



Appendix B

LTE-NB1 Band 26 (824-849)



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 (CSTC Laboratory)

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



CONTENT

	Page
1 EFFECTIVE RADIATED POWER OUTPUT DATA	3
1.1 TEST RESULT FOR LTE NB1 BAND 26	3
2 PEAK-TO-AVERAGE RATIO	4
2.1 FOR LTE-NB1	4
2.1.1 Test Band = LTE-NB1 Band 26	4
3 MODULATION CHARACTERISTICS	6
3.1 FOR LTE-NB1	6
3.1.1 Test Band = LTE-NB1 Band 26	6
4 26DB BANDWIDTH AND OCCUPIED BANDWIDTH	8
4.1 FOR LTE-NB1	8
4.1.1 Test Band = LTE-NB1 Band 26	8
5 BAND EDGES COMPLIANCE	12
5.1 FOR LTE-NB1	12
5.1.1 Test Band = LTE-NB1 Band 26	12
6 SPURIOUS EMISSION AT ANTENNA TERMINAL.....	18
6.1 FOR LTE-NB1	18
6.1.1 Test Band = LTE-NB1 Band 26	18
7 FIELD STRENGTH OF SPURIOUS RADIATION.....	25
7.1 FOR LTE-NB1	25
7.1.1 Test Band = LTE-NB1 Band 26	25
8 FREQUENCY STABILITY	27
8.1 FREQUENCY ERROR VS. VOLTAGE	27
8.2 FREQUENCY ERROR VS. TEMPERATURE	27



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 Technical Services Laboratory

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



1 Effective Radiated Power Output Data

1.1 Test Result for LTE NB1 Band 26

Test Band	Test Mode	Sub-carrier Spacing (kHz)	Test channel	Number of T	Conducted Power (dBm)	ERP (dBm)	limit (dBm)	Verdict
NB1 Band 26	BPSK	3.75	26791	1T0	20.47	17.32	38.45	PASS
NB1 Band 26	BPSK	3.75	26915	1T0	20.52	17.37	38.45	PASS
NB1 Band 26	BPSK	3.75	27039	1T0	20.36	17.21	38.45	PASS
NB1 Band 26	QPSK	3.75	26791	1T0	20.27	17.12	38.45	PASS
NB1 Band 26	QPSK	3.75	26915	1T0	20.50	17.35	38.45	PASS
NB1 Band 26	QPSK	3.75	27039	1T0	20.49	17.34	38.45	PASS

Test Band	Test Mode	Sub-carrier Spacing (kHz)	Test channel	Number of T	Conducted Power (dBm)	ERP (dBm)	limit (dBm)	Verdict
NB1 Band 26	BPSK	15	26791	1T0	20.55	17.40	38.45	PASS
NB1 Band 26	BPSK	15	26915	1T0	20.62	17.47	38.45	PASS
NB1 Band 26	BPSK	15	27039	1T0	20.36	17.21	38.45	PASS
NB1 Band 26	QPSK	15	26791	1T0	20.59	17.44	38.45	PASS
NB1 Band 26	QPSK	15	26791	12T0	20.59	17.44	38.45	PASS
NB1 Band 26	QPSK	15	26915	1T0	20.60	17.45	38.45	PASS
NB1 Band 26	QPSK	15	26915	12T0	20.06	16.91	38.45	PASS
NB1 Band 26	QPSK	15	27039	1T0	20.47	17.32	38.45	PASS
NB1 Band 26	QPSK	15	27039	12T0	20.10	16.95	38.45	PASS

Note:

a: For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

$EIRP [dBm] = \text{Conducted Power} [dBm] + \text{Gain} [dBi]$

$ERP [dBm] = \text{Conducted Power} [dBm] + \text{Gain} [dBi] - 2.15$



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 Technical Services Laboratory

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

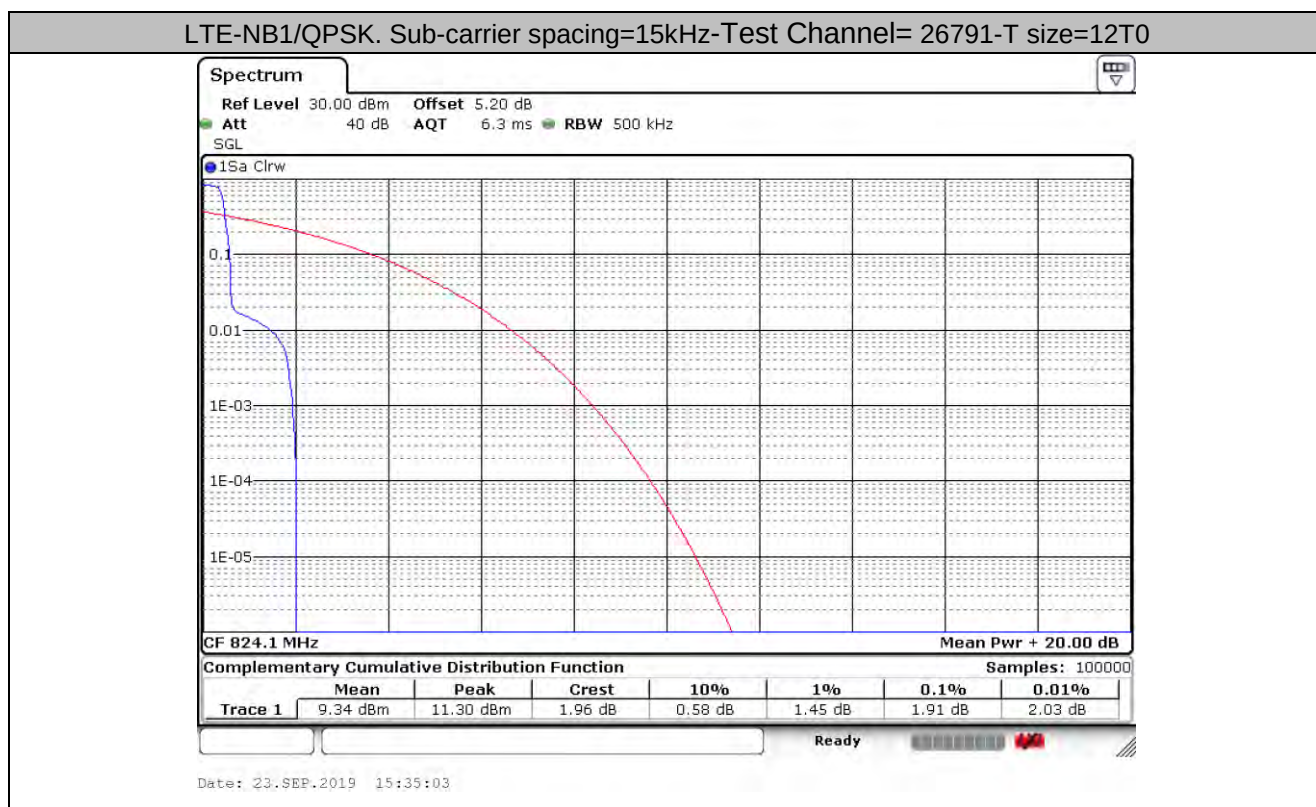


2 Peak-to-Average Ratio

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
NB1 Band 26	QPSK/12T0	26791	1.91	13	PASS
NB1 Band 26	QPSK/12T0	26915	3.31	13	PASS
NB1 Band 26	QPSK/12T0	27039	2.43	13	PASS

2.1 For LTE-NB1

2.1.1 Test Band = LTE-NB1 Band 26



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

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



LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel= 26915-T size=12T0



Date: 23.SEP.2019 15:36:13

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel= 27039-T size=12T0



Date: 23.SEP.2019 15:56:04



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

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



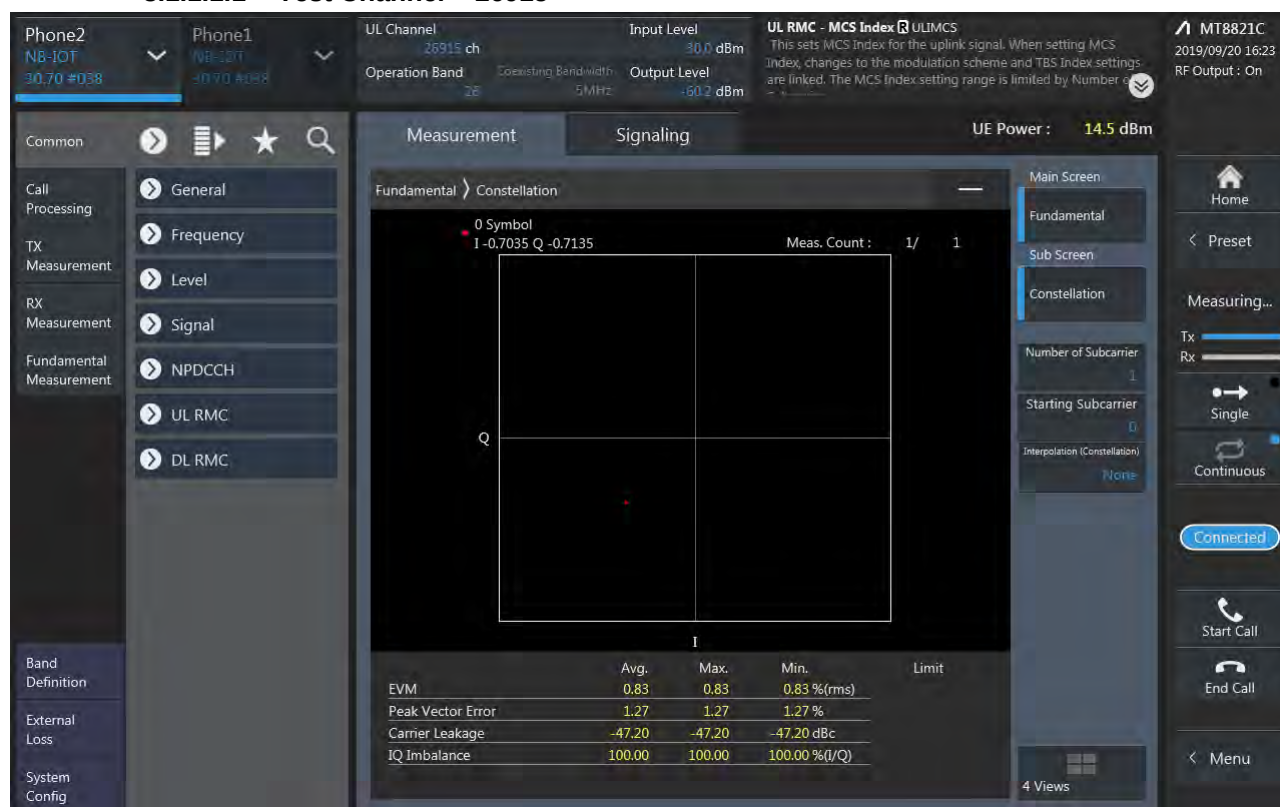
3 Modulation Characteristics

3.1 For LTE-NB1

3.1.1 Test Band = LTE-NB1 Band 26

3.1.1.1 Test Mode = LTE-NB1/BPSK. Sub-carrier spacing=15kHz.T size=1T0

3.1.1.1.1 Test Channel = 26915



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.

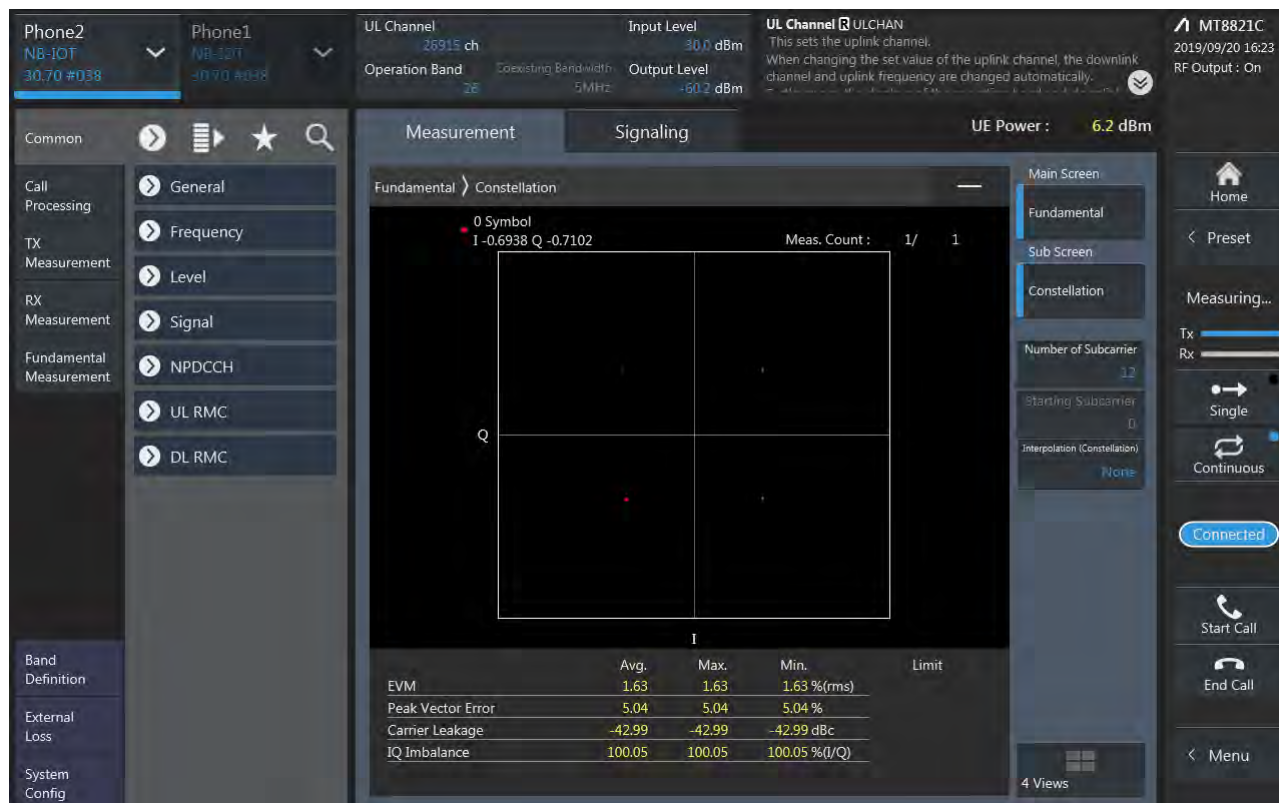
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

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

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

3.1.1.2 Test Mode = LTE-NB1/QPSK. Sub-carrier spacing=15kHz.T size=12T0

3.1.1.2.1 Test Channel = 26915



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

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

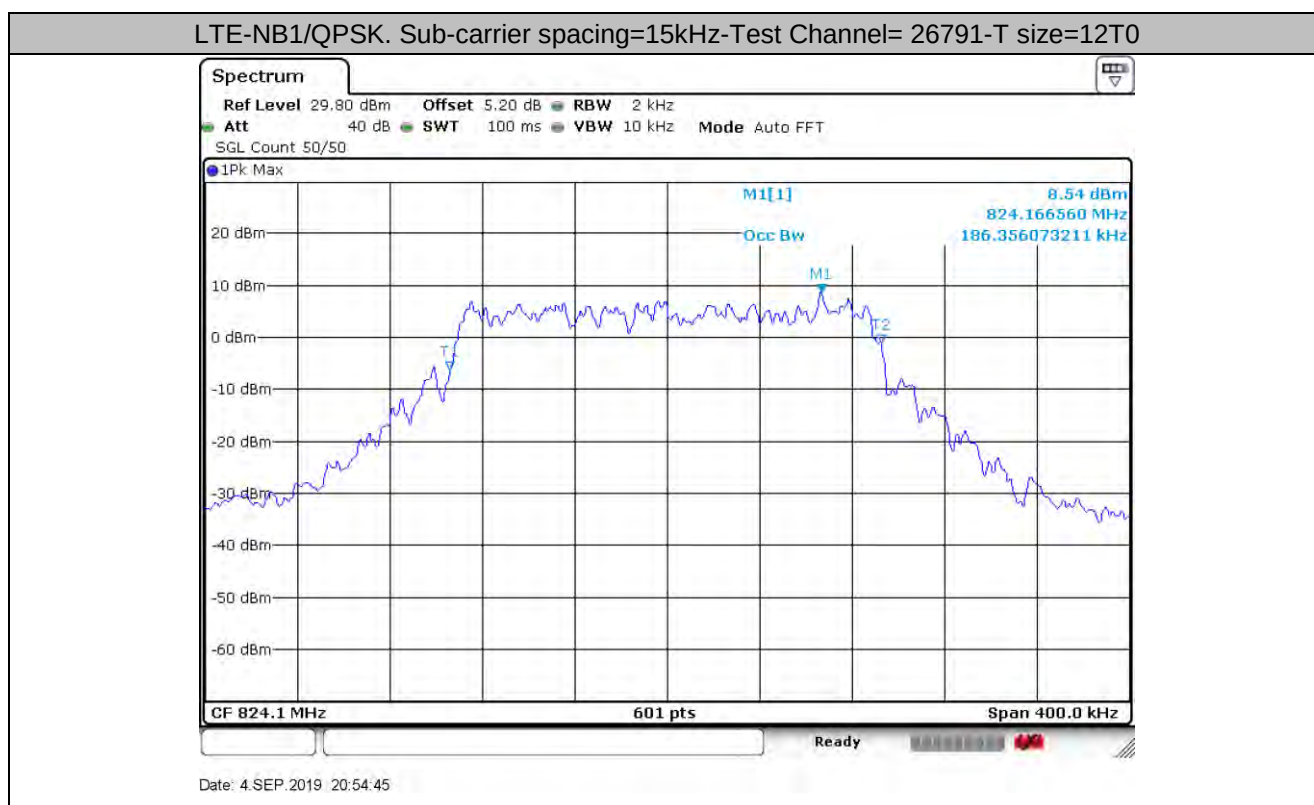


4 26dB Bandwidth and Occupied Bandwidth

Test Band	Test Mode	T size	Test Channel	Occupied Bandwidth [kHz]	Emission Bandwidth [kHz]	Verdict
NB1 Band 26	QPSK/15kHz	12T0	26791	186.36	244.26	PASS
NB1 Band 26	QPSK/15kHz	12T0	26915	186.36	243.59	PASS
NB1 Band 26	QPSK/15kHz	12T0	27039	186.36	242.93	PASS

4.1 For LTE-NB1

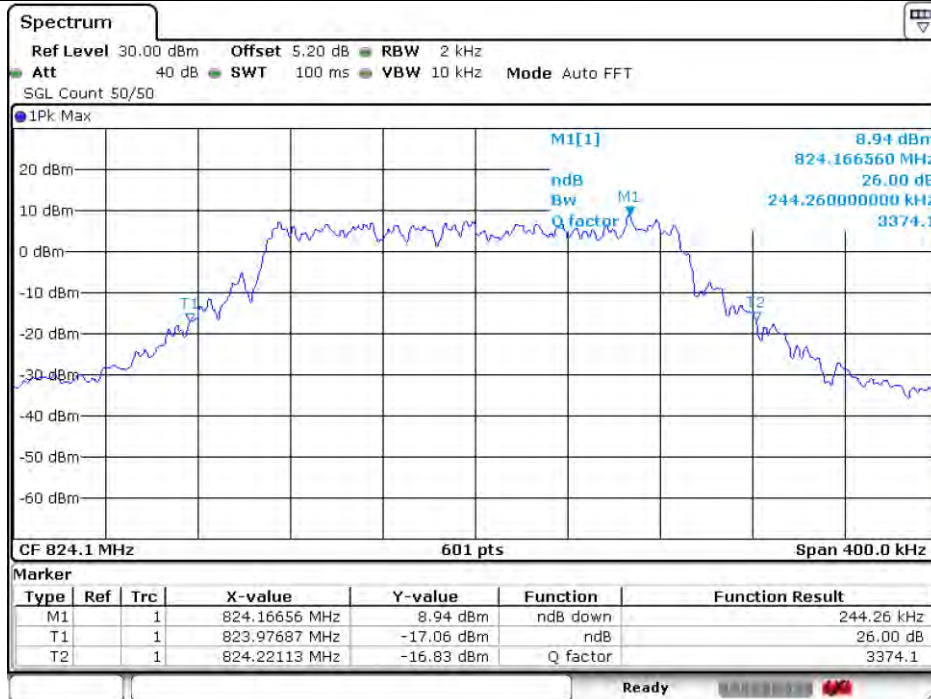
4.1.1 Test Band = LTE-NB1 Band 26



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

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



Date: 4-SEP-2019 21:06:42

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel= 26915-T size=12T0



Date: 4-SEP-2019 21:12:17



SGS-CSTC Standards Technical Services Co., Ltd.
 Shenzhen Branch (Internal Use Only) Laboratory

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.

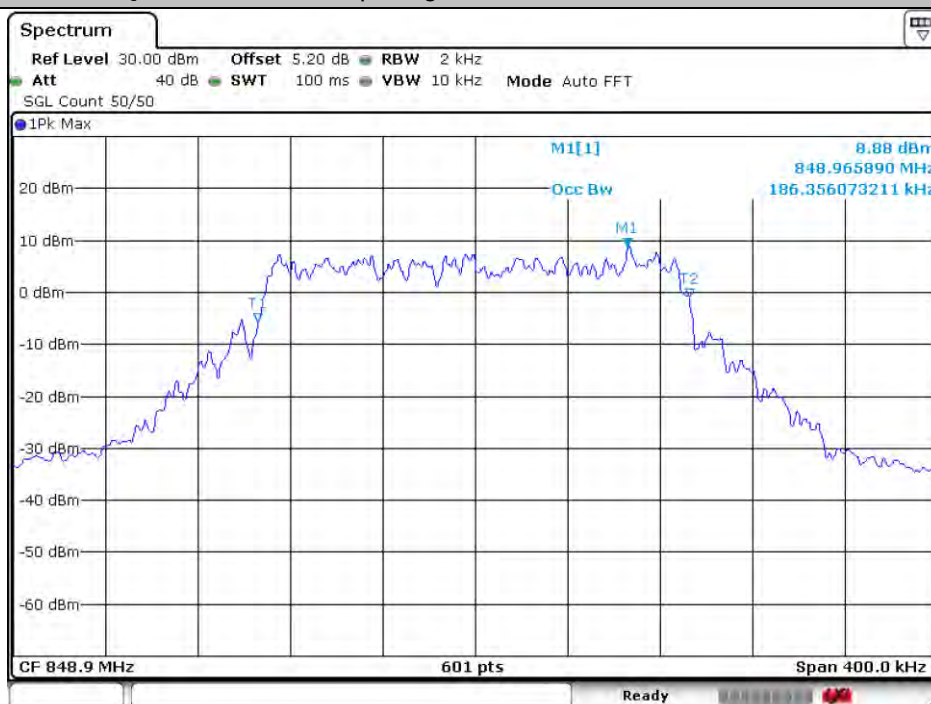
Attention: To check the authenticity of testing/inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

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



Date: 4.SEP.2019 21:22:12

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel= 27039-T size=12T0



Date: 4.SEP.2019 21:48:54

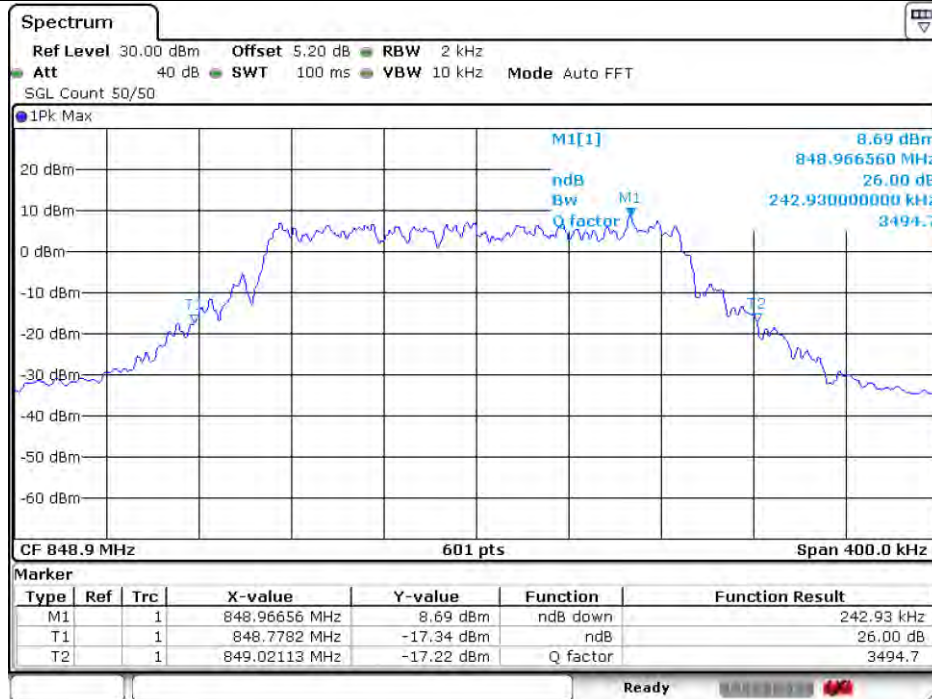


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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

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



Date: 4.SEP.2019 21:36:24



SGS-CSTC Standards Technical Services Co., Ltd.
 Shenzhen Branch (Internal Calibration Laboratory)

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

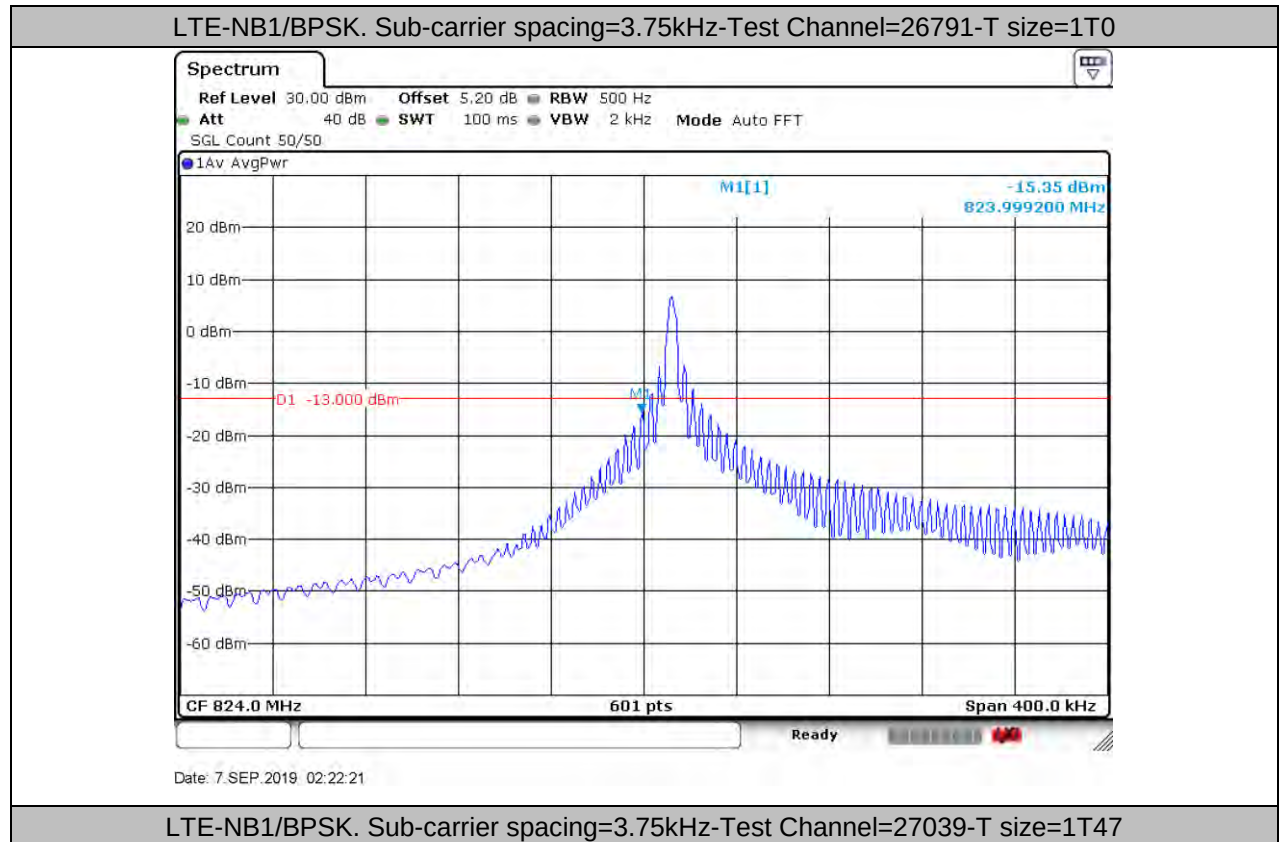
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
 中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com



5 Band Edges Compliance

5.1 For LTE-NB1

5.1.1 Test Band = LTE-NB1 Band 26

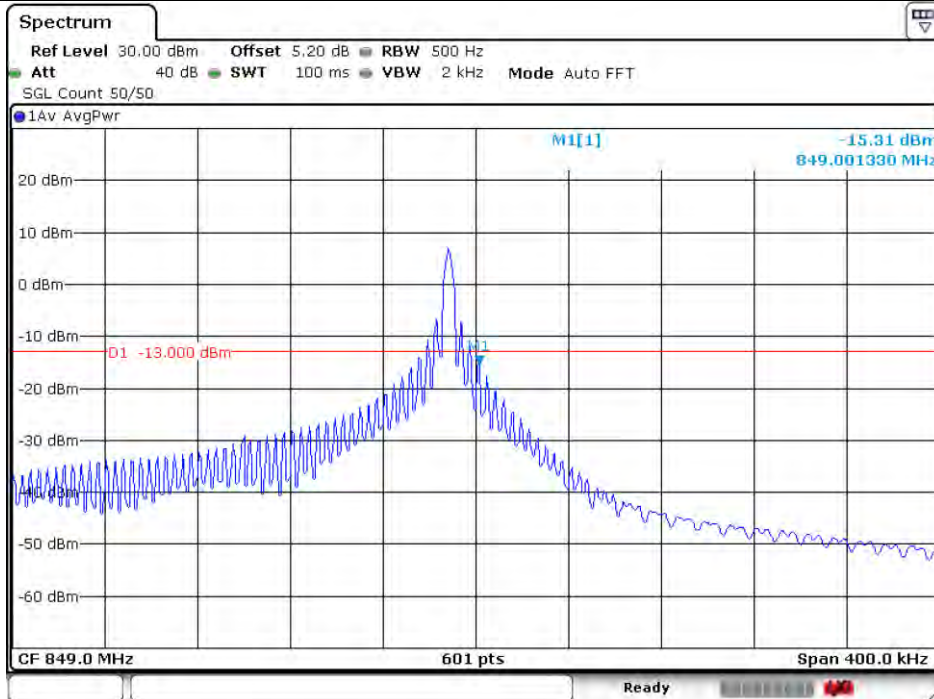


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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

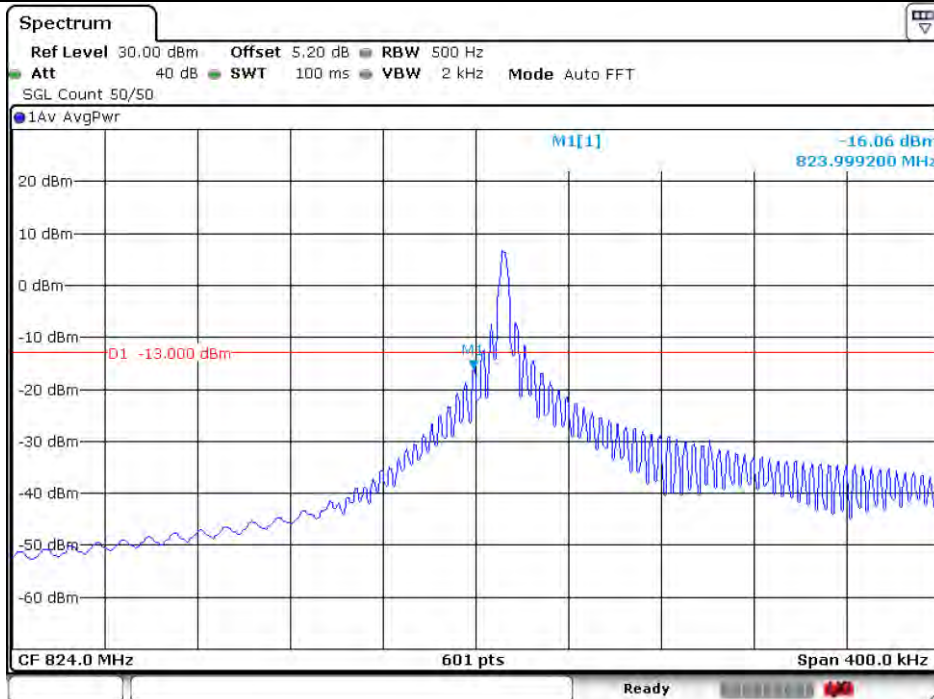
SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Technical Services Laboratory

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



Date: 7.SEP.2019 02:24:06

LTE-NB1/QPSK. Sub-carrier spacing=3.75kHz-Test Channel=26791-T size=1T0



Date: 7.SEP.2019 02:22:02

LTE-NB1/QPSK. Sub-carrier spacing=3.75kHz-Test Channel=27039-T size=1T47

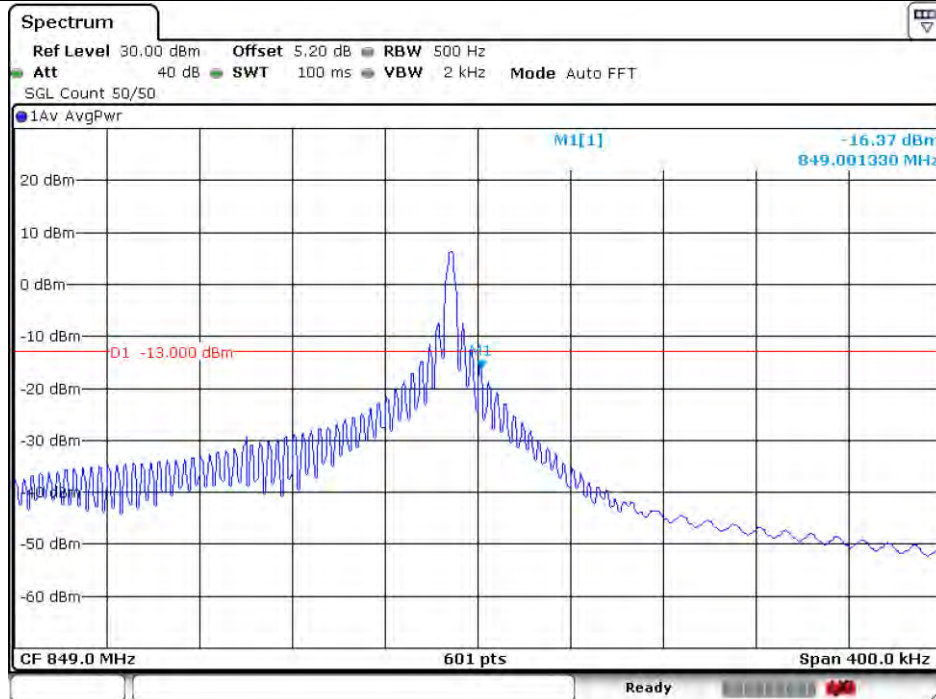


SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

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.

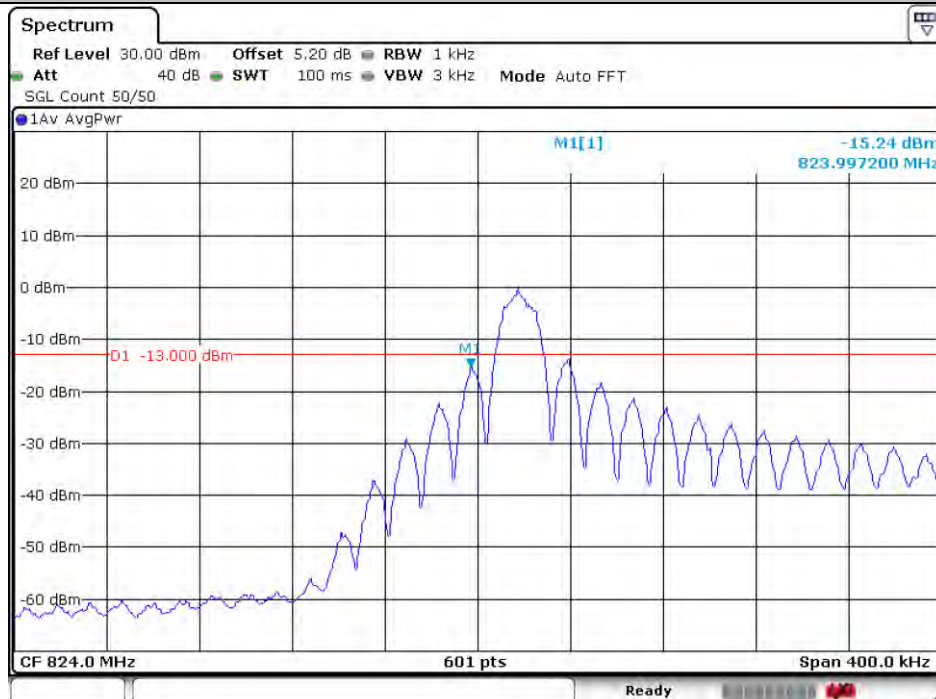
Attention: To check the authenticity of testing/inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

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



Date: 7.SEP.2019 02:24:24

LTE-NB1/BPSK. Sub-carrier spacing=15kHz-Test Channel=26791-T size=1T0



Date: 7.SEP.2019 02:19:42

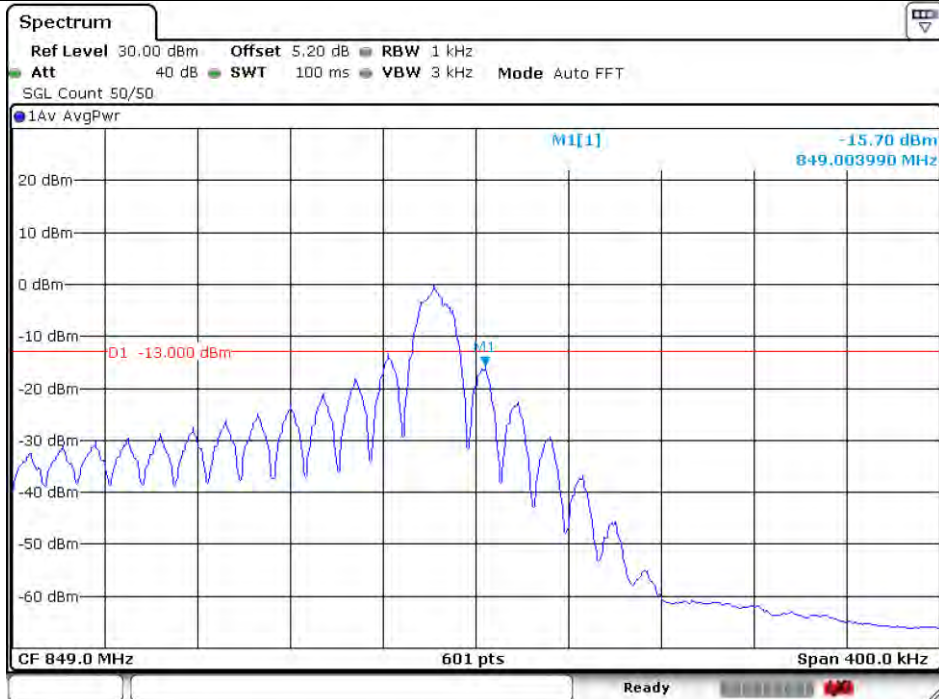
LTE-NB1/BPSK. Sub-carrier spacing=15kHz-Test Channel=27039-T size=1T11



SGS-CSTC Standards Technical Services Co., Ltd.
 Shenzhen Branch Inspection & Testing Services Laboratory

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



Date: 7.SEP.2019 02:25:26

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=26791-T size=1T0



Date: 7.SEP.2019 02:21:05

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=26791-T size=12T0



SGS-CSTC Standards Technical Services Co., Ltd.
 Shenzhen Branch Inspection & Testing Services Laboratory

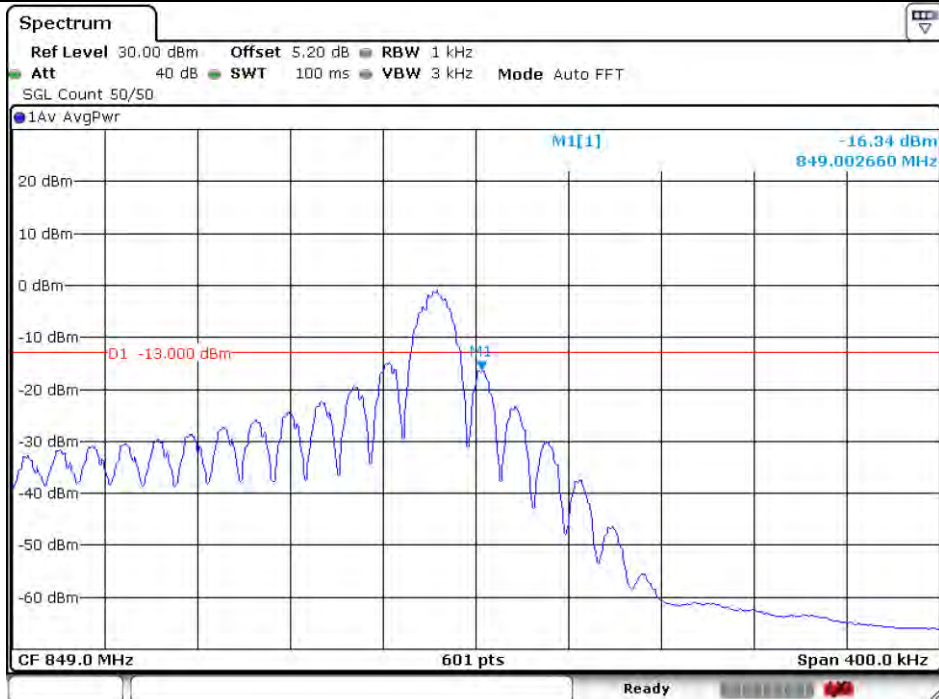
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic 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
 No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
 中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com



Date: 7.SEP.2019 02:21:26

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=27039-T size=1T11



Date: 7.SEP.2019 02:25:02

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=27039-T size=12T0



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

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





6 Spurious Emission at Antenna Terminal

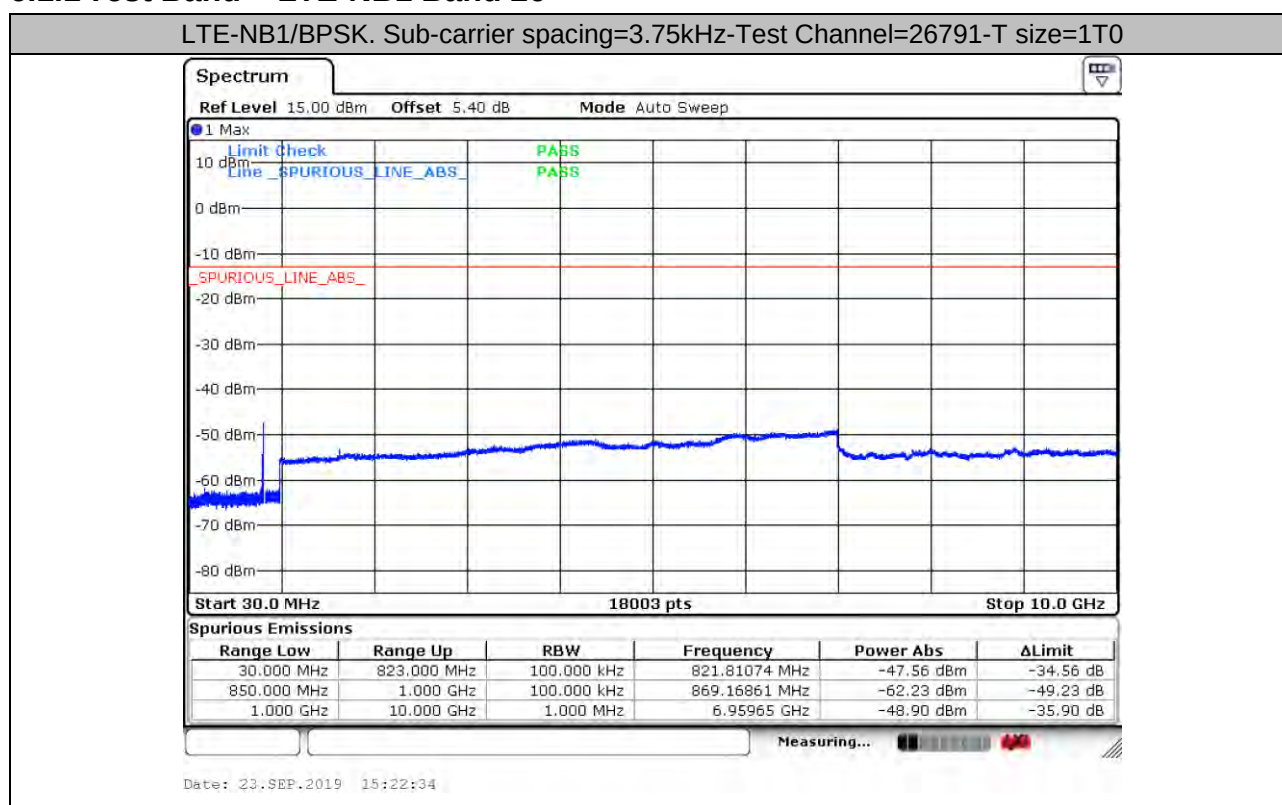
NOTE1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k \cdot (\text{Span} / \text{RBW})$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

NOTE2: only the worst case data displayed in this report.

Part I - Test Plots

6.1 For LTE-NB1

6.1.1 Test Band = LTE-NB1 Band 26



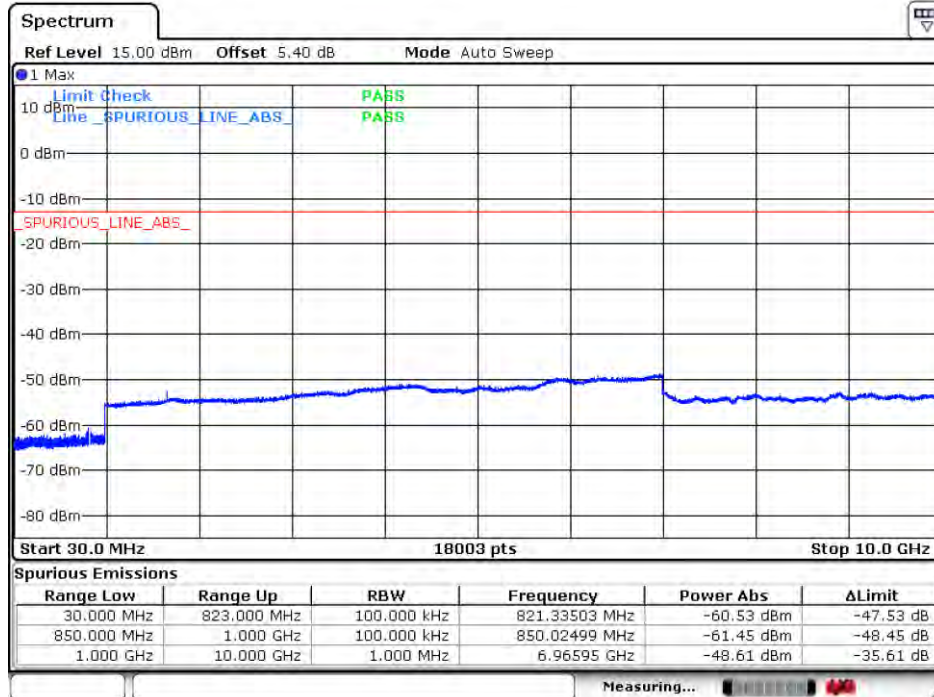
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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

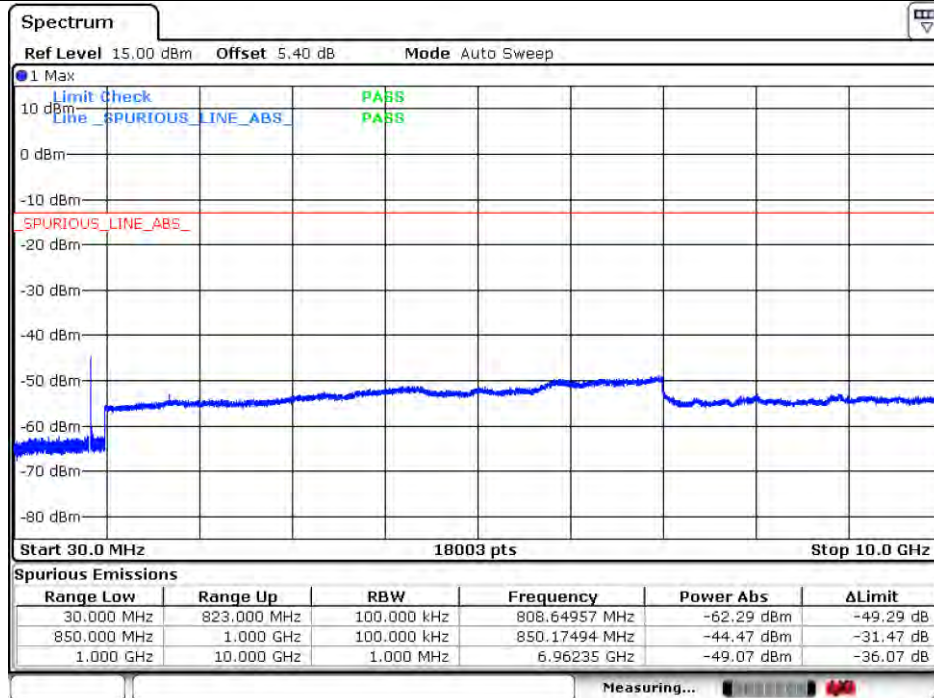
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

LTE-NB1/BPSK. Sub-carrier spacing=3.75kHz-Test Channel=26915-T size=1T0



Date: 23.SEP.2019 15:21:14

LTE-NB1/BPSK. Sub-carrier spacing=3.75kHz-Test Channel=27039-T size=1T0



Date: 23.SEP.2019 13:25:44



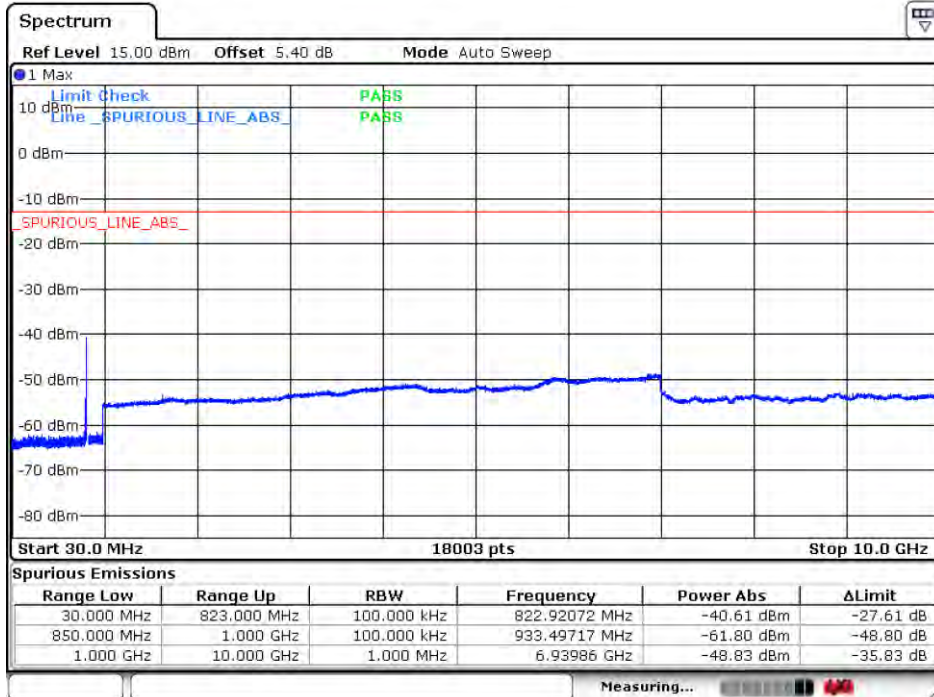
SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Technical Services Laboratory

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

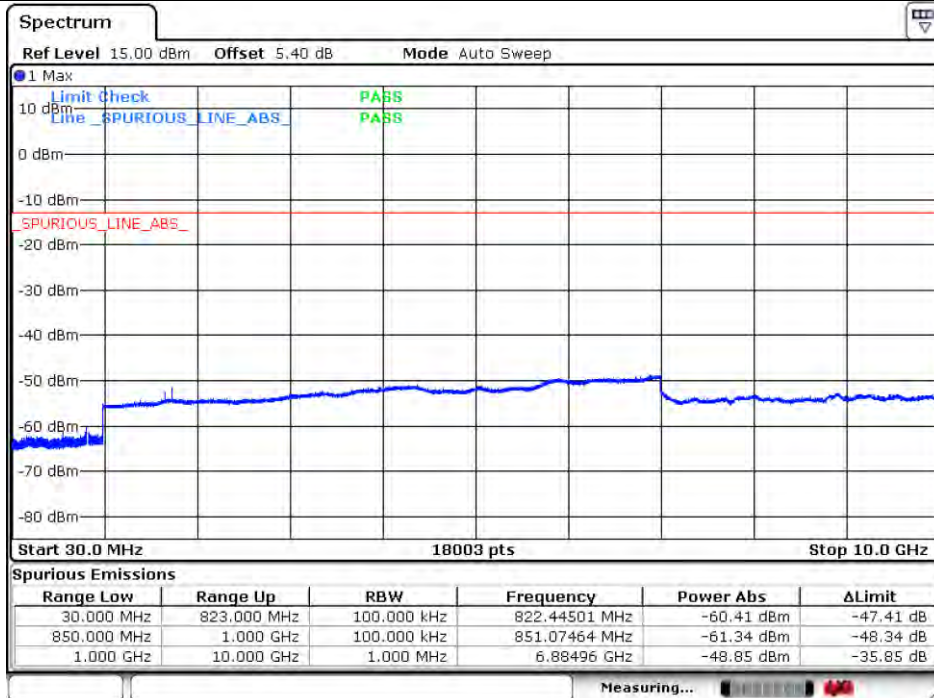
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

LTE-NB1/QPSK. Sub-carrier spacing=3.75kHz-Test Channel=26791-T size=1T0



Date: 23.SEP.2019 15:23:39

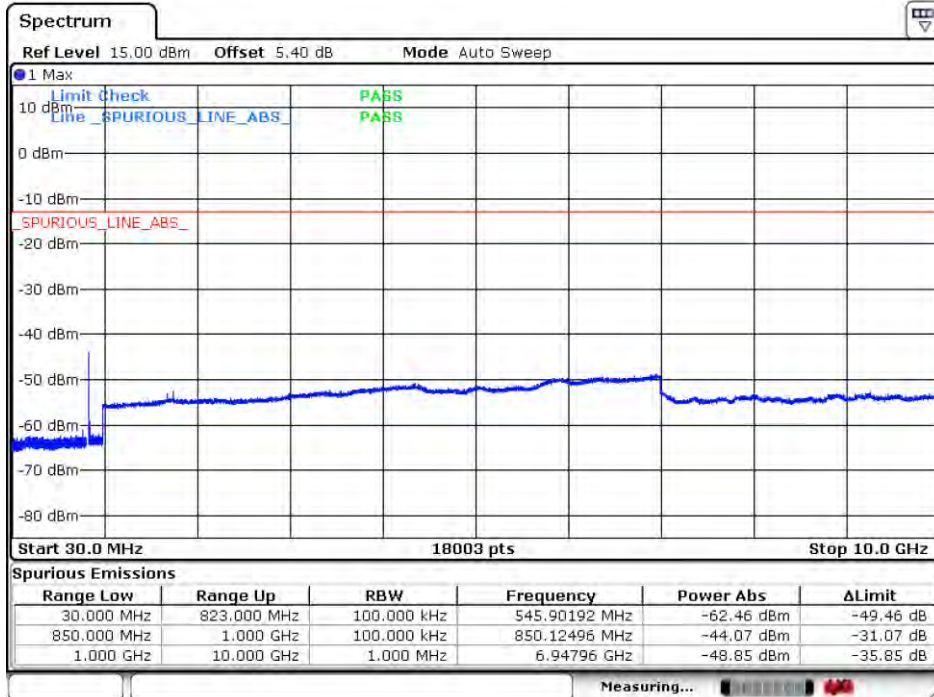
LTE-NB1/QPSK. Sub-carrier spacing=3.75kHz-Test Channel=26975-T size=1T0



Date: 23.SEP.2019 15:20:08

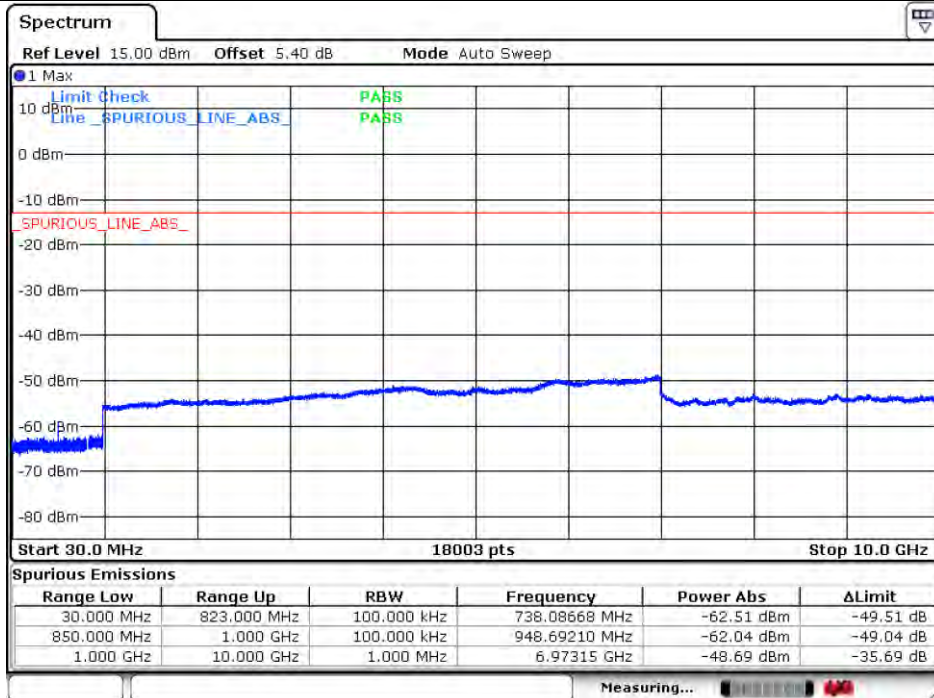


LTE-NB1/QPSK. Sub-carrier spacing=3.75kHz-Test Channel=27039-T size=1T0



Date: 23.SEP.2019 13:28:07

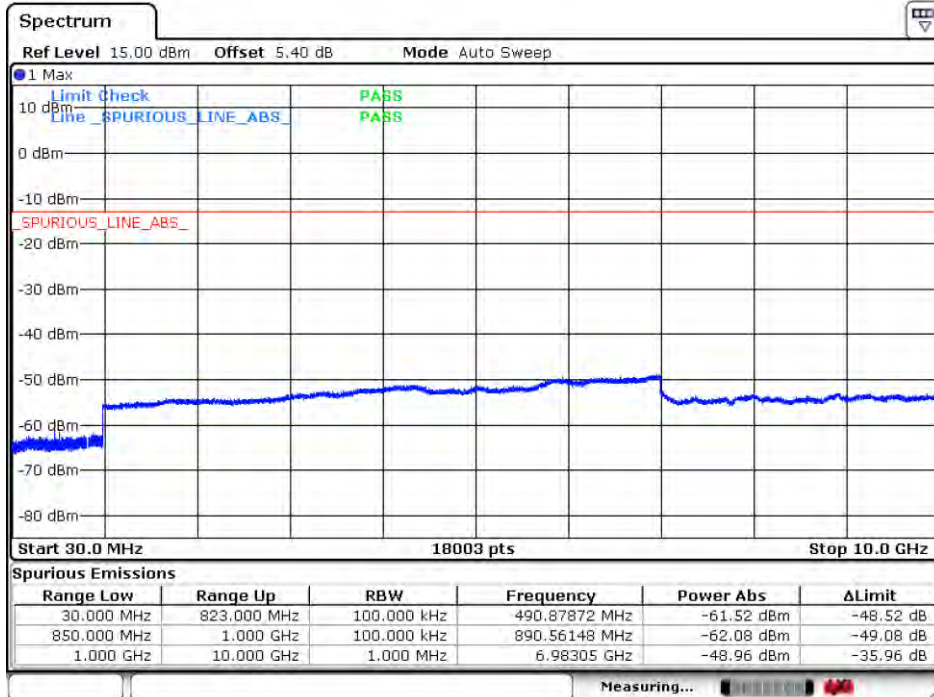
LTE-NB1/BPSK. Sub-carrier spacing=15kHz-Test Channel=26791-T size=1T0



Date: 23.SEP.2019 15:24:53

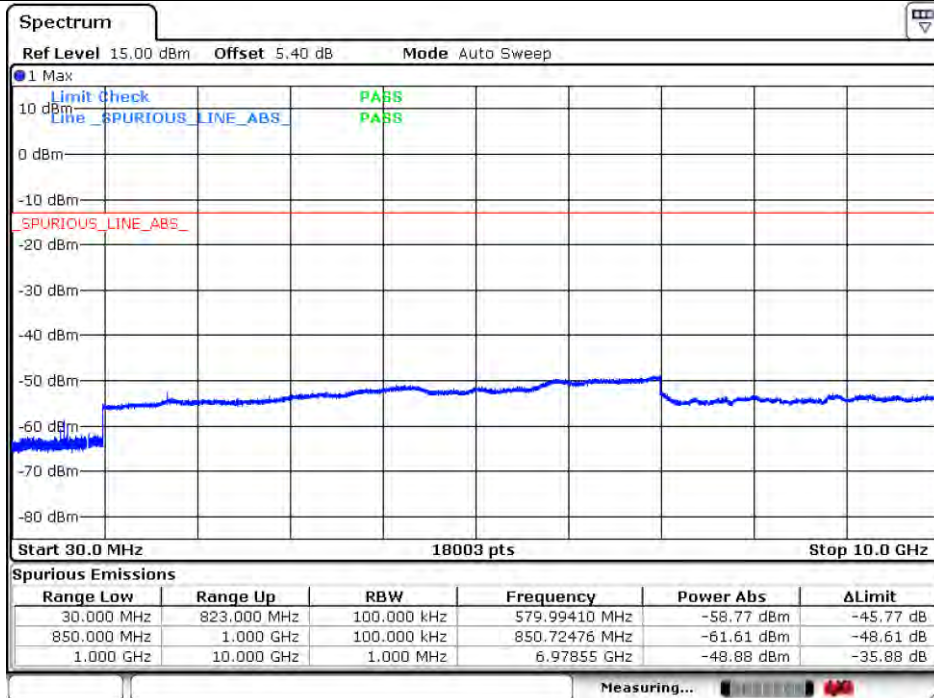


LTE-NB1/BPSK. Sub-carrier spacing=15kHz-Test Channel=26915-T size=1T0



Date: 23.SEP.2019 15:18:01

LTE-NB1/BPSK. Sub-carrier spacing=15kHz-Test Channel=27039-T size=1T0



Date: 23.SEP.2019 13:29:36

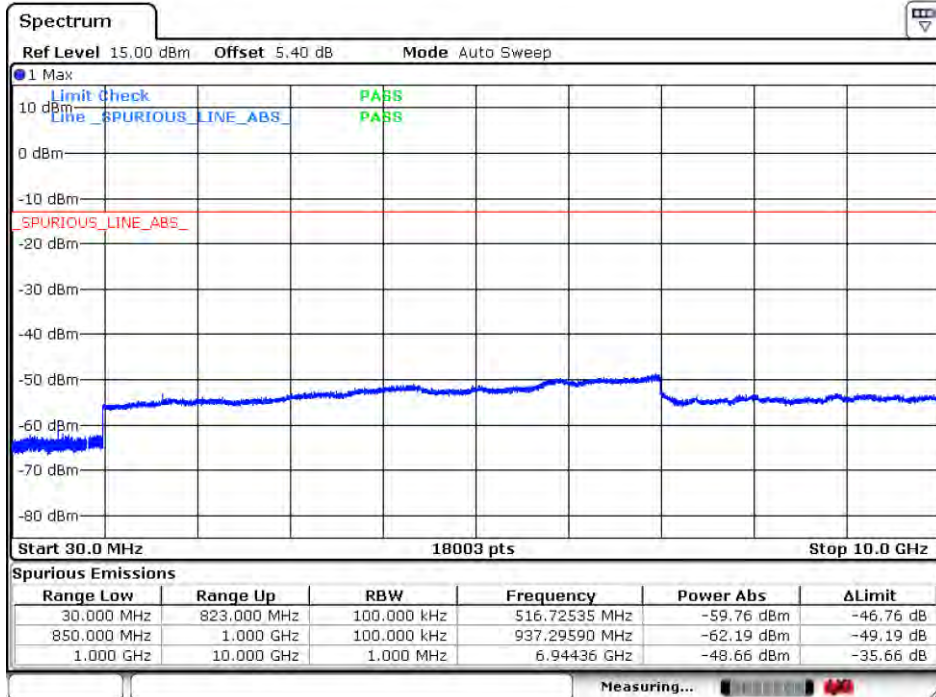
SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Technical Services Laboratory

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

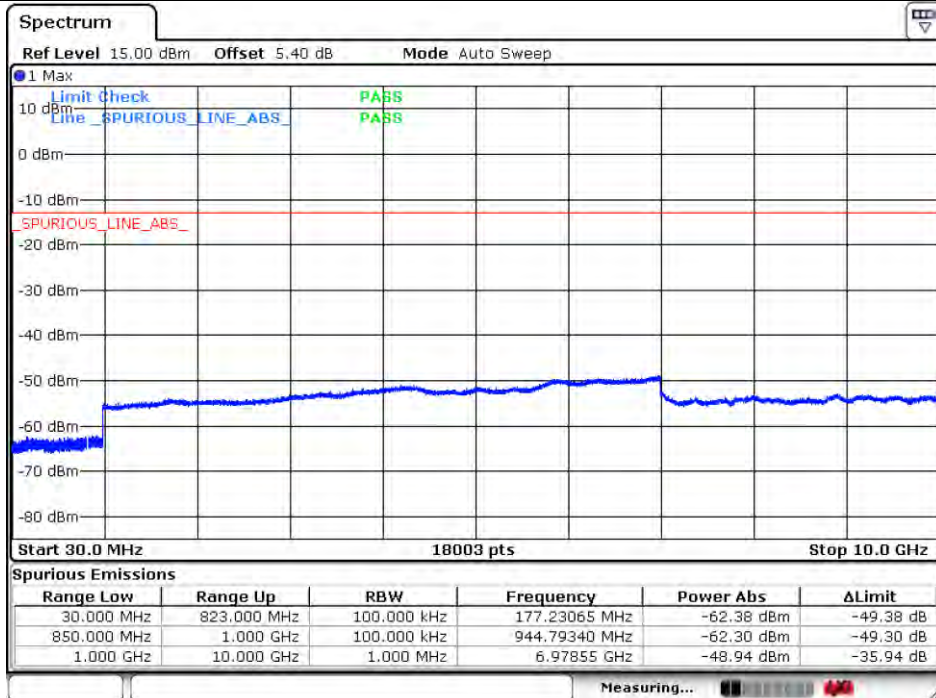
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=26791-T size=1T0



Date: 23.SEP.2019 15:24:24

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=26915-T size=1T0



Date: 23.SEP.2019 15:18:40



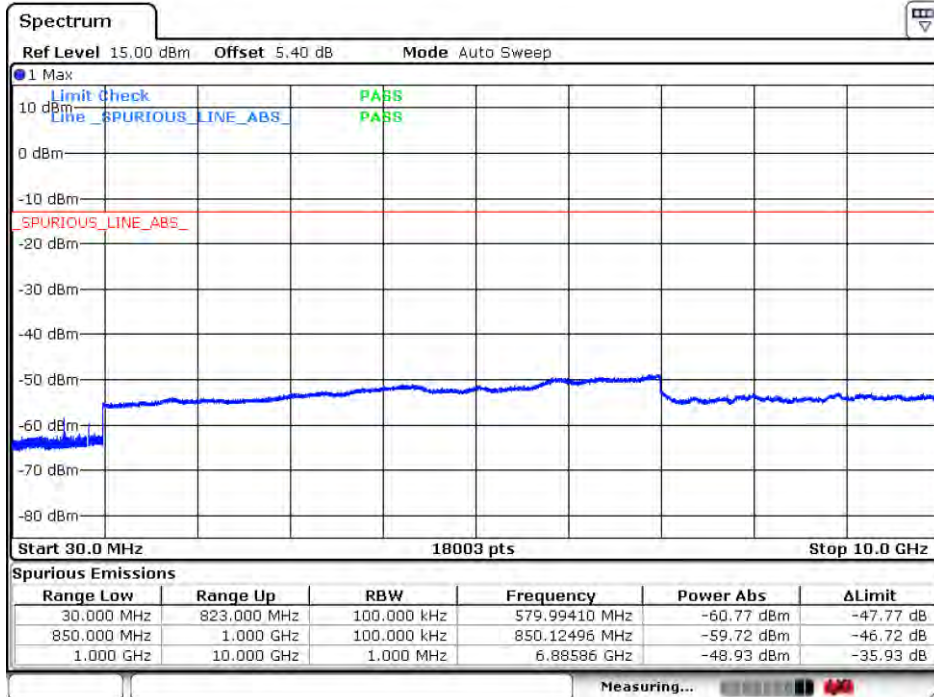
SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Technical Services Laboratory

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

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

LTE-NB1/QPSK. Sub-carrier spacing=15kHz-Test Channel=27039-T size=1T0



Date: 23.SEP.2019 13:28:58

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

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

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

Member of the SGS Group (SGS SA)



7 Field Strength of Spurious Radiation

7.1 For LTE-NB1

7.1.1 Test Band = LTE-NB1 Band 26

7.1.1.1 Test Mode = LTE-NB1/BPSK. Sub-carrier spacing=3.75kHz

7.1.1.1.1 Test Channel = 26791

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
111.6059	-63.12	-13.00	50.12	Vertical
639.0400	-58.76	-13.00	45.76	Vertical
1162.3733	-63.22	-13.00	50.22	Vertical
2430.1929	-44.89	-13.00	31.89	Vertical
7286.3134	-54.37	-13.00	41.37	Vertical
8602.0058	-46.24	-13.00	33.24	Vertical
40.0835	-66.30	-13.00	53.30	Horizontal
236.6457	-67.47	-13.00	54.47	Horizontal
1163.8142	-67.48	-13.00	54.48	Horizontal
2470.2109	-41.13	-13.00	28.13	Horizontal
5838.2387	-51.04	-13.00	38.04	Horizontal
8726.8185	-46.21	-13.00	33.21	Horizontal

7.1.1.1.2 Test Channel = 26915

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
108.5350	-60.24	-13.00	47.24	Vertical
643.5012	-67.00	-13.00	54.00	Vertical
1169.1108	-61.29	-13.00	48.29	Vertical
2431.4429	-43.86	-13.00	30.86	Vertical
7285.5352	-55.34	-13.00	42.34	Vertical
8600.8333	-53.78	-13.00	40.78	Vertical
45.0973	-62.00	-13.00	49.00	Horizontal
237.5028	-70.60	-13.00	57.60	Horizontal
1168.6223	-62.90	-13.00	49.90	Horizontal
2474.3890	-40.02	-13.00	27.02	Horizontal
5835.9012	-53.81	-13.00	40.81	Horizontal
8723.0092	-52.28	-13.00	39.28	Horizontal



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



7.1.1.1.3 Test Channel = 27039

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
110.0290	-62.89	-13.00	49.89	Vertical
643.2647	-62.75	-13.00	49.75	Vertical
1166.4333	-63.97	-13.00	50.97	Vertical
2434.2869	-48.61	-13.00	35.61	Vertical
7281.3427	-52.42	-13.00	39.42	Vertical
8605.7869	-50.37	-13.00	37.37	Vertical
42.4166	-63.90	-13.00	50.90	Horizontal
239.5305	-67.52	-13.00	54.52	Horizontal
1166.4333	-64.32	-13.00	51.32	Horizontal
2475.0950	-43.47	-13.00	30.47	Horizontal
5836.0945	-55.71	-13.00	42.71	Horizontal
8726.9909	-50.82	-13.00	37.82	Horizontal

NOTE:

- 1) The disturbance below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
- 2) only the worst case data presented 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

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

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



8 Frequency Stability

8.1 Frequency Error VS. Voltage

BAND	Band width	Modulation	Channel	Number of T	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NB1 Band 26	180KHz	BPSK/15KHz	26791	12T0	VL	TN	9.15	0.01111	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26791	12T0	VN	TN	-4.60	-0.00559	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26791	12T0	VH	TN	-1.83	-0.00222	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26915	12T0	VL	TN	7.15	0.00855	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26915	12T0	VN	TN	4.22	0.00505	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26915	12T0	VH	TN	-2.52	-0.00301	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	27039	12T0	VL	TN	8.09	0.00953	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	27039	12T0	VN	TN	-1.80	-0.00212	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	27039	12T0	VH	TN	-8.93	-0.01052	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26791	12T0	VL	TN	-9.35	-0.01135	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26791	12T0	VN	TN	-3.91	-0.00475	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26791	12T0	VH	TN	-2.50	-0.00303	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26915	12T0	VL	TN	1.58	0.00189	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26915	12T0	VN	TN	4.90	0.00585	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26915	12T0	VH	TN	1.94	0.00232	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	27039	12T0	VL	TN	-0.94	-0.00111	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	27039	12T0	VN	TN	8.35	0.00984	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	27039	12T0	VH	TN	3.59	0.00423	±2.5	PASS

8.2 Frequency Error VS. Temperature

BAND	Band width	Modulation	Channel	Number of T	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NB1 Band 26	180KHz	BPSK/15KHz	26791	12T0	NV	-30	1.91	0.00232	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26791	12T0	NV	-20	-4.10	-0.00497	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26791	12T0	NV	0	-0.16	-0.00019	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26791	12T0	NV	10	-4.96	-0.00601	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26791	12T0	NV	20	6.15	0.00746	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26791	12T0	NV	30	-7.42	-0.00901	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26791	12T0	NV	40	-2.98	-0.00361	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26791	12T0	NV	50	-6.16	-0.00748	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26915	12T0	NV	-30	-8.49	-0.01031	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26915	12T0	NV	-20	4.54	0.00543	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26915	12T0	NV	0	-5.25	-0.00627	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26915	12T0	NV	10	-6.16	-0.00737	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26915	12T0	NV	20	2.15	0.00257	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26915	12T0	NV	30	3.20	0.00382	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26915	12T0	NV	40	-6.93	-0.00828	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	26915	12T0	NV	50	0.13	0.00015	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	27039	12T0	NV	-30	5.91	0.00706	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	27039	12T0	NV	-20	-5.66	-0.00677	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	27039	12T0	NV	0	1.02	0.00120	±2.5	PASS



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 (Technical Services & Laboratory)

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



NB1 Band 26	180KHz	BPSK/15KHz	27039	12T0	NV	10	-9.86	-0.01162	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	27039	12T0	NV	20	4.73	0.00557	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	27039	12T0	NV	30	-6.16	-0.00725	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	27039	12T0	NV	40	4.40	0.00518	±2.5	PASS
NB1 Band 26	180KHz	BPSK/15KHz	27039	12T0	NV	50	-9.81	-0.01156	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26791	12T0	NV	-30	-1.10	-0.00129	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26791	12T0	NV	-20	0.47	0.00055	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26791	12T0	NV	0	8.73	0.01029	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26791	12T0	NV	10	1.91	0.00232	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26791	12T0	NV	20	-4.10	-0.00497	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26791	12T0	NV	30	-0.16	-0.00019	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26791	12T0	NV	40	-4.96	-0.00601	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26791	12T0	NV	50	6.15	0.00746	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26915	12T0	NV	-30	-7.42	-0.00901	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26915	12T0	NV	-20	-2.98	-0.00361	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26915	12T0	NV	0	-6.16	-0.00748	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26915	12T0	NV	10	-8.49	-0.01031	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26915	12T0	NV	20	4.54	0.00543	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26915	12T0	NV	30	-5.25	-0.00627	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26915	12T0	NV	40	-6.16	-0.00737	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	26915	12T0	NV	50	2.15	0.00257	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	27039	12T0	NV	-30	3.20	0.00382	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	27039	12T0	NV	-20	-6.93	-0.00828	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	27039	12T0	NV	0	0.13	0.00015	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	27039	12T0	NV	10	5.91	0.00706	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	27039	12T0	NV	20	-5.66	-0.00677	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	27039	12T0	NV	30	1.02	0.00120	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	27039	12T0	NV	40	-9.86	-0.01162	±2.5	PASS
NB1 Band 26	180KHz	QPSK/15KHz	27039	12T0	NV	50	4.73	0.00557	±2.5	PASS

The End



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 Technical Services Laboratory

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