



TEST REPORT

Application No.: SZEM2008007506CR
Applicant: DT Research, Inc.
Address of Applicant: 3RD FL NO 36 WUQUAN 7TH RD WUGU DISTRICT, NEW TAIPEI, Taiwan.
Manufacturer: DT Research, Inc.
Address of Manufacturer: 2000 Concourse Drive, San Jose, CA 95131, USA
Factory: DT Research, Inc. Taiwan Branch
Address of Factory: 6F., No.36 Wuquan 7th Rd., Wugu Dist, New Taipei City 248 Taiwan
Equipment Under Test (EUT):
EUT Name: Rugged Tablet
Model No.: DT300Qxx (x=blank, A~Z or 0~9) ♣
♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade mark: DT Research, Inc.
Standard(s) : 47 CFR Part 15, Subpart C 15.247
FCC ID: YE3600-SC600TA
Date of Receipt: 2020-08-27
Date of Test: 2020-08-27 to 2020-09-17
Date of Issue: 2020-09-19

Test Result:	Pass*
---------------------	--------------

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

Keny. Xu

Keny Xu
EMC Laboratory Manager



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-Documents.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 Laboratory

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Pinggang Road, Xixiang Community, Fuyong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·宝安区福永街道新田社区风塘大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-09-19		Original

Authorized for issue by:			
			
		Edison Li/Project Engineer	
			
		Eric Fu/Reviewer	



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-Documents.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 & Inspection Laboratory

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fengyang Road, Kaitian Community, Fuyang Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·宝安区福永街道新田社区凤塘大道50号鑫龙科技园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.1	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass

Remark:

Model No.: DT300Qxx (x=blank, A~Z or 0~9).

Only the model DT300Q01 was tested, since according to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for all the above models, with only difference on model No..

This report is prepared for FCC class II permissive change.

The modular approval by TCB, FCC ID: YE3600-SC600TA, Granted on 05/18/2020.

The module installed into host platform mentioned above is electronically and mechanically identical to the original certified module. The Original FCC testing on module under FCC ID: YE3600-SC600TA was performed with an antenna of higher gain, and the antenna was connected to the module in an open environment. The current host platform under application uses a new antenna of the different type, Lower gain and is installed inside the host platform enclosure.

Therefore in this report Conducted Emissions at AC Power Line (150kHz-30MHz), Radiated Emissions which fall in the restricted bands and Radiated Spurious Emissions were fully retested on Model DT300Q01 and shown the data in this report.



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-Documents.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

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fengyang Road, Kaitian Community, Fuyong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·宝安区福永街道新田社区凤塘大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

3 Contents

	Page
1 COVER PAGE	1
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION	5
4.1 DETAILS OF E.U.T.	5
4.2 CABLE	5
4.3 DESCRIPTION OF SUPPORT UNITS	5
4.4 MEASUREMENT UNCERTAINTY	6
4.5 TEST LOCATION	7
4.6 TEST FACILITY	7
4.7 DEVIATION FROM STANDARDS	7
4.8 ABNORMALITIES FROM STANDARD CONDITIONS	7
5 EQUIPMENT LIST	8
6 RADIO SPECTRUM TECHNICAL REQUIREMENT	10
6.1 ANTENNA REQUIREMENT	10
6.1.1 Test Requirement:	10
7 RADIO SPECTRUM MATTER TEST RESULTS	11
7.1 RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS	11
7.1.1 E.U.T. Operation	11
7.1.2 Test Mode Description	11
7.1.3 Test Setup Diagram	12
7.1.4 Measurement Procedure and Data	12
7.2 RADIATED SPURIOUS EMISSIONS	45
7.2.1 E.U.T. Operation	45
7.2.2 Test Mode Description	45
7.2.3 Test Setup Diagram	46
7.2.4 Measurement Procedure and Data	47
8 EMISSION TEST RESULTS	74
8.1 CONDUCTED EMISSIONS AT AC POWER LINE (150kHz-30MHz)	74
8.1.1 E.U.T. Operation	74
8.1.2 Test Mode Description	74
8.1.3 Test Setup Diagram	74
8.1.4 Measurement Procedure and Data	75
9 TEST SETUP PHOTO	78
9.1 TEST SETUP	78
9.2 EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)	78



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 & Inspection Laboratory

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fengtang Road, Xixiang Community, Fuyong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
中国·深圳·宝安区福永街道新田社区凤塘大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

4 General Information

4.1 Details of E.U.T.

Power adapter:	AC Adapter Model: A17-065N1A Input: AC 100-240V, 50/60Hz, 1.8A Output: DC 20V, 3.25A/DC15V, 3A/DC9V, 2A/DC5V, 2A Rechargeable lithium-Ion polymer battery Model: ACC-006-311K(2ICP6/57/60-2) Rated Capacity: 6000mAh Voltage: DC 7.6V Watt-Hour: 45.6Wh Max Charge Voltage: 8.7V Wall Cradle: ACC-WM210Q-301 Desktop Cradle: ACC-DC210-301Q Keyboard Cradle: ACC-KB01Y-US1
Cable:	DC cable:116cm with a ferrite core
Internal Source:	More than 108MHz
Test voltage:	AC 120V, 60Hz
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11 802.11n(HT40):7
Channel Spacing:	5MHz
Antenna Type:	PIFA Antenna
Antenna Gain:	1.6dBi

4.2 Cable

Cable	Length	Shielding	Core
DC cable	180cm	Unshielded	Non-Core
Type-C cable	180cm	Unshielded	Non-Core
AC cable	175cm	Unshielded	Non-Core

4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--
The EUT has been tested as an independent unit.			



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 & Calibration Laboratory

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fenggang Road, Kaitian Community, Fuyong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·宝安区福永街道新田社区凤塘大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

4.4 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	$\pm 3.0\text{dB}$ (150kHz to 30MHz)
Conducted Peak Output Power	$\pm 0.75\text{dB}$
Radiated Emissions which fall in the restricted bands	$\pm 4.5\text{dB}$ (Below 1GHz); $\pm 4.8\text{dB}$ (Above 1GHz)
Radiated Spurious Emissions	$\pm 4.5\text{dB}$ (Below 1GHz); $\pm 4.8\text{dB}$ (Above 1GHz)

Remark:
The U_{lab} (lab Uncertainty) is less than U_{CISPR} (CISPR Uncertainty), so the test results
– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

4.5 Test Location

All tests were performed at:

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

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

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

No tests were sub-contracted.

4.6 Test Facility

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

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

- **FCC –Designation Number: CN1178**

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

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

- **Innovation, Science and Economic Development Canada**

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

CAB identifier: CN0006.

IC#: 4620C.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None



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

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fengyang Road, Kaitian Community, Futong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
 中国·深圳·宝安区福永街道新田社区凤塘大道50号鑫龙科技园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

5 Equipment List

Conducted Emissions at AC Power Line (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2019-06-13	2022-06-12
EMI Test Receiver	Rohde&Schwarz	ESCI	SEM004-02	2020-03-24	2021-03-23
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2020-07-10	2021-07-09
LISN	Rohde&Schwarz	ENV216	SEM007-01	2019-09-24	2020-09-23
LISN	ETS-LINDGREN	3816/2	SEM007-02	2020-04-01	2021-03-31

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-07-19	2023-07-18
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2019-12-16	2020-12-15
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-02	2019-05-24	2022-05-23
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2020-04-01	2021-03-31
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2020-07-10	2021-07-09

Radiated Emissions which fall in the restricted bands					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
EXA Signal Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2020-04-09	2021-04-08
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-24	2020-09-23
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2020-07-10	2021-07-09
Horn Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2017-10-17	2020-10-16
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2020-04-01	2021-03-31



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-Documents.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 & Calibration Laboratory

Room 105, Building A, Xinxing Technology Industrial Park, No. 50 Fengyang Road, Kaitian Community, Futang Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·宝安区福永街道新田社区凤塘大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Radiated Spurious Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
EXA Signal Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2020-04-09	2021-04-08
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-24	2020-09-23
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2020-07-10	2021-07-09
Horn Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2017-10-17	2020-10-16
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2020-04-01	2021-03-31

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-26	2020-09-25
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-04-07	2021-04-06



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 & Calibration Laboratory

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fengtang Road, Kaitian Community, Fuyong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·宝安区福永街道新田社区凤塘大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.247

Limit:

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 1.6dBi.

Antenna location: Refer to Internal photos.

7 Radio Spectrum Matter Test Results

7.1 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.247

Test Method: ANSI C63.10 (2013) Section 6.10.5

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.8 °C

Humidity: 54.3 % RH

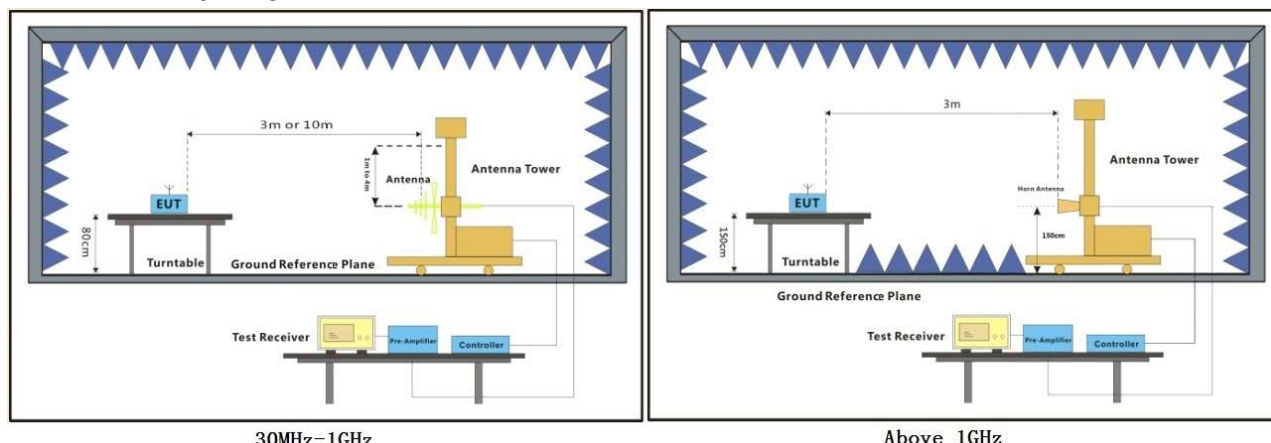
Atmospheric Pressure: 1000 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	10	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.
Final test	11	Charge + TX mode_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.



7.1.3 Test Setup Diagram



30MHz-1GHz

Above 1GHz

7.1.4 Measurement Procedure and Data

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

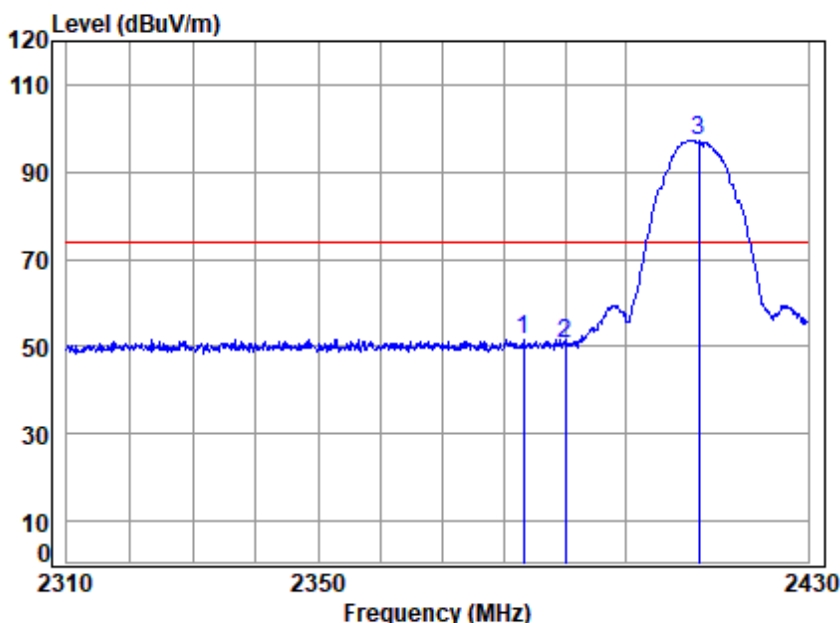
Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



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-Documents.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
 Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fengyang Road, Xixiang Community, Fuyang Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
 中国·深圳·宝安区福永街道新田社区凤塘大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

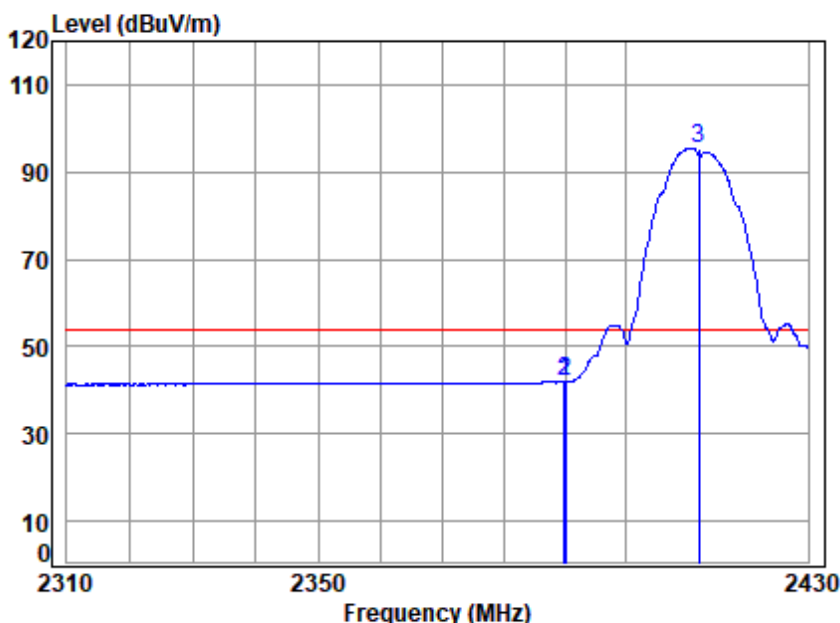
Test Mode: 11; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2383.200	4.33	28.51	40.97	59.91	51.78	74.00	-22.22	peak
2	2390.000	4.34	28.52	40.97	58.75	50.64	74.00	-23.36	peak
3 *	2412.000	4.38	28.56	40.98	105.45	97.41	74.00	23.41	peak

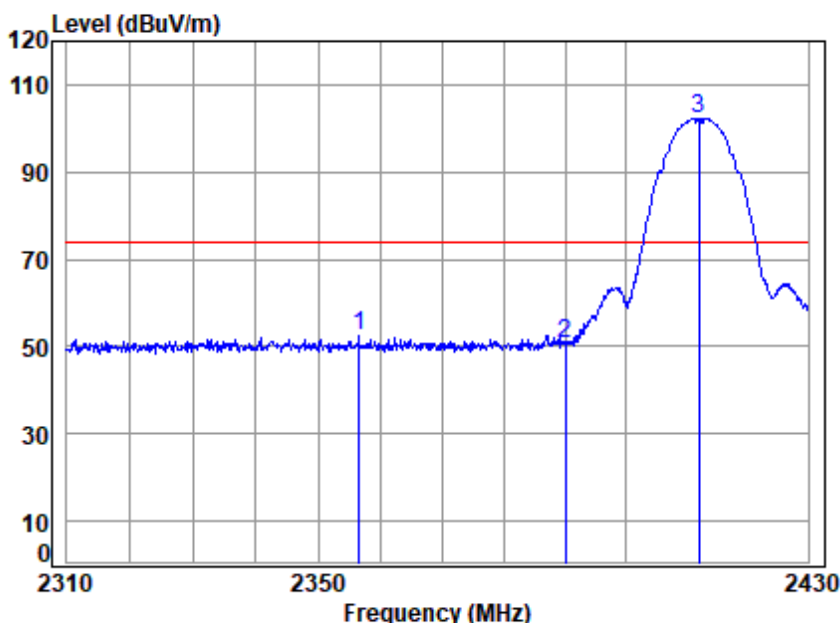
Test Mode: 11; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.847	4.34	28.52	40.97	50.02	41.91	54.00	-12.09	Average
2	2390.000	4.34	28.52	40.97	50.02	41.91	54.00	-12.09	Average
3 *	2412.000	4.38	28.56	40.98	103.51	95.47	54.00	41.47	Average

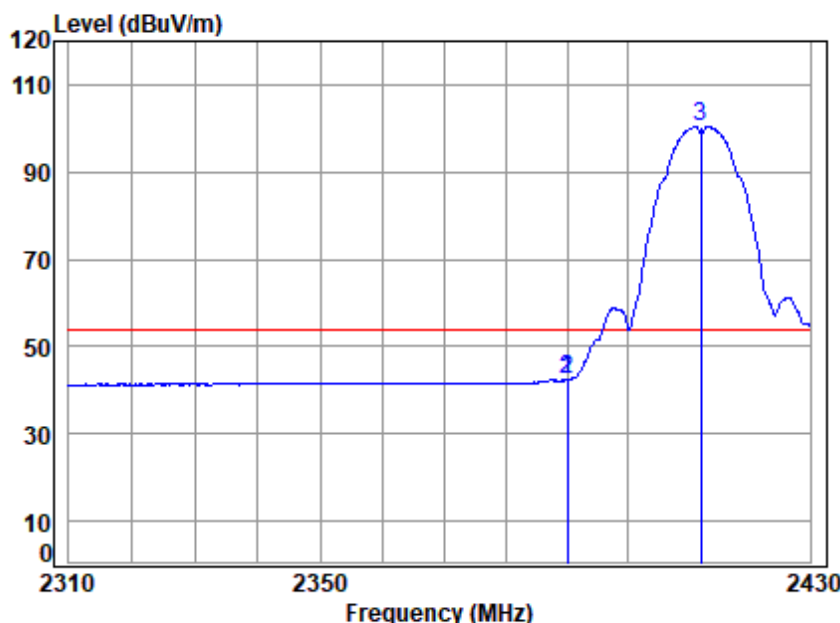
Test Mode: 11; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2356.556	4.29	28.46	40.96	60.80	52.59	74.00	-21.41	peak
2	2390.000	4.34	28.52	40.97	58.84	50.73	74.00	-23.27	peak
3 *	2412.000	4.38	28.56	40.98	110.36	102.32	74.00	28.32	peak

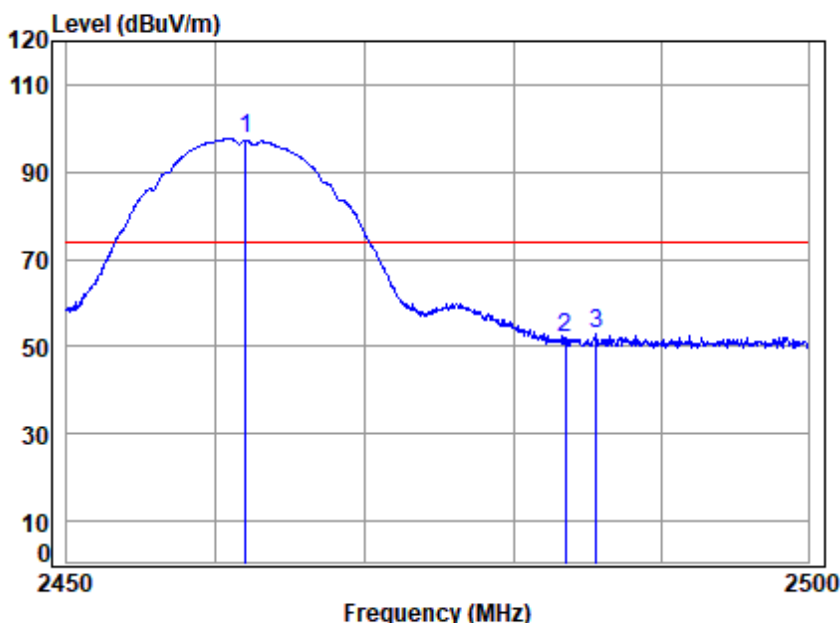
Test Mode: 11; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.968	4.34	28.52	40.97	50.46	42.35	54.00	-11.65	Average
2	2390.000	4.34	28.52	40.97	50.46	42.35	54.00	-11.65	Average
3 *	2412.000	4.38	28.56	40.98	108.35	100.31	54.00	46.31	Average

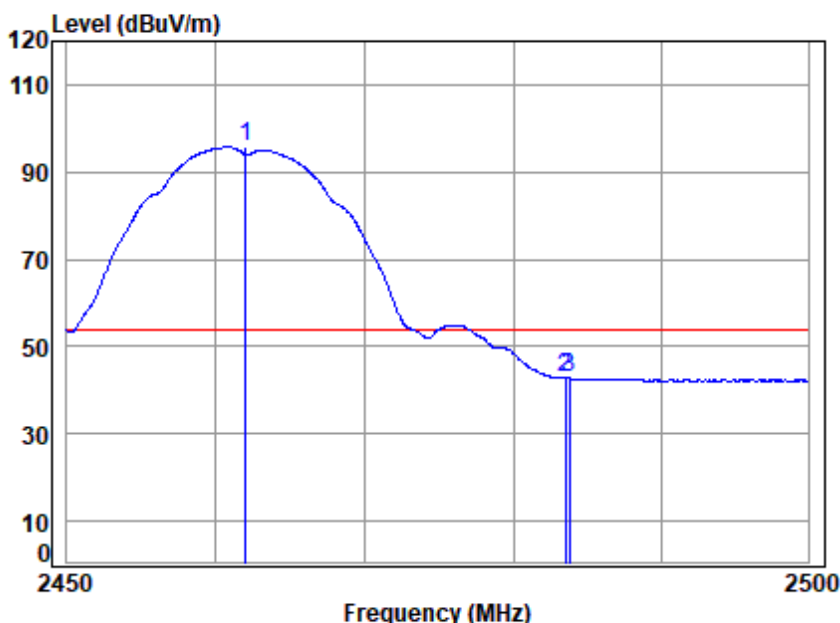
Test Mode: 11; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11B

	Cable	Ant	Preamp	Read		Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 * 2462.000	4.46	28.64	41.00	105.45	97.55	74.00	23.55	peak
2 2483.500	4.49	28.67	41.01	59.83	51.98	74.00	-22.02	peak
3 2485.597	4.50	28.68	41.01	60.79	52.96	74.00	-21.04	peak

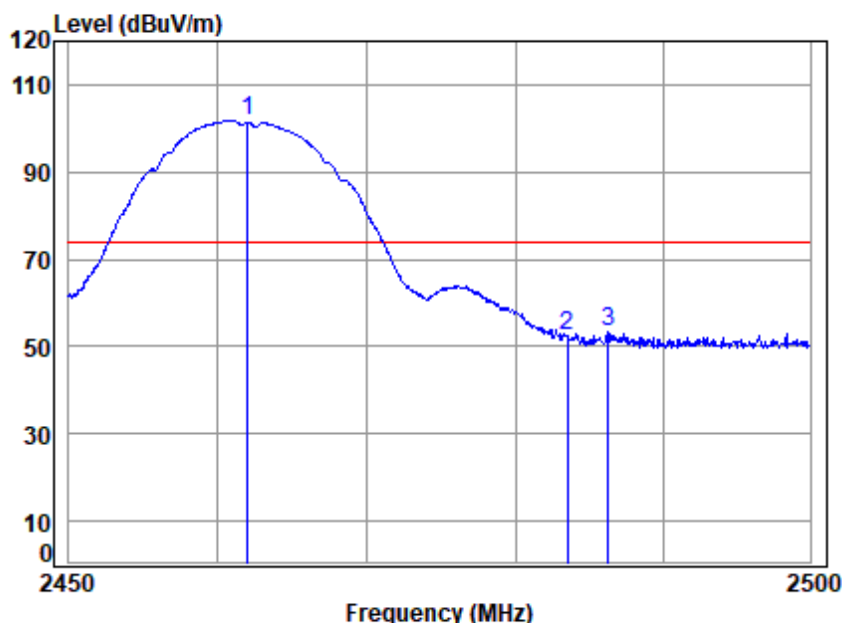
Test Mode: 11; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11B

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 * 2462.000	4.46	28.64	41.00	103.55	95.65	54.00	41.65	Average
2 2483.500	4.49	28.67	41.01	50.66	42.81	54.00	-11.19	Average
3 2483.790	4.49	28.67	41.01	50.53	42.68	54.00	-11.32	Average

Test Mode: 11; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m VERTICAL

Job No : 07506CR

Mode : 2462 Band edge

Note : 2.4G WIFI 11B

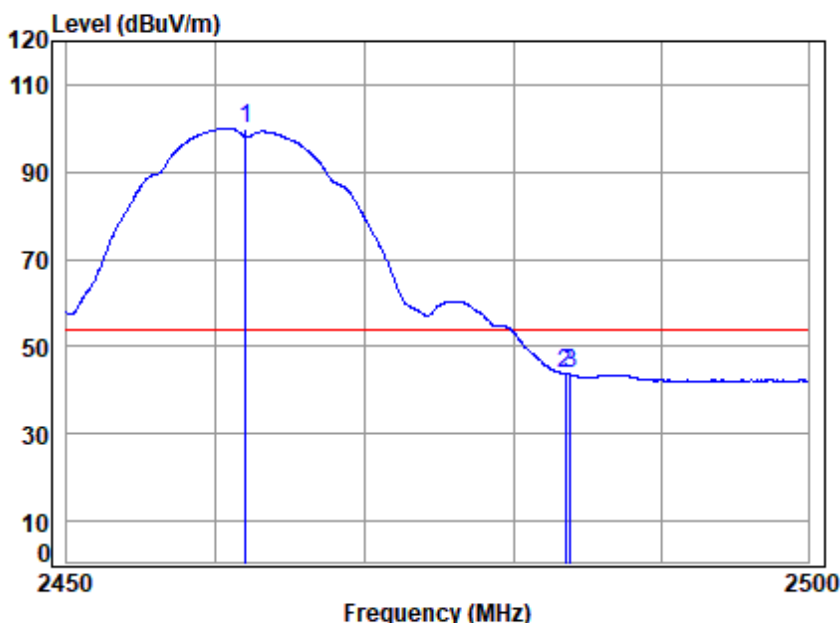
		Cable	Ant	Preamp	Read		Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1 * 2462.000	4.46	28.64	41.00	109.70	101.80	74.00	27.80	peak	
2 2483.500	4.49	28.67	41.01	60.54	52.69	74.00	-21.31	peak	
3 2486.300	4.50	28.68	41.01	61.23	53.40	74.00	-20.60	peak	



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
Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fenggang Road, Kitan Community, Fuyong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
中国·深圳·宝安区福永街道新田社区风岗大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

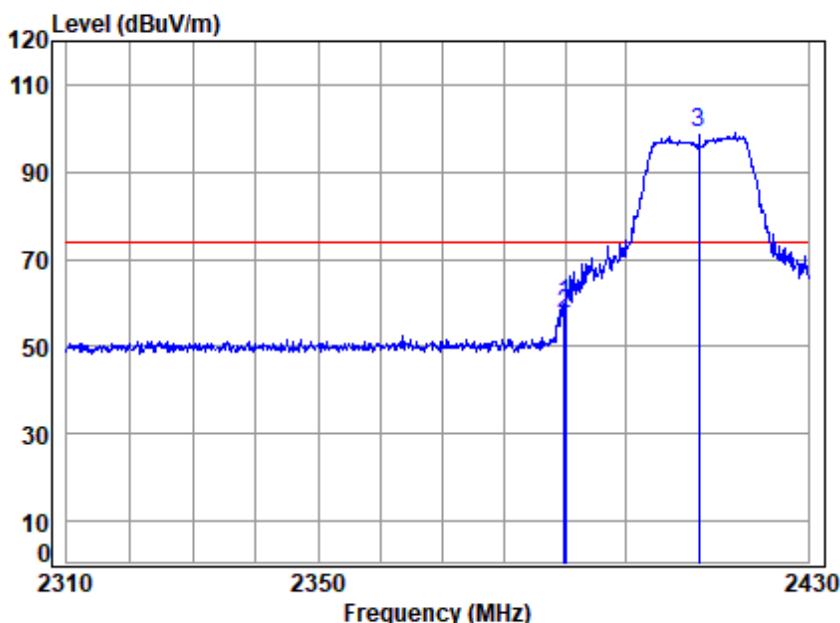
Test Mode: 11; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11B

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 * 2462.000	4.46	28.64	41.00	107.81	99.91	54.00	45.91 Average
2 2483.500	4.49	28.67	41.01	51.63	43.78	54.00	-10.22 Average
3 2483.840	4.49	28.67	41.01	51.48	43.63	54.00	-10.37 Average

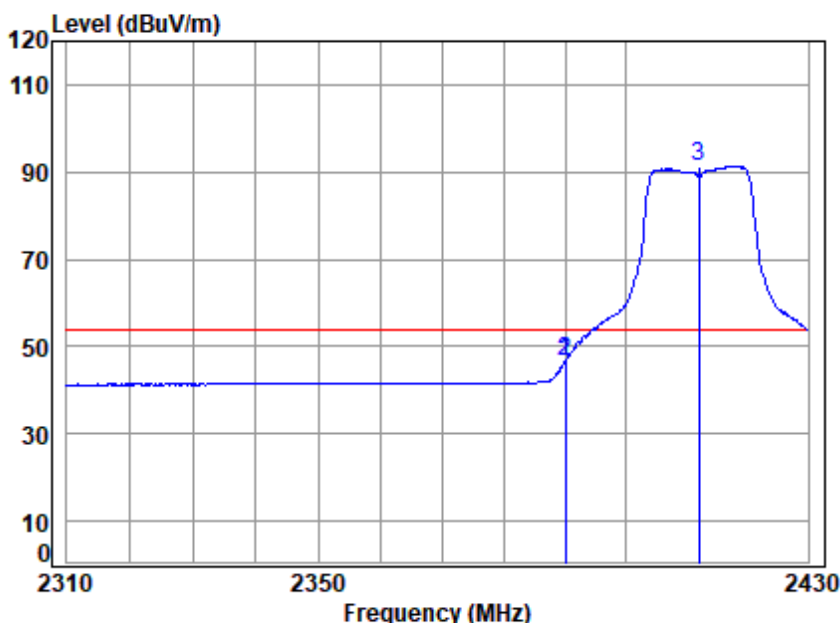
Test Mode: 11; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

		Cable	Ant	Preamp	Read		Limit	Over	
Freq		Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.847	4.34	28.52	40.97	67.73	59.62	74.00	-14.38	peak
2	2390.000	4.34	28.52	40.97	65.79	57.68	74.00	-16.32	peak
3 *	2412.000	4.38	28.56	40.98	106.85	98.81	74.00	24.81	peak

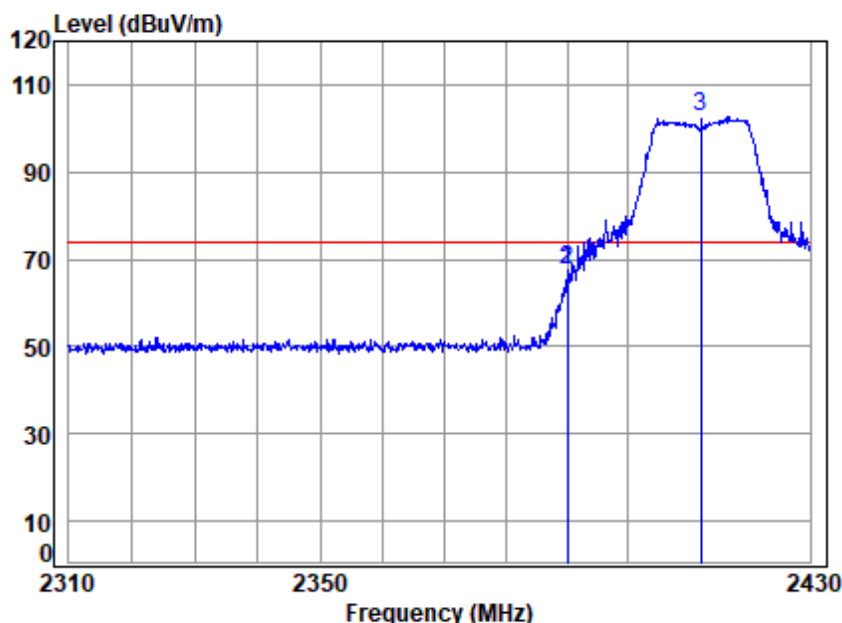
Test Mode: 11; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.968	4.34	28.52	40.97	54.72	46.61	54.00	-7.39	Average
2	2390.000	4.34	28.52	40.97	54.72	46.61	54.00	-7.39	Average
3 *	2412.000	4.38	28.56	40.98	99.28	91.24	54.00	37.24	Average

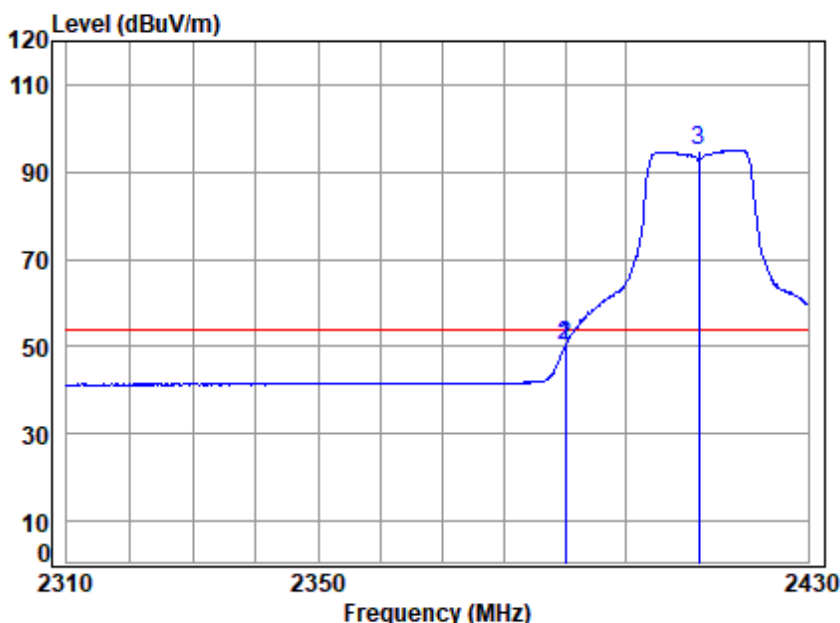
Test Mode: 11; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.968	4.34	28.52	40.97	75.86	67.75	74.00	-6.25	peak
2	2390.000	4.34	28.52	40.97	75.86	67.75	74.00	-6.25	peak
3 *	2412.000	4.38	28.56	40.98	110.60	102.56	74.00	28.56	peak

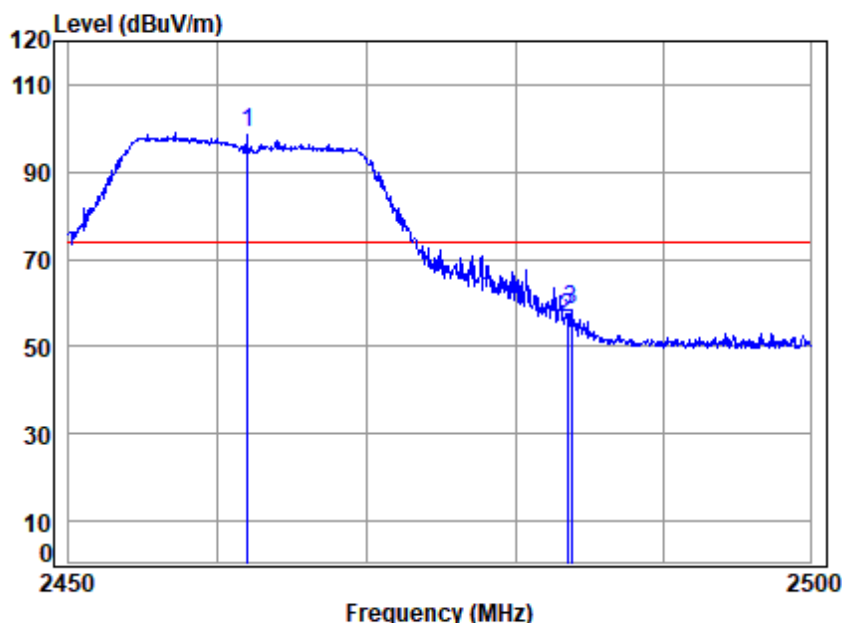
Test Mode: 11; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.968	4.34	28.52	40.97	58.21	50.10	54.00	-3.90	Average
2	2390.000	4.34	28.52	40.97	58.21	50.10	54.00	-3.90	Average
3 *	2412.000	4.38	28.56	40.98	103.09	95.05	54.00	41.05	Average

Test Mode: 11; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11G

	Cable	Ant	Preamp	Read		Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 * 2462.000	4.46	28.64	41.00	106.74	98.84	74.00	24.84	peak
2 2483.500	4.49	28.67	41.01	64.59	56.74	74.00	-17.26	peak
3 2483.790	4.49	28.67	41.01	66.21	58.36	74.00	-15.64	peak

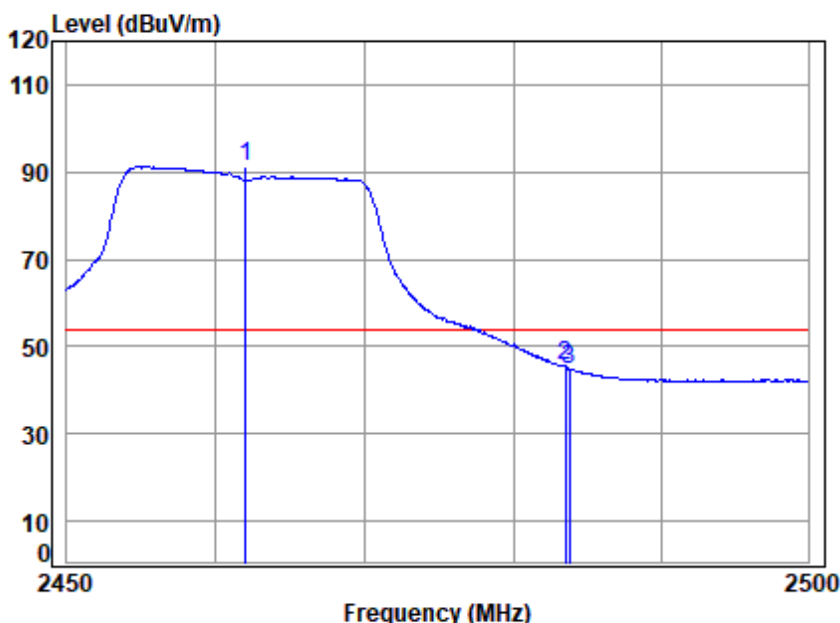


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic 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

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fenggang Road, Kitan Community, Fuyong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
中国·深圳·宝安区福永街道新田社区风岗大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

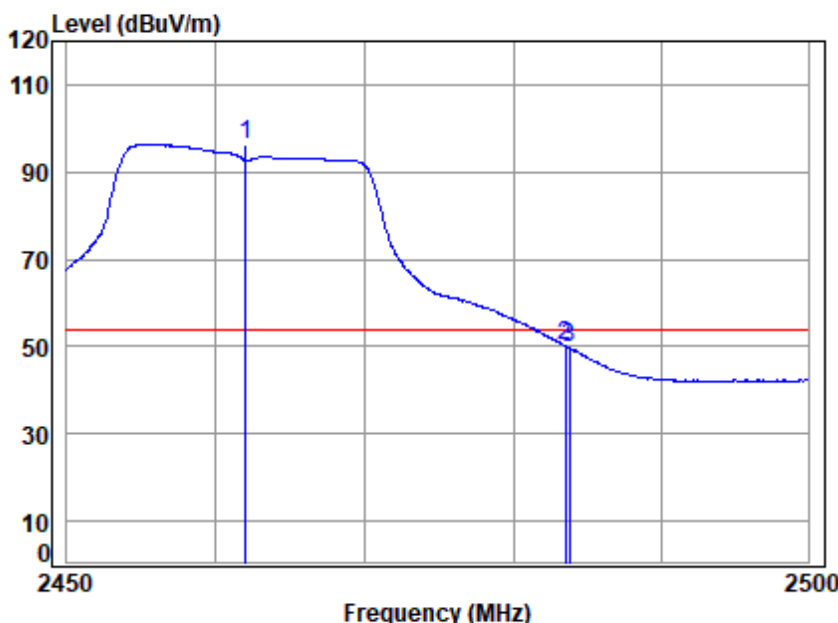
Test Mode: 11; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 *	2462.000	4.46	28.64	41.00	99.14	91.24	54.00	37.24	Average
2	2483.500	4.49	28.67	41.01	53.25	45.40	54.00	-8.60	Average
3	2483.790	4.49	28.67	41.01	52.72	44.87	54.00	-9.13	Average

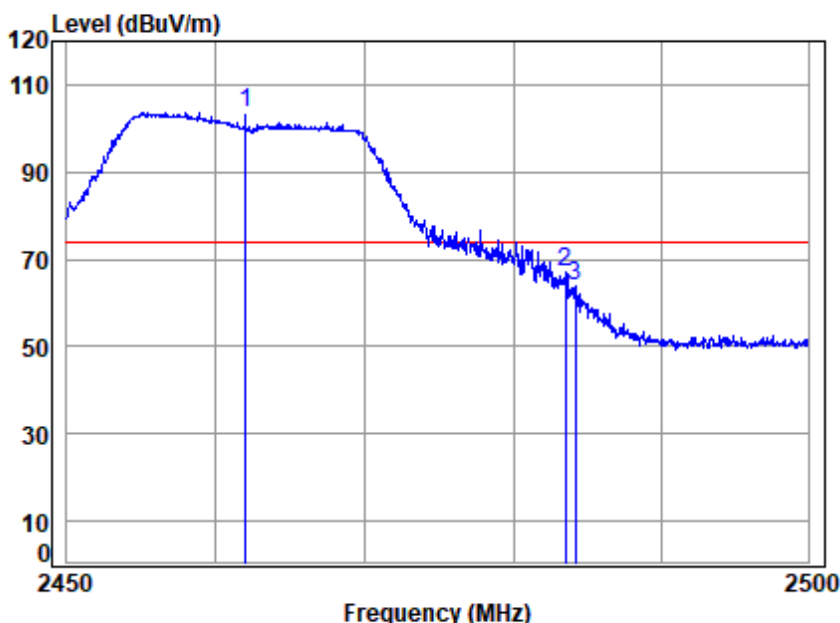
Test Mode: 11; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11G

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 * 2462.000	4.46	28.64	41.00	104.16	96.26	54.00	42.26 Average
2 2483.500	4.49	28.67	41.01	58.07	50.22	54.00	-3.78 Average
3 2483.790	4.49	28.67	41.01	57.41	49.56	54.00	-4.44 Average

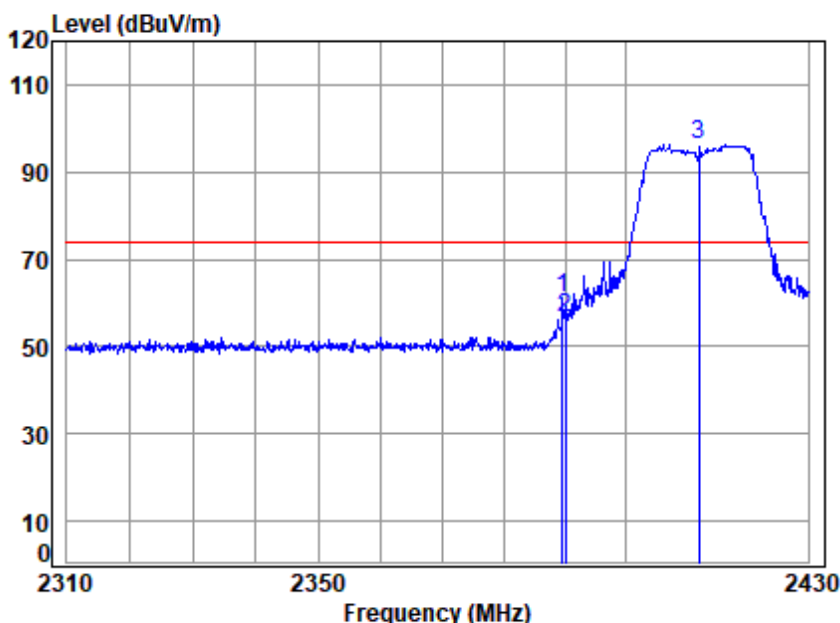
Test Mode: 11; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11G

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 * 2462.000	4.46	28.64	41.00	111.57	103.67	74.00	29.67 peak
2 2483.500	4.49	28.67	41.01	75.10	67.25	74.00	-6.75 peak
3 2484.191	4.50	28.67	41.01	71.74	63.90	74.00	-10.10 peak

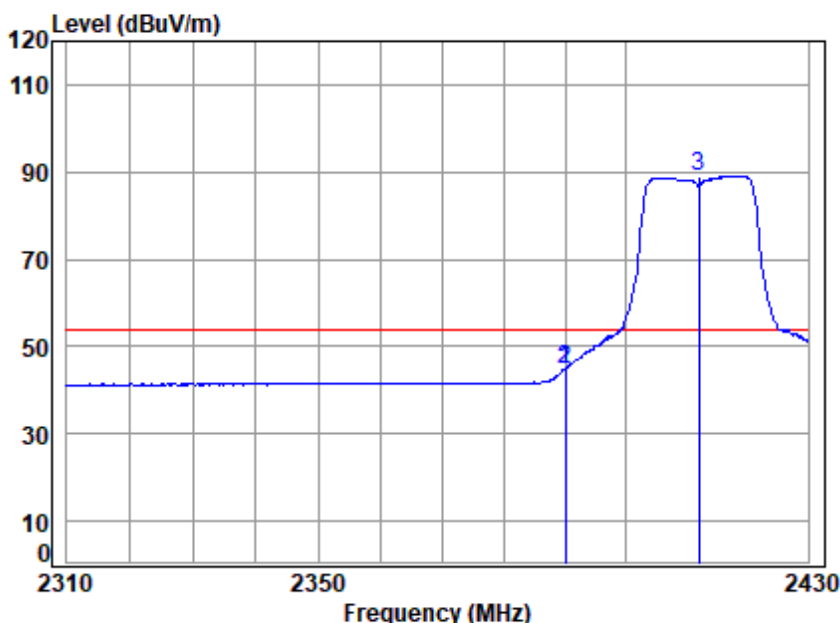
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

		Cable	Ant	Preamp	Read		Limit	Over	
Freq		Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.605	4.34	28.52	40.97	69.30	61.19	74.00	-12.81	peak
2	2390.000	4.34	28.52	40.97	64.89	56.78	74.00	-17.22	peak
3 *	2412.000	4.38	28.56	40.98	104.12	96.08	74.00	22.08	peak

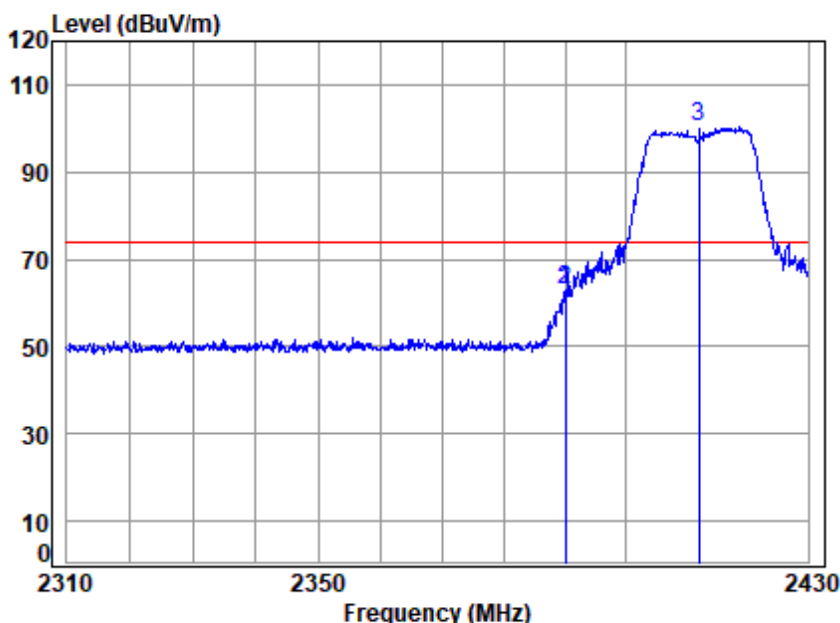
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.968	4.34	28.52	40.97	52.86	44.75	54.00	-9.25	Average
2	2390.000	4.34	28.52	40.97	52.86	44.75	54.00	-9.25	Average
3 *	2412.000	4.38	28.56	40.98	97.21	89.17	54.00	35.17	Average

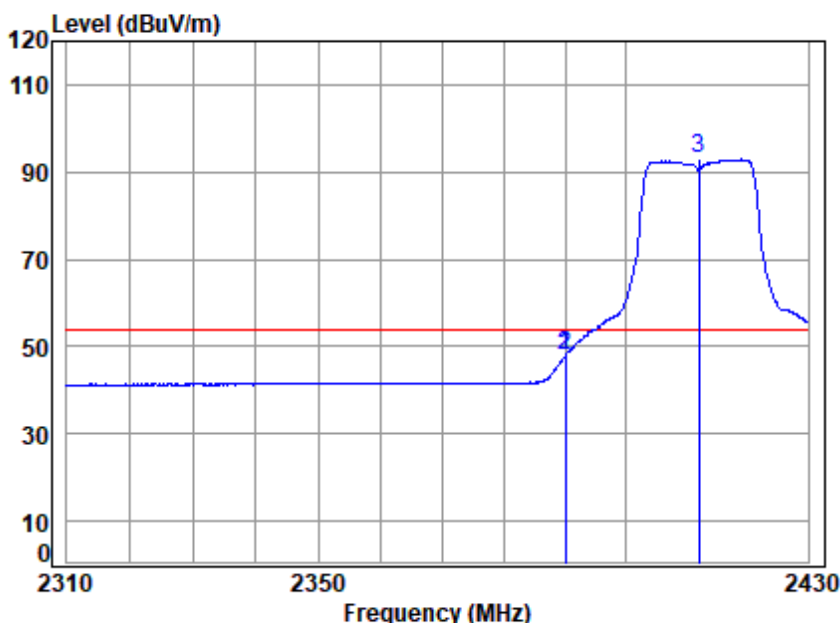
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.968	4.34	28.52	40.97	70.91	62.80	74.00	-11.20 peak
2	2390.000	4.34	28.52	40.97	70.91	62.80	74.00	-11.20 peak
3 *	2412.000	4.38	28.56	40.98	108.48	100.44	74.00	26.44 peak

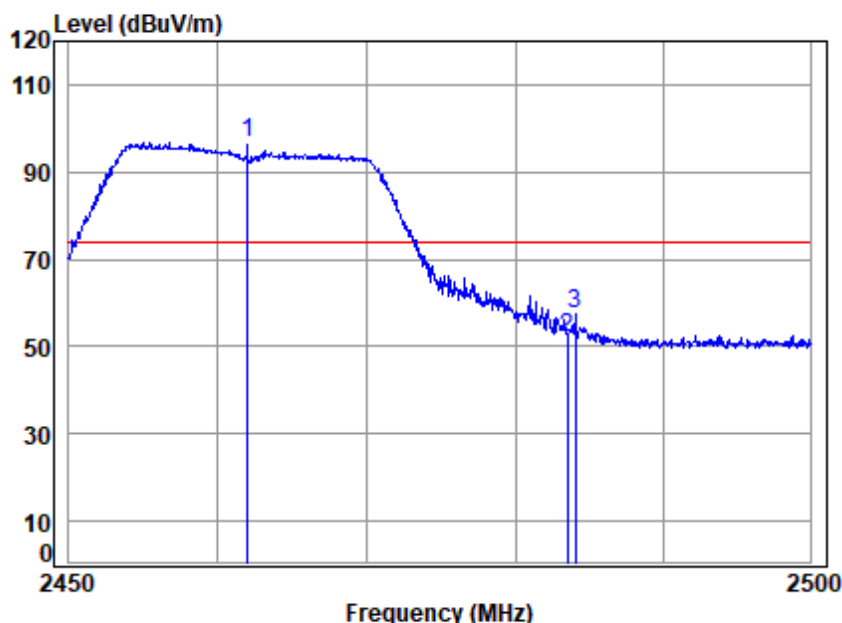
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.968	4.34	28.52	40.97	55.84	47.73	54.00	-6.27	Average
2	2390.000	4.34	28.52	40.97	55.84	47.73	54.00	-6.27	Average
3 *	2412.000	4.38	28.56	40.98	100.93	92.89	54.00	38.89	Average

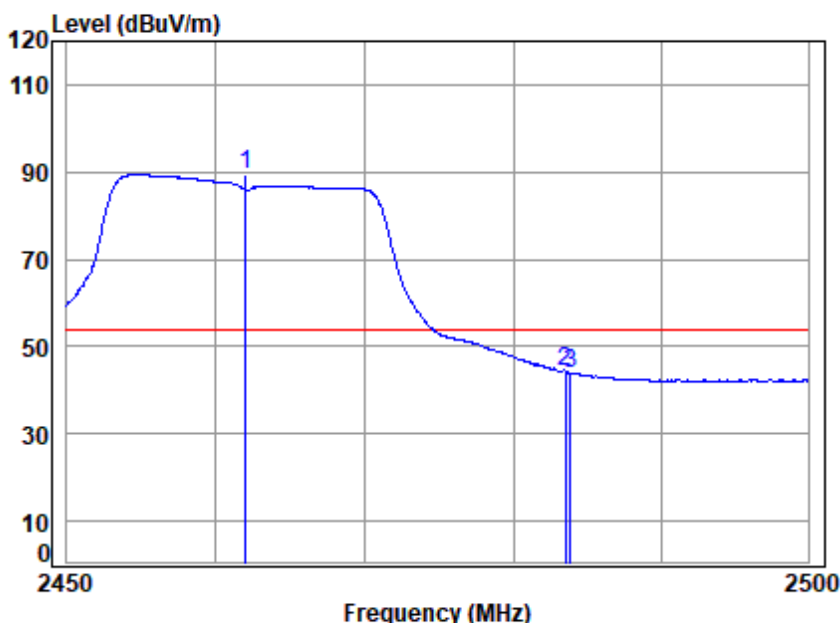
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 * 2462.000	4.46	28.64	41.00	104.67	96.77	74.00	22.77 peak
2 2483.500	4.49	28.67	41.01	60.07	52.22	74.00	-21.78 peak
3 2484.041	4.50	28.67	41.01	65.40	57.56	74.00	-16.44 peak

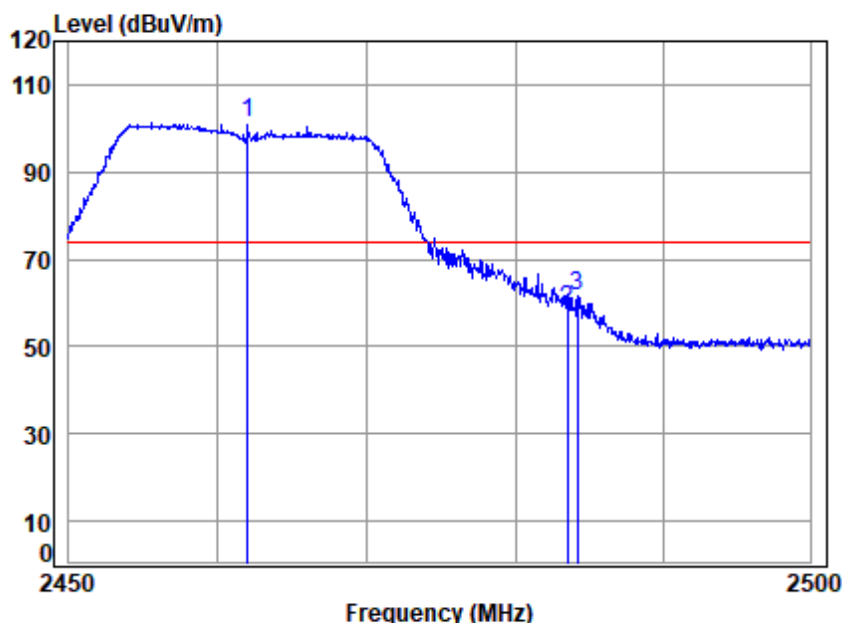
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 * 2462.000	4.46	28.64	41.00	97.39	89.49	54.00	35.49 Average
2 2483.500	4.49	28.67	41.01	52.15	44.30	54.00	-9.70 Average
3 2483.840	4.49	28.67	41.01	51.86	44.01	54.00	-9.99 Average

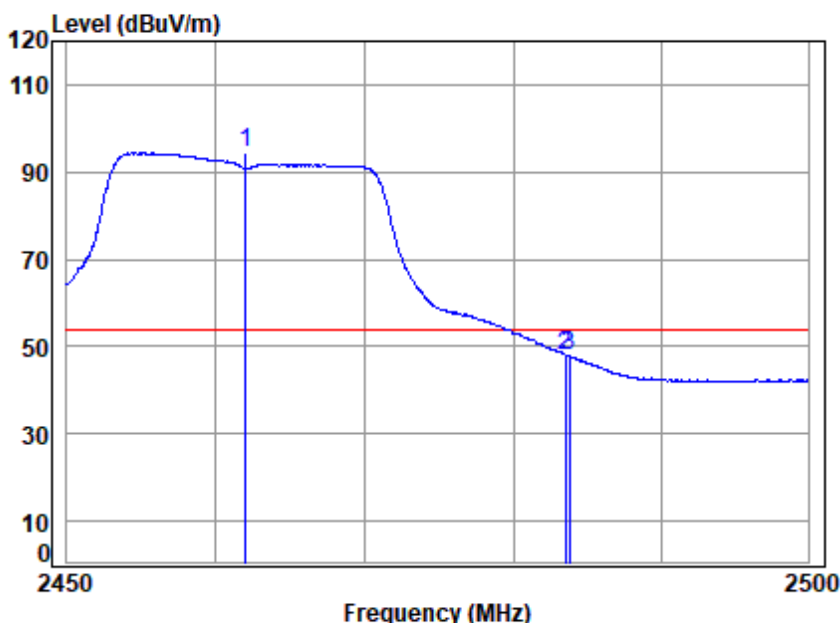
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

	Cable	Ant	Preamp	Read		Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 * 2462.000	4.46	28.64	41.00	109.06	101.16	74.00	27.16	peak
2 2483.500	4.49	28.67	41.01	66.13	58.28	74.00	-15.72	peak
3 2484.191	4.50	28.67	41.01	69.36	61.52	74.00	-12.48	peak

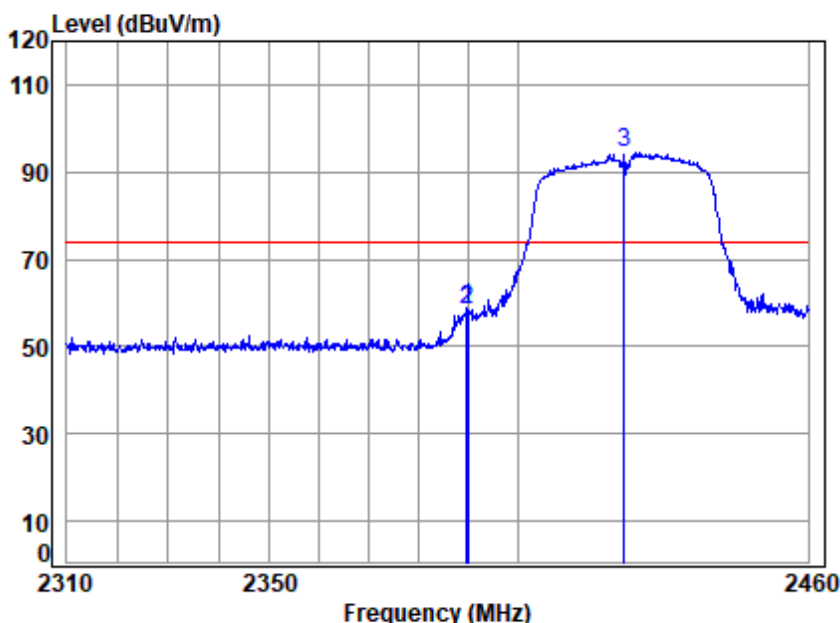
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 * 2462.000	4.46	28.64	41.00	102.32	94.42	54.00	40.42 Average
2 2483.500	4.49	28.67	41.01	55.96	48.11	54.00	-5.89 Average
3 2483.790	4.49	28.67	41.01	55.59	47.74	54.00	-6.26 Average

Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.827	4.34	28.52	40.97	66.89	58.78	74.00	-15.22 peak
2	2390.000	4.34	28.52	40.97	66.34	58.23	74.00	-15.77 peak
3 *	2422.000	4.40	28.57	40.99	102.50	94.48	74.00	20.48 peak



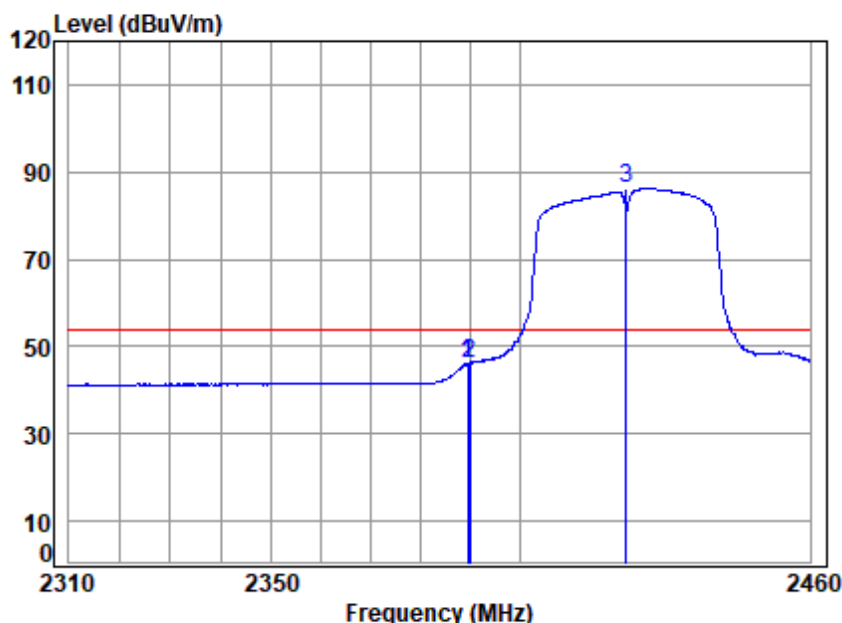
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic 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

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fengqiang Road, Kitan Community, Fuyong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn

中国·深圳·宝安区福永街道新田社区风塘大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

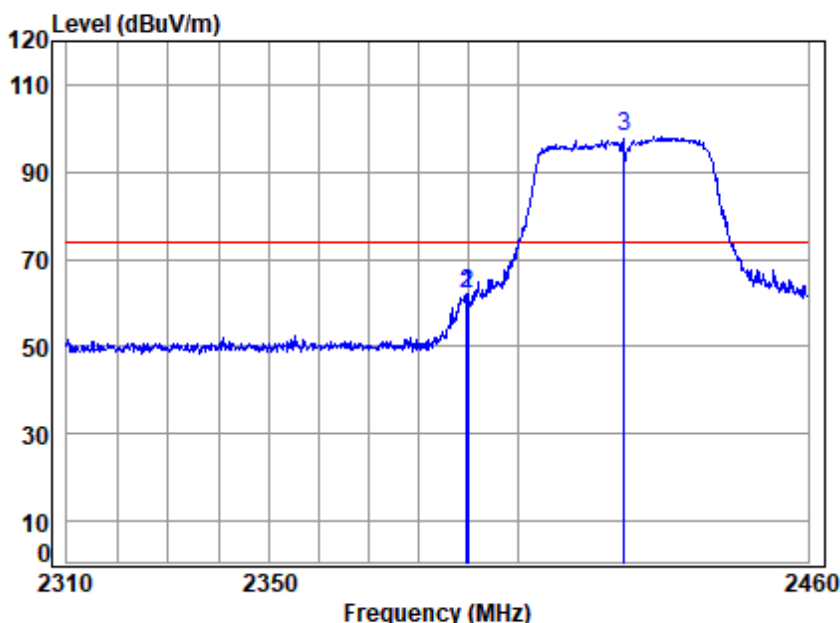
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.526	4.34	28.52	40.97	54.30	46.19	54.00	-7.81 Average
2	2390.000	4.34	28.52	40.97	54.37	46.26	54.00	-7.74 Average
3 *	2422.000	4.40	28.57	40.99	94.16	86.14	54.00	32.14 Average

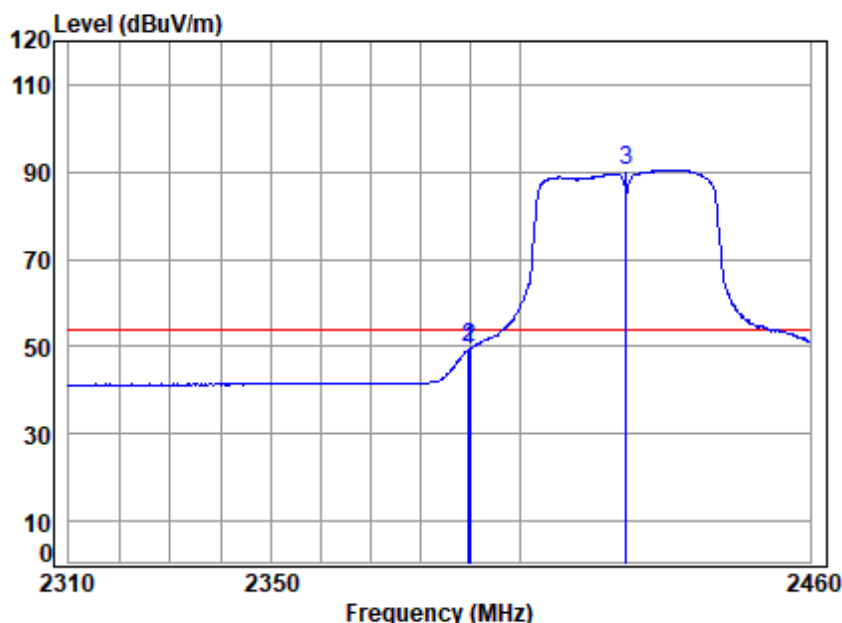
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.827	4.34	28.52	40.97	70.01	61.90	74.00	-12.10 peak
2	2390.000	4.34	28.52	40.97	70.34	62.23	74.00	-11.77 peak
3 *	2422.000	4.40	28.57	40.99	106.15	98.13	74.00	24.13 peak

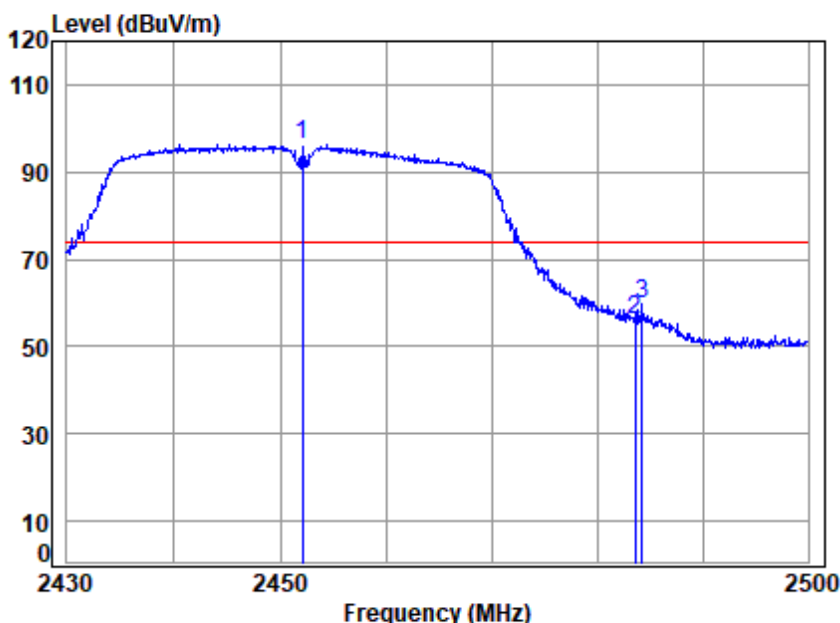
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

		Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.677	4.34	28.52	40.97	57.56	49.45	54.00	-4.55 Average
2	2390.000	4.34	28.52	40.97	57.65	49.54	54.00	-4.46 Average
3 *	2422.000	4.40	28.57	40.99	98.47	90.45	54.00	36.45 Average

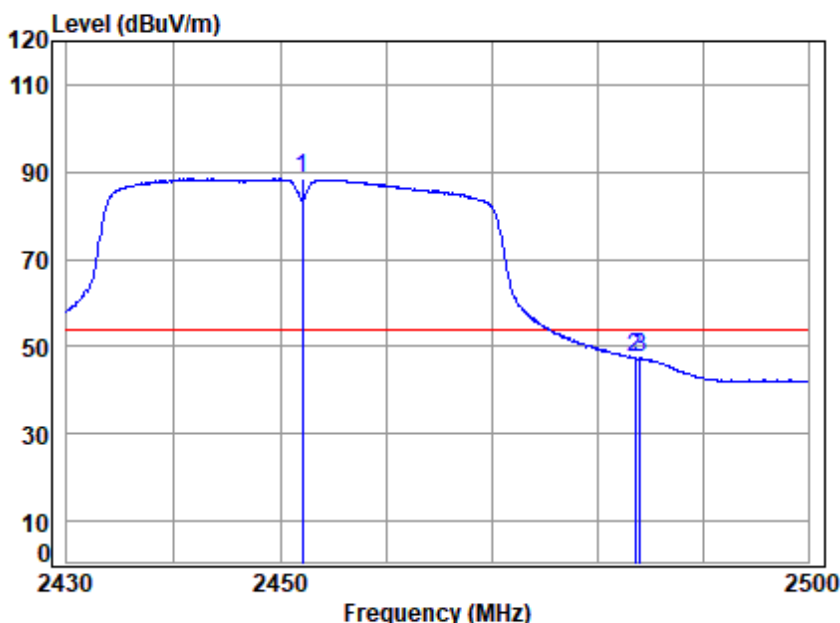
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

		Cable	Ant	Preamp	Read		Limit	Over	
Freq		Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz		dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 *	2452.000	4.44	28.62	41.00	104.35	96.41	74.00	22.41	peak
2	2483.500	4.49	28.67	41.01	64.13	56.28	74.00	-17.72	peak
3	2484.147	4.50	28.67	41.01	67.53	59.69	74.00	-14.31	peak

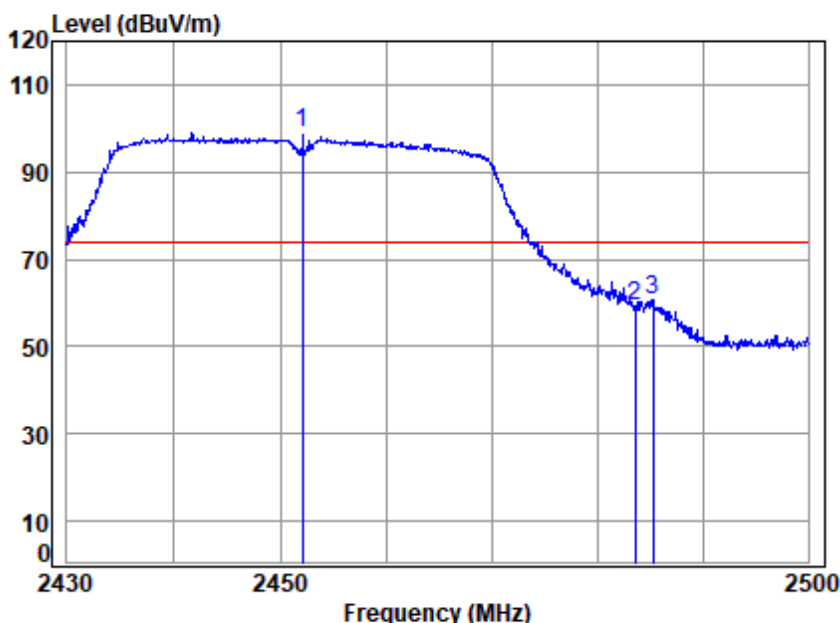
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

	Cable	Ant	Preamp	Read		Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 * 2452.000	4.44	28.62	41.00	96.31	88.37	54.00	34.37	Average
2 2483.500	4.49	28.67	41.01	55.24	47.39	54.00	-6.61	Average
3 2483.935	4.49	28.67	41.01	55.16	47.31	54.00	-6.69	Average

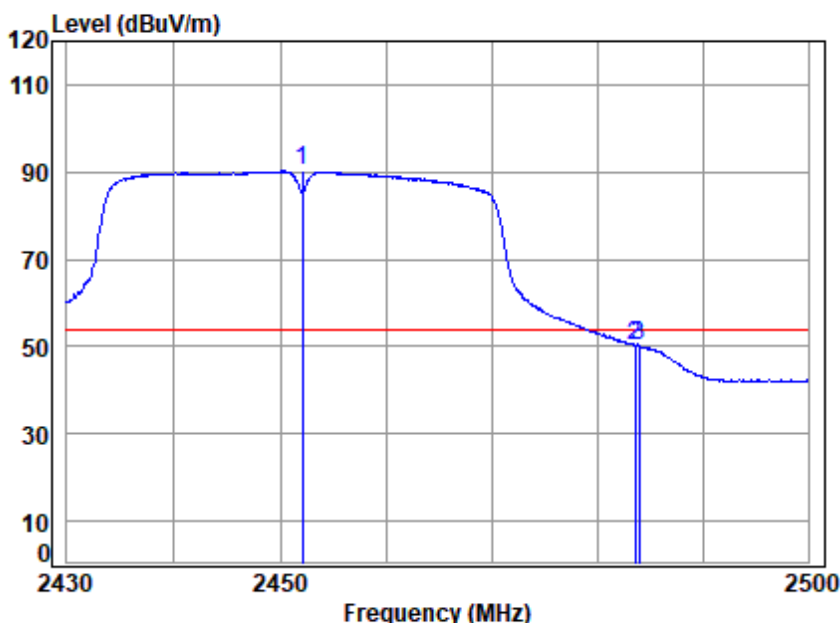
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

	Cable	Ant	Preamp	Read		Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 * 2452.000	4.44	28.62	41.00	106.74	98.80	74.00	24.80	peak
2 2483.500	4.49	28.67	41.01	67.09	59.24	74.00	-14.76	peak
3 2485.205	4.50	28.68	41.01	68.58	60.75	74.00	-13.25	peak

Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 *	2452.000	4.44	28.62	41.00	98.11	90.17	54.00	36.17	Average
2	2483.500	4.49	28.67	41.01	58.21	50.36	54.00	-3.64	Average
3	2483.865	4.49	28.67	41.01	58.15	50.30	54.00	-3.70	Average

7.2 Radiated Spurious Emissions

Test Requirement: 47 CFR Part 15, Subpart C 15.247
Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6
Measurement Distance: 3m
Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

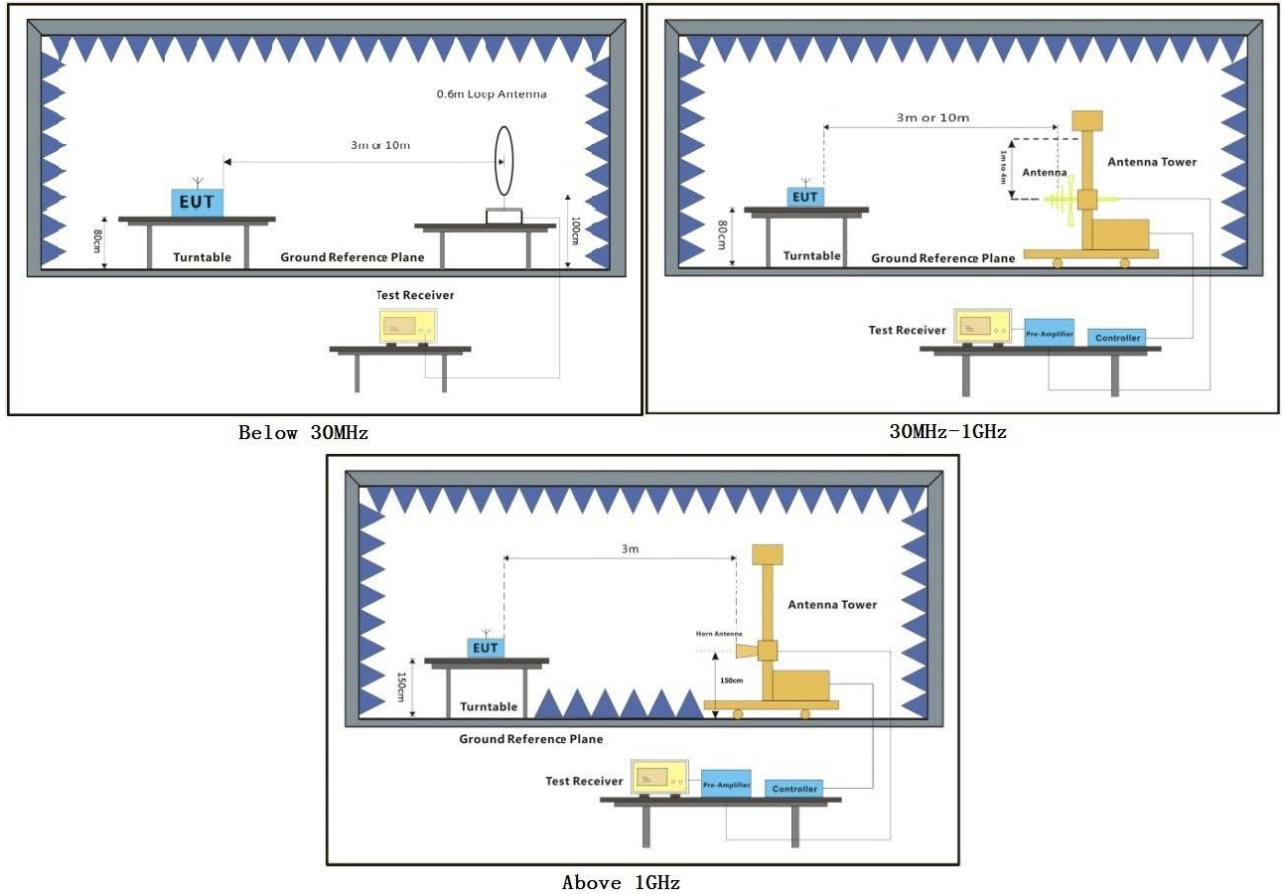
7.2.1 E.U.T. Operation

Operating Environment:
Temperature: 25 °C Humidity: 51 % RH Atmospheric Pressure: 1000 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	10	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.
Final test	11	Charge + TX mode_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark:

- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

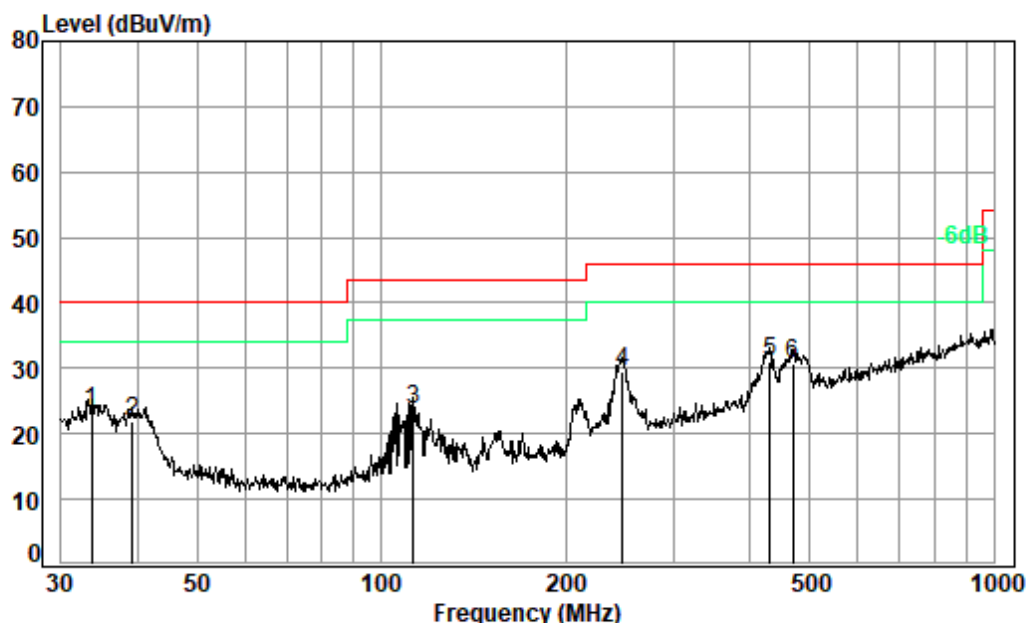


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.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 & Calibration Laboratory

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fengyang Road, Kaitian Community, Fuyong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
 中国·深圳·宝安区福永街道新田社区凤塘大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Test Mode: 11; Polarity: Horizontal



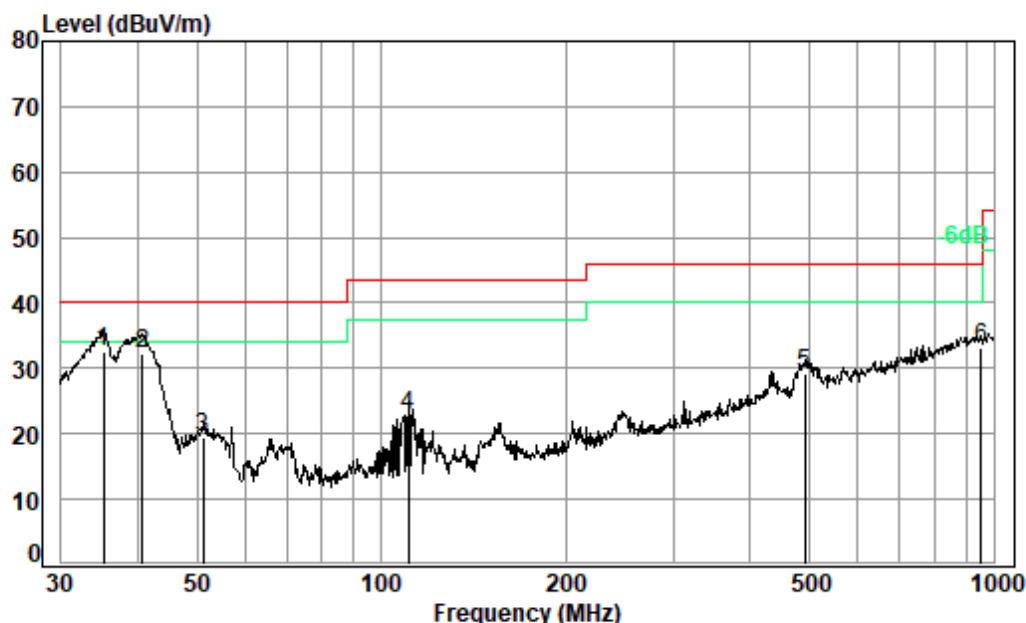
Condition: 3m HORIZONTAL

Job No. : 07506CR

Test Mode: 11

	Freq	Cable Loss	Ant Factor	Preamplifier Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	33.68	0.64	20.49	27.72	29.89	23.30	40.00	-16.70	QP
2	39.30	0.69	17.81	27.71	31.14	21.93	40.00	-18.07	QP
3	112.92	1.12	13.40	27.53	36.63	23.62	43.50	-19.88	QP
4	247.68	1.62	18.92	27.00	36.02	29.56	46.00	-16.44	QP
5 pp	431.03	2.37	23.14	27.53	33.03	31.01	46.00	-14.99	QP
6	470.52	2.45	24.00	27.69	32.09	30.85	46.00	-15.15	QP

Test Mode: 11; Polarity: Vertical



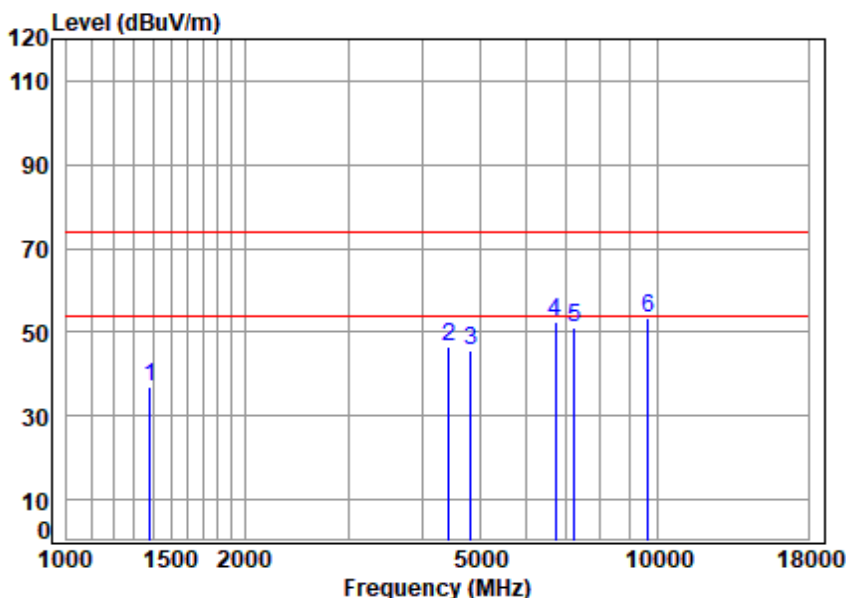
Condition: 3m VERTICAL

Job No. : 07506CR

Test Mode: 11

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp	35.25	0.66	19.70	27.72	40.00	32.64	40.00	-7.36 QP
2		40.70	0.70	17.24	27.70	42.13	32.37	40.00	-7.63 QP
3		51.12	0.71	14.08	27.68	32.35	19.46	40.00	-20.54 QP
4		110.57	1.11	13.50	27.54	35.74	22.81	43.50	-20.69 QP
5		490.74	2.48	24.42	27.76	30.12	29.26	46.00	-16.74 QP
6		952.09	3.55	30.07	26.90	26.34	33.06	46.00	-12.94 QP

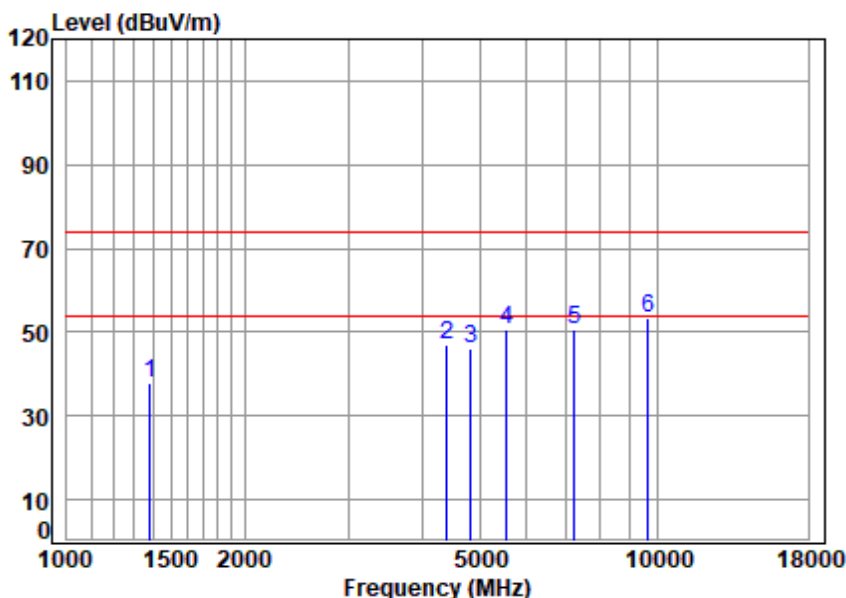
Test Mode: 11; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2412 TX RSE
Note : 2.4G WIFI 11B

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1386.264	3.08	25.37	40.43	48.93	36.95	74.00	-37.05	peak
2	4443.453	6.71	33.50	42.51	49.03	46.73	74.00	-27.27	peak
3	4824.000	7.12	34.00	42.78	47.40	45.74	74.00	-28.26	peak
4	6717.762	8.40	35.73	41.83	50.10	52.40	74.00	-21.60	peak
5	7236.000	8.77	36.09	41.56	47.70	51.00	74.00	-23.00	peak
6	9648.000	10.79	37.69	38.51	43.25	53.22	74.00	-20.78	peak

Test Mode: 11; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m VERTICAL

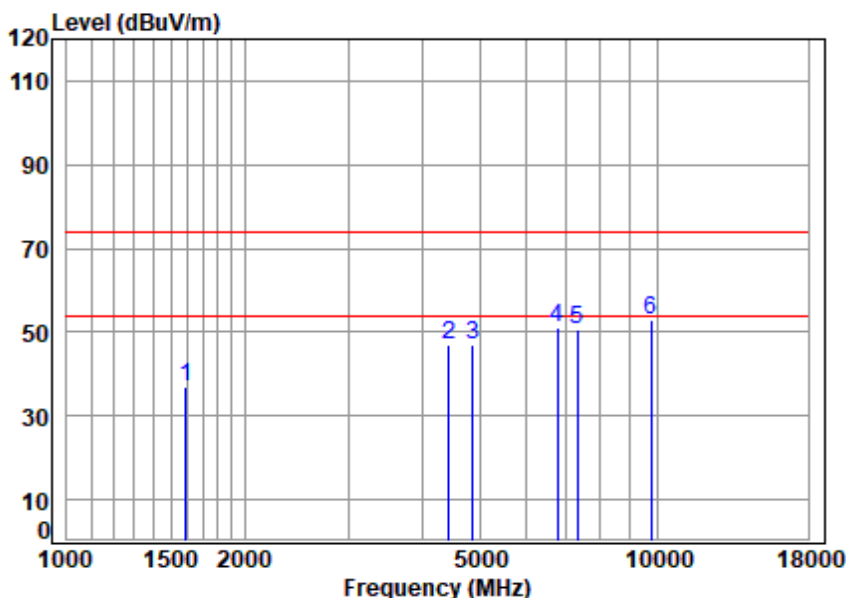
Job No : 07506CR

Mode : 2412 TX RSE

Note : 2.4G WIFI 11B

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1386.264	3.08	25.37	40.43	49.85	37.87	74.00	-36.13	peak
2	4405.090	6.67	33.44	42.48	49.25	46.88	74.00	-27.12	peak
3	4824.000	7.12	34.00	42.78	47.60	45.94	74.00	-28.06	peak
4	5551.069	8.19	34.65	42.52	50.34	50.66	74.00	-23.34	peak
5	7236.000	8.77	36.09	41.56	47.38	50.68	74.00	-23.32	peak
6	9648.000	10.79	37.69	38.51	43.49	53.46	74.00	-20.54	peak

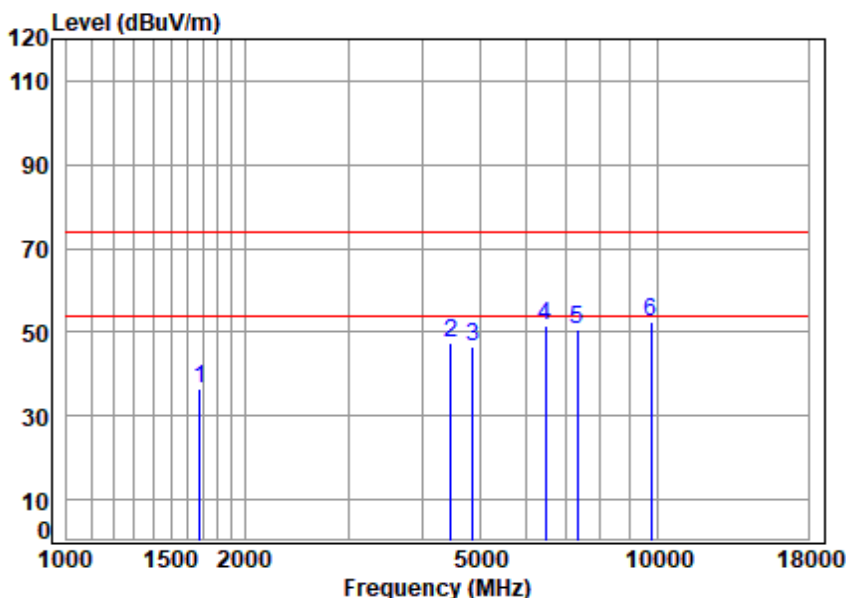
Test Mode: 11; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2437 TX RSE
Note : 2.4G WIFI 11B

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1592.571	3.34	26.22	40.57	48.02	37.01	74.00	-36.99	peak
2	4443.453	6.71	33.50	42.51	49.25	46.95	74.00	-27.05	peak
3	4874.000	7.17	34.05	42.82	48.68	47.08	74.00	-26.92	peak
4	6776.265	8.43	35.77	41.80	48.88	51.28	74.00	-22.72	peak
5	7311.000	8.84	36.15	41.53	47.11	50.57	74.00	-23.43	peak
6	9748.000	10.76	37.75	38.37	43.01	53.15	74.00	-20.85	peak

Test Mode: 11; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



Site : chamber

Condition: 3m VERTICAL

Job No : 07506CR

Mode : 2437 TX RSE

Note : 2.4G WIFI 11B

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1677.621	3.41	26.58	40.62	47.09	36.46	74.00	-37.54	peak
2	4469.214	6.73	33.55	42.53	49.50	47.25	74.00	-26.75	peak
3	4874.000	7.17	34.05	42.82	48.06	46.46	74.00	-27.54	peak
4	6470.026	8.28	35.57	41.97	49.51	51.39	74.00	-22.61	peak
5	7311.000	8.84	36.15	41.53	47.21	50.67	74.00	-23.33	peak
6	9748.000	10.76	37.75	38.37	42.46	52.60	74.00	-21.40	peak



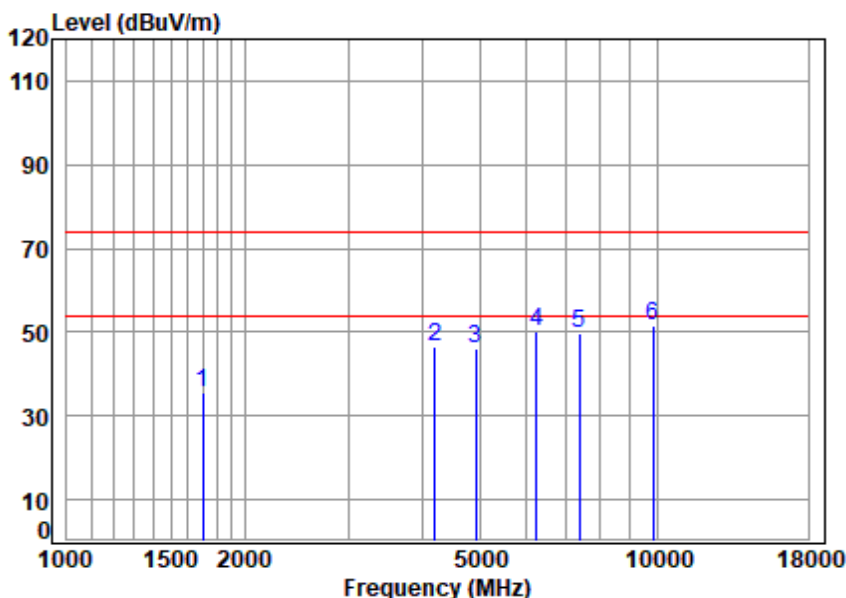
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic 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 & Calibration Laboratory

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fengyang Road, Kitanan Community, Fuyong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·宝安区福永街道新田社区风塘大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

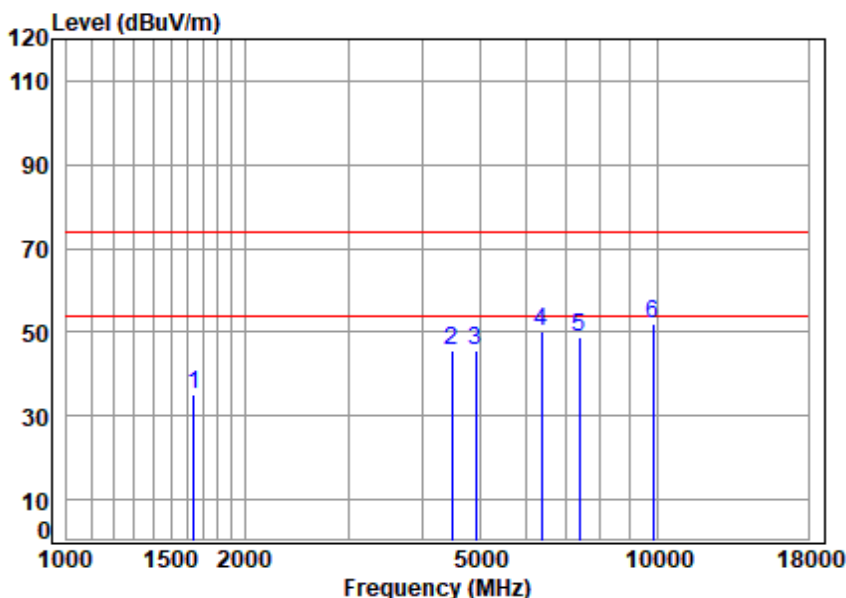
Test Mode: 11; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2462 TX RSE
Note : 2.4G WIFI 11B

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1697.129	3.43	26.66	40.63	45.95	35.41	74.00	-38.59	peak
2	4193.872	6.47	33.06	42.31	49.18	46.40	74.00	-27.60	peak
3	4924.000	7.22	34.11	42.85	47.80	46.28	74.00	-27.72	peak
4	6249.464	8.27	35.35	42.09	48.69	50.22	74.00	-23.78	peak
5	7386.000	8.91	36.21	41.49	46.14	49.77	74.00	-24.23	peak
6	9848.000	10.73	37.81	38.22	41.23	51.55	74.00	-22.45	peak

Test Mode: 11; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m VERTICAL

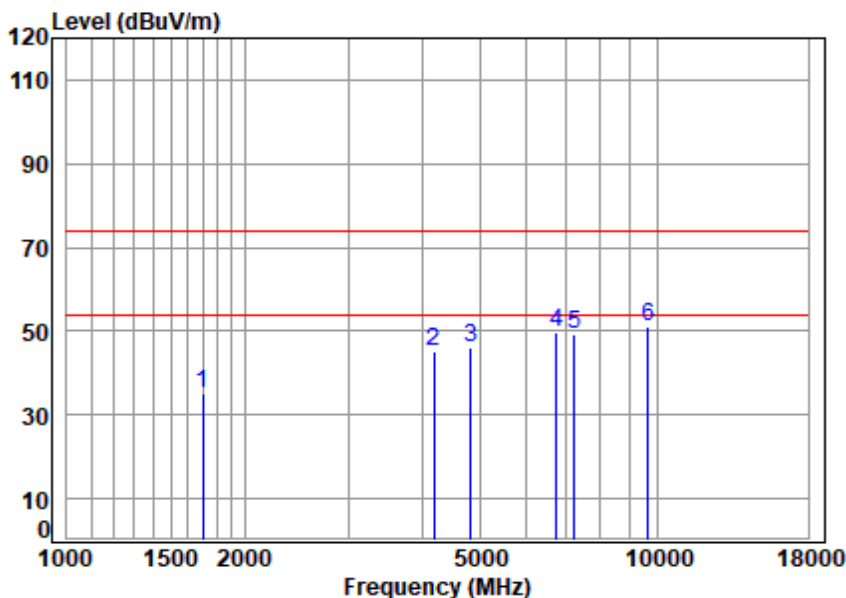
Job No : 07506CR

Mode : 2462 TX RSE

Note : 2.4G WIFI 11B

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1644.019	3.38	26.44	40.60	45.81	35.03	74.00	-38.97	peak
2	4495.125	6.76	33.59	42.55	47.60	45.40	74.00	-28.60	peak
3	4924.000	7.22	34.11	42.85	47.13	45.61	74.00	-28.39	peak
4	6358.789	8.27	35.46	42.03	48.63	50.33	74.00	-23.67	peak
5	7386.000	8.91	36.21	41.49	45.38	49.01	74.00	-24.99	peak
6	9848.000	10.73	37.81	38.22	41.58	51.90	74.00	-22.10	peak

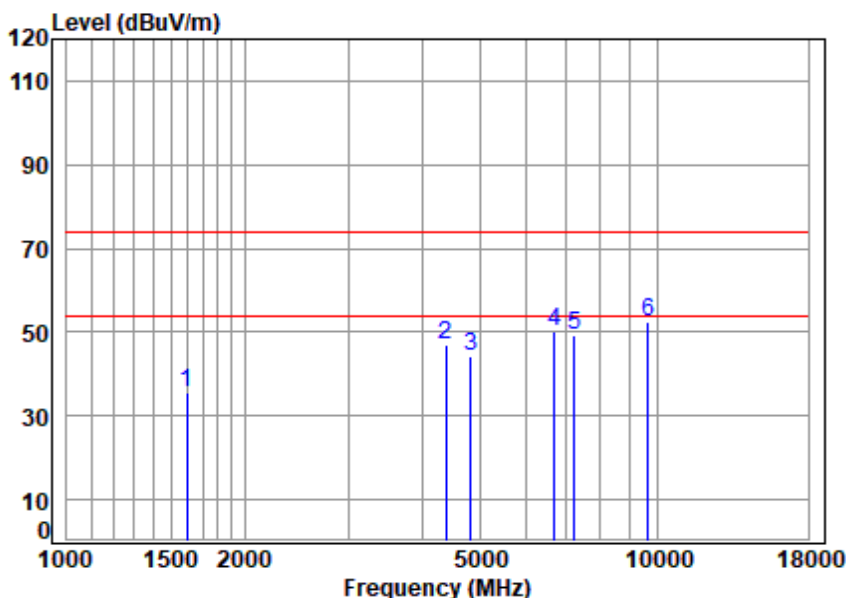
Test Mode: 11; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2412 TX RSE
Note : 2.4G WIFI 11G

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	1697.129	3.43	26.66	40.63	45.68	35.14	74.00	-38.86 peak
2	4181.768	6.46	33.04	42.31	48.20	45.39	74.00	-28.61 peak
3	4824.000	7.12	34.00	42.78	47.90	46.24	74.00	-27.76 peak
4	6756.708	8.42	35.76	41.81	47.58	49.95	74.00	-24.05 peak
5	7236.000	8.77	36.09	41.56	46.15	49.45	74.00	-24.55 peak
6	9648.000	10.79	37.69	38.51	41.34	51.31	74.00	-22.69 peak

Test Mode: 11; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m VERTICAL

Job No : 07506CR

Mode : 2412 TX RSE

Note : 2.4G WIFI 11G

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1597.181	3.35	26.24	40.57	46.44	35.46	74.00	-38.54	peak
2	4392.376	6.66	33.42	42.47	49.61	47.22	74.00	-26.78	peak
3	4824.000	7.12	34.00	42.78	45.99	44.33	74.00	-29.67	peak
4	6698.373	8.39	35.72	41.84	47.80	50.07	74.00	-23.93	peak
5	7236.000	8.77	36.09	41.56	45.97	49.27	74.00	-24.73	peak
6	9648.000	10.79	37.69	38.51	42.53	52.50	74.00	-21.50	peak

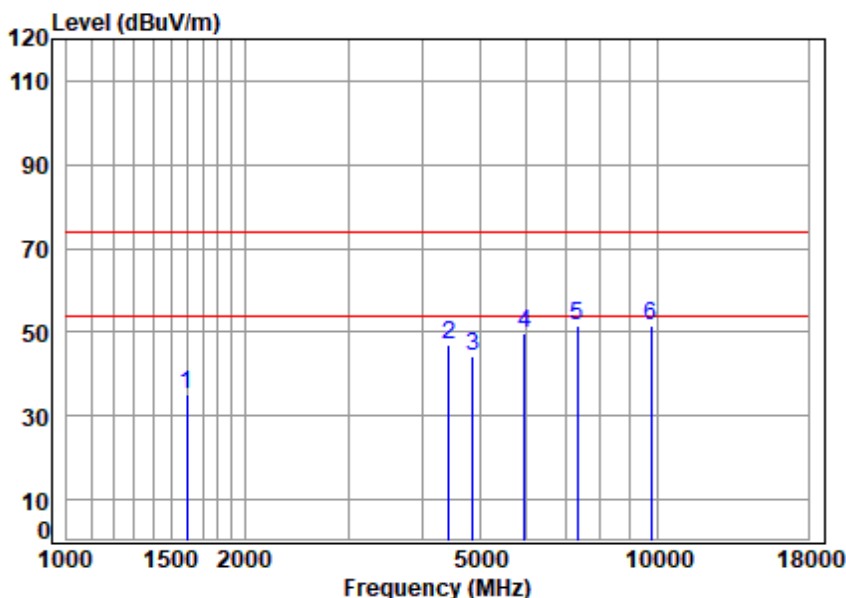


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.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

Room 105, Building A, Xixiang Technology Industrial Park, No. 50 Fengtang Road, Kitan Community, Fuyong Street, Bao'an District, Shenzhen, China 518103 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
中国·深圳·宝安区福永街道新田社区凤塘大道50号鑫龙科技工业园A栋105室 邮编: 518103 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

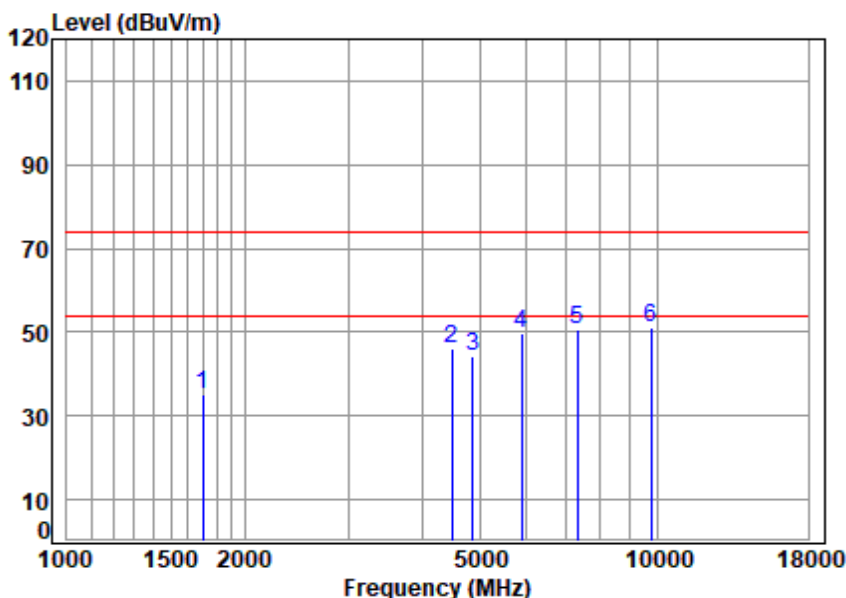
Test Mode: 11; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2437 TX RSE
Note : 2.4G WIFI 11G

	Cable	Ant	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1597.181	3.35	26.24	40.57	46.20	35.22	74.00	-38.78 peak
2	4430.628	6.70	33.48	42.50	49.49	47.17	74.00	-26.83 peak
3	4874.000	7.17	34.05	42.82	46.03	44.43	74.00	-29.57 peak
4	5967.033	8.25	35.07	42.26	48.77	49.83	74.00	-24.17 peak
5	7311.000	8.84	36.15	41.53	48.16	51.62	74.00	-22.38 peak
6	9748.000	10.76	37.75	38.37	41.58	51.72	74.00	-22.28 peak

Test Mode: 11; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:middle



Site : chamber

Condition: 3m VERTICAL

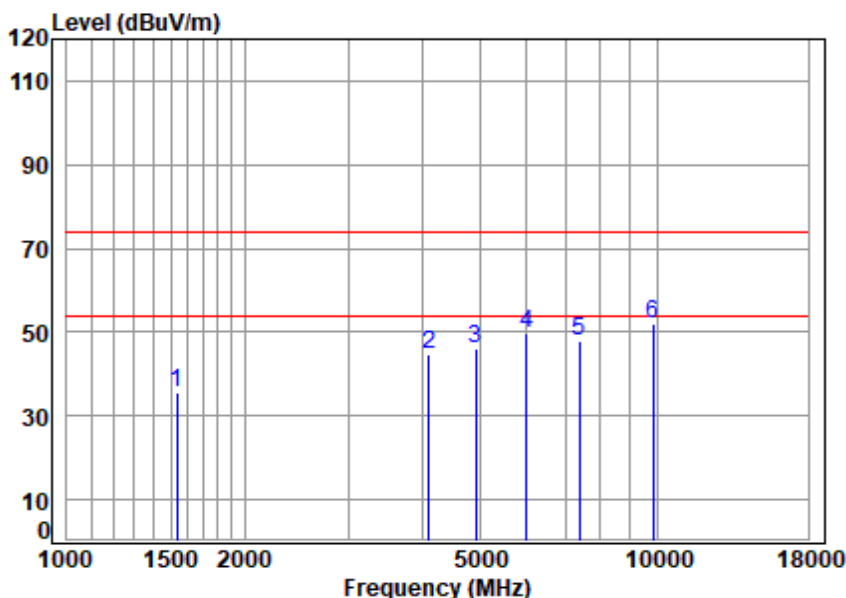
Job No : 07506CR

Mode : 2437 TX RSE

Note : 2.4G WIFI 11G

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1702.042	3.43	26.68	40.63	45.61	35.09	74.00	-38.91	peak
2	4495.125	6.76	33.59	42.55	48.37	46.17	74.00	-27.83	peak
3	4874.000	7.17	34.05	42.82	46.08	44.48	74.00	-29.52	peak
4	5898.442	8.24	35.00	42.30	48.94	49.88	74.00	-24.12	peak
5	7311.000	8.84	36.15	41.53	47.17	50.63	74.00	-23.37	peak
6	9748.000	10.76	37.75	38.37	41.15	51.29	74.00	-22.71	peak

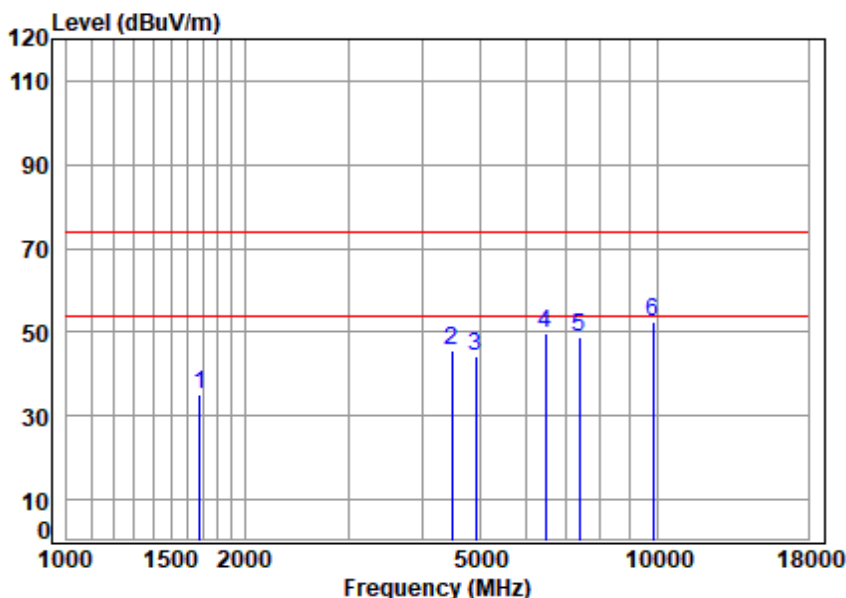
Test Mode: 11; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2462 TX RSE
Note : 2.4G WIFI 11G

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1538.281	3.29	25.98	40.53	46.79	35.53	74.00	-38.47	peak
2	4109.872	6.39	32.91	42.25	47.65	44.70	74.00	-29.30	peak
3	4924.000	7.22	34.11	42.85	47.54	46.02	74.00	-27.98	peak
4	6001.626	8.26	35.10	42.24	48.79	49.91	74.00	-24.09	peak
5	7386.000	8.91	36.21	41.49	44.37	48.00	74.00	-26.00	peak
6	9848.000	10.73	37.81	38.22	41.72	52.04	74.00	-21.96	peak

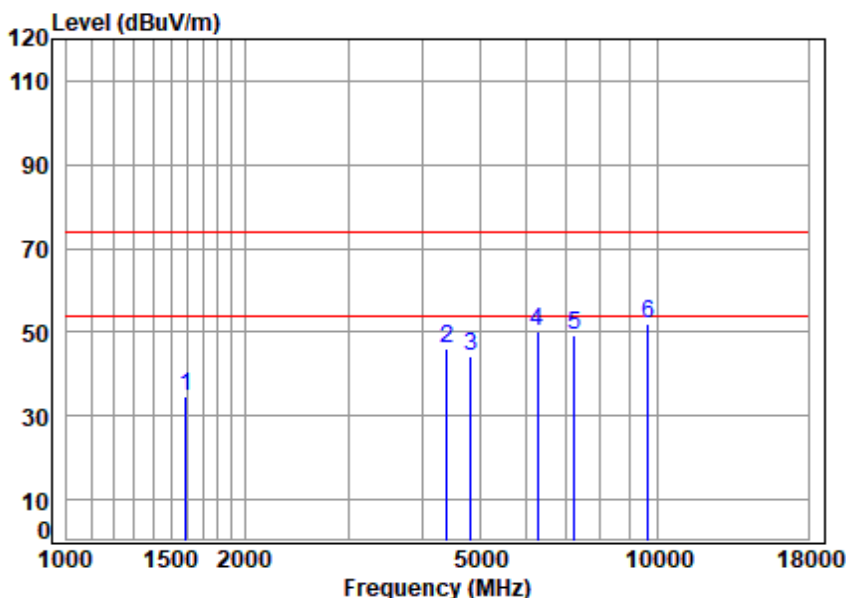
Test Mode: 11; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2462 TX RSE
Note : 2.4G WIFI 11G

	Cable	Ant	Preamp	Read		Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1682.477	3.42	26.60	40.62	45.74	35.14	74.00	-38.86 peak
2	4495.125	6.76	33.59	42.55	47.90	45.70	74.00	-28.30 peak
3	4924.000	7.22	34.11	42.85	45.98	44.46	74.00	-29.54 peak
4	6470.026	8.28	35.57	41.97	47.70	49.58	74.00	-24.42 peak
5	7386.000	8.91	36.21	41.49	45.04	48.67	74.00	-25.33 peak
6	9848.000	10.73	37.81	38.22	42.14	52.46	74.00	-21.54 peak

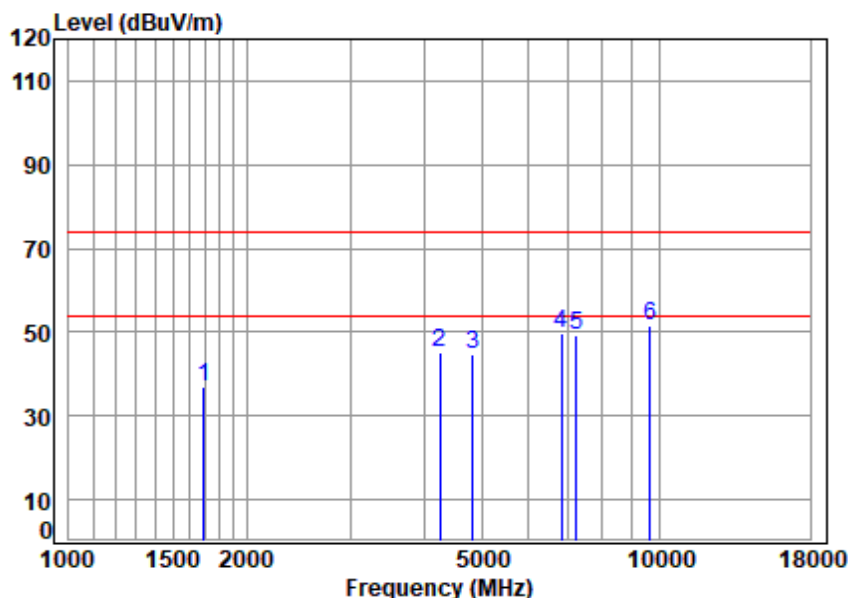
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2412 TX RSE
Note : 2.4G WIFI 11N20

	Cable	Ant	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	3.34	26.22	40.57	45.70	34.69	74.00	-39.31	peak
2	6.67	33.44	42.48	48.30	45.93	74.00	-28.07	peak
3	7.12	34.00	42.78	45.88	44.22	74.00	-29.78	peak
4	8.27	35.37	42.08	48.59	50.15	74.00	-23.85	peak
5	8.77	36.09	41.56	45.75	49.05	74.00	-24.95	peak
6	10.79	37.69	38.51	42.12	52.09	74.00	-21.91	peak

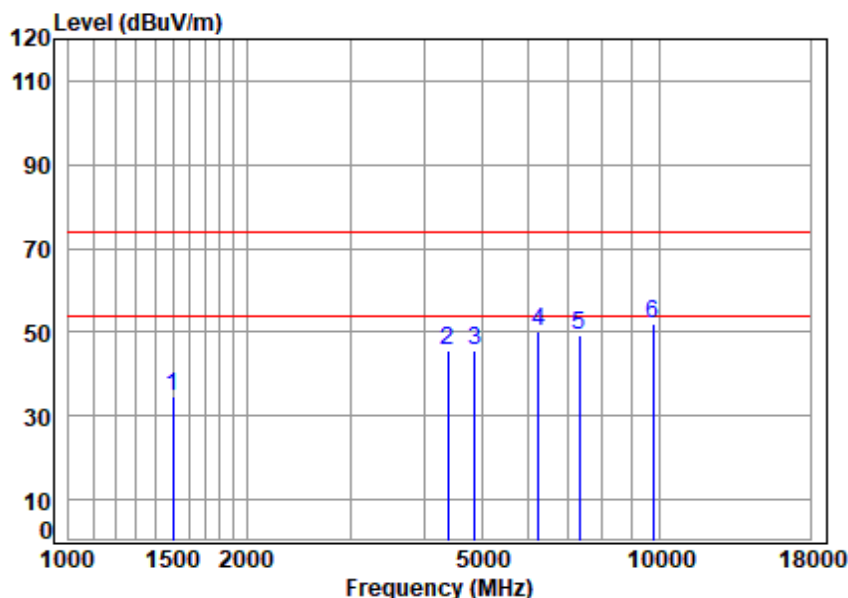
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
 Condition: 3m VERTICAL
 Job No : 07506CR
 Mode : 2412 TX RSE
 Note : 2.4G WIFI 11N20

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1692.231	3.42	26.64	40.63	47.69	37.12	74.00	-36.88	peak
2	4254.921	6.53	33.17	42.36	48.01	45.35	74.00	-28.65	peak
3	4824.000	7.12	34.00	42.78	46.18	44.52	74.00	-29.48	peak
4	6835.278	8.46	35.80	41.77	47.36	49.85	74.00	-24.15	peak
5	7236.000	8.77	36.09	41.56	45.86	49.16	74.00	-24.84	peak
6	9648.000	10.79	37.69	38.51	41.67	51.64	74.00	-22.36	peak

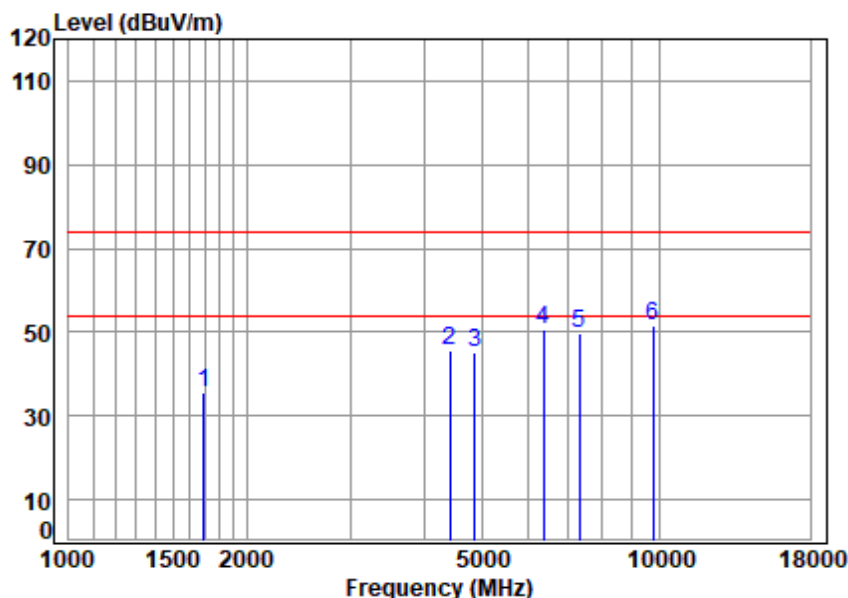
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2437 TX RSE
Note : 2.4G WIFI 11N20

	Cable	Ant	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	3.26	25.80	40.51	46.25	34.80	74.00	-39.20
2	6.65	33.39	42.46	48.18	45.76	74.00	-28.24
3	7.17	34.05	42.82	47.02	45.42	74.00	-28.58
4	8.27	35.35	42.09	48.44	49.97	74.00	-24.03
5	8.84	36.15	41.53	45.64	49.10	74.00	-24.90
6	10.76	37.75	38.37	41.77	51.91	74.00	-22.09

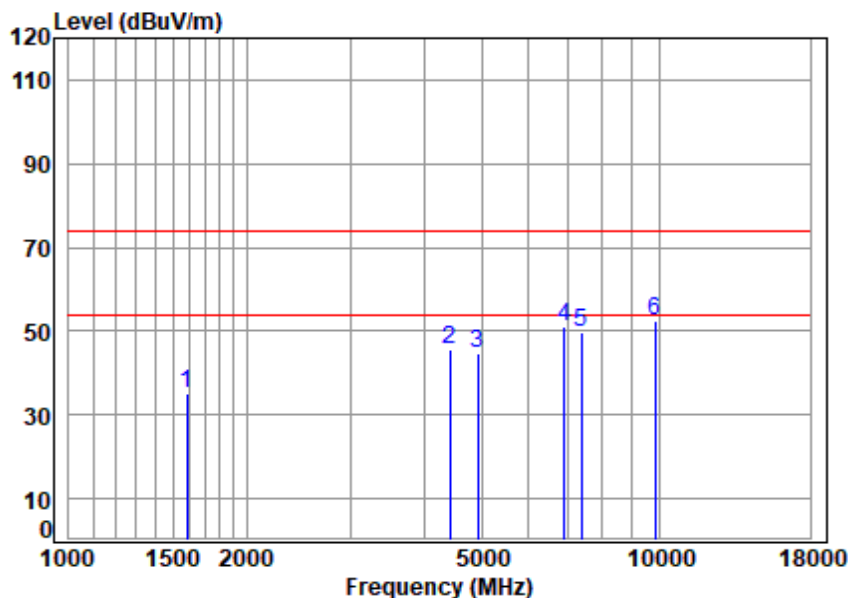
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



Site : chamber
 Condition: 3m VERTICAL
 Job No : 07506CR
 Mode : 2437 TX RSE
 Note : 2.4G WIFI 11N20

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1692.231	3.42	26.64	40.63	46.03	35.46	74.00	-38.54	peak
2	4417.841	6.68	33.46	42.49	48.08	45.73	74.00	-28.27	peak
3	4874.000	7.17	34.05	42.82	46.85	45.25	74.00	-28.75	peak
4	6358.789	8.27	35.46	42.03	48.92	50.62	74.00	-23.38	peak
5	7311.000	8.84	36.15	41.53	46.39	49.85	74.00	-24.15	peak
6	9748.000	10.76	37.75	38.37	41.35	51.49	74.00	-22.51	peak

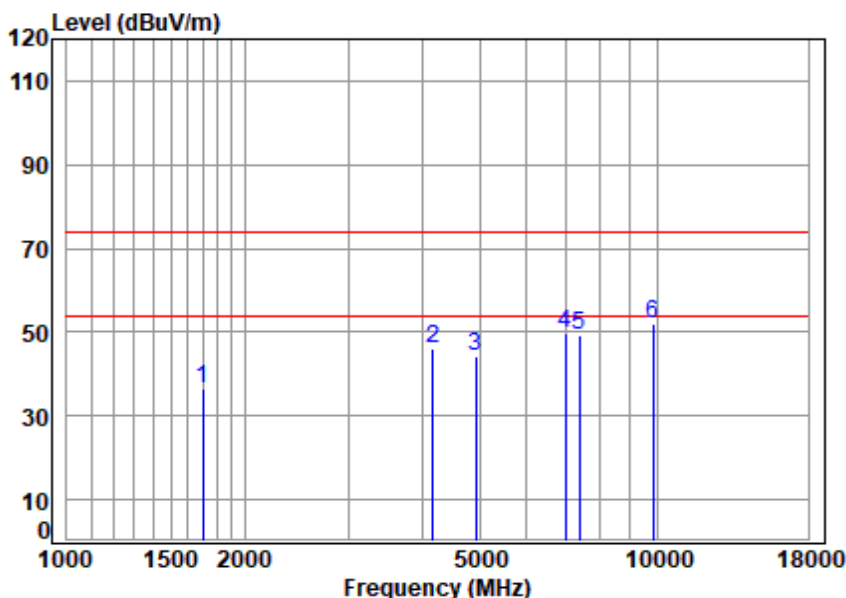
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2462 TX RSE
Note : 2.4G WIFI 11N20

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1583.392	3.33	26.18	40.56	46.30	35.25	74.00	-38.75	peak
2	4417.841	6.68	33.46	42.49	47.96	45.61	74.00	-28.39	peak
3	4924.000	7.22	34.11	42.85	46.35	44.83	74.00	-29.17	peak
4	6914.763	8.50	35.85	41.73	48.32	50.94	74.00	-23.06	peak
5	7386.000	8.91	36.21	41.49	45.89	49.52	74.00	-24.48	peak
6	9848.000	10.73	37.81	38.22	42.09	52.41	74.00	-21.59	peak

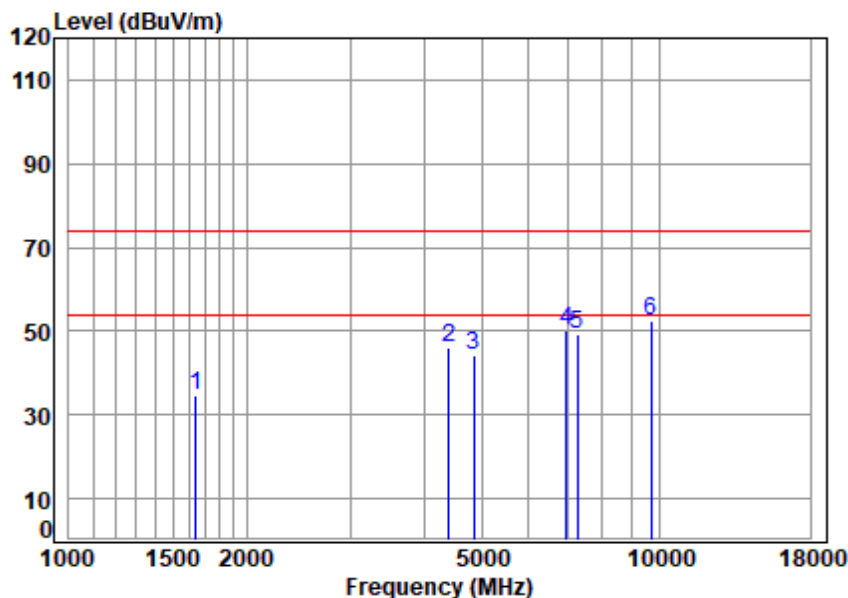
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2462 TX RSE
Note : 2.4G WIFI 11N20

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1697.129	3.43	26.66	40.63	46.98	36.44	74.00	-37.56	peak
2	4169.698	6.45	33.02	42.30	48.92	46.09	74.00	-27.91	peak
3	4924.000	7.22	34.11	42.85	45.94	44.42	74.00	-29.58	peak
4	6995.172	8.54	35.90	41.69	46.87	49.62	74.00	-24.38	peak
5	7386.000	8.91	36.21	41.49	45.65	49.28	74.00	-24.72	peak
6	9848.000	10.73	37.81	38.22	41.83	52.15	74.00	-21.85	peak

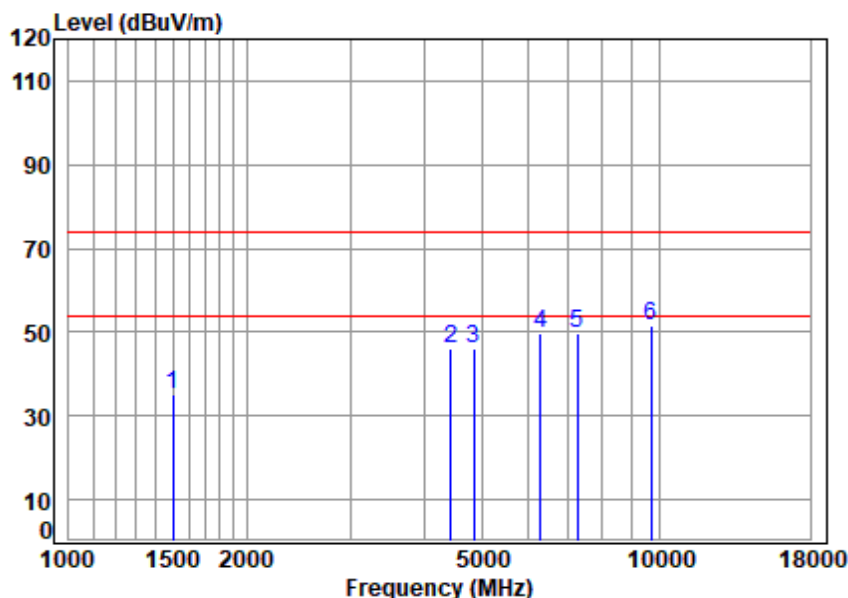
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2422 TX RSE
Note : 2.4G WIFI 11N40

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	1639.274	3.38	26.42	40.59	45.25	34.46	74.00	-39.54 peak
2	4405.090	6.67	33.44	42.48	48.57	46.20	74.00	-27.80 peak
3	4844.000	7.14	34.02	42.79	45.79	44.16	74.00	-29.84 peak
4	6954.852	8.52	35.87	41.71	47.39	50.07	74.00	-23.93 peak
5	7266.000	8.79	36.12	41.55	45.88	49.24	74.00	-24.76 peak
6	9688.000	10.78	37.71	38.45	42.27	52.31	74.00	-21.69 peak

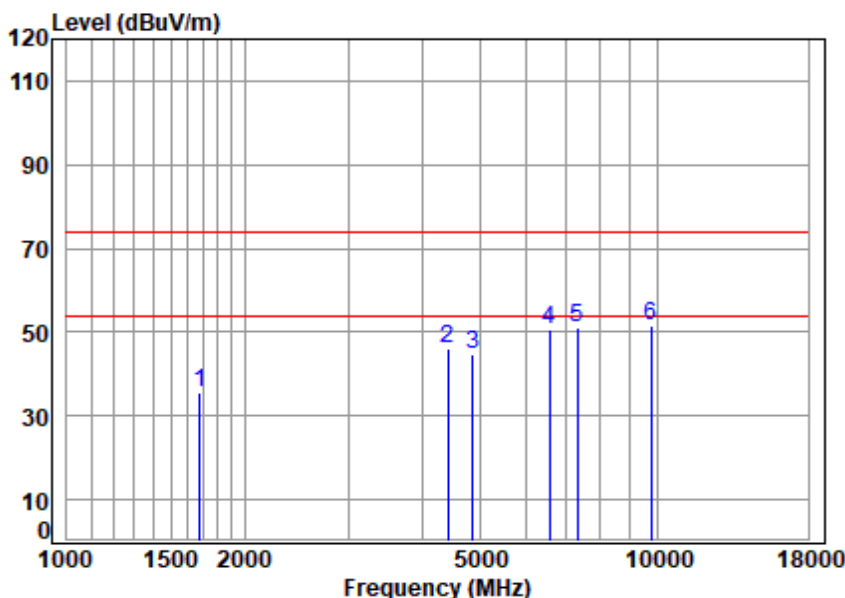
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2422 TX RSE
Note : 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1498.781	3.26	25.80	40.51	46.71	35.26	74.00	-38.74	peak
2	4430.628	6.70	33.48	42.50	48.44	46.12	74.00	-27.88	peak
3	4844.000	7.14	34.02	42.79	47.89	46.26	74.00	-27.74	peak
4	6285.695	8.27	35.39	42.07	48.17	49.76	74.00	-24.24	peak
5	7266.000	8.79	36.12	41.55	46.39	49.75	74.00	-24.25	peak
6	9688.000	10.78	37.71	38.45	41.63	51.67	74.00	-22.33	peak

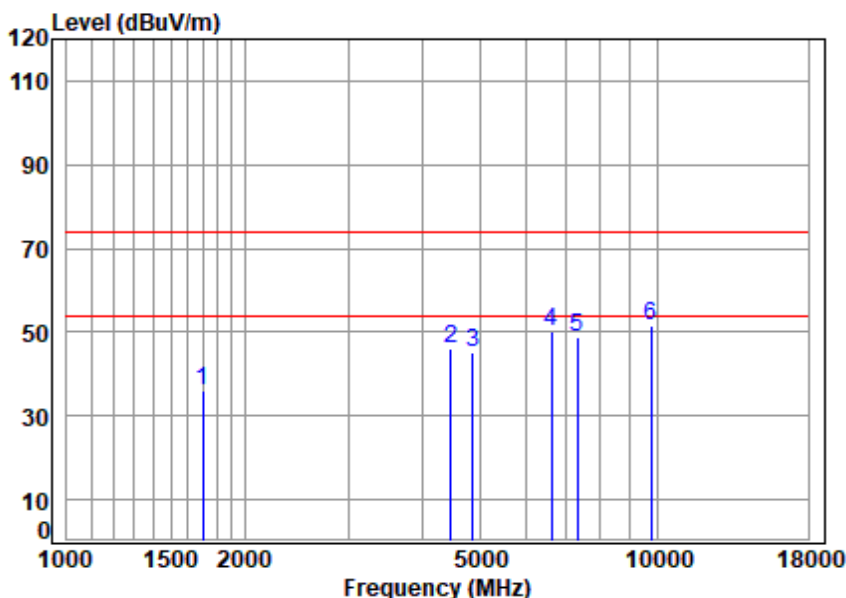
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2437 TX RSE
Note : 2.4G WIFI 11N40

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1677.621	3.41	26.58	40.62	46.21	35.58	74.00	-38.42	peak
2	4417.841	6.68	33.46	42.49	48.36	46.01	74.00	-27.99	peak
3	4874.000	7.17	34.05	42.82	46.19	44.59	74.00	-29.41	peak
4	6564.209	8.31	35.64	41.92	48.45	50.48	74.00	-23.52	peak
5	7311.000	8.84	36.15	41.53	47.59	51.05	74.00	-22.95	peak
6	9748.000	10.76	37.75	38.37	41.61	51.75	74.00	-22.25	peak

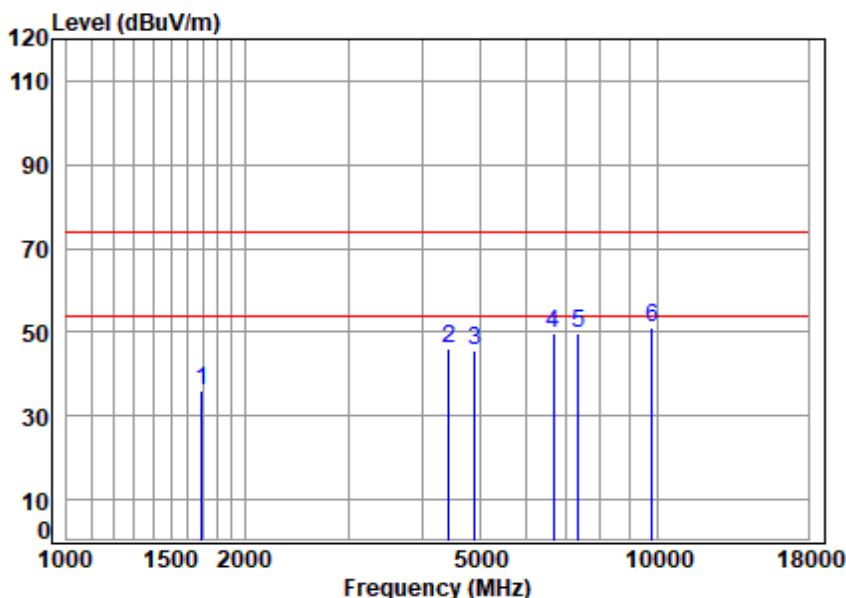
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2437 TX RSE
Note : 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1697.129	3.43	26.66	40.63	46.72	36.18	74.00	-37.82	peak
2	4469.214	6.73	33.55	42.53	48.50	46.25	74.00	-27.75	peak
3	4874.000	7.17	34.05	42.82	46.98	45.38	74.00	-28.62	peak
4	6621.375	8.34	35.67	41.88	48.00	50.13	74.00	-23.87	peak
5	7311.000	8.84	36.15	41.53	45.53	48.99	74.00	-25.01	peak
6	9748.000	10.76	37.75	38.37	41.21	51.35	74.00	-22.65	peak

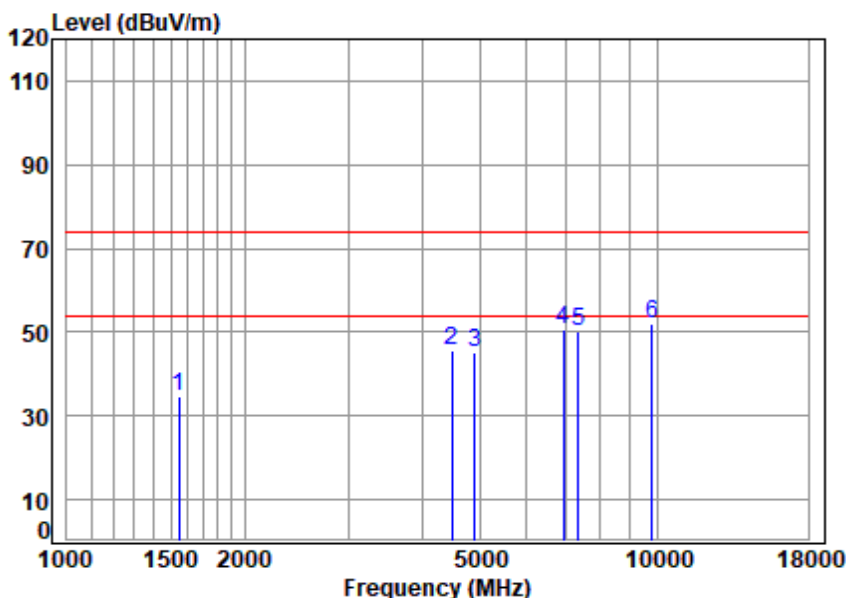
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 07506CR
Mode : 2452 TX RSE
Note : 2.4G WIFI 11N40

	Cable	Ant	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1692.231	3.42	26.64	40.63	46.54	35.97	74.00	-38.03 peak
2	4430.628	6.70	33.48	42.50	48.56	46.24	74.00	-27.76 peak
3	4904.000	7.20	34.09	42.84	47.21	45.66	74.00	-28.34 peak
4	6679.040	8.38	35.71	41.85	47.67	49.91	74.00	-24.09 peak
5	7356.000	8.88	36.19	41.50	46.33	49.90	74.00	-24.10 peak
6	9808.000	10.75	37.79	38.28	40.68	50.94	74.00	-23.06 peak

Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 07506CR
Mode : 2452 TX RSE
Note : 2.4G WIFI 11N40

		Cable	Ant	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1547.199	3.30	26.02	40.54	46.05	34.83	74.00	-39.17	peak
2	4495.125	6.76	33.59	42.55	47.97	45.77	74.00	-28.23	peak
3	4904.000	7.20	34.09	42.84	46.79	45.24	74.00	-28.76	peak
4	6934.778	8.51	35.86	41.72	48.22	50.87	74.00	-23.13	peak
5	7356.000	8.88	36.19	41.50	46.48	50.05	74.00	-23.95	peak
6	9808.000	10.75	37.79	38.28	41.73	51.99	74.00	-22.01	peak

8 Emission Test Results

8.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement: 47 CFR Part 15, Subpart C 15.247

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

8.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

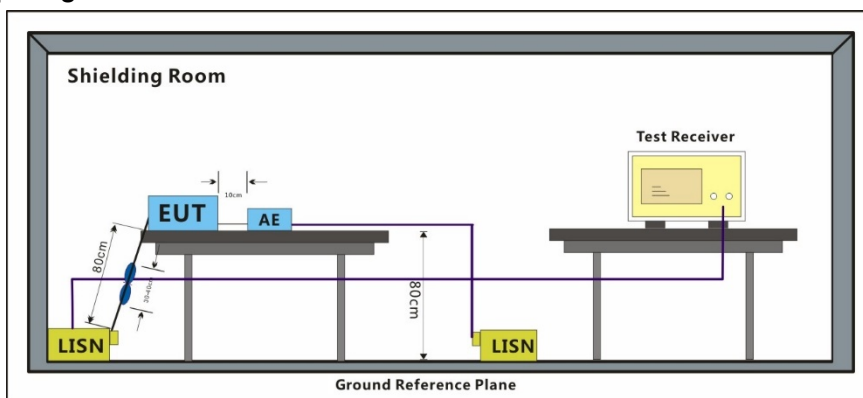
Humidity: 56 % RH

Atmospheric Pressure: 1000 mbar

8.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	11	Charge + TX mode_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

8.1.3 Test Setup Diagram

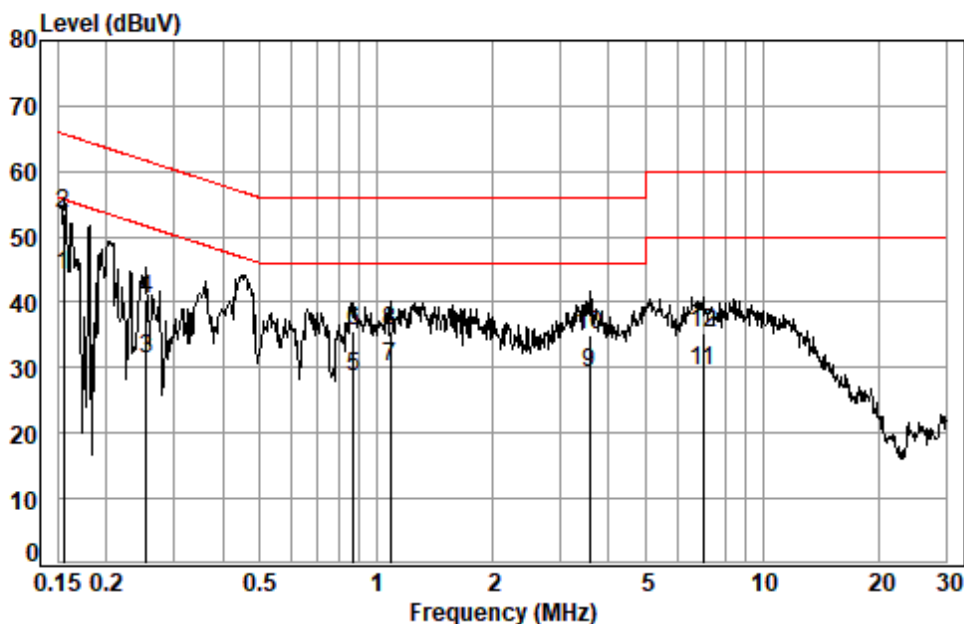


8.1.4 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor

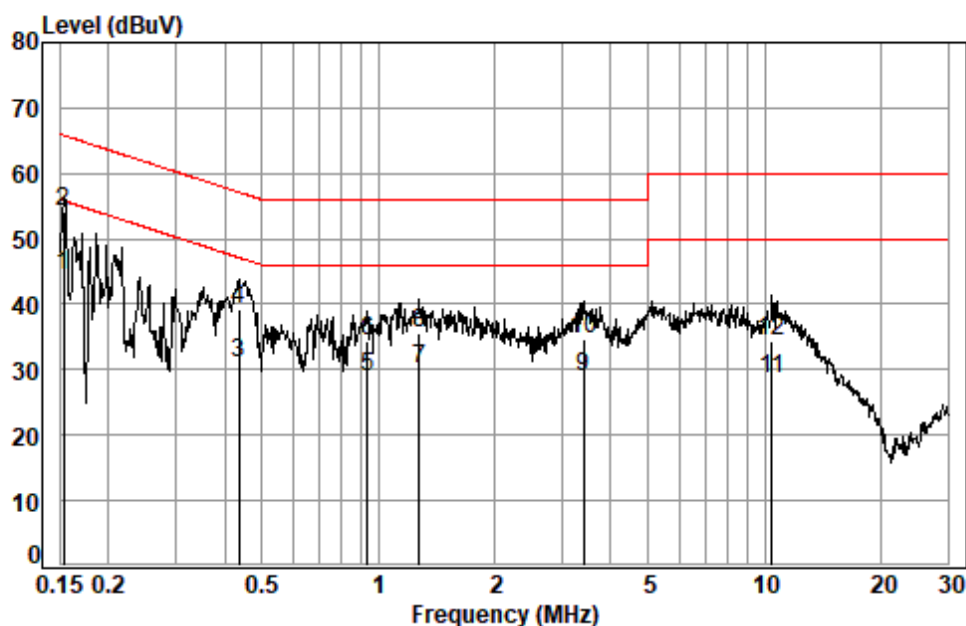
Test Mode: 11; Line: Live line



Site : Shielding Room
Condition: Line
Job No. : 07506CR
Test mode: 11

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1548	0.01	9.59	34.50	44.10	55.74	-11.64	Average
2	0.1548	0.01	9.59	43.99	53.59	65.74	-12.15	QP
3	0.2535	0.03	9.59	21.58	31.20	51.64	-20.44	Average
4	0.2535	0.03	9.59	30.80	40.42	61.64	-21.22	QP
5	0.8757	0.08	9.60	18.94	28.62	46.00	-17.38	Average
6	0.8757	0.08	9.60	25.89	35.57	56.00	-20.43	QP
7	1.0881	0.10	9.60	20.50	30.20	46.00	-15.80	Average
8	1.0881	0.10	9.60	25.98	35.68	56.00	-20.32	QP
9	3.5654	0.16	9.66	19.47	29.29	46.00	-16.71	Average
10	3.5654	0.16	9.66	25.14	34.96	56.00	-21.04	QP
11	7.0249	0.17	9.72	19.57	29.46	50.00	-20.54	Average
12	7.0249	0.17	9.72	25.25	35.14	60.00	-24.86	QP

Test Mode: 11; Line: Neutral Line



Site : Shielding Room

Condition: Neutral

Job No. : 07506CR

Test mode: 11

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1532	0.01	9.55	34.91	44.47	55.82	-11.35	Average
2	0.1532	0.01	9.55	44.69	54.25	65.82	-11.57	QP
3	0.4351	0.05	9.55	21.50	31.10	47.15	-16.05	Average
4	0.4351	0.05	9.55	29.76	39.36	57.15	-17.79	QP
5	0.9381	0.09	9.55	19.22	28.86	46.00	-17.14	Average
6	0.9381	0.09	9.55	24.83	34.47	56.00	-21.53	QP
7	1.2756	0.11	9.55	20.33	29.99	46.00	-16.01	Average
8	1.2756	0.11	9.55	25.93	35.59	56.00	-20.41	QP
9	3.3994	0.16	9.59	19.13	28.88	46.00	-17.12	Average
10	3.3994	0.16	9.59	25.04	34.79	56.00	-21.21	QP
11	10.4524	0.17	9.88	18.49	28.54	50.00	-21.46	Average
12	10.4524	0.17	9.88	24.26	34.31	60.00	-25.69	QP



9 Test Setup Photo

9.1 Test Setup

Please refer to setup photos.

9.2 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.

- End of the Report -