.1	2019/4/15
5250Head	5250	35.9 (34.11~37.70)	4.71 (4.47~4.95)	36.725	4.675	22.2	2019/4/21
5250 Body	5250	48.9 (46.46~51.35)	5.36 (5.09~5.63)	48.122	5.426	22.2	2019/4/19
5600 Head	5600	35.5 (33.73~37.28)	5.07 (4.82~5.32)	35.773	5.058	22.2	2019/4/21

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center-EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

5600 Body	5600	48.5 (46.08~50.93)	5.77 (5.48~6.06)	47.19	5.85	22.2	2019/4/19
5750 Head	5750	35.4 (33.63~37.17)	5.22 (4.96~5.48)	35.409	5.228	22.2	2019/4/21
5750 Body	5750	48.3 (45.89~50.72)	5.94 (5.64~6.24)	46.85	6.107	22.2	2019/4/19

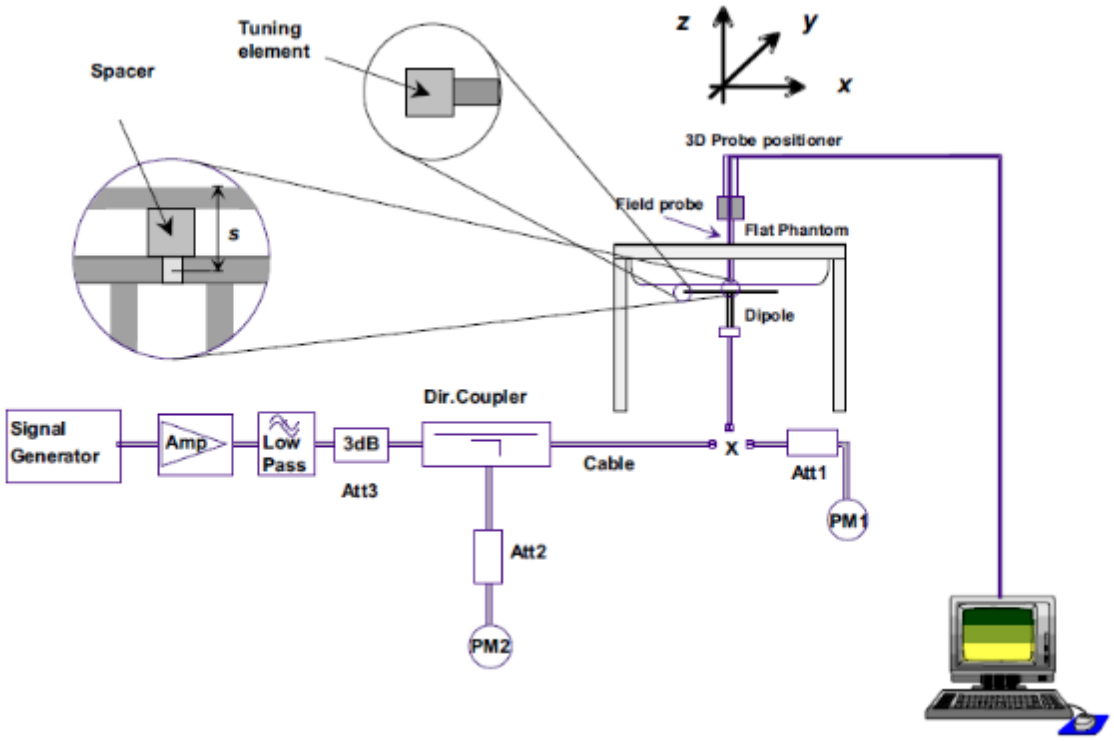
Table 4： Measurement result of Tissue electric parameters

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

6.2 SAR System Check

The microwave circuit arrangement for system Check is sketched in F-12. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the following table (A power level of 250mW (below 3GHz) or 100mW (3-6GHz) was input to the dipole antenna). During the tests, the ambient temperature of the laboratory was in the range 22±2°C, the relative humidity was in the range 60% and the liquid depth above the ear reference points was above 15±0.5 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



F-12. the microwave circuit arrangement used for SAR system check

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

6.2.1 Justification for Extended SAR Dipole Calibrations

1) Referring to KDB865664 D01 requirements for dipole calibration, instead of the typical annual calibration recommended by measurement standards, longer calibration intervals of up to three years may be considered when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable according to the following requirements. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.
a) There is no physical damage on the dipole;
b) System check with specific dipole is within 10% of calibrated value;
c) Return-loss is within 10% of calibrated measurement;
d) Impedance is within 5Ω from the previous measurement.

2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

6.2.2 Summary System Check Result(s)

Validation Kit		Measured SAR 250mW	Measured SAR 250mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W) (±10%)	Target SAR (normalized to 1W) (±10%)	Liquid Temp. (℃)	Measured Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)		
D835V2	Head	2.49	1.66	9.96	6.64	9.59 (8.63~10.55)	6.29 (5.66~6.92)	22.1	2019/4/11
	Body	2.39	1.57	9.56	6.28	9.65 (8.69~10.62)	6.46 (5.81~7.11)	22.1	2019/4/12
	Body	2.5	1.65	10	6.6	9.65 (8.69~10.62)	6.46 (5.81~7.11)	22.1	2019/4/14
D1750V2	Head	8.72	4.68	34.88	18.72	36.7 (33.03~40.37)	19.5 (17.55~21.45)	22.2	2019/4/16
	Body	9.08	4.84	36.32	19.36	37 (33.30~40.70)	19.7 (17.73~21.67)	22.2	2019/4/17
D1900V2	Head	10.2	5.31	40.8	21.24	40.7 (36.63~44.77)	21.1 (18.99~23.21)	22.3	2019/4/12
	Body	10.2	5.39	40.8	21.56	41.6 (37.44~45.76)	21.4 (19.26~23.54)	22.3	2019/4/11
	Body	10.4	5.48	41.6	21.92	41.6 (37.44~45.76)	21.4 (19.26~23.54)	22.3	2019/4/13
D2450V2	Head	13.1	6.06	52.4	24.24	53.1 (47.79~58.41)	24.9 (22.41~27.39)	22	2019/4/16
	Body	12.6	5.93	50.4	23.72	51.0 (45.9~56.1)	23.5 (21.15~25.85)	22	2019/4/17
D2450V2	Head	12.9	6.14	51.6	24.56	53.1 (47.79~58.41)	24.9 (22.41~27.39)	22	2019/4/20
	Body	12.8	5.98	51.2	23.92	51.0 (45.9~56.1)	23.5 (21.15~25.85)	22	2019/4/18
D2600V2	Head	14.1	6.23	56.4	24.92	56.6 (50.94~62.26)	25.4 (22.86~27.94)	22.1	2019/4/10
	Body	13.1	5.93	52.4	23.72	54.2 (48.78~59.62)	24.3 (21.87~26.73)	22.1	2019/4/14
	Body	13.3	6.02	53.2	24.08	54.2 (48.78~59.62)	24.3 (21.87~26.73)	22.1	2019/4/15
Validation Kit		Measured SAR 100mW	Measured SAR 100mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W) (±10%)	Target SAR (normalized to 1W) (±10%)	Liquid Temp. (℃)	Measured Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)		
D5GHzV2	Head (5.25GHz)	7.03	2	70.3	20	76.6 (68.94~84.26)	21.9 (19.71~24.09)	22.2	2019/4/21
	Body (5.25GHz)	8.1	2.25	81	22.5	75.6 (68.04~83.16)	21.3 (19.17~23.43)	22.2	2019/4/19
	Head (5.6GHz)	7.59	2.14	75.9	21.4	80.4 (72.36~88.44)	22.8 (20.52~25.08)	22.2	2019/4/21
	Body (5.6GHz)	8.49	2.35	84.9	23.5	81.1 (72.99~89.21)	22.9 (20.61~25.19)	22.2	2019/4/19
	Head (5.75GHz)	8.3	2.36	83	23.6	80 (72~88)	22.7 (20.43~24.97)	22.2	2019/4/21
	Body (5.75GHz)	7.41	2.05	74.1	20.5	74.8 (67.32~82.28)	21 (18.9~23.1)	22.2	2019/4/19

Table 5: SAR System Check Result

6.2.3 Detailed System Check Results

Please see the Appendix A

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

7 Test Configuration

7.1 3G SAR Test Reduction Procedure

According to KDB 941225D01, in the following procedures, the mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode. This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as “otherwise” in the applicable procedures; SAR measurement is required for the secondary mode.

7.2 Operation Configurations

7.2.1 GSM Test Configuration

SAR tests for GSM 850 and GSM 1900, a communication link is set up with a base station by air link. Using CMU200 the power lever is set to “5”and “0” in SAR of GSM 850 and GSM 1900. The tests in the band of GSM 850 and GSM 1900 are performed in the mode of GPRS/EGPRS function. Since the GPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslot is 5. The EGPRS class is 12 for this EUT, it has at most 4 timeslots in uplink, and at most 4 timeslots in downlink, the maximum total timeslot is 5.

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK.

The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86–755) 26012053 f (86–755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M–10栋一号厂房 邮编: 518057 t (86–755) 26012053 f (86–755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

7.2.2 WCDMA Test Configuration

1）. Output Power Verification

Maximum output power is verified on the high, middle and low channels according to procedures described in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1's" for WCDMA/HSDPA or by applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) are required in the SAR report. All configurations that are not supported by the handset or cannot be measured due to technical or equipment limitations must be clearly identified.

2）. Head SAR

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure

3）. Body SAR

SAR for body configurations is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreaing code or DPDCHn, for the highest reported body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When more than 2 DPDCHn are supported by the handset, it may be necessary to configure additional DPDCHn using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

4）. HSDPA / HSUPA / DC-HSDPA

According to KDB 941225 D01v03, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA

a) HSDPA

HSDPA is configured according to the applicable UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms and a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors(βc, βd), and HS-DPCCH power offset parameters (ΔACK, ΔNACK, ΔCQI) are set according to values indicated in the following table The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

Sub-test	βc	Bd	βd(SF)	βc/βd	βhs	CM(dB)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note1: △ACK, △NACK and △CQI= 8 Ahs = βhs/βc=30/15 βhs=30/15*βc
Note2:For the HS-DPCCH power mask requirement test in clause 5.2C,5.7A,and the Error Vector Magnitude(EVM) with HS-DPCCH test in clause 5.13.1.A,and HSDPA EVM with phase discontinuity in clause 5.13.1AA, △ACK and △NACK= 8 (Ahs=30/15) with βhs=30/15*βc,and △CQI=
7 (Ahs=24/15) with βhs=24/15*βc.
Note3: CM=1 forβc/βd =12/15, βhs/βc=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.

Parameter	Value
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI"s
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

Table 6： settings of required H-Set 1 QPSK acc. to 3GPP 34.121

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

HS-DSCH Category	Maximum HS-DSCH Codes Received	Minimum Inter-TTI Interval	MaximumH S-DSCH Transport BlockBits/HS-DSCH TTI	Total Soft Channel Bits
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
10	15	1	27952	172800
11	5	2	3630	14400
12	5	1	3630	28800
13	15	1	34800	259200
14	15	1	42196	259200
15	15	1	23370	345600
16	15	1	27952	345600

Table 7： HSDPA UE category

b) HSUPA

Due to inner loop power control requirements in HSUPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSUPA should be configured according to the values indicated below as well as other applicable procedures described in the „WCDMA Handset" and „Release 5 HSUPA Data Device" sections of 3G device.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}(1)	β_{ec}	β_{ed}	β_{ec} (SF)	β_{ed} (code)	CM(2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}:47/15 β_{ed2}:47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ ACK, Δ NACK and Δ CQI = 8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference

Note 3 : For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$

Note 4 : For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$

Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g

Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Table 8： Subtests for UMTS Release 6 HSUPA

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Speading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	10	2SF2&2SF4	11484	5.76
	4	4	2		20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF4	22996	?
	4	4	10		20000	?

NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4.UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM.(TS25.306-7.3.0).

Table 9： HSUPA UE category

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

c) DC-HSDPA

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a Second serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.
The following tests were completed according to procedures in section 7.3.13 of 3GPP TS 34.108 v9.5.0.
A summary of these settings are illustrated below:
Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH _Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13.
The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.
The measurements were performed with a Fixed Reference Channel (FRC) H-Set 12 with QPSK.

Parameter	Value
Nominal average inf. bit rate	60 kbit/s
Inter-TTI Distance	1 TTI's
Number of HARQ Processes	6 Processes
Information Bit Payload	120 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	960 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	3200 SMLs
Coding Rate	0.15
Number of Physical Channel Codes	1

Table 10：settings of required H-Set 12 QPSK acc. to 3GPP 34.121

Note:
1. The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table above.
2. Maximum number of transmission is limited to 1,i.e.,retransmission is not allowed. The redundancy and constellation version 0 shall be used.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

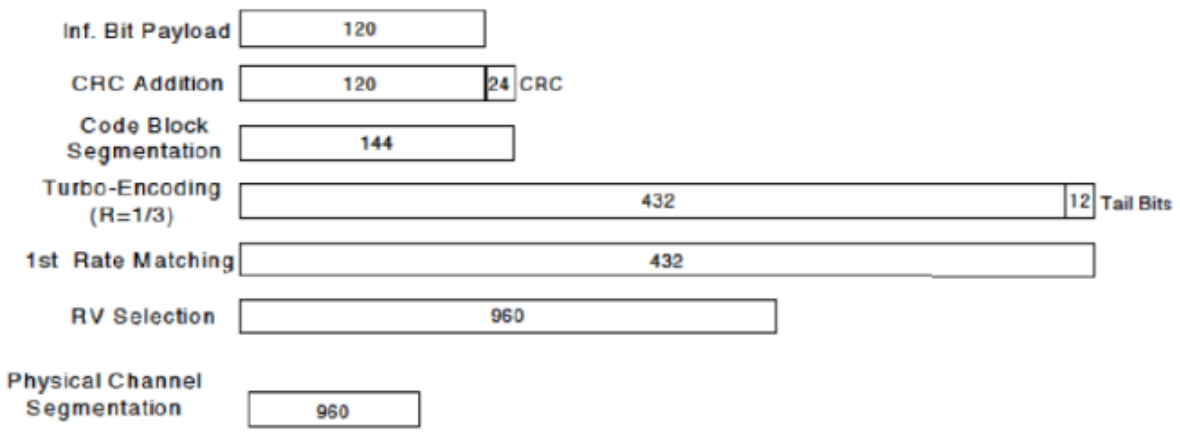


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 5 procedures. A summary of subtest settings are illustrated below:

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	CM(dB)(2)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ ACK, Δ NACK and Δ CQI = 8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$

Note 2: CM=1 for β_c/β_d= 12/15, β_{hs}/β_c = 24/15. For all other combinations of DPDCH,DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1,TF1) to β_c = 11/15 and β_d = 15/15

Up commands are set continuously to set the UE to Max power.

Note:

1. The Dual Carriers transmission only applies to HSDPA physical channels
2. The Dual Carriers belong to the same Node and are on adjacent carriers.
3. The Dual Carriers do not support MIMO to serve UEs configured for dual cell operation
4. The Dual Carriers operate in the same frequency band.
5. The device doesn't support the modulation of 16QAM in uplink but 64QAM in downlink for DC-HSDPA mode.
6. The device doesn't support carrier aggregation for it just can operate in Release 8.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

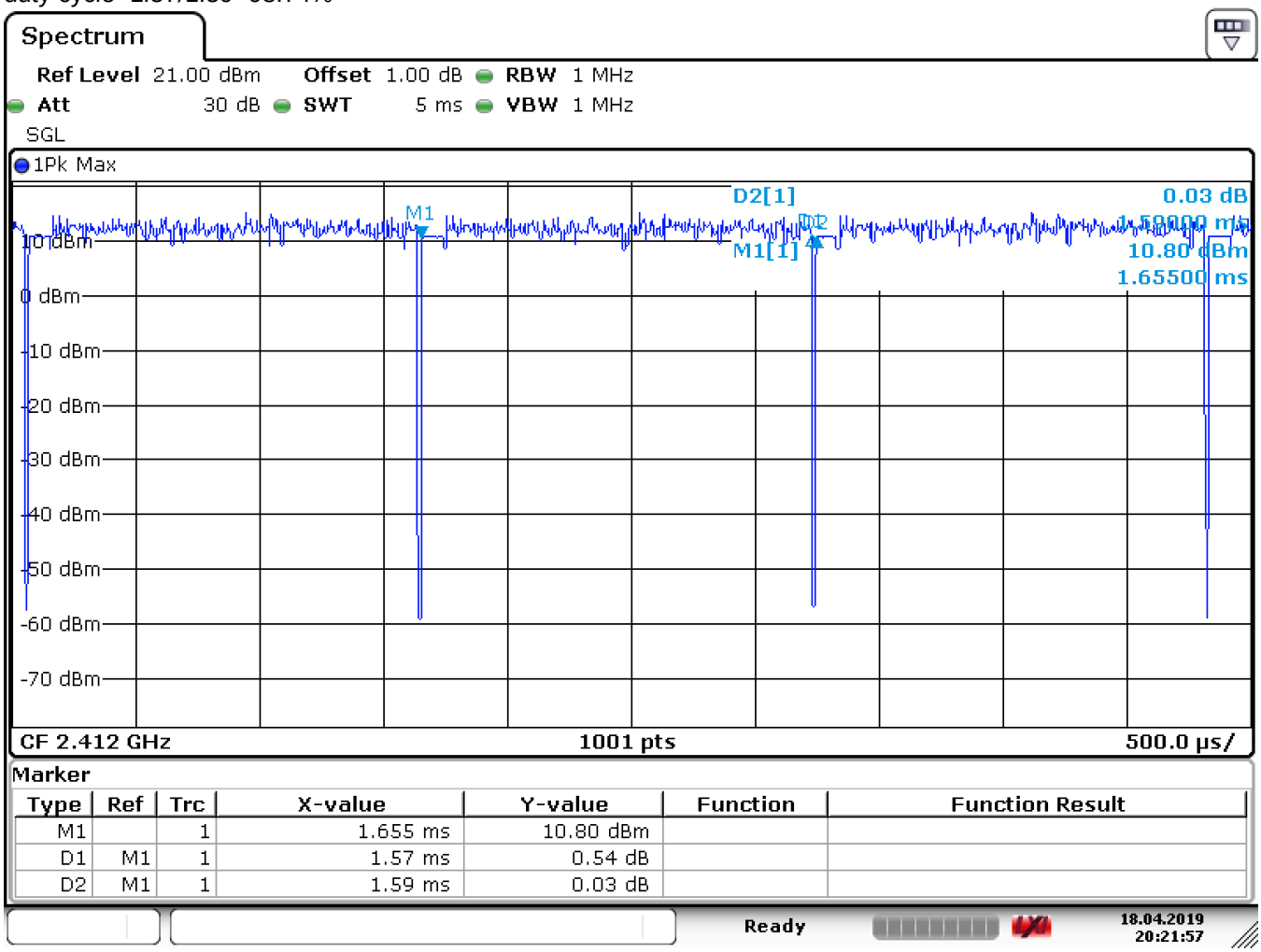
Member of the SGS Group (SGS SA)

7.2.3 WiFi Test Configuration

A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.

7.2.3.1 Duty cycle

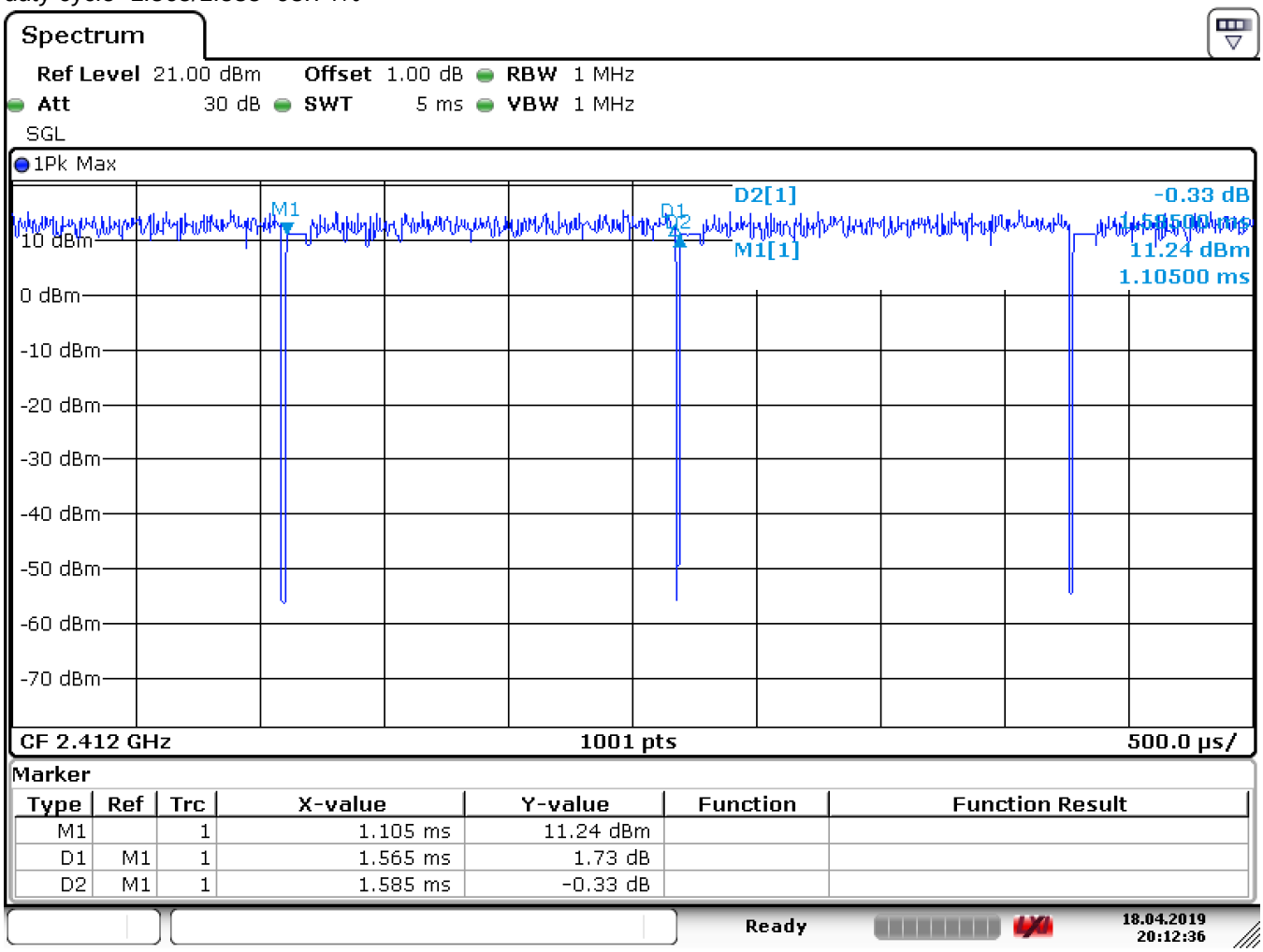
1) 2.4GHz Wi-Fi Core0 802.11b:
duty cycle=1.57/1.59=98.74%



Date: 18.APR.2019 20:21:58

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

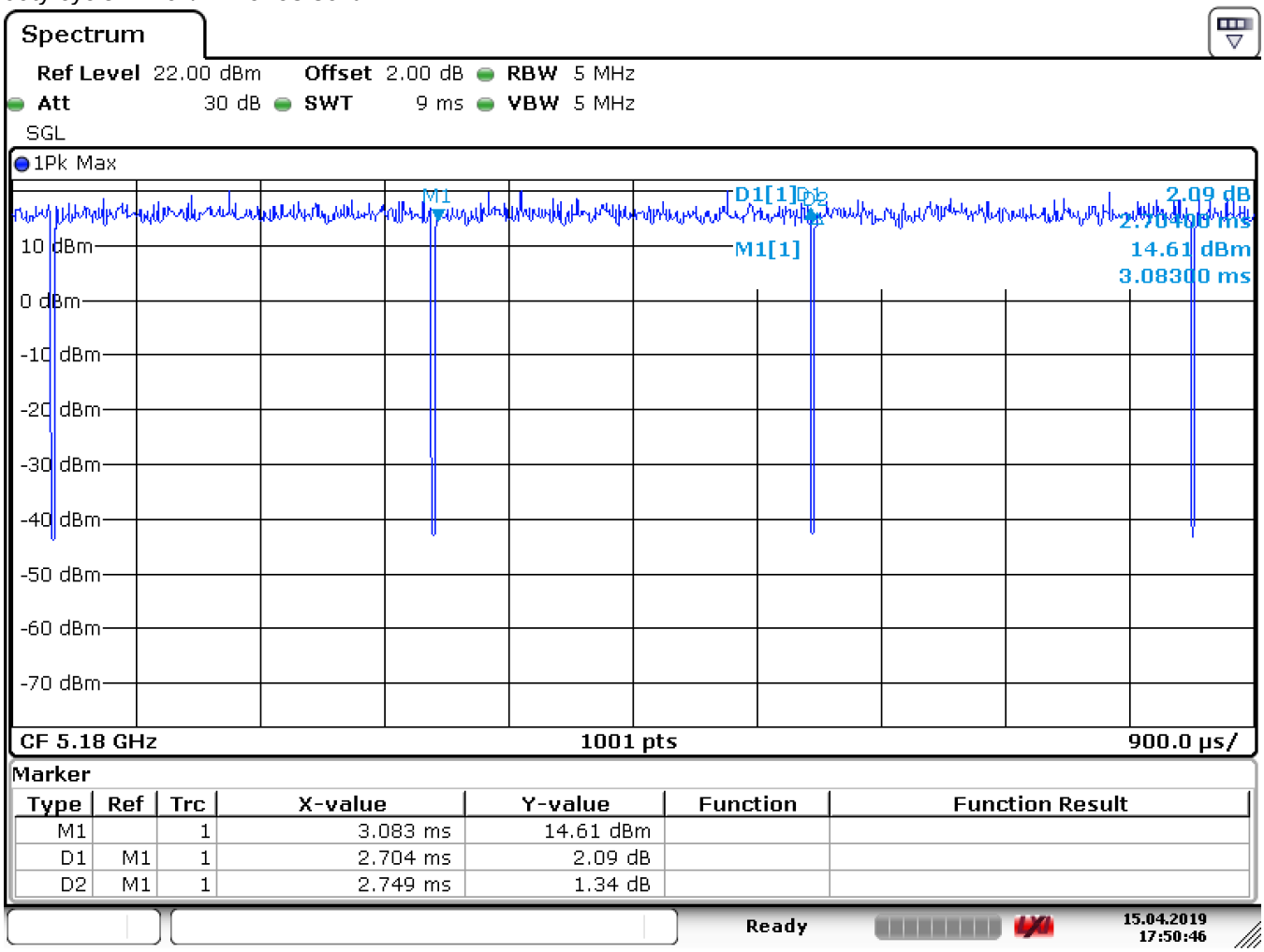
2) 2.4GHz Wi-Fi Core1 802.11b:
duty cycle=1.565/1.585=98.74%



Date: 18.APR.2019 20:12:37

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

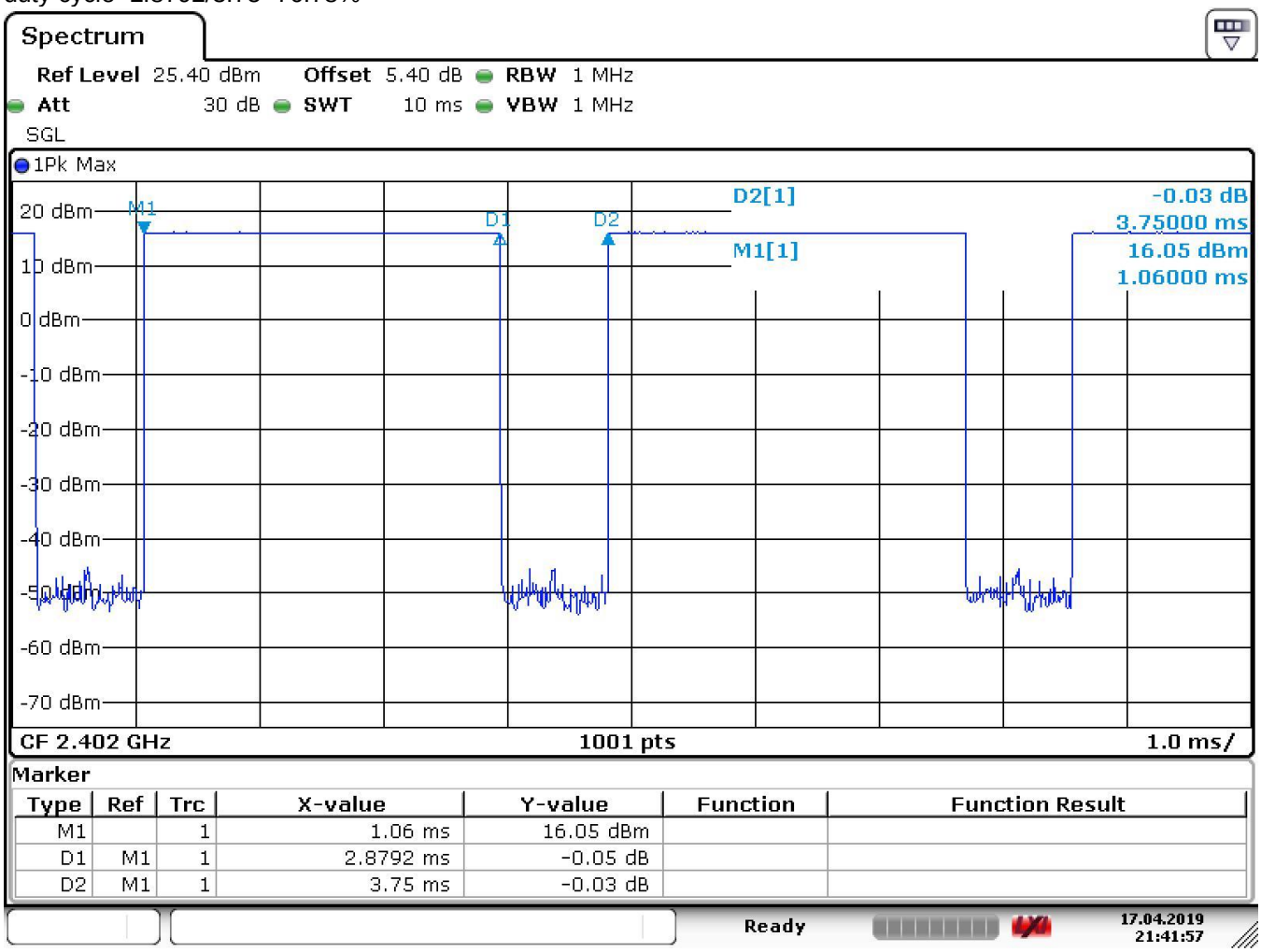
3) 5GHz Wi-Fi 802.11a:
duty cycle=2.704/2.749=98.36%



Date: 15.APR.2019 17:50:47

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

4) Bluetooth DH5:
duty cycle=2.8792/3.75=76.78%



Date: 17.APR.2019 21:41:57

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Member of the SGS Group (SGS SA)

7.2.3.2 Initial Test Position SAR Test Reduction Procedure

DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures. The initial test position procedure is described in the following:

1）. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other (remaining) test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band. SAR is also not required for that exposure configuration in the subsequent test configuration(s).
2）. When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest extrapolated or estimated 1-g SAR conditions determined by area scans or next closest/smallest test separation distance and maximum RF coupling test positions based on manufacturer justification, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions (left, right, touch, tilt or subsequent surfaces and edges) are tested.
3）. For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested. a) Additional power measurements may be required for this step, which should be limited to those necessary for identifying the subsequent highest output power channels.

7.2.3.3 Initial Test Configuration Procedures

An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required. SAR test reduction for subsequent highest output test channels is determined according to *reported* SAR of the initial test configuration.
For next to the ear, hotspot mode and UMC mini-tablet exposure configurations where multiple test positions are required, the initial test position procedure is applied to minimize the number of test positions required for SAR measurement using the initial test configuration transmission mode. For fixed exposure conditions that do not have multiple SAR test positions, SAR is measured in the transmission mode determined by the initial test configuration.
When the *reported* SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until *reported* SAR is ≤ 1.2 W/kg or all required channels are tested.

7.2.3.4 Subsequent Test Configuration Procedures

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. The initial test position procedure is applied to next to the ear, UMPC mini-tablet and hotspot mode configurations. When the same maximum output power is specified for multiple transmission modes, additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. The subsequent test configuration and SAR measurement procedures are described in the following.

1）. When SAR test exclusion provisions of KDB Publication 447498 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated band and exposure configuration.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EMC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

2）. When the highest *reported* SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.

3）. The number of channels in the initial test configuration and subsequent test configuration can be different due to differences in channel bandwidth. When SAR measurement is required for a subsequent test configuration and the channel bandwidth is smaller than that in the initial test configuration, all channels in the subsequent test configuration that overlap with the larger bandwidth channel tested in the initial test configuration should be used to determine the highest maximum output power channel. This step requires additional power measurement to identify the highest maximum output power channel in the subsequent test configuration to determine SAR test reduction.

a) SAR should first be measured for the channel with highest measured output power in the subsequent test configuration.

b) SAR for subsequent highest measured maximum output power channels in the subsequent test configuration is required only when the *reported* SAR of the preceding higher maximum output power channel(s) in the subsequent test configuration is > 1.2 W/kg or until all required channels are tested. i) For channels with the same measured maximum output power, SAR should be measured using the channel closest to the center frequency of the larger channel bandwidth channel in the initial test configuration.

4）. SAR measurements for the remaining highest specified maximum output power OFDM transmission mode configurations that have not been tested in the initial test configuration (highest maximum output) or subsequent test configuration(s) (subsequent next highest maximum output power) is determined by recursively applying the subsequent test configuration procedures in this section to the remaining configurations according to the following:

a) replace “subsequent test configuration” with “next subsequent test configuration” (i.e., subsequent next highest specified maximum output power configuration)

b) replace “initial test configuration” with “all tested higher output power configurations”

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

7.2.3.5 2.4 GHz WiFi SAR Procedures

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions. When SAR measurement is required for an OFDM configuration, the initial test configuration, subsequent test configuration and initial test position procedures are applied. The SAR test exclusion requirements for 802.11g/n OFDM configurations are described in following.

- **802.11b DSSS SAR Test Requirements**

SAR is measured for 2.4 GHz 802.11b DSSS using either a fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

1）. When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

2）. When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

- **2.4 GHz 802.11g/n OFDM SAR Test Exclusion Requirements**

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied (section 5.3, including sub-sections). SAR is not required for the following 2.4 GHz OFDM conditions.

1）. When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.

2）. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

- **SAR Test Requirements for OFDM configurations**

When SAR measurement is required for 802.11 g/n OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

7.2.3.6 5 GHz WiFi SAR Procedures

- **U-NII-1 and U-NII-2A Bands**
  For devices that operate in only one of the U-NII-1 and U-NII-2A bands, the normally required SAR procedures for OFDM configurations are applied. For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following：

1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, both bands are tested independently for SAR.
2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, both bands are tested independently for SAR.
3) The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest reported SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

- **U-NII-2C and U-NII-3 Bands**
  The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. when Terminal Doppler Weather Radar (TDWR) restriction applies, all channels that operate at 5.60 – 5.65 GHz must be included to apply the SAR test reduction and measurement procedures.

  When the same transmitter and antenna(s) are used for U-NII-2C band and U-NII-3 band or 5.8 GHz band of §15.247, the bands may be aggregated to enable additional channels with 20, 40 or 80 MHz bandwidth to span across the band gap, as illustrated in Appendix B. The maximum output power for the additional band gap channels is limited to the lower of those certified for the bands. Unless band gap channels are permanently disabled, they must be considered for SAR testing. The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. To maintain SAR measurement accuracy and to facilitate test reduction, the channels in U-NII-2C band above 5.65 GHz may be grouped with the 5.8 GHz channels in U-NII-3 or §15.247 band to enable two SAR probe calibration frequency points to cover the bands, including the band gap channels. When band gap channels are supported and the bands are not aggregated for SAR testing, band gap channels must be considered independently in each band according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

- **OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements**
  The initial test configuration for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.
  1) The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
  2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
  3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
  4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n. After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined according to the following. These channel selection procedures apply to both the initial test configuration and subsequent test configuration(s), with respect to the default power measurement procedures or additional power measurements required for further SAR test reduction. The same procedures also apply to subsequent highest output power channel(s) selection.
     a) The channel closest to mid-band frequency is selected for SAR measurement.
     b) For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

- **SAR Test Requirements for OFDM configurations**

When SAR measurement is required for 802.11 a/n/ac OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. When the same transmitter and antenna(s) are used for U-NII-1 and U-NII-2A bands, additional SAR test reduction applies. When band gap channels between U-NII-2C band and 5.8 GHz U-NII-3 or §15.247 band are supported, the highest maximum output power transmission mode configuration and maximum output power channel across the bands must be used to determine SAR test reduction, according to the initial test configuration and subsequent test configuration requirements. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

7.2.4 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The Anritsu MT8821C was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

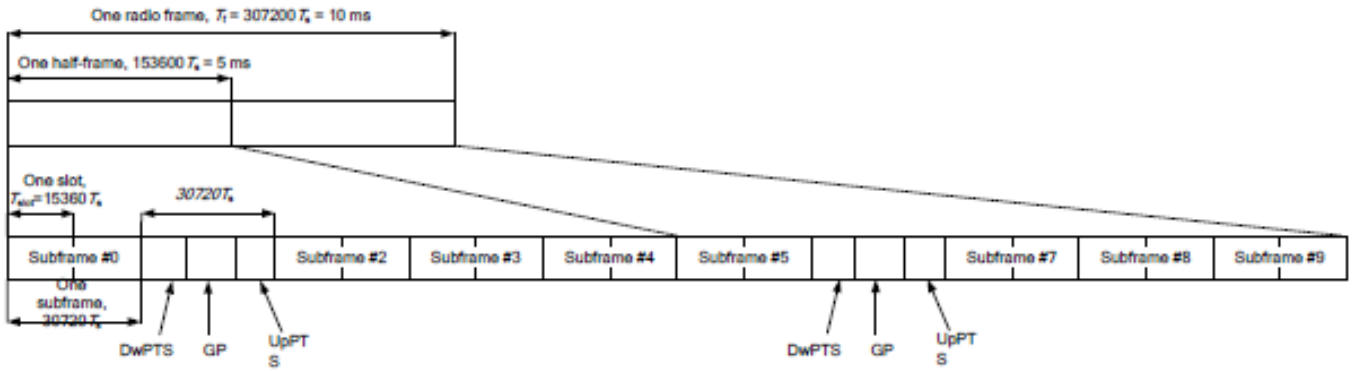
TDD LTE test consideration

For Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

LTE TDD Band support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Frame structure type 2:



Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	6592.Ts	2192.Ts	2560.Ts	7680.Ts	2192.Ts	2560.Ts
1	19760.Ts			20480.Ts		
2	21952.Ts			23040.Ts		
3	24144.Ts			25600.Ts		
4	26336.Ts			7680.Ts	4384.Ts	5120.Ts
5	6592.Ts	4384.Ts	5120.Ts	20480.Ts		
6	19760.Ts			23040.Ts		
7	21952.Ts			25600.Ts		
8	24144.Ts			-	-	-
9	13168.Ts			-	-	-

Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Calculated Duty Cycle=[Extended cyclic prefix in uplink x (Ts) x # of S + # of U]/10ms

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

A) Spectrum Plots for RB Configurations
A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.
B) MPR
MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3

C) A-MPR
A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.
D) Largest channel bandwidth standalone SAR test requirements
1) QPSK with 1 RB allocation
Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.
2) QPSK with 50% RB allocation
The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.
3) QPSK with 100% RB allocation
For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4) Higher order modulations
For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.
E) Other channel bandwidth standalone SAR test requirements
For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

8 Test Result

8.1 Measurement of RF conducted Power

8.1.1 Conducted Power of Main Antenna

8.1.1.1 Conducted Power of GSM

GSM 850										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GSM(GMSK)	GSM	31.98	**32.06**	32.05	33.20	-9.19	22.79	22.87	22.86	24.01
GPRS/ EGPRS (GMSK)	1 TX Slot	31.97	31.98	32.02	33.20	-9.19	22.78	22.79	22.83	24.01
	2 TX Slots	28.81	29.02	28.92	30.20	-6.18	22.63	22.84	22.74	24.02
	3 TX Slots	26.77	26.91	26.86	28.40	-4.42	22.35	22.49	22.44	23.98
	4 TX Slots	25.96	**25.78**	25.63	27.20	-3.17	22.79	22.61	22.46	**24.03**
EGPRS (8PSK)	1 TX Slot	25.90	25.97	26.04	28.00	-9.19	16.71	16.78	16.85	18.81
	2 TX Slots	23.03	23.19	23.22	25.00	-6.18	16.85	17.01	17.04	18.82
	3 TX Slots	21.19	21.25	21.19	23.20	-4.42	16.77	16.83	16.77	18.78
	4 TX Slots	19.83	19.92	19.95	22.00	-3.17	16.66	16.75	16.78	18.83
GSM 1900										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		512	661	810			512	661	810	
GSM(GMSK)	GSM	30.07	**30.18**	30.24	31.20	-9.19	20.88	20.99	21.05	22.01
GPRS/ EGPRS (GMSK)	1 TX Slot	30.17	30.28	30.33	31.20	-9.19	20.98	21.09	21.14	22.01
	2 TX Slots	26.94	27.01	26.95	28.20	-6.18	20.76	20.83	20.77	22.02
	3 TX Slots	25.11	25.18	25.04	26.40	-4.42	20.69	20.76	20.62	21.98
	4 TX Slots	23.85	**23.98**	24.03	25.20	-3.17	20.68	20.81	20.86	**22.03**
EGPRS (8PSK)	1 TX Slot	26.29	26.36	26.36	28.00	-9.19	17.10	17.17	17.17	18.81
	2 TX Slots	23.14	23.34	23.25	25.00	-6.18	16.96	17.16	17.07	18.82
	3 TX Slots	21.26	21.28	21.23	23.20	-4.42	16.84	16.86	16.81	18.78
	4 TX Slots	19.93	19.96	19.94	22.00	-3.17	16.76	16.79	16.77	18.83

Table 11：Conducted Power of GSM

Note:

1）. CMU200 measures GSM peak and average output power for active timeslots. For SAR the time based average power is relevant. The difference in between depends on the duty cycle of the TDMA signal:

No. of timeslots	1	2	3	4
Duty Cycle	1:8.3	1:4.15	1:2.77	1:2.075
Time based avg. power compared to slotted avg. power	-9.19	-6.18	-4.42	-3.17

2）. The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
Frame-averaged power = 10 x log (Burst-averaged power mW x Slot used / 8

3）. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

8.1.1.2 Conducted Power of WCDMA

WCDMA Band II Full Power& Receiver on& Receiver on+BT					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	23.32	**23.31**	23.16	24.50
	12.2kbps AMR	23.30	23.28	23.13	24.50
HSDPA	Subtest 1	22.86	22.88	22.77	24.00
	Subtest 2	22.04	22.10	21.96	23.20
	Subtest 3	21.54	21.56	21.48	22.70
	Subtest 4	21.56	21.50	21.46	22.70
HSUPA	Subtest 1	21.60	21.43	21.31	23.00
	Subtest 2	19.05	18.61	19.28	21.00
	Subtest 3	19.66	20.28	19.72	22.00
	Subtest 4	18.76	19.37	18.82	21.00
	Subtest 5	22.40	22.40	22.30	23.50
DC-HSDPA	Subtest 1	22.30	22.59	22.22	24.00
	Subtest 2	21.68	21.76	21.51	23.20
	Subtest 3	21.08	21.08	21.21	22.70
	Subtest 4	21.36	20.90	21.10	22.70

WCDMA Band II Receiver off&Receiver off+BT					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	20.78	**20.87**	20.66	22.00
	12.2kbps AMR	20.75	20.83	20.64	22.00
HSDPA	Subtest 1	20.55	20.34	20.25	21.50
	Subtest 2	19.56	19.53	19.41	20.70
	Subtest 3	19.01	18.99	18.84	20.20
	Subtest 4	19.04	19.06	18.95	20.20
HSUPA	Subtest 1	18.97	19.03	18.84	20.50
	Subtest 2	16.21	16.16	16.69	18.50
	Subtest 3	17.81	17.83	17.47	19.50
	Subtest 4	16.92	16.98	16.55	18.50
	Subtest 5	19.90	19.90	19.70	21.00
DC-HSDPA	Subtest 1	20.21	19.77	19.65	21.50
	Subtest 2	19.11	18.88	19.05	20.70
	Subtest 3	18.45	18.54	18.28	20.20
	Subtest 4	18.80	18.43	18.71	20.20

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

WCDMA Band IV Full Power& Receiver on& Receiver on+BT					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	22.86	**22.89**	22.72	24.00
	12.2kbps AMR	22.84	22.84	22.70	24.00
HSDPA	Subtest 1	22.39	22.40	22.36	23.50
	Subtest 2	21.52	21.50	21.53	22.70
	Subtest 3	21.03	21.07	21.03	22.20
	Subtest 4	21.02	21.08	21.02	22.20
HSUPA	Subtest 1	20.69	21.24	20.88	22.50
	Subtest 2	18.67	18.45	18.40	20.50
	Subtest 3	19.36	19.20	19.12	21.50
	Subtest 4	18.28	18.24	18.15	20.50
	Subtest 5	21.90	21.90	21.90	23.00
DC-HSDPA	Subtest 1	22.19	22.15	22.14	23.50
	Subtest 2	20.85	20.82	20.96	22.70
	Subtest 3	20.65	20.41	20.55	22.20
	Subtest 4	20.50	20.62	20.46	22.20

WCDMA Band IV Receiver off&Receiver off+BT					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	22.31	**22.40**	22.41	23.50
	12.2kbps AMR	22.30	22.37	22.40	23.50
HSDPA	Subtest 1	21.84	21.85	21.82	23.00
	Subtest 2	20.99	21.05	21.02	22.20
	Subtest 3	20.48	20.55	20.55	21.70
	Subtest 4	20.49	20.55	20.49	21.70
HSUPA	Subtest 1	20.25	20.79	20.79	22.00
	Subtest 2	18.22	18.00	17.93	20.00
	Subtest 3	18.79	18.73	18.66	21.00
	Subtest 4	17.96	17.70	17.71	20.00
	Subtest 5	21.40	21.40	21.40	22.50
DC-HSDPA	Subtest 1	21.51	21.16	21.48	23.00
	Subtest 2	20.71	20.64	20.56	22.20
	Subtest 3	20.23	20.03	20.26	21.70
	Subtest 4	19.87	20.10	19.84	21.70

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

WCDMA Band V					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	24.01	**23.99**	23.89	25.00
	12.2kbps AMR	24.00	23.97	23.86	25.00
HSDPA	Subtest 1	23.55	23.52	23.47	24.50
	Subtest 2	23.00	22.99	22.96	23.70
	Subtest 3	22.57	22.58	22.52	23.20
	Subtest 4	22.57	22.57	22.52	23.20
HSUPA	Subtest 1	23.19	23.27	22.85	23.50
	Subtest 2	20.37	20.28	20.39	21.50
	Subtest 3	21.03	21.02	21.02	22.50
	Subtest 4	20.15	20.03	20.05	21.50
	Subtest 5	23.10	23.10	23.00	24.00
DC-HSDPA	Subtest 1	23.23	23.03	23.24	24.50
	Subtest 2	22.38	22.65	22.41	23.70
	Subtest 3	21.87	22.11	22.28	23.20
	Subtest 4	22.00	22.12	21.85	23.20

Table 12：Conducted Power of WCDMA

Note:

1) when the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Member of the SGS Group (SGS SA)

8.1.1.3 Conducted Power of LTE

LTE Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193	Tune up
1.4MHz	QPSK	1	0	23.05	22.96	23.12	24.00
		1	2	22.75	22.58	22.96	24.00
		1	5	23.09	23.01	23.16	24.00
		3	0	23.01	22.83	23.08	24.00
		3	2	22.78	22.83	23.11	24.00
		3	3	23.05	23.02	23.08	24.00
		6	0	22.06	21.84	22.16	23.00
	16QAM	1	0	22.64	22.44	22.46	23.30
		1	2	22.31	22.10	22.30	23.30
		1	5	22.19	22.36	22.29	23.30
		3	0	22.26	22.10	22.04	23.30
		3	2	22.09	22.27	22.12	23.30
		3	3	22.05	22.13	22.14	23.30
		6	0	21.07	21.21	21.26	22.30
	64QAM	1	0	20.82	21.88	22.14	22.30
		1	2	20.91	22.10	21.36	22.30
		1	5	21.39	21.29	21.15	22.30
		3	0	21.26	21.08	21.19	22.30
		3	2	21.23	21.39	20.77	22.30
		3	3	20.73	21.34	21.01	22.30
		6	0	20.26	20.29	20.33	21.30
Bandwidth	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185	Tune up
3MHz	QPSK	1	0	23.16	23.13	23.14	24.00
		1	7	23.00	22.72	22.98	24.00
		1	14	23.17	23.13	23.15	24.00
		8	0	22.24	22.03	22.32	23.00
		8	4	22.03	21.90	22.29	23.00
		8	7	22.17	22.12	22.35	23.00
		15	0	22.18	22.21	22.40	23.00
	16QAM	1	0	22.15	22.19	22.85	23.30
		1	7	22.21	22.22	22.03	23.30
		1	14	22.81	22.85	22.22	23.30
		8	0	21.03	21.10	21.28	22.30
		8	4	21.21	21.00	21.06	22.30
		8	7	21.20	21.09	21.14	22.30
		15	0	21.19	21.24	21.22	22.30
	64QAM	1	0	20.77	21.14	21.53	22.30
		1	7	20.72	21.15	20.71	22.30
		1	14	21.27	21.13	21.37	22.30
		8	0	20.25	20.01	19.75	21.30
		8	4	20.37	20.21	20.38	21.30
		8	7	20.31	20.45	20.25	21.30
		15	0	19.97	20.12	20.19	21.30

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 18625	Channel 18900	Channel 19175	Tune up
5MHz	QPSK	1	0	23.07	22.80	23.04	24.00
		1	13	22.94	23.17	23.04	24.00
		1	24	22.76	22.86	23.23	24.00
		12	0	22.01	22.03	21.96	23.00
		12	6	22.05	21.83	22.06	23.00
		12	13	21.94	21.74	22.12	23.00
		25	0	21.98	21.85	22.11	23.00
	16QAM	1	0	22.50	21.77	22.35	23.30
		1	13	22.37	22.24	22.78	23.30
		1	24	22.21	22.16	22.52	23.30
		12	0	21.02	21.03	21.10	22.30
		12	6	21.22	20.93	20.93	22.30
		12	13	20.91	20.94	21.14	22.30
		25	0	21.04	21.05	21.07	22.30
	64QAM	1	0	20.94	20.89	21.19	22.30
		1	13	21.47	20.90	21.33	22.30
		1	24	21.07	20.75	21.31	22.30
		12	0	20.46	20.28	19.99	21.30
		12	6	20.24	20.10	20.02	21.30
		12	13	20.33	20.37	20.16	21.30
		25	0	20.47	20.30	19.84	21.30
Bandwidth	Modulation	RB size	RB offset	Channel 18650	Channel 18900	Channel 19150	Tune up
10MHz	QPSK	1	0	23.03	22.92	23.09	24.00
		1	25	22.78	22.82	23.03	24.00
		1	49	22.96	22.90	23.04	24.00
		25	0	22.01	21.94	21.92	23.00
		25	13	21.99	21.83	21.93	23.00
		25	25	21.72	21.87	21.98	23.00
		50	0	21.96	21.95	21.92	23.00
	16QAM	1	0	21.92	22.45	21.95	23.30
		1	25	21.97	22.52	22.66	23.30
		1	49	21.98	21.94	22.26	23.30
		25	0	20.97	20.94	20.87	22.30
		25	13	20.95	20.86	21.04	22.30
		25	25	20.91	20.84	21.06	22.30
		50	0	20.99	21.02	21.13	22.30
	64QAM	1	0	21.23	21.03	20.89	22.30
		1	25	21.16	21.30	20.82	22.30
		1	49	21.16	21.10	21.12	22.30
		25	0	19.87	20.02	20.21	21.30
		25	13	20.48	20.08	19.92	21.30
		25	25	20.37	20.24	20.15	21.30
		50	0	20.35	20.22	20.02	21.30

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 18675	Channel 18900	Channel 19125	Tune up
15MHz	QPSK	1	0	22.96	22.81	23.14	24.00
		1	38	23.11	22.83	23.17	24.00
		1	74	22.97	22.78	23.02	24.00
		36	0	22.07	21.98	22.01	23.00
		36	18	22.05	21.86	21.94	23.00
		36	39	21.82	21.97	22.01	23.00
		75	0	22.04	22.04	21.95	23.00
	16QAM	1	0	21.99	22.16	22.70	23.30
		1	38	22.37	22.53	22.65	23.30
		1	74	21.94	22.01	22.41	23.30
		36	0	21.14	20.90	20.93	22.30
		36	18	20.94	20.84	20.87	22.30
		36	39	21.02	20.89	21.05	22.30
		75	0	21.03	21.09	21.11	22.30
	64QAM	1	0	20.82	20.77	21.05	22.30
		1	38	20.78	20.90	21.17	22.30
		1	74	21.22	21.15	20.99	22.30
		36	0	20.17	20.08	20.25	21.30
		36	18	20.36	20.34	20.59	21.30
		36	39	20.22	20.27	20.37	21.30
		75	0	20.02	20.12	20.36	21.30
Bandwidth	Modulation	RB size	RB offset	Channel 18700	Channel 18900	Channel 19100	Tune up
20MHz	QPSK	1	0	**23.18**	23.01	**23.17**	24.00
		1	50	22.81	22.82	22.74	24.00
		1	99	22.88	**23.16**	23.12	24.00
		50	0	22.09	21.93	**22.15**	23.00
		50	25	21.90	21.74	22.11	23.00
		50	50	21.97	21.84	21.97	23.00
		100	0	21.96	22.01	**22.23**	23.00
	16QAM	1	0	22.06	21.71	22.46	23.30
		1	50	22.14	22.04	22.22	23.30
		1	99	22.04	22.50	22.19	23.30
		50	0	20.82	20.84	21.09	22.30
		50	25	20.73	20.77	20.99	22.30
		50	50	21.02	20.72	20.96	22.30
		100	0	20.92	21.01	21.09	22.30
	64QAM	1	0	20.88	20.77	20.77	22.30
		1	50	20.83	20.87	21.26	22.30
		1	99	20.99	20.86	20.85	22.30
		50	0	20.35	19.98	20.25	21.30
		50	25	20.07	20.07	20.11	21.30
		50	50	20.33	19.76	20.28	21.30
		100	0	20.43	19.85	20.26	21.30

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

LTE Band 4 Full Power&Receiver on& Receiver on+BT				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393	Tune up
1.4MHz	QPSK	1	0	22.76	22.68	22.87	24.00
		1	2	22.92	22.71	22.66	24.00
		1	5	22.88	22.87	22.87	24.00
		3	0	22.87	22.95	22.67	24.00
		3	2	22.86	22.95	22.80	24.00
		3	3	22.83	22.90	22.90	24.00
		6	0	22.06	21.85	21.77	23.00
	16QAM	1	0	21.73	21.92	22.10	23.30
		1	2	21.70	21.71	22.21	23.30
		1	5	22.23	21.79	21.98	23.30
		3	0	21.86	21.73	21.75	23.30
		3	2	21.97	22.10	21.76	23.30
		3	3	21.94	21.92	21.83	23.30
		6	0	20.85	20.99	20.71	22.30
	64QAM	1	0	21.01	20.99	21.45	22.30
		1	2	21.38	21.47	21.18	22.30
		1	5	21.42	21.50	21.85	22.30
		3	0	21.26	21.15	21.45	22.30
		3	2	21.33	21.22	20.96	22.30
		3	3	21.24	20.94	21.19	22.30
		6	0	20.15	20.23	20.31	21.30
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385	Tune up
3MHz	QPSK	1	0	22.93	22.74	22.73	24.00
		1	7	22.89	22.71	22.59	24.00
		1	14	22.79	22.82	22.86	24.00
		8	0	21.95	21.77	21.88	23.00
		8	4	22.07	21.92	21.83	23.00
		8	7	22.01	21.84	21.76	23.00
		15	0	22.03	21.78	21.78	23.00
	16QAM	1	0	22.38	22.09	22.36	23.30
		1	7	21.78	21.86	21.74	23.30
		1	14	22.27	21.93	21.78	23.30
		8	0	20.94	20.87	20.99	22.30
		8	4	20.84	20.92	20.76	22.30
		8	7	20.90	20.94	20.76	22.30
		15	0	20.89	20.82	20.78	22.30
	64QAM	1	0	21.12	21.19	21.05	22.30
		1	7	20.94	21.22	21.39	22.30
		1	14	21.21	21.08	21.36	22.30
		8	0	20.14	19.97	20.00	21.30
		8	4	20.26	19.78	20.14	21.30
		8	7	20.06	19.98	19.94	21.30
		15	0	20.01	20.07	19.88	21.30

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 19975	Channel 20175	Channel 20375	Tune up
5MHz	QPSK	1	0	22.80	22.70	22.76	24.00
		1	13	22.92	22.71	22.95	24.00
		1	24	22.69	22.87	22.89	24.00
		12	0	21.98	21.79	21.92	23.00
		12	6	22.00	21.81	21.87	23.00
		12	13	21.97	21.83	21.81	23.00
		25	0	21.97	21.91	21.85	23.00
	16QAM	1	0	22.13	22.04	22.07	23.30
		1	13	22.08	21.78	22.32	23.30
		1	24	22.23	22.03	22.11	23.30
		12	0	20.96	20.84	20.89	22.30
		12	6	20.88	20.74	20.90	22.30
		12	13	20.96	20.84	21.04	22.30
		25	0	20.93	20.81	20.73	22.30
	64QAM	1	0	20.76	20.92	21.27	22.30
		1	13	21.03	21.05	21.37	22.30
		1	24	20.77	20.81	20.76	22.30
		12	0	19.97	20.01	20.15	21.30
		12	6	20.03	19.84	20.12	21.30
		12	13	19.73	19.86	20.19	21.30
		25	0	19.75	19.75	19.96	21.30
Bandwidth	Modulation	RB size	RB offset	Channel 20000	Channel 20175	Channel 20350	Tune up
10MHz	QPSK	1	0	22.78	22.61	22.78	24.00
		1	25	22.64	22.82	22.75	24.00
		1	49	22.72	22.85	22.78	24.00
		25	0	21.97	21.76	21.85	23.00
		25	13	21.96	21.82	21.84	23.00
		25	25	22.06	21.90	21.82	23.00
		50	0	21.94	21.92	21.89	23.00
	16QAM	1	0	21.75	21.73	21.74	23.30
		1	25	21.73	22.13	21.89	23.30
		1	49	22.14	22.16	21.89	23.30
		25	0	20.88	20.77	20.93	22.30
		25	13	20.96	20.76	20.80	22.30
		25	25	20.97	20.71	20.83	22.30
		50	0	20.90	20.86	20.77	22.30
	64QAM	1	0	20.80	21.15	21.26	22.30
		1	25	20.79	20.96	21.06	22.30
		1	49	21.04	20.74	21.07	22.30
		25	0	19.74	19.71	19.78	21.30
		25	13	19.87	19.85	19.73	21.30
		25	25	19.97	20.05	19.73	21.30
		50	0	20.03	19.96	19.70	21.30

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 20025	Channel 20175	Channel 20325	Tune up
15MHz	QPSK	1	0	22.80	22.87	22.78	24.00
		1	38	22.73	22.93	22.87	24.00
		1	74	22.82	22.88	22.84	24.00
		36	0	21.82	21.86	21.91	23.00
		36	18	21.98	21.91	21.87	23.00
		36	39	21.93	21.88	21.85	23.00
		75	0	21.77	21.84	21.89	23.00
	16QAM	1	0	22.52	22.51	21.78	23.30
		1	38	22.67	22.10	22.25	23.30
		1	74	21.79	21.99	22.29	23.30
		36	0	20.95	20.85	20.87	22.30
		36	18	20.94	20.84	20.78	22.30
		36	39	20.81	20.84	20.90	22.30
		75	0	20.87	20.76	20.82	22.30
	64QAM	1	0	20.85	21.07	21.63	22.30
		1	38	21.13	21.33	21.36	22.30
		1	74	21.12	21.02	21.20	22.30
		36	0	19.77	20.21	19.90	21.30
		36	18	19.89	20.39	19.84	21.30
		36	39	19.89	20.58	19.95	21.30
		75	0	19.87	20.42	19.97	21.30
Bandwidth	Modulation	RB size	RB offset	Channel 20050	Channel 20175	Channel 20300	Tune up
20MHz	QPSK	1	0	22.65	**22.99**	22.95	24.00
		1	50	22.61	22.58	22.69	24.00
		1	99	22.83	22.68	22.88	24.00
		50	0	21.80	**22.06**	21.43	23.00
		50	25	21.67	21.99	21.82	23.00
		50	50	21.82	22.06	22.02	23.00
		100	0	21.73	22.00	21.97	23.00
	16QAM	1	0	21.84	22.16	22.07	23.30
		1	50	21.75	21.98	22.34	23.30
		1	99	21.97	22.23	22.15	23.30
		50	0	21.14	21.00	20.77	22.30
		50	25	21.04	20.87	20.79	22.30
		50	50	20.98	20.93	20.96	22.30
		100	0	20.92	20.89	20.83	22.30
	64QAM	1	0	20.89	21.06	20.85	22.30
		1	50	21.39	20.77	20.98	22.30
		1	99	21.07	21.24	20.82	22.30
		50	0	19.82	20.14	20.07	21.30
		50	25	19.89	19.75	19.73	21.30
		50	50	19.76	20.27	19.79	21.30
		100	0	20.39	19.78	19.73	21.30

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

LTE Band 4 Receiver off&Receiver off+BT				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393	Tune up
1.4MHz	QPSK	1	0	22.45	22.32	22.17	23.50
		1	2	22.34	22.37	22.19	23.50
		1	5	22.36	22.18	22.55	23.50
		3	0	22.52	22.42	22.12	23.50
		3	2	22.34	22.38	22.10	23.50
		3	3	22.29	22.35	22.16	23.50
		6	0	22.03	21.89	21.82	23.00
	16QAM	1	0	22.12	22.23	22.13	23.30
		1	2	22.09	21.90	22.36	23.30
		1	5	22.14	22.15	21.79	23.30
		3	0	21.98	21.82	21.77	23.30
		3	2	21.98	21.96	21.94	23.30
		3	3	21.95	21.89	21.76	23.30
		6	0	20.90	20.87	20.73	22.30
	64QAM	1	0	21.01	20.99	21.45	22.30
		1	2	21.38	21.47	21.18	22.30
		1	5	21.42	21.50	21.85	22.30
		3	0	21.26	21.15	21.45	22.30
		3	2	21.33	21.22	20.96	22.30
		3	3	21.24	20.94	21.19	22.30
		6	0	20.15	20.23	20.31	21.30
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385	Tune up
3MHz	QPSK	1	0	22.38	22.26	22.35	23.50
		1	7	22.46	22.18	22.17	23.50
		1	14	22.35	22.49	22.39	23.50
		8	0	22.01	21.79	21.95	23.00
		8	4	22.04	21.88	21.83	23.00
		8	7	22.04	21.82	21.90	23.00
		15	0	22.05	21.83	21.91	23.00
	16QAM	1	0	22.45	22.12	22.10	23.30
		1	7	21.97	21.74	21.72	23.30
		1	14	21.77	22.22	22.35	23.30
		8	0	20.98	20.87	20.86	22.30
		8	4	20.87	20.92	20.92	22.30
		8	7	20.84	20.78	20.76	22.30
		15	0	21.05	20.86	20.74	22.30
	64QAM	1	0	21.12	21.19	21.05	22.30
		1	7	20.94	21.22	21.39	22.30
		1	14	21.21	21.08	21.36	22.30
		8	0	20.14	19.97	20.00	21.30
		8	4	20.26	19.78	20.14	21.30
		8	7	20.06	19.98	19.94	21.30
		15	0	20.01	20.07	19.88	21.30

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 19975	Channel 20175	Channel 20375	Tune up
5MHz	QPSK	1	0	22.48	22.43	22.19	23.50
		1	13	22.37	22.34	22.21	23.50
		1	24	22.34	22.14	22.32	23.50
		12	0	22.07	21.83	21.97	23.00
		12	6	21.99	21.91	21.96	23.00
		12	13	22.14	21.85	21.93	23.00
		25	0	21.99	21.84	21.88	23.00
	16QAM	1	0	22.36	22.24	22.10	23.30
		1	13	21.78	22.09	22.35	23.30
		1	24	22.25	21.90	21.90	23.30
		12	0	21.05	20.91	20.79	22.30
		12	6	20.94	20.73	20.91	22.30
		12	13	21.06	20.74	20.98	22.30
		25	0	20.91	20.89	20.77	22.30
	64QAM	1	0	20.76	20.92	21.27	22.30
		1	13	21.03	21.05	21.37	22.30
		1	24	20.77	20.81	20.76	22.30
		12	0	19.97	20.01	20.15	21.30
		12	6	20.03	19.84	20.12	21.30
		12	13	19.73	19.86	20.19	21.30
		25	0	19.75	19.75	19.96	21.30
Bandwidth	Modulation	RB size	RB offset	Channel 20000	Channel 20175	Channel 20350	Tune up
10MHz	QPSK	1	0	22.42	22.30	22.28	23.50
		1	25	22.48	22.29	22.29	23.50
		1	49	22.45	22.30	22.38	23.50
		25	0	21.89	21.80	21.93	23.00
		25	13	21.87	21.89	21.94	23.00
		25	25	21.93	21.89	21.94	23.00
		50	0	21.92	21.92	21.89	23.00
	16QAM	1	0	22.32	21.92	22.08	23.30
		1	25	21.97	22.20	21.79	23.30
		1	49	22.36	21.97	22.15	23.30
		25	0	20.98	20.88	20.78	22.30
		25	13	21.00	20.83	20.77	22.30
		25	25	20.83	20.78	20.86	22.30
		50	0	20.85	20.81	20.84	22.30
	64QAM	1	0	20.80	21.15	21.26	22.30
		1	25	20.79	20.96	21.06	22.30
		1	49	21.04	20.74	21.07	22.30
		25	0	19.74	19.71	19.78	21.30
		25	13	19.87	19.85	19.73	21.30
		25	25	19.97	20.05	19.73	21.30
		50	0	20.03	19.96	19.70	21.30

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 20025	Channel 20175	Channel 20325	Tune up
15MHz	QPSK	1	0	22.34	22.38	22.04	23.50
		1	38	22.40	22.29	22.16	23.50
		1	74	22.07	22.36	22.21	23.50
		36	0	21.71	21.68	21.83	23.00
		36	18	21.75	21.79	21.78	23.00
		36	39	21.68	21.81	21.77	23.00
		75	0	21.85	21.60	21.68	23.00
	16QAM	1	0	22.20	21.99	21.87	23.30
		1	38	21.97	21.85	21.96	23.30
		1	74	21.89	22.18	21.90	23.30
		36	0	20.74	20.82	20.75	22.30
		36	18	20.76	20.71	20.79	22.30
		36	39	20.71	20.77	20.78	22.30
		75	0	20.79	20.74	20.71	22.30
	64QAM	1	0	20.85	21.07	21.63	22.30
		1	38	21.13	21.33	21.36	22.30
		1	74	21.12	21.02	21.20	22.30
		36	0	19.77	20.21	19.90	21.30
		36	18	19.89	20.39	19.84	21.30
		36	39	19.89	20.58	19.95	21.30
		75	0	19.87	20.42	19.97	21.30
Bandwidth	Modulation	RB size	RB offset	Channel 20050	Channel 20175	Channel 20300	Tune up
20MHz	QPSK	1	0	22.40	**22.58**	22.29	23.50
		1	50	22.50	22.34	22.29	23.50
		1	99	22.46	22.44	22.50	23.50
		50	0	22.06	21.96	21.95	23.00
		50	25	21.83	21.88	21.93	23.00
		50	50	**22.07**	21.95	21.99	23.00
		100	0	21.89	21.98	21.99	23.00
	16QAM	1	0	22.40	22.28	22.16	23.30
		1	50	22.37	21.91	21.98	23.30
		1	99	22.19	21.98	21.78	23.30
		50	0	20.97	21.00	20.89	22.30
		50	25	21.00	20.83	20.71	22.30
		50	50	20.97	20.91	20.94	22.30
		100	0	20.85	20.87	20.90	22.30
	64QAM	1	0	20.89	21.06	20.85	22.30
		1	50	21.39	20.77	20.98	22.30
		1	99	21.07	21.24	20.82	22.30
		50	0	19.82	20.14	20.07	21.30
		50	25	19.89	19.75	19.73	21.30
		50	50	19.76	20.27	19.79	21.30
		100	0	20.39	19.78	19.73	21.30

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

LTE Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 20407	Channel 20525	Channel 20643	Tune up
1.4MHz	QPSK	1	0	24.00	23.92	23.93	25.00
		1	2	23.93	23.89	23.88	25.00
		1	5	23.93	24.00	23.99	25.00
		3	0	23.87	24.01	24.00	25.00
		3	2	23.95	24.00	23.98	25.00
		3	3	24.00	23.94	24.01	25.00
		6	0	22.91	22.96	22.99	24.00
	16QAM	1	0	23.49	23.31	23.02	24.30
		1	2	23.01	23.21	22.92	24.30
		1	5	23.05	22.95	22.96	24.30
		3	0	23.02	23.04	23.17	24.30
		3	2	23.08	23.24	23.05	24.30
		3	3	22.99	23.02	23.11	24.30
		6	0	21.98	21.91	22.18	23.30
	64QAM	1	0	22.26	22.20	22.62	23.30
		1	2	22.77	22.03	21.99	23.30
		1	5	22.65	22.10	22.83	23.30
		3	0	22.30	22.06	22.17	23.30
		3	2	22.33	22.25	22.40	23.30
		3	3	22.46	22.29	22.34	23.30
		6	0	21.21	21.51	21.46	22.30
Bandwidth	Modulation	RB size	RB offset	Channel 20415	Channel 20525	Channel 20635	Tune up
3MHz	QPSK	1	0	23.95	23.86	23.82	25.00
		1	7	23.91	23.69	23.88	25.00
		1	14	23.86	23.90	23.94	25.00
		8	0	22.91	22.95	23.11	24.00
		8	4	22.95	23.01	23.01	24.00
		8	7	22.85	22.97	22.98	24.00
		15	0	23.02	22.93	23.03	24.00
	16QAM	1	0	22.74	22.99	23.55	24.30
		1	7	23.34	23.41	23.36	24.30
		1	14	22.98	23.04	23.16	24.30
		8	0	21.96	21.96	22.15	23.30
		8	4	21.95	22.05	21.98	23.30
		8	7	22.03	22.04	21.91	23.30
		15	0	21.93	21.98	22.09	23.30
	64QAM	1	0	21.99	21.86	22.37	23.30
		1	7	21.87	22.17	22.00	23.30
		1	14	21.73	22.25	22.02	23.30
		8	0	20.91	21.24	21.32	22.30
		8	4	21.39	21.45	21.22	22.30
		8	7	21.34	21.24	21.27	22.30
		15	0	20.82	20.72	21.34	22.30

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 20425	Channel 20525	Channel 20625	Tune up
5MHz	QPSK	1	0	23.82	23.71	23.74	25.00
		1	13	23.93	23.99	23.84	25.00
		1	24	23.89	23.98	23.89	25.00
		12	0	22.95	22.97	23.01	24.00
		12	6	22.94	22.96	23.05	24.00
		12	13	22.85	22.97	22.98	24.00
		25	0	22.91	22.98	23.00	24.00
	16QAM	1	0	23.28	23.21	23.10	24.30
		1	13	23.24	23.52	22.93	24.30
		1	24	23.02	23.11	22.97	24.30
		12	0	22.02	21.91	21.94	23.30
		12	6	21.93	21.86	22.02	23.30
		12	13	21.76	21.90	21.96	23.30
		25	0	21.90	21.90	21.90	23.30
	64QAM	1	0	21.76	21.83	22.09	23.30
		1	13	21.79	22.07	22.08	23.30
		1	24	21.76	21.91	21.84	23.30
		12	0	20.99	20.96	20.79	22.30
		12	6	21.02	21.37	20.88	22.30
		12	13	20.99	20.98	20.84	22.30
		25	0	20.97	20.84	20.92	22.30
Bandwidth	Modulation	RB size	RB offset	Channel 20450	Channel 20525	Channel 20600	Tune up
10MHz	QPSK	1	0	23.90	23.93	**24.02**	25.00
		1	25	23.81	23.83	23.87	25.00
		1	49	23.79	23.95	23.46	25.00
		25	0	22.95	22.90	22.93	24.00
		25	13	22.95	22.89	22.96	24.00
		25	25	23.01	22.91	**23.06**	24.00
		50	0	22.89	22.93	22.95	24.00
	16QAM	1	0	23.31	23.32	23.41	24.30
		1	25	23.28	23.40	23.23	24.30
		1	49	23.09	23.48	22.96	24.30
		25	0	21.96	21.89	21.92	23.30
		25	13	21.82	21.95	21.90	23.30
		25	25	21.97	21.90	21.89	23.30
		50	0	21.84	21.93	21.92	23.30
	64QAM	1	0	22.39	21.73	21.88	23.30
		1	25	22.15	22.30	22.07	23.30
		1	49	22.37	22.05	21.93	23.30
		25	0	20.90	20.71	20.83	22.30
		25	13	20.89	20.85	21.06	22.30
		25	25	20.78	20.86	21.15	22.30
		50	0	20.73	20.92	20.72	22.30

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

LTE Band 7 Full Power & Receiver on & Receiver on+BT				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 20775	Channel 21100	Channel 21425	Tune up
5MHz	QPSK	1	0	23.11	23.22	23.13	24.70
		1	13	23.18	23.15	23.17	24.70
		1	24	23.17	23.27	23.16	24.70
		12	0	22.11	22.38	22.64	23.70
		12	6	22.17	22.31	22.35	23.70
		12	13	22.38	22.25	22.49	23.70
		25	0	22.13	22.42	22.54	23.70
	16QAM	1	0	22.28	22.53	22.32	24.00
		1	13	22.04	22.21	22.56	24.00
		1	24	22.36	22.24	22.15	24.00
		12	0	21.13	21.32	21.58	23.00
		12	6	21.22	21.32	21.49	23.00
		12	13	21.09	21.24	21.28	23.00
		25	0	21.21	21.18	21.45	23.00
	64QAM	1	0	21.96	21.63	21.89	23.00
		1	13	21.99	21.87	21.88	23.00
		1	24	21.96	21.71	21.64	23.00
		12	0	20.59	20.56	20.53	22.00
		12	6	20.62	20.97	20.48	22.00
		12	13	20.59	20.58	20.44	22.00
		25	0	20.57	20.44	20.52	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 20800	Channel 21100	Channel 21400	Tune up
10MHz	QPSK	1	0	23.18	23.28	23.40	24.70
		1	25	23.23	23.36	23.51	24.70
		1	49	23.14	23.22	23.15	24.70
		25	0	22.17	22.37	22.62	23.70
		25	13	22.25	22.30	22.49	23.70
		25	25	22.23	22.38	22.51	23.70
		50	0	22.21	22.27	22.58	23.70
	16QAM	1	0	22.15	22.54	22.42	24.00
		1	25	22.46	22.89	22.97	24.00
		1	49	22.18	22.42	22.42	24.00
		25	0	21.16	21.34	21.47	23.00
		25	13	21.12	21.32	21.55	23.00
		25	25	21.19	21.20	21.38	23.00
		50	0	21.04	21.26	21.55	23.00
	64QAM	1	0	22.31	22.15	21.54	23.00
		1	25	21.83	22.28	22.39	23.00
		1	49	21.63	21.60	21.83	23.00
		25	0	21.07	21.06	20.62	22.00
		25	13	20.94	20.92	20.64	22.00
		25	25	20.89	20.96	20.56	22.00
		50	0	21.00	20.92	20.67	22.00

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 20825	Channel 21100	Channel 21375	Tune up
15MHz	QPSK	1	0	23.22	23.23	23.25	24.70
		1	38	23.10	23.12	23.41	24.70
		1	74	23.15	23.19	23.11	24.70
		36	0	22.22	22.39	22.62	23.70
		36	18	22.19	22.35	22.63	23.70
		36	39	22.44	22.49	22.57	23.70
		75	0	22.21	22.30	22.60	23.70
	16QAM	1	0	22.15	22.27	22.53	24.00
		1	38	22.30	22.20	22.56	24.00
		1	74	22.39	22.54	22.45	24.00
		36	0	21.17	21.29	21.49	23.00
		36	18	21.16	21.25	21.57	23.00
		36	39	21.14	21.44	21.37	23.00
		75	0	21.13	21.35	21.53	23.00
	64QAM	1	0	21.85	21.99	21.79	23.00
		1	38	21.89	21.68	21.41	23.00
		1	74	21.79	21.96	21.67	23.00
		36	0	20.49	20.42	20.64	22.00
		36	18	20.42	20.77	20.53	22.00
		36	39	20.68	20.93	20.57	22.00
		75	0	20.61	20.46	20.53	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 20850	Channel 21100	Channel 21350	Tune up
20MHz	QPSK	1	0	23.12	23.21	23.21	24.70
		1	50	23.24	23.37	23.45	24.70
		1	99	23.17	**23.53**	23.20	24.70
		50	0	22.29	22.34	**22.64**	23.70
		50	25	22.35	22.57	22.57	23.70
		50	50	22.43	22.52	22.60	23.70
		100	0	22.37	22.16	22.15	23.70
	16QAM	1	0	22.16	22.22	22.57	24.00
		1	50	22.47	22.84	22.54	24.00
		1	99	22.49	22.69	22.76	24.00
		50	0	21.25	21.23	21.62	23.00
		50	25	21.23	21.33	21.51	23.00
		50	50	21.26	21.34	21.57	23.00
		100	0	21.35	21.53	21.54	23.00
	64QAM	1	0	22.24	21.70	22.14	23.00
		1	50	22.28	22.10	22.36	23.00
		1	99	21.92	22.23	22.41	23.00
		50	0	21.14	21.04	21.41	22.00
		50	25	20.90	21.01	21.20	22.00
		50	50	20.62	20.85	21.31	22.00
		100	0	21.20	21.03	21.10	22.00

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

LTE Band 7 Receiver off&Receiver off+BT				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 20775	Channel 21100	Channel 21425	Tune up
5MHz	QPSK	1	0	22.12	22.17	22.33	23.70
		1	13	22.13	22.25	22.38	23.70
		1	24	22.13	22.11	22.20	23.70
		12	0	22.26	22.41	22.58	23.70
		12	6	22.18	22.47	22.54	23.70
		12	13	22.19	22.40	22.53	23.70
		25	0	22.26	22.43	22.54	23.70
	16QAM	1	0	22.24	22.65	22.57	23.70
		1	13	21.78	22.45	22.38	23.70
		1	24	21.97	22.39	22.32	23.70
		12	0	21.10	21.33	21.63	22.70
		12	6	21.20	21.38	21.52	22.70
		12	13	21.16	21.34	21.53	22.70
		25	0	21.11	21.36	21.56	22.70
	64QAM	1	0	21.96	21.63	21.89	23.00
		1	13	21.99	21.87	21.88	23.00
		1	24	21.96	21.71	21.64	23.00
		12	0	20.59	20.56	20.53	22.00
		12	6	20.62	20.97	20.48	22.00
		12	13	20.59	20.58	20.44	22.00
		25	0	20.57	20.44	20.52	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 20800	Channel 21100	Channel 21400	Tune up
10MHz	QPSK	1	0	22.16	22.12	22.21	23.70
		1	25	22.22	22.31	22.32	23.70
		1	49	22.18	22.43	22.11	23.70
		25	0	22.24	22.46	22.57	23.70
		25	13	22.24	22.38	22.56	23.70
		25	25	22.18	22.35	22.66	23.70
		50	0	22.22	22.43	22.58	23.70
	16QAM	1	0	22.37	22.47	22.61	23.70
		1	25	22.28	22.25	22.65	23.70
		1	49	22.31	22.33	22.64	23.70
		25	0	21.11	21.44	21.62	22.70
		25	13	21.15	21.32	21.43	22.70
		25	25	21.10	21.34	21.53	22.70
		50	0	21.16	21.31	21.53	22.70
	64QAM	1	0	22.31	22.15	21.54	23.00
		1	25	21.83	22.28	22.39	23.00
		1	49	21.63	21.60	21.83	23.00
		25	0	21.07	21.06	20.62	22.00
		25	13	20.94	20.92	20.64	22.00
		25	25	20.89	20.96	20.56	22.00
		50	0	21.00	20.92	20.67	22.00

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 20825	Channel 21100	Channel 21375	Tune up
15MHz	QPSK	1	0	22.11	22.17	22.27	23.70
		1	38	22.19	22.12	22.23	23.70
		1	74	22.13	22.18	22.15	23.70
		36	0	22.15	22.41	22.45	23.70
		36	18	22.19	22.41	22.48	23.70
		36	39	22.17	22.35	22.19	23.70
		75	0	22.19	22.40	22.58	23.70
	16QAM	1	0	22.39	22.25	22.21	23.70
		1	38	22.13	22.15	22.24	23.70
		1	74	22.22	22.47	22.66	23.70
		36	0	21.03	21.30	21.62	22.70
		36	18	20.95	21.24	21.53	22.70
		36	39	21.10	21.28	21.61	22.70
		75	0	21.02	21.27	21.61	22.70
	64QAM	1	0	21.85	21.99	21.79	23.00
		1	38	21.89	21.68	21.41	23.00
		1	74	21.79	21.96	21.67	23.00
		36	0	20.49	20.42	20.64	22.00
		36	18	20.42	20.77	20.53	22.00
		36	39	20.68	20.93	20.57	22.00
		75	0	20.61	20.46	20.53	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 20850	Channel 21100	Channel 21350	Tune up
20MHz	QPSK	1	0	22.15	22.18	22.28	23.70
		1	50	22.37	**22.47**	22.28	23.70
		1	99	22.45	22.39	22.39	23.70
		50	0	22.36	**22.57**	22.51	23.70
		50	25	22.30	22.41	22.43	23.70
		50	50	22.40	22.57	22.39	23.70
		100	0	22.13	22.34	22.14	23.70
	16QAM	1	0	22.62	22.00	22.31	23.70
		1	50	22.31	22.07	22.69	23.70
		1	99	22.35	22.67	21.70	23.70
		50	0	21.24	21.24	21.46	22.70
		50	25	21.27	21.32	21.42	22.70
		50	50	21.28	21.26	21.48	22.70
		100	0	21.43	21.47	21.26	22.70
	64QAM	1	0	22.24	21.70	22.14	23.00
		1	50	22.28	22.10	22.36	23.00
		1	99	21.92	22.23	22.41	23.00
		50	0	21.14	21.04	21.41	22.00
		50	25	20.90	21.01	21.20	22.00
		50	50	20.62	20.85	21.31	22.00
		100	0	21.20	21.03	21.10	22.00

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

LTE FDD Band 26				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 26697	Channel 26865	Channel 27033	Tune up
1.4MHz	QPSK	1	0	23.31	23.16	23.19	24.50
		1	2	23.24	23.05	23.05	24.50
		1	5	23.18	23.18	23.17	24.50
		3	0	23.34	23.11	23.29	24.50
		3	2	23.18	23.03	22.97	24.50
		3	3	23.27	22.97	23.14	24.50
		6	0	22.18	22.28	22.17	23.50
	16QAM	1	0	22.47	22.30	22.67	23.80
		1	2	22.31	22.74	22.72	23.80
		1	5	22.11	22.37	22.21	23.80
		3	0	22.09	22.23	22.17	23.80
		3	2	22.05	21.84	22.24	23.80
		3	3	22.26	21.99	22.26	23.80
		6	0	21.17	21.14	21.07	22.80
	64QAM	1	0	21.69	20.97	21.93	22.80
		1	2	21.45	22.05	21.53	22.80
		1	5	21.58	21.54	22.09	22.80
		3	0	21.70	21.45	21.45	22.80
		3	2	21.49	21.67	21.42	22.80
		3	3	21.43	21.48	21.39	22.80
		6	0	20.41	20.37	20.42	21.80
Bandwidth	Modulation	RB size	RB offset	Channel 26705	Channel 26865	Channel 27025	Tune up
3MHz	QPSK	1	0	23.02	23.13	23.00	24.50
		1	7	23.14	23.01	22.93	24.50
		1	14	23.12	23.03	23.11	24.50
		8	0	21.99	22.22	22.18	23.50
		8	4	22.30	22.01	22.06	23.50
		8	7	22.08	21.97	22.26	23.50
		15	0	22.03	22.08	22.04	23.50
	16QAM	1	0	22.00	22.00	22.05	23.80
		1	7	22.29	22.66	22.05	23.80
		1	14	22.32	22.06	22.13	23.80
		8	0	20.97	21.04	21.29	22.80
		8	4	20.88	21.08	21.23	22.80
		8	7	21.10	21.13	21.18	22.80
		15	0	20.94	21.18	21.08	22.80
	64QAM	1	0	21.36	21.47	21.12	22.80
		1	7	21.27	21.23	21.32	22.80
		1	14	21.34	21.63	21.48	22.80
		8	0	20.40	20.28	20.32	21.80
		8	4	20.44	20.48	20.41	21.80
		8	7	20.38	20.49	20.40	21.80
		15	0	20.51	20.42	20.39	21.80

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 26715	Channel 26865	Channel 27015	Tune up
5MHz	QPSK	1	0	23.09	23.02	23.11	24.50
		1	13	23.13	23.14	23.07	24.50
		1	24	23.02	23.02	22.84	24.50
		12	0	22.17	22.13	22.00	23.50
		12	6	22.05	22.08	22.10	23.50
		12	13	22.10	22.09	22.05	23.50
		25	0	21.95	22.15	22.02	23.50
	16QAM	1	0	22.25	22.43	22.45	23.80
		1	13	22.32	22.07	22.45	23.80
		1	24	22.44	22.35	22.37	23.80
		12	0	21.12	21.14	20.97	22.80
		12	6	21.07	20.91	21.07	22.80
		12	13	21.24	21.11	21.03	22.80
		25	0	21.16	20.94	21.02	22.80
	64QAM	1	0	21.20	21.74	21.55	22.80
		1	13	21.21	21.50	21.46	22.80
		1	24	21.47	21.60	21.23	22.80
		12	0	20.39	20.43	20.18	21.80
		12	6	20.46	20.48	20.32	21.80
		12	13	20.37	20.29	20.31	21.80
		25	0	20.44	20.41	20.30	21.80
Bandwidth	Modulation	RB size	RB offset	Channel 26740	Channel 26865	Channel 26990	Tune up
10MHz	QPSK	1	0	23.02	22.93	23.00	24.50
		1	25	23.07	22.99	23.21	24.50
		1	49	22.90	22.90	23.11	24.50
		25	0	22.21	22.20	22.09	23.50
		25	13	22.12	22.09	22.18	23.50
		25	25	22.00	21.99	22.11	23.50
		50	0	22.02	22.07	22.08	23.50
	16QAM	1	0	22.36	22.47	22.21	23.80
		1	25	22.57	22.55	22.57	23.80
		1	49	22.21	22.32	22.15	23.80
		25	0	21.23	21.03	21.19	22.80
		25	13	21.02	21.15	20.97	22.80
		25	25	21.26	21.14	21.07	22.80
		50	0	21.19	21.25	21.11	22.80
	64QAM	1	0	21.47	21.60	21.92	22.80
		1	25	21.43	21.88	21.96	22.80
		1	49	21.94	22.07	21.40	22.80
		25	0	20.98	20.33	20.37	21.80
		25	13	20.77	20.26	20.79	21.80
		25	25	20.86	20.53	20.71	21.80
		50	0	20.89	20.21	20.71	21.80

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 26765	Channel 26865	Channel 26965	Tune up
15MHz	QPSK	1	0	23.08	23.05	22.93	24.50
		1	38	**23.37**	23.24	23.00	24.50
		1	74	23.02	23.04	23.08	24.50
		36	0	22.15	22.24	22.20	23.50
		36	18	22.12	22.20	22.15	23.50
		36	39	22.21	**22.29**	22.09	23.50
		75	0	22.06	22.07	22.05	23.50
	16QAM	1	0	22.32	22.29	22.39	23.80
		1	38	22.51	22.64	22.18	23.80
		1	74	22.14	22.74	22.47	23.80
		36	0	20.95	21.08	21.18	22.80
		36	18	21.05	21.09	21.10	22.80
		36	39	21.12	21.20	21.09	22.80
		75	0	20.92	21.05	21.10	22.80
	64QAM	1	0	21.83	21.32	21.27	22.80
		1	38	21.11	21.29	20.89	22.80
		1	74	21.29	21.12	21.23	22.80
		36	0	20.83	20.94	20.35	21.80
		36	18	20.99	20.80	20.40	21.80
		36	39	20.77	20.81	20.18	21.80
		75	0	20.99	20.26	20.26	21.80

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

LTE Band 38				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 37775	Channel 38000	Channel 38225	Tune up
5MHz	QPSK	1	0	22.82	22.87	22.72	24.20
		1	13	23.00	23.03	23.14	24.20
		1	24	22.81	22.80	22.88	24.20
		12	0	22.10	21.99	22.08	23.20
		12	6	22.00	21.97	21.97	23.20
		12	13	22.11	21.88	21.95	23.20
		25	0	21.86	22.02	22.06	23.20
	16QAM	1	0	22.13	22.10	21.82	23.50
		1	13	21.99	22.09	22.09	23.50
		1	24	21.71	21.93	21.96	23.50
		12	0	21.01	21.02	20.97	22.50
		12	6	20.80	20.86	20.74	22.50
		12	13	21.10	20.76	20.78	22.50
		25	0	20.83	20.89	20.97	22.50
	64QAM	1	0	21.09	20.68	20.64	22.50
		1	13	20.95	20.69	20.81	22.50
		1	24	20.94	20.84	20.73	22.50
		12	0	19.74	19.91	19.87	21.50
		12	6	19.89	19.77	19.82	21.50
		12	13	19.88	19.63	19.91	21.50
		25	0	19.79	19.93	19.66	21.50
Bandwidth	Modulation	RB size	RB offset	Channel 37800	Channel 38000	Channel 38200	Tune up
10MHz	QPSK	1	0	22.88	22.89	23.06	24.20
		1	25	23.00	22.76	22.83	24.20
		1	49	22.86	22.76	22.99	24.20
		25	0	21.91	22.05	22.09	23.20
		25	13	22.03	22.06	21.96	23.20
		25	25	22.02	21.77	22.08	23.20
		50	0	21.84	22.07	22.09	23.20
	16QAM	1	0	22.09	22.25	22.20	23.50
		1	25	21.57	21.63	21.87	23.50
		1	49	22.20	22.07	22.06	23.50
		25	0	20.89	20.93	21.03	22.50
		25	13	21.03	20.92	21.02	22.50
		25	25	20.91	20.99	21.00	22.50
		50	0	20.75	20.90	20.97	22.50
	64QAM	1	0	20.68	20.76	20.63	22.50
		1	25	20.87	20.68	21.05	22.50
		1	49	20.52	20.64	20.78	22.50
		25	0	19.75	19.79	19.85	21.50
		25	13	19.84	19.88	19.74	21.50
		25	25	19.84	19.85	19.86	21.50
		50	0	19.74	19.84	19.73	21.50

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 37825	Channel 38000	Channel 38175	Tune up
15MHz	QPSK	1	0	22.97	22.94	22.95	24.20
		1	38	22.93	22.92	23.02	24.20
		1	74	22.82	22.86	23.07	24.20
		36	0	21.96	22.11	22.12	23.20
		36	18	22.03	21.93	22.04	23.20
		36	39	22.07	21.94	21.89	23.20
		75	0	21.97	22.03	22.08	23.20
	16QAM	1	0	21.81	21.95	21.80	23.50
		1	38	21.98	21.84	22.16	23.50
		1	74	21.78	21.80	21.86	23.50
		36	0	20.92	21.01	21.04	22.50
		36	18	21.03	20.94	21.04	22.50
		36	39	20.94	20.75	21.09	22.50
		75	0	21.01	20.97	21.09	22.50
	64QAM	1	0	21.21	20.89	20.98	22.50
		1	38	21.12	20.82	21.06	22.50
		1	74	20.77	20.77	21.22	22.50
		36	0	20.29	19.81	20.16	21.50
		36	18	20.07	19.71	19.98	21.50
		36	39	20.24	20.02	19.91	21.50
		75	0	20.14	19.96	20.51	21.50

Bandwidth	Modulation	RB size	RB offset	Channel 37850	Channel 38000	Channel 38150	Tune up
20MHz	QPSK	1	0	22.95	22.98	23.08	24.20
		1	50	22.74	22.68	22.97	24.20
		1	99	23.02	23.08	**23.16**	24.20
		50	0	**22.13**	22.12	21.98	23.20
		50	25	22.02	21.91	22.04	23.20
		50	50	21.91	21.94	22.06	23.20
		100	0	22.00	22.00	22.10	23.20
	16QAM	1	0	22.03	22.42	22.29	23.50
		1	50	21.86	21.74	21.76	23.50
		1	99	21.98	22.18	21.95	23.50
		50	0	21.02	21.10	20.89	22.50
		50	25	20.98	20.74	21.00	22.50
		50	50	20.92	20.78	21.02	22.50
		100	0	21.06	20.92	21.03	22.50
	64QAM	1	0	20.65	21.16	21.03	22.50
		1	50	20.60	20.95	20.77	22.50
		1	99	20.87	20.88	20.95	22.50
		50	0	19.97	19.89	19.81	21.50
		50	25	20.04	19.80	19.64	21.50
		50	50	19.92	19.95	19.69	21.50
		100	0	19.84	19.89	19.74	21.50

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

LTE FDD Band 41				Conducted Power(dBm)				
Bandwidth	Modulation	RB size	RB offset	Channel 40165	Channel 40515	Channel 40865	Channel 41215	Tune up
5MHz	QPSK	1	0	22.76	22.93	22.95	22.69	24.20
		1	13	22.89	23.02	23.07	22.79	24.20
		1	24	22.94	22.89	22.99	22.70	24.20
		12	0	21.82	22.06	22.00	22.00	23.20
		12	6	21.89	22.01	21.90	21.90	23.20
		12	13	21.92	21.95	21.97	21.89	23.20
		25	0	21.91	21.98	21.83	21.96	23.20
	16QAM	1	0	21.76	21.80	21.84	21.73	23.50
		1	13	21.78	21.82	21.63	21.66	23.50
		1	24	21.81	21.83	22.04	21.54	23.50
		12	0	20.74	20.82	20.80	20.99	22.50
		12	6	20.80	20.81	20.79	20.92	22.50
		12	13	20.63	20.85	20.89	20.75	22.50
		25	0	20.83	20.93	20.72	20.91	22.50
	64QAM	1	0	21.72	21.59	21.28	21.34	22.50
		1	13	21.23	21.53	21.69	21.40	22.50
		1	24	21.43	21.67	21.53	21.49	22.50
		12	0	20.56	20.71	20.68	20.79	21.50
		12	6	20.66	20.65	20.65	20.84	21.50
		12	13	20.58	20.53	20.63	20.75	21.50
		25	0	20.59	20.74	20.79	20.72	21.50
Bandwidth	Modulation	RB size	RB offset	Channel 40190	Channel 40523	Channel 40857	Channel 41190	Tune up
10MHz	QPSK	1	0	22.76	22.82	22.78	22.88	24.20
		1	25	22.92	22.81	22.87	22.88	24.20
		1	49	22.77	22.82	22.85	22.93	24.20
		25	0	21.92	22.05	22.09	22.11	23.20
		25	13	21.92	21.92	21.86	22.03	23.20
		25	25	22.03	21.82	21.93	21.93	23.20
		50	0	21.92	21.98	22.10	22.04	23.20
	16QAM	1	0	22.09	22.11	22.00	21.88	23.50
		1	25	21.91	21.80	21.76	21.70	23.50
		1	49	21.99	21.76	21.87	21.76	23.50
		25	0	20.86	21.00	21.00	20.99	22.50
		25	13	20.84	20.91	20.73	21.08	22.50
		25	25	20.75	20.84	20.81	20.92	22.50
		50	0	20.90	20.81	20.85	21.03	22.50
	64QAM	1	0	21.57	21.51	21.52	21.60	22.50
		1	25	21.60	21.86	21.38	21.83	22.50
		1	49	21.65	21.56	21.54	21.69	22.50
		25	0	20.79	20.80	20.66	20.80	21.50
		25	13	20.79	20.72	20.76	20.77	21.50
		25	25	20.79	20.62	20.74	20.76	21.50
		50	0	20.78	20.74	20.82	20.84	21.50

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Bandwidth	Modulation	RB size	RB offset	Channel 40215	Channel 40532	Channel 40848	Channel 41165	Tune up
15MHz	QPSK	1	0	22.82	22.89	23.09	22.92	24.20
		1	38	23.06	22.89	22.86	22.98	24.20
		1	74	22.95	22.91	22.96	22.85	24.20
		36	0	21.90	22.04	22.03	22.15	23.20
		36	18	21.91	21.87	22.05	21.97	23.20
		36	39	21.98	22.02	22.01	21.90	23.20
		75	0	21.92	21.98	22.04	22.05	23.20
	16QAM	1	0	22.33	21.94	21.98	22.05	23.50
		1	38	21.77	21.80	21.72	22.29	23.50
		1	74	21.77	21.85	21.84	21.85	23.50
		36	0	20.88	20.97	20.95	20.99	22.50
		36	18	20.87	20.87	20.93	20.81	22.50
		36	39	20.82	21.03	20.93	20.93	22.50
		75	0	20.93	20.88	21.03	20.96	22.50
	64QAM	1	0	20.88	20.70	21.50	21.51	22.50
		1	38	20.99	20.56	21.00	21.70	22.50
		1	74	20.97	20.77	20.74	21.68	22.50
		36	0	19.90	19.76	19.99	20.88	21.50
		36	18	19.86	19.78	19.91	20.79	21.50
		36	39	19.85	19.86	20.40	20.84	21.50
		75	0	19.87	19.94	20.69	20.81	21.50
Bandwidth	Modulation	RB size	RB offset	Channel 40240	Channel 40540	Channel 40840	Channel 41140	Tune up
20MHz	QPSK	1	0	22.98	22.93	23.10	22.96	24.20
		1	50	22.97	22.83	22.88	22.77	24.20
		1	99	**23.19**	23.19	23.15	22.97	24.20
		50	0	22.01	22.05	22.02	**22.09**	23.20
		50	25	21.92	21.90	22.00	21.98	23.20
		50	50	22.00	22.00	21.99	21.89	23.20
		100	0	21.89	21.96	22.04	22.05	23.20
	16QAM	1	0	21.78	22.05	22.24	21.92	23.50
		1	50	22.01	21.74	21.55	21.89	23.50
		1	99	22.40	21.89	22.23	22.27	23.50
		50	0	20.90	20.84	20.93	21.08	22.50
		50	25	20.80	20.81	20.91	21.00	22.50
		50	50	20.84	20.74	20.91	20.88	22.50
		100	0	20.84	20.97	20.99	20.98	22.50
	64QAM	1	0	21.11	20.83	21.04	21.25	22.50
		1	50	21.04	20.75	21.26	20.77	22.50
		1	99	21.38	21.03	21.15	20.99	22.50
		50	0	20.05	19.94	20.13	19.97	21.50
		50	25	19.95	20.02	20.02	19.87	21.50
		50	50	19.92	19.93	19.83	19.98	21.50
		100	0	20.08	20.09	20.08	19.98	21.50

Table 13：Conducted Power of LTE

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

8.1.2 Conducted Power of Second Antenna

8.1.2.1 Conducted Power of GSM

GSM 850 Full Power/ Receiver off/ Receiver off+BT/Second antenna+WiFi 5G(Rec off)/Second antenna+WiFi 5G(Rec off)+BT										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GSM(GMSK)	GSM	33.01	**33.21**	33.32	34.20	-9.19	23.82	24.02	24.13	25.01
GPRS/ EGPRS (GMSK)	1 TX Slot	32.99	33.23	33.36	34.20	-9.19	23.80	24.04	24.17	25.01
	2 TX Slots	29.25	29.21	29.37	31.20	-6.18	23.07	23.03	23.19	25.02
	3 TX Slots	27.43	27.46	27.42	29.40	-4.42	23.01	23.04	23.00	24.98
	4 TX Slots	26.22	**26.26**	26.24	28.20	-3.17	23.05	23.09	23.07	**25.03**
EGPRS (8PSK)	1 TX Slot	25.73	25.78	25.79	29.00	-9.19	16.54	16.59	16.60	19.81
	2 TX Slots	22.93	22.98	23.01	26.00	-6.18	16.75	16.80	16.83	19.82
	3 TX Slots	21.29	21.37	21.39	24.20	-4.42	16.87	16.95	16.97	19.78
	4 TX Slots	19.98	20.03	20.13	23.00	-3.17	16.81	16.86	16.96	19.83

GSM 850 Receiver on/ Receiver on+BT/Second antenna+WiFi 5G(Rec on)/Second antenna+WiFi 5G(Rec on)+BT										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GSM(GMSK)	GSM	29.37	**29.55**	29.68	31.00	-9.19	20.18	20.36	20.49	21.81
GPRS/ EGPRS (GMSK)	1 TX Slot	29.48	29.68	29.79	31.00	-9.19	20.29	20.49	20.60	21.81
	2 TX Slots	26.05	26.21	26.27	28.00	-6.18	19.87	20.03	20.09	21.82
	3 TX Slots	24.21	24.23	24.38	26.20	-4.42	19.79	19.81	19.96	21.78
	4 TX Slots	23.05	23.08	23.05	25.00	-3.17	19.88	19.91	19.88	21.83
EGPRS (8PSK)	1 TX Slot	25.66	25.67	25.77	26.00	-9.19	16.47	16.48	16.58	16.81
	2 TX Slots	22.95	22.98	22.99	23.00	-6.18	16.77	16.80	16.81	16.82
	3 TX Slots	21.19	21.18	21.19	21.20	-4.42	16.77	16.76	16.77	16.78
	4 TX Slots	19.98	19.93	19.99	20.00	-3.17	16.81	16.76	16.82	16.83

GSM 850 Second antenna+WiFi 2.4G(Rec off)/Second antenna+WiFi 2.4G(Rec off)+BT										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GSM(GMSK)	GSM	32.29	32.58	32.67	33.70	-9.19	23.10	23.39	23.48	24.51
GPRS/ EGPRS (GMSK)	1 TX Slot	32.38	32.61	32.72	33.70	-9.19	23.19	23.42	23.53	24.51
	2 TX Slots	28.70	28.73	28.71	30.70	-6.18	22.52	22.55	22.53	24.52
	3 TX Slots	26.94	26.95	26.94	28.90	-4.42	22.52	22.53	22.52	24.48
	4 TX Slots	25.71	25.74	25.78	27.70	-3.17	22.54	22.57	22.61	24.53
EGPRS (8PSK)	1 TX Slot	25.25	25.23	25.39	28.50	-9.19	16.06	16.04	16.20	19.31
	2 TX Slots	22.29	22.34	22.48	25.50	-6.18	16.11	16.16	16.30	19.32
	3 TX Slots	20.63	20.69	20.72	23.70	-4.42	16.21	16.27	16.30	19.28
	4 TX Slots	19.53	19.75	19.56	22.50	-3.17	16.36	16.58	16.39	19.33

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

GSM 850 Second antenna+WiFi 2.4G(Rec on)/Second antenna+WiFi 2.4G(Rec on)+BT										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GSM(GMSK)	GSM	28.98	29.02	29.12	30.50	-9.19	19.79	19.83	19.93	21.31
GPRS/ EGPRS (GMSK)	1 TX Slot	28.96	29.03	29.17	30.50	-9.19	19.77	19.84	19.98	21.31
	2 TX Slots	25.79	25.86	25.94	27.50	-6.18	19.61	19.68	19.76	21.32
	3 TX Slots	23.98	24.02	24.15	25.70	-4.42	19.56	19.60	19.73	21.28
	4 TX Slots	22.58	22.59	22.64	24.50	-3.17	19.41	19.42	19.47	21.33
EGPRS (8PSK)	1 TX Slot	22.75	22.75	22.76	25.50	-9.19	13.56	13.56	13.57	16.31
	2 TX Slots	19.80	19.83	19.85	22.50	-6.18	13.62	13.65	13.67	16.32
	3 TX Slots	17.74	17.67	17.89	20.70	-4.42	13.32	13.25	13.47	16.28
	4 TX Slots	15.52	15.51	15.70	19.50	-3.17	12.35	12.34	12.53	16.33

GSM 850 Second antenna+WiFi 2.4G+5G(Rec off)/Second antenna+WiFi 2.4G+5G(Rec off)+BT										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GSM(GMSK)	GSM	31.89	31.96	32.08	33.20	-9.19	22.70	22.77	22.89	24.01
GPRS/ EGPRS (GMSK)	1 TX Slot	31.96	32.02	32.09	33.20	-9.19	22.77	22.83	22.90	24.01
	2 TX Slots	28.28	29.39	28.56	30.20	-6.18	22.10	23.21	22.38	24.02
	3 TX Slots	26.41	26.44	26.45	28.40	-4.42	21.99	22.02	22.03	23.98
	4 TX Slots	25.21	25.23	25.26	27.20	-3.17	22.04	22.06	22.09	24.03
EGPRS (8PSK)	1 TX Slot	24.79	24.82	24.97	28.00	-9.19	15.60	15.63	15.78	18.81
	2 TX Slots	22.46	22.36	22.23	25.00	-6.18	16.28	16.18	16.05	18.82
	3 TX Slots	20.48	20.56	20.25	23.20	-4.42	16.06	16.14	15.83	18.78
	4 TX Slots	19.06	19.08	19.16	22.00	-3.17	15.89	15.91	15.99	18.83

GSM 850Second antenna+WiFi 2.4G+5G(Rec on)/Second antenna+WiFi 2.4G+5G(Rec on)+BT										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GSM(GMSK)	GSM	28.94	29.11	29.25	30.00	-9.19	19.75	19.92	20.06	20.81
GPRS/ EGPRS (GMSK)	1 TX Slot	28.49	28.79	28.79	30.00	-9.19	19.30	19.60	19.60	20.81
	2 TX Slots	25.41	25.18	25.39	27.00	-6.18	19.23	19.00	19.21	20.82
	3 TX Slots	23.98	23.78	23.84	25.20	-4.42	19.56	19.36	19.42	20.78
	4 TX Slots	22.26	22.39	22.38	24.00	-3.17	19.09	19.22	19.21	20.83
EGPRS (8PSK)	1 TX Slot	22.42	22.39	22.51	25.00	-9.19	13.23	13.20	13.32	15.81
	2 TX Slots	19.27	19.35	19.43	22.00	-6.18	13.09	13.17	13.25	15.82
	3 TX Slots	17.35	17.43	17.65	20.20	-4.42	12.93	13.01	13.23	15.78
	4 TX Slots	15.68	15.75	15.86	19.00	-3.17	12.51	12.58	12.69	15.83

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Member of the SGS Group (SGS SA)

GSM 1900										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		512	661	810			512	661	810	
GSM(GMSK)	GSM	28.48	**28.39**	28.38	29.20	-9.19	19.29	19.20	19.19	20.01
GPRS/ EGPRS (GMSK)	1 TX Slot	28.56	28.42	28.43	29.20	-9.19	19.37	19.23	19.24	20.01
	2 TX Slots	25.39	25.35	25.17	26.20	-6.18	19.21	19.17	18.99	20.02
	3 TX Slots	23.43	23.29	23.18	24.40	-4.42	19.01	18.87	18.76	19.98
	4 TX Slots	22.17	**22.14**	22.01	23.20	-3.17	19.00	18.97	18.84	**20.03**
EGPRS (8PSK)	1 TX Slot	24.21	24.04	23.89	26.00	-9.19	15.02	14.85	14.70	16.81
	2 TX Slots	21.08	20.96	20.69	23.00	-6.18	14.90	14.78	14.51	16.82
	3 TX Slots	18.82	18.65	18.46	21.20	-4.42	14.40	14.23	14.04	16.78
	4 TX Slots	17.13	17.15	17.03	20.00	-3.17	13.96	13.98	13.86	16.83

Table 14：Conducted Power of GSM

Note:

1）. CMU200 measures GSM peak and average output power for active timeslots. For SAR the time based average power is relevant. The difference in between depends on the duty cycle of the TDMA signal:

No. of timeslots	1	2	3	4
Duty Cycle	1:8.3	1:4.15	1:2.77	1:2.075
Time based avg. power compared to slotted avg. power	-9.19	-6.18	-4.42	-3.17

2）. The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:

Frame-averaged power = 10 x log (Burst-averaged power mW x Slot used / 8

3）. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

8.1.2.2 Conducted Power of WCDMA

WCDMA Band II Full Power/ Receiver off/Receiver off+BT/WiFi 2.4G(Rec off)/WiFi 2.4G(Rec off)+BT/WiFi 5G(Rec off)/WiFi 5G(Rec off)+BT/WiFi 2.4G+5G(Rec off)/WiFi 2.4G+5G(Rec off)+BT					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	23.49	**23.44**	23.35	24.50
	12.2kbps AMR	23.47	23.45	23.36	24.50
HSDPA	Subtest 1	22.89	22.79	22.70	24.00
	Subtest 2	21.97	21.95	21.90	23.20
	Subtest 3	21.49	21.47	21.36	22.70
	Subtest 4	21.44	21.45	21.35	22.70
HSUPA	Subtest 1	21.65	21.30	21.22	23.00
	Subtest 2	18.89	18.50	19.21	21.00
	Subtest 3	19.50	20.19	19.75	22.00
	Subtest 4	18.57	19.28	18.85	21.00
	Subtest 5	22.30	22.30	22.30	23.50
DC-HSDPA	Subtest 1	22.85	22.75	22.68	24.00
	Subtest 2	21.92	21.93	21.86	23.20
	Subtest 3	21.47	21.44	21.32	22.70
	Subtest 4	21.39	21.41	21.29	22.70

WCDMA Band II Receiver on/ Receiver on+BT/WiFi 2.4G(Rec on)/WiFi 2.4G(Rec on)+BT /WiFi 5G(Rec on)/ WiFi 5G(Rec on)+BT/WiFi 2.4G+5G(Rec on)/WiFi 2.4G+5G(Rec on)+BT					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	18.93	**18.92**	18.80	20.00
	12.2kbps AMR	18.90	18.89	18.78	20.00
HSDPA	Subtest 1	18.36	18.37	18.23	19.50
	Subtest 2	17.51	17.53	17.33	18.70
	Subtest 3	16.94	17.06	16.89	18.20
	Subtest 4	17.00	17.03	16.88	18.20
HSUPA	Subtest 1	16.98	17.14	16.70	18.50
	Subtest 2	14.14	14.44	14.28	16.50
	Subtest 3	14.88	14.83	15.58	17.50
	Subtest 4	14.35	14.00	14.13	16.50
	Subtest 5	17.83	17.84	17.70	19.00
DC-HSDPA	Subtest 1	18.34	18.34	18.16	19.50
	Subtest 2	17.45	17.51	17.31	18.70
	Subtest 3	16.90	17.02	16.84	18.20
	Subtest 4	16.97	17.00	16.86	18.20

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)

WCDMA Band IV Full Power/ Receiver off/ Receiver off+BT/WiFi 5G(Rec off) /WiFi 5G(Rec off)+BT					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	22.86	**22.91**	22.78	24.00
	12.2kbps AMR	22.87	22.90	22.76	24.00
HSDPA	Subtest 1	22.30	22.35	22.27	23.50
	Subtest 2	21.51	21.45	21.45	22.70
	Subtest 3	20.98	20.98	20.92	22.20
	Subtest 4	20.94	20.97	20.91	22.20
HSUPA	Subtest 1	20.56	21.19	21.03	22.50
	Subtest 2	18.43	18.38	18.04	20.50
	Subtest 3	19.13	19.15	19.80	21.50
	Subtest 4	18.17	18.19	18.80	20.50
	Subtest 5	21.70	21.70	21.80	23.00
DC-HSDPA	Subtest 1	22.28	22.28	22.23	23.50
	Subtest 2	21.46	21.39	21.41	22.70
	Subtest 3	20.96	20.96	20.85	22.20
	Subtest 4	20.92	20.94	20.88	22.20

WCDMA Band IV Receiver on/ Receiver on+BT/WiFi 5G(Rec on)/WiFi 5G(Rec on)+BT					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	18.33	**18.37**	18.34	19.50
	12.2kbps AMR	18.30	18.35	18.32	19.50
HSDPA	Subtest 1	17.77	17.78	17.76	19.00
	Subtest 2	16.94	16.92	16.91	18.20
	Subtest 3	16.46	16.46	16.46	17.70
	Subtest 4	16.43	16.46	16.43	17.70
HSUPA	Subtest 1	16.54	16.37	16.58	18.00
	Subtest 2	13.54	13.44	13.66	16.00
	Subtest 3	14.45	14.43	14.56	17.00
	Subtest 4	14.33	14.52	14.36	16.00
	Subtest 5	17.24	17.12	17.27	18.50
DC-HSDPA	Subtest 1	17.74	17.72	17.71	19.00
	Subtest 2	16.90	16.85	16.87	18.20
	Subtest 3	16.39	16.39	16.40	17.70
	Subtest 4	16.40	16.41	16.40	17.70

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

WCDMA Band IV WiFi 2.4G(Rec off)/WiFi 2.4G(Rec off)+BT/WiFi 2.4G+5G(Rec off)/WiFi 2.4G+5G(Rec off)+BT					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	20.89	20.91	20.84	22.00
	12.2kbps AMR	20.89	20.90	20.82	22.00
HSDPA	Subtest 1	20.24	20.23	20.32	21.50
	Subtest 2	19.44	19.48	19.44	20.70
	Subtest 3	18.88	18.94	18.93	20.20
	Subtest 4	18.91	18.94	18.92	20.20
HSUPA	Subtest 1	18.65	18.45	19.06	20.50
	Subtest 2	16.52	16.45	16.22	18.50
	Subtest 3	17.13	17.23	16.93	19.50
	Subtest 4	16.24	16.12	15.95	18.50
	Subtest 5	19.78	19.81	19.83	21.00
DC-HSDPA	Subtest 1	20.18	20.19	20.25	21.50
	Subtest 2	19.42	19.46	19.42	20.70
	Subtest 3	18.84	18.89	18.91	20.20
	Subtest 4	18.88	18.87	18.89	20.20

WCDMA Band IV WiFi 2.4G(Rec on)/WiFi 2.4G(Rec on)+BT/WiFi 2.4G+5G(Rec on)/WiFi 2.4G+5G(Rec on)+BT					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	16.35	16.37	16.33	17.50
	12.2kbps AMR	16.31	16.34	16.29	17.50
HSDPA	Subtest 1	15.76	15.77	15.8	17.00
	Subtest 2	14.98	14.96	14.99	16.20
	Subtest 3	14.49	14.45	14.41	15.70
	Subtest 4	14.46	14.45	14.4	15.70
HSUPA	Subtest 1	13.88	13.77	14.21	16.00
	Subtest 2	12.88	12.91	13.03	14.00
	Subtest 3	13.55	13.58	13.59	15.00
	Subtest 4	12.52	12.57	12.66	14.00
	Subtest 5	15.25	15.29	15.28	16.50
DC-HSDPA	Subtest 1	15.74	15.70	15.73	17.00
	Subtest 2	14.93	14.90	14.94	16.20
	Subtest 3	14.42	14.43	14.35	15.70
	Subtest 4	14.44	14.39	14.38	15.70

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86–755) 26012053 f (86–755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M–10栋一号厂房 邮编: 518057 t (86–755) 26012053 f (86–755) 26710594 sgs.china@sgs.com

WCDMA Band V Full Power/ Receiver off/ Receiver off+BT/WiFi 5G(Rec off)/WiFi 5G(Rec off)+BT					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	24.03	**24.05**	23.95	25.00
	12.2kbps AMR	24.00	24.04	23.92	25.00
HSDPA	Subtest 1	23.45	23.45	23.36	24.50
	Subtest 2	22.95	22.96	22.84	23.70
	Subtest 3	22.51	22.47	22.45	23.20
	Subtest 4	22.49	22.51	22.45	23.20
HSUPA	Subtest 1	23.08	23.14	22.62	23.50
	Subtest 2	20.27	20.14	20.11	21.50
	Subtest 3	20.93	21.31	21.19	22.50
	Subtest 4	20.07	20.32	20.2	21.50
	Subtest 5	22.9	22.9	22.9	24.00
DC-HSDPA	Subtest 1	23.42	23.39	23.34	24.50
	Subtest 2	22.92	22.90	22.80	23.70
	Subtest 3	22.44	22.40	22.42	23.20
	Subtest 4	22.46	22.47	22.41	23.20

WCDMA Band V Receiver on/ Receiver on+BT/WiFi 5G(Rec on)/WiFi 5G(Rec on)+BT					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	21.00	**21.02**	20.89	22.00
	12.2kbps AMR	20.98	20.99	20.87	22.00
HSDPA	Subtest 1	20.41	20.43	20.36	21.50
	Subtest 2	19.91	19.85	19.86	20.70
	Subtest 3	19.49	19.52	19.42	20.20
	Subtest 4	19.52	19.52	19.43	20.20
HSUPA	Subtest 1	19.73	19.99	20.05	20.50
	Subtest 2	17.40	17.33	17.32	18.50
	Subtest 3	17.99	18.03	18.52	19.50
	Subtest 4	17.12	17.11	17.55	18.50
	Subtest 5	19.97	19.98	19.90	21.00
DC-HSDPA	Subtest 1	20.38	20.39	20.33	21.50
	Subtest 2	19.85	19.79	19.80	20.70
	Subtest 3	19.42	19.50	19.38	20.20
	Subtest 4	19.45	19.49	19.39	20.20

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

WCDMA Band V WiFi 2.4G(Rec off)/WiFi 2.4G(Rec off)+BT/WiFi 2.4G+5G(Rec off)/WiFi 2.4G+5G(Rec off)+BT					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	22.53	22.51	22.47	23.50
	12.2kbps AMR	22.51	22.48	22.45	23.50
HSDPA	Subtest 1	21.93	21.97	21.84	23.00
	Subtest 2	21.42	21.45	21.36	22.20
	Subtest 3	20.96	20.95	20.93	21.70
	Subtest 4	21.01	21.00	20.92	21.70
HSUPA	Subtest 1	21.62	21.52	21.55	22.00
	Subtest 2	18.81	18.68	18.69	20.00
	Subtest 3	19.58	19.44	19.48	21.00
	Subtest 4	18.62	18.57	18.47	20.00
	Subtest 5	21.44	21.50	21.40	22.50
DC-HSDPA	Subtest 1	21.90	21.95	21.77	23.00
	Subtest 2	21.36	21.38	21.31	22.20
	Subtest 3	20.90	20.89	20.90	21.70
	Subtest 4	20.97	20.94	20.89	21.70

WCDMA Band V WiFi 2.4G(Rec on)/WiFi 2.4G(Rec on)+BT/WiFi 2.4G+5G(Rec on)/WiFi 2.4G+5G(Rec on)+BT					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	19.45	19.52	19.42	20.50
	12.2kbps AMR	19.42	19.48	19.39	20.50
HSDPA	Subtest 1	18.93	18.96	18.87	20.00
	Subtest 2	18.36	18.39	18.31	19.20
	Subtest 3	17.99	17.97	17.97	18.70
	Subtest 4	18.03	17.99	17.92	18.70
HSUPA	Subtest 1	18.36	18.72	18.07	19.00
	Subtest 2	14.88	14.72	14.86	17.00
	Subtest 3	16.49	16.57	16.50	18.00
	Subtest 4	15.43	14.58	14.66	17.00
	Subtest 5	18.45	18.49	18.39	19.50
DC-HSDPA	Subtest 1	18.91	18.89	18.81	20.00
	Subtest 2	18.31	18.36	18.28	19.20
	Subtest 3	17.97	17.93	17.90	18.70
	Subtest 4	17.98	17.92	17.87	18.70

Table 15：Conducted Power of WCDMA

Note:

1) when the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.

Unless otherwise agreed 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) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com
Member of the SGS Group (SGS SA)