



# Appendix B

## E-UTRA Band 13



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](mailto:CN.Doccheck@sgs.com)



## CONTENT

<b>1. EFFECTIVE (ISOTROPIC) RADIATED POWER.....</b>	<b>3</b>
1.1. TEST RESULT .....	3
<b>2. PEAK-TO-AVERAGE RATIO(CCDF) .....</b>	<b>5</b>
2.1. TEST RESULT .....	5
2.2. TEST PLOTS.....	5
<b>3. MODULATION CHARACTERISTICS.....</b>	<b>6</b>
3.1. TEST BAND = LTE BAND 13 .....	6
3.2. TEST MODE = LTE /TM1 10MHZ.....	6
3.2.1. TEST CHANNEL = MCH.....	6
3.3. TEST MODE = LTE /TM2 10MHZ.....	7
3.3.1. TEST CHANNEL = MCH.....	7
<b>4. 26DB BANDWIDTH AND OCCUPIED BANDWIDTH .....</b>	<b>8</b>
4.1. TEST RESULT .....	8
4.2. TEST PLOTS.....	8
<b>5. BAND EDGE COMPLIANCE.....</b>	<b>13</b>
5.1. TEST PLOTS.....	13
<b>6. SPURIOUS EMISSION AT ANTENNA TERMINAL .....</b>	<b>21</b>
6.1. TEST PLOTS.....	21
<b>7. FIELD STRENGTH OF SPURIOUS RADIATION.....</b>	<b>22</b>
7.1. TEST BAND = LTE BAND 13 .....	22
7.1.1. TEST MODE =LTE/TM1 10MHZ.....	22
7.1.1.1. TEST CHANNEL = MCH.....	22
<b>8. FREQUENCY STABILITY.....</b>	<b>23</b>
8.1. FREQUENCY VS VOLTAGE .....	23
8.2. FREQUENCY VS TEMPERATURE .....	23



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](mailto:CN.Doccheck@sgs.com)



# 1. Effective (Isotropic) Radiated Power

## 1.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Conducted Power(dBm)	ERP (dBm)	Limit (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	22.96	25.26	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#12	22.95	25.25	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#24	23.13	25.43	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#0	21.87	24.17	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#6	22.16	24.46	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#13	21.93	24.23	34.77	PASS
Band13	5MHz	QPSK	23205	25RB#0	21.91	24.21	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#0	23.13	25.43	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#12	23.03	25.33	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#24	23.20	25.50	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#0	22.15	24.45	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#6	22.14	24.44	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#13	21.96	24.26	34.77	PASS
Band13	5MHz	QPSK	23230	25RB#0	21.85	24.15	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#0	23.05	25.35	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#12	22.94	25.24	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#24	23.03	25.33	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#0	22.03	24.33	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#6	22.04	24.34	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#13	22.00	24.30	34.77	PASS
Band13	5MHz	QPSK	23255	25RB#0	21.97	24.27	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#0	21.98	24.28	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#12	21.94	24.24	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#24	21.84	24.14	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#0	21.19	23.49	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#6	21.11	23.41	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#13	20.91	23.21	34.77	PASS
Band13	5MHz	16QAM	23205	25RB#0	21.01	23.31	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#0	21.93	24.23	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#12	22.10	24.40	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#24	22.08	24.38	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#0	21.01	23.31	34.77	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](mailto: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



Band13	5MHz	16QAM	23230	12RB#6	20.82	23.12	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#13	20.99	23.29	34.77	PASS
Band13	5MHz	16QAM	23230	25RB#0	20.96	23.26	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#0	22.05	24.35	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#12	22.06	24.36	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#24	22.13	24.43	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#0	20.86	23.16	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#6	20.81	23.11	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#13	20.81	23.11	34.77	PASS
Band13	5MHz	16QAM	23255	25RB#0	20.80	23.10	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#0	23.12	25.42	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#24	23.18	25.48	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#49	23.03	25.33	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#0	22.13	24.43	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#12	22.14	24.44	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#25	21.89	24.19	34.77	PASS
Band13	10MHz	QPSK	23230	50RB#0	21.98	24.28	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#0	21.92	24.22	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#24	22.15	24.45	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#49	21.94	24.24	34.77	PASS
Band13	10MHz	16QAM	23230	27RB#0	22.15	24.45	34.77	PASS

**Remark:**

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

$$ERP [dBm] = \text{Conducted Power [dBm]} + \text{Gain [dBd]}$$

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



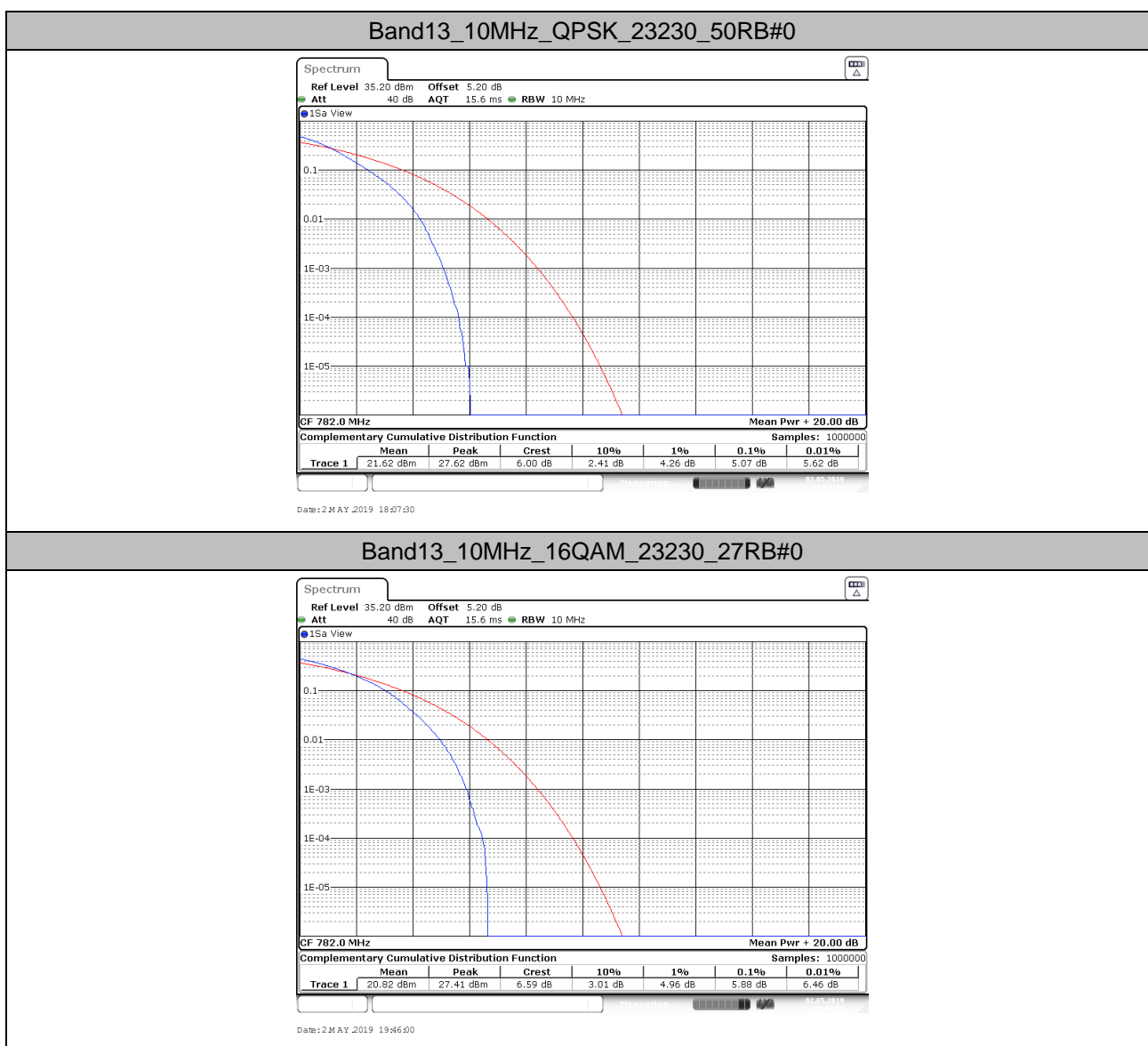
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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

## 2. Peak-to-Average Ratio(CCDF)

### 2.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	5.07	13	PASS
Band13	10MHz	16QAM	23230	27RB#0	5.88	13	PASS

### 2.2. Test Plots



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](mailto:CN.Doccheck@sgs.com)

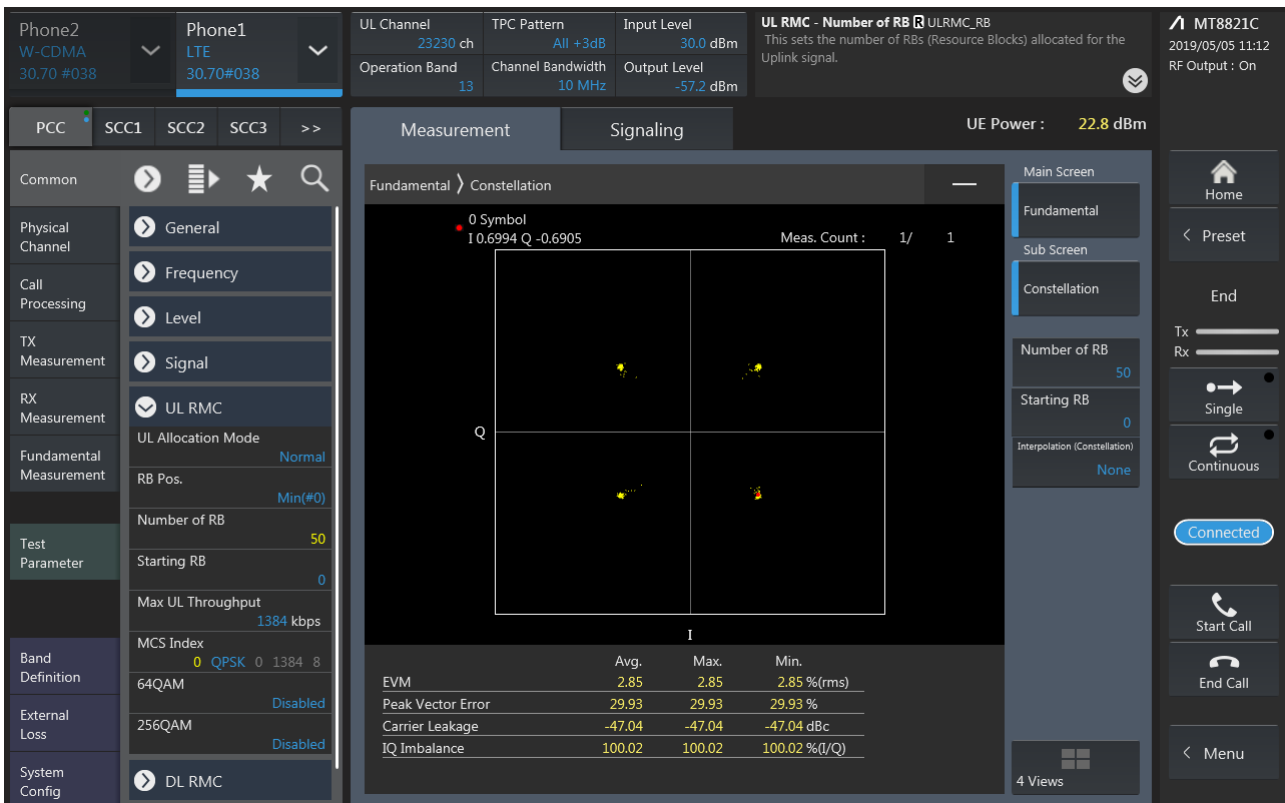


### 3. Modulation Characteristics

#### 3.1. Test BAND = LTE Band 13

#### 3.2. Test Mode = LTE /TM1 10MHz

#### 3.2.1. Test Channel = MCH

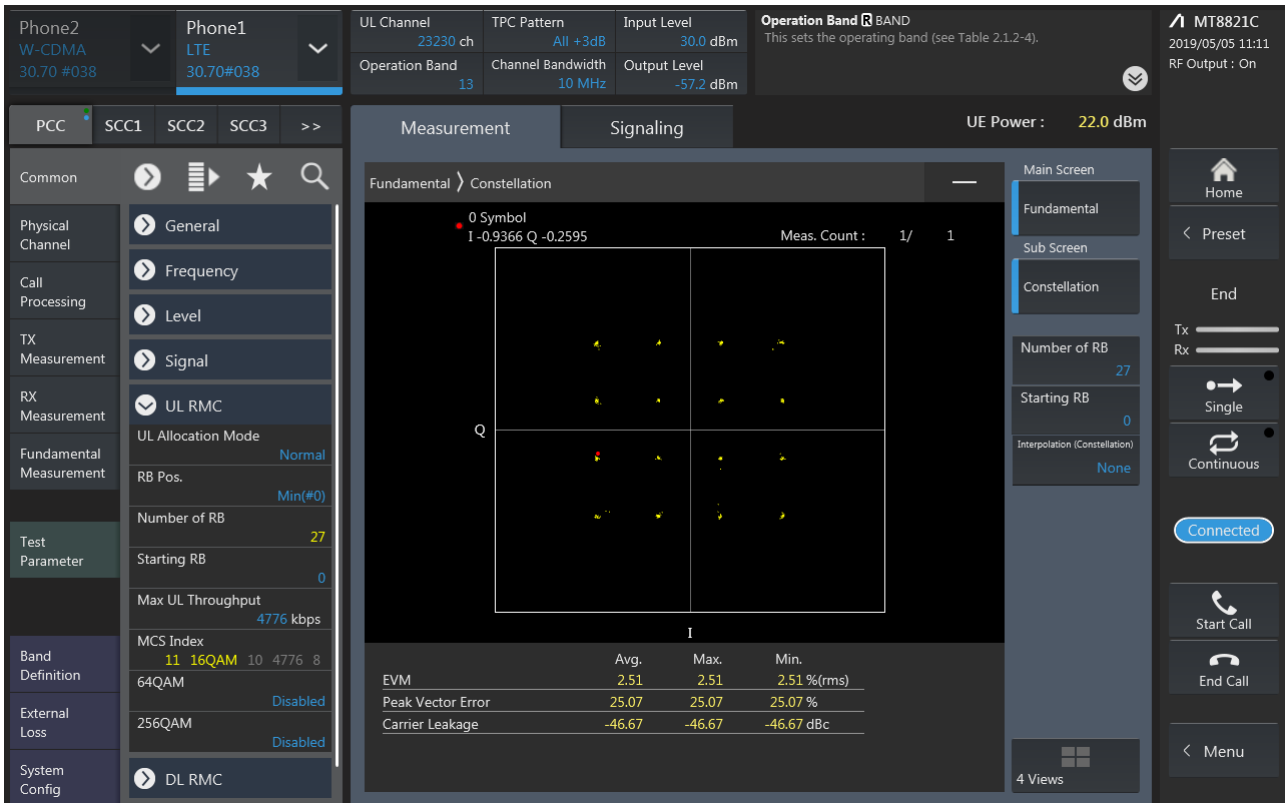


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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



### 3.3. Test Mode = LTE /TM2 10MHz

#### 3.3.1. Test Channel = MCH



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.

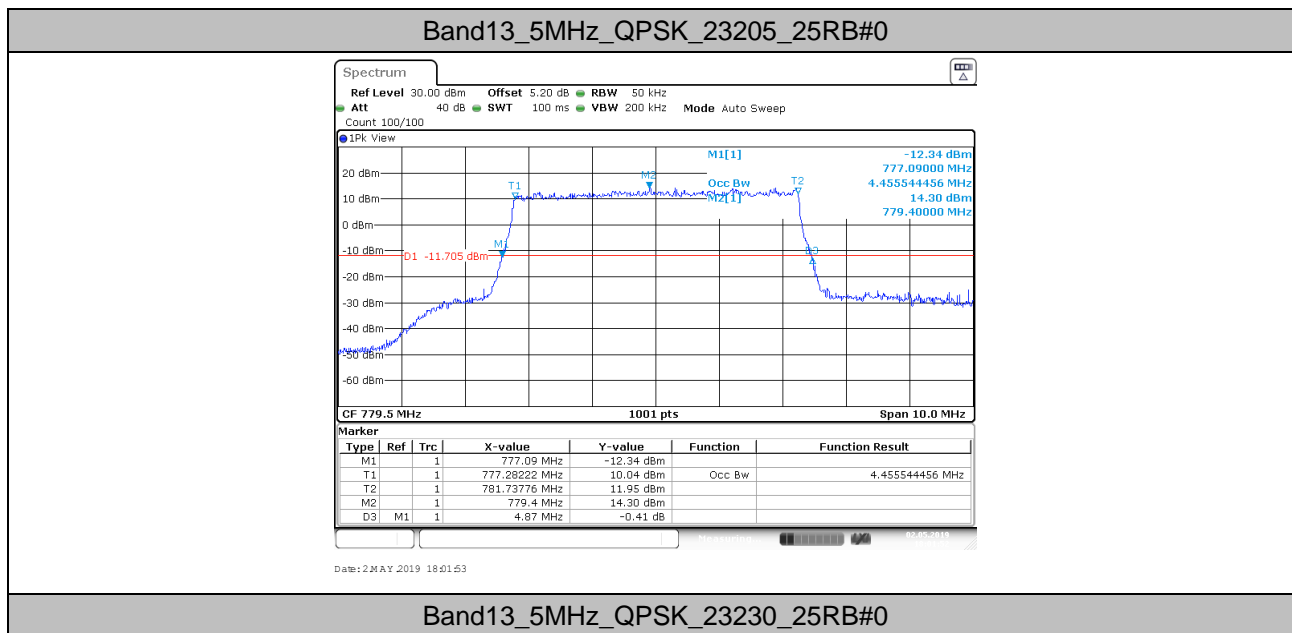
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

## 4. 26dB Bandwidth and Occupied Bandwidth

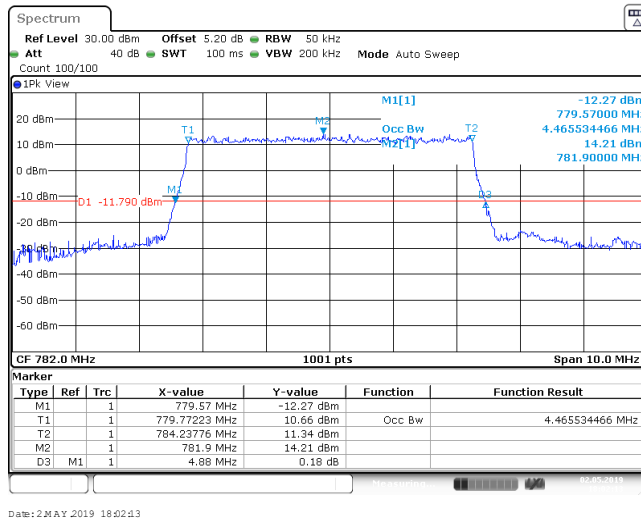
### 4.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.456	4.870	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.466	4.880	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.476	4.910	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.476	4.910	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.486	4.930	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.476	4.920	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.911	9.640	PASS
Band13	10MHz	16QAM	23230	27RB#0	4.875	5.640	PASS

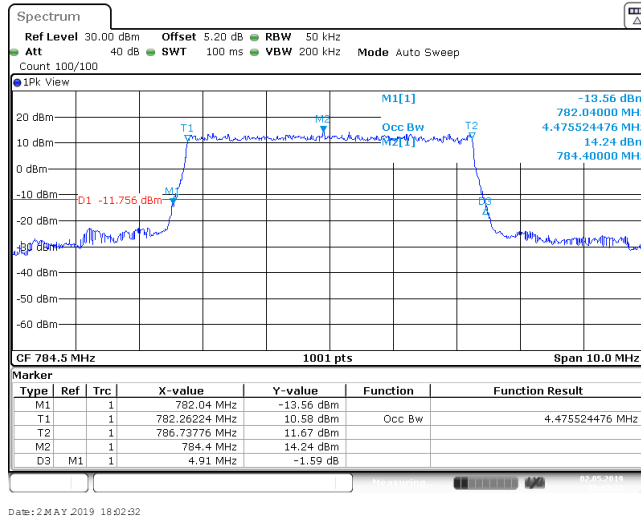
### 4.2. Test Plots







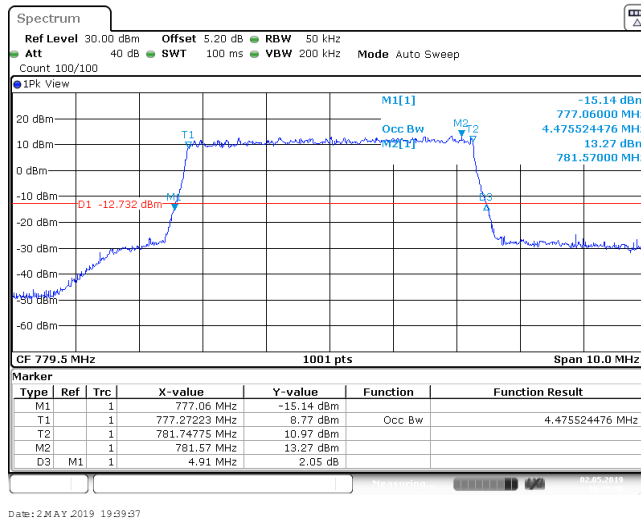
**Band13\_5MHz\_QPSK\_23255\_25RB#0**



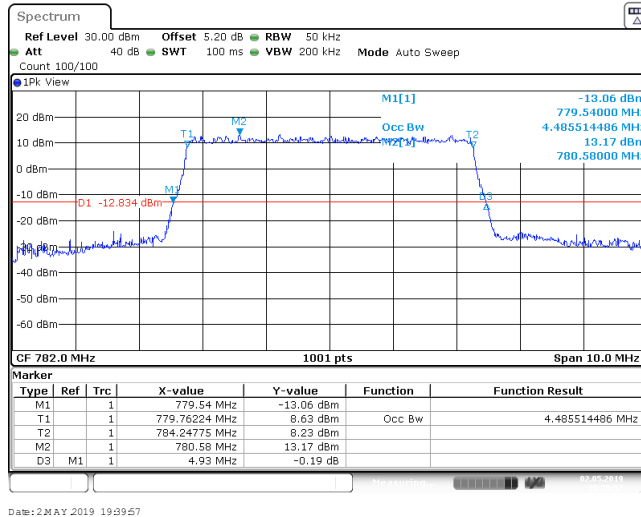
**Band13\_5MHz\_16QAM\_23205\_25RB#0**



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



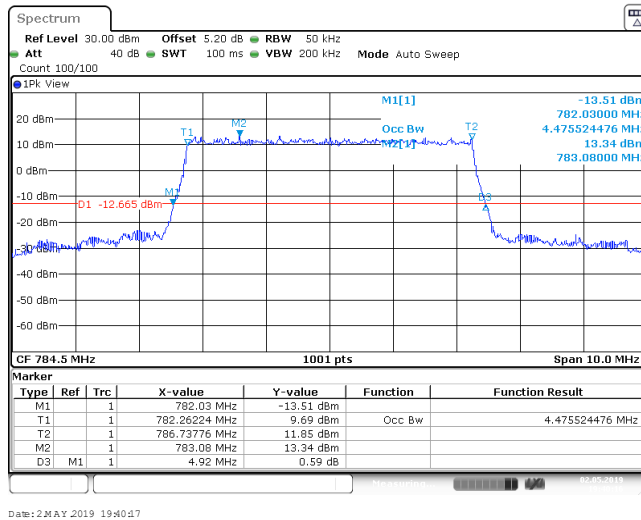
**Band13\_5MHz\_16QAM\_23230\_25RB#**



**Band13\_5MHz\_16QAM\_23255\_25RB#**

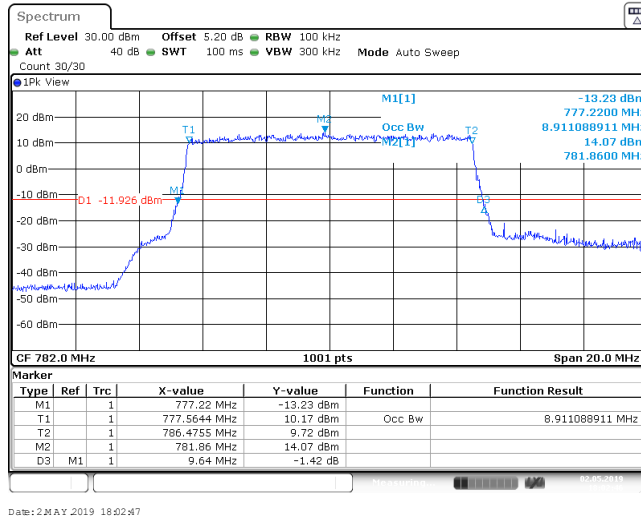


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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



Date: 2 MAY 2019 19:40:47

**Band13\_10MHz\_QPSK\_23230\_50RB#**

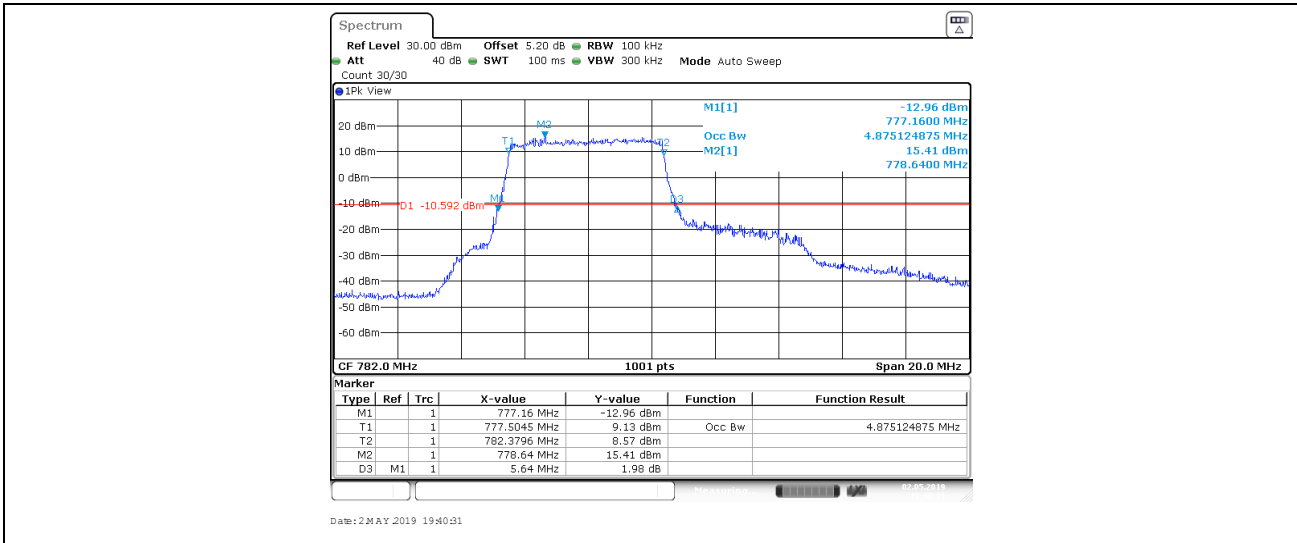


Date: 2 MAY 2019 18:02:47

**Band13\_10MHz\_16QAM\_23230\_27RB#**



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.

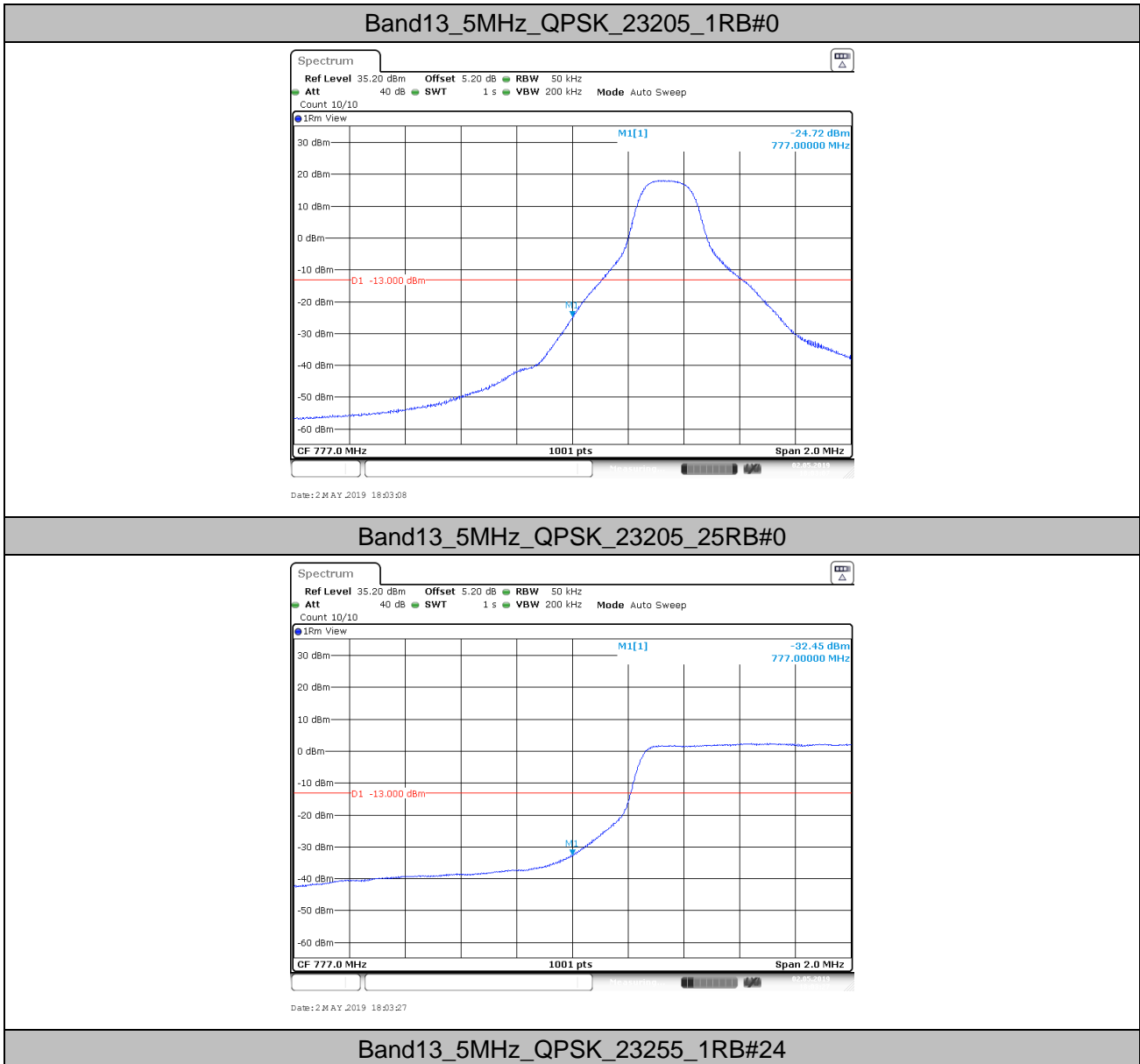


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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

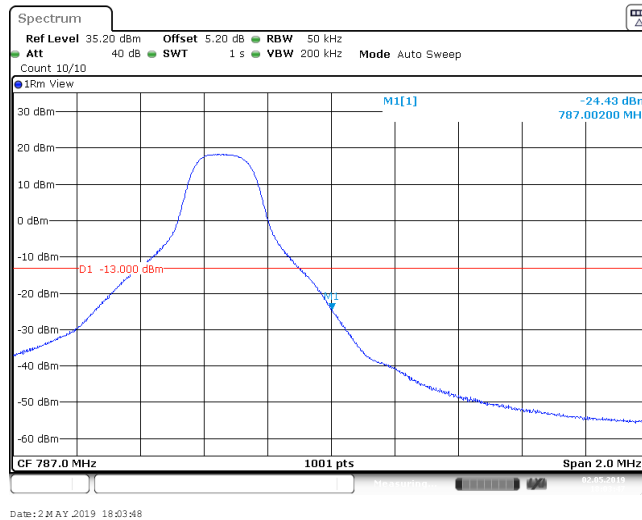
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

## 5. Band Edge Compliance

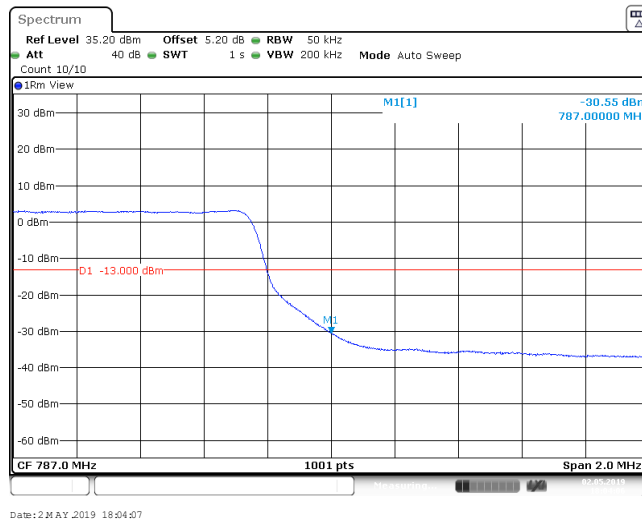
### 5.1. Test Plots



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](mailto:CN.Doccheck@sgs.com)



**Band13\_5MHz\_QPSK\_23255\_25RB#0**

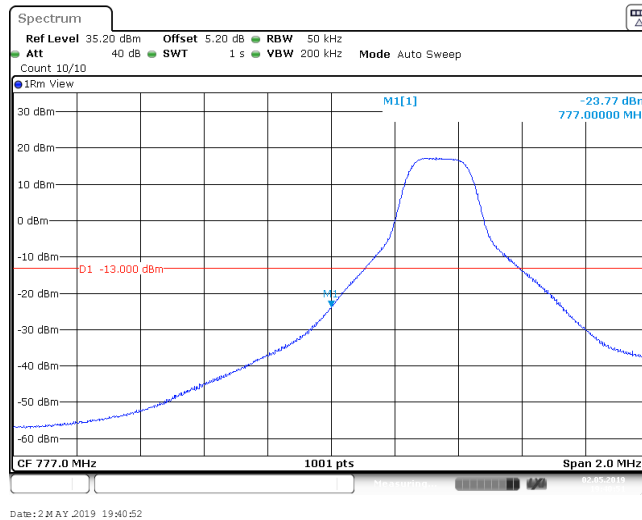


**Band13\_5MHz\_16QAM\_23205\_1RB#0**

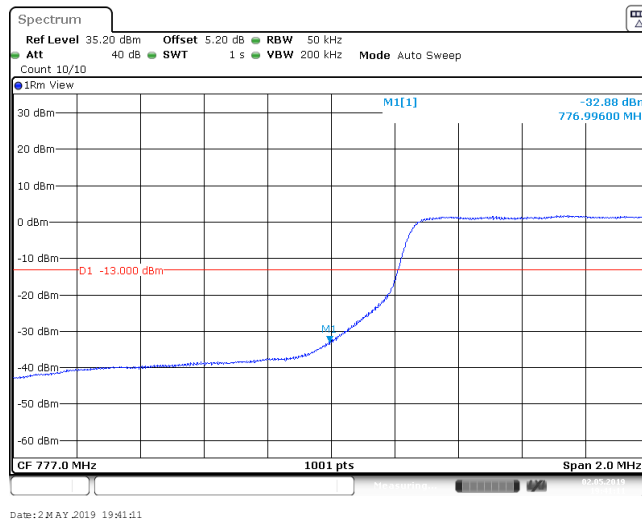


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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



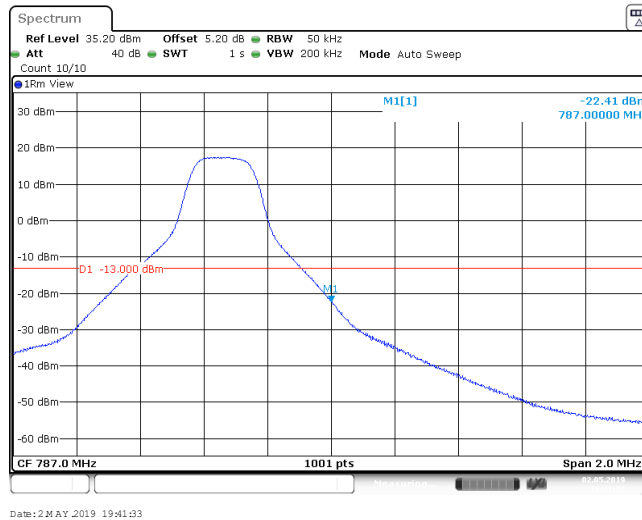
**Band13\_5MHz\_16QAM\_23205\_25RB#0**



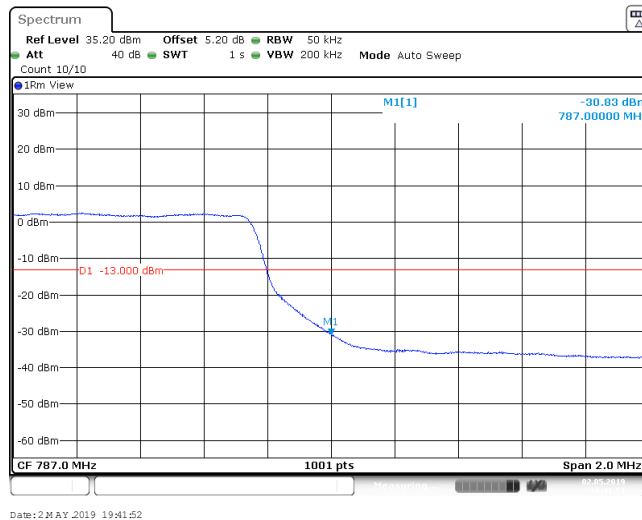
**Band13\_5MHz\_16QAM\_23255\_1RB#24**



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.



**Band13\_5MHz\_16QAM\_23255\_25RB#0**



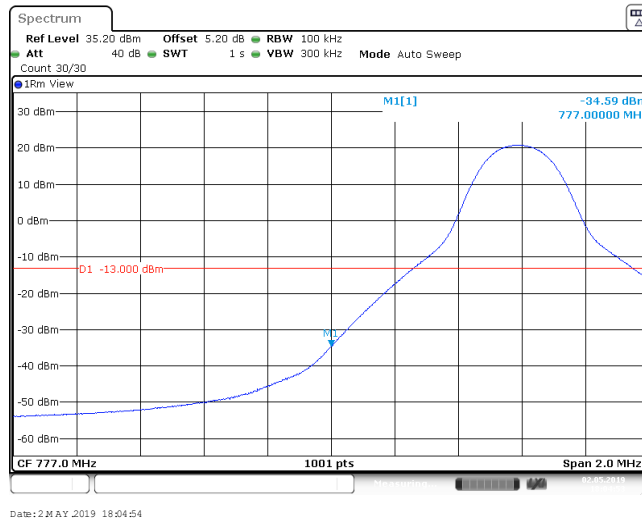
**Band13\_10MHz\_QPSK\_23230\_Left\_1RB#0**



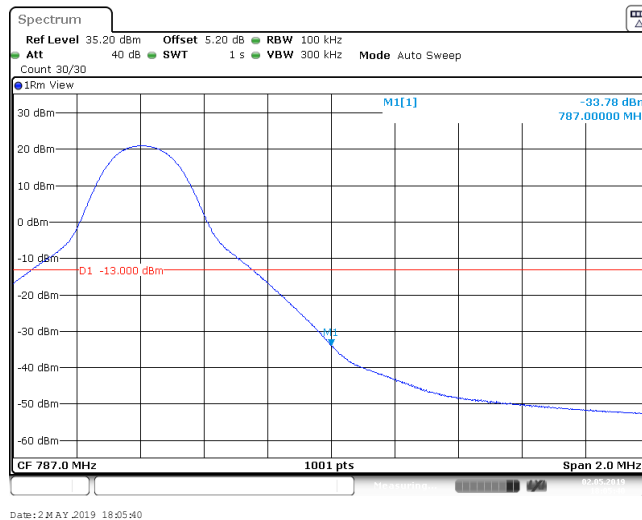
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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





**Band13\_10MHz\_QPSK\_23230\_Right\_1RB#49**

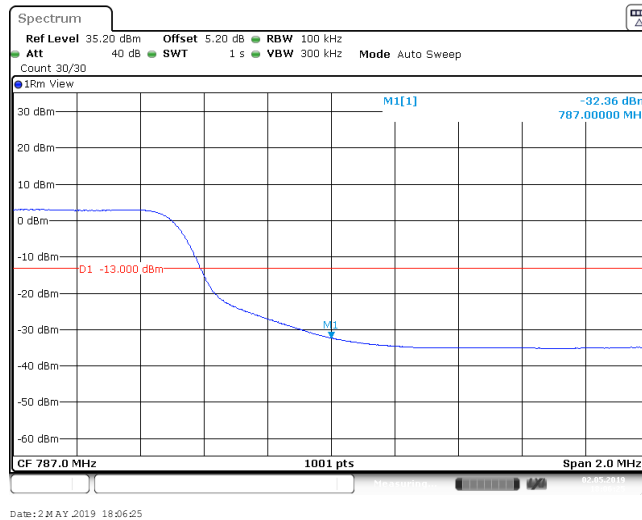


**Band13\_10MHz\_QPSK\_23230\_Right\_50RB#0**

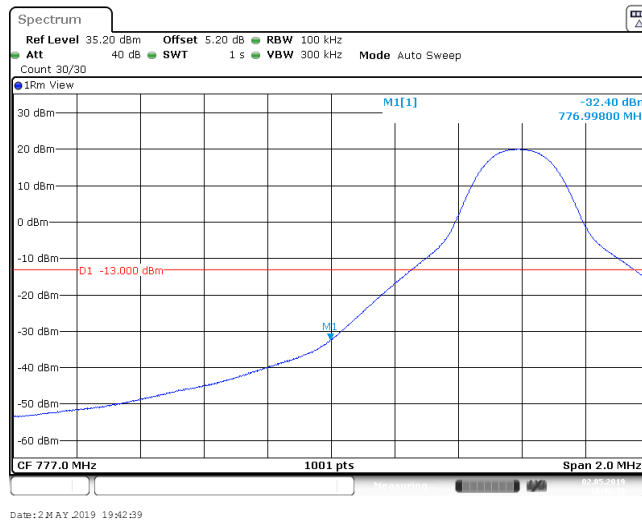


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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



**Band13\_10MHz\_16QAM\_23230\_Left\_1RB#0**

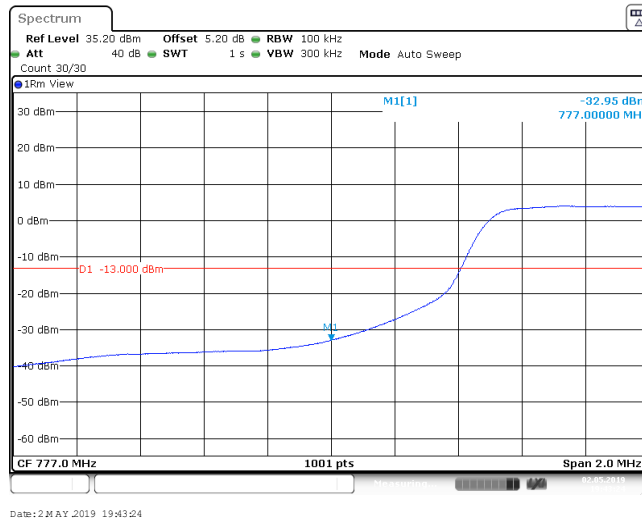


**Band13\_10MHz\_16QAM\_23230\_Left\_27RB#0**

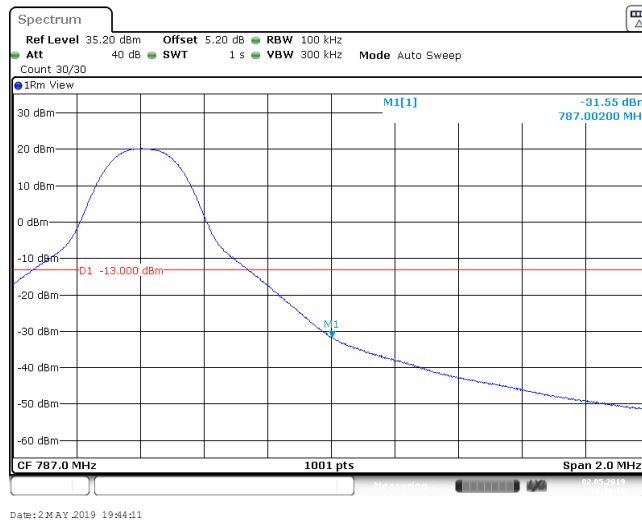


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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



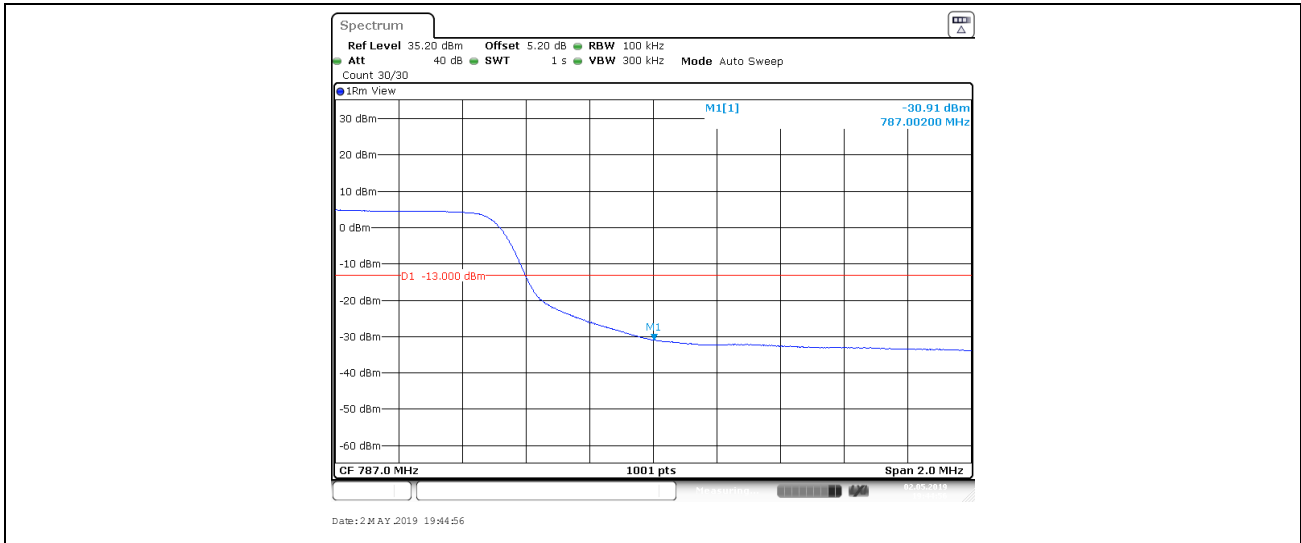
**Band13\_10MHz\_16QAM\_23230\_Right\_1RB#49**



**Band13\_10MHz\_16QAM\_23230\_Right\_27RB#23**



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](mailto:CN.Doccheck@sgs.com)



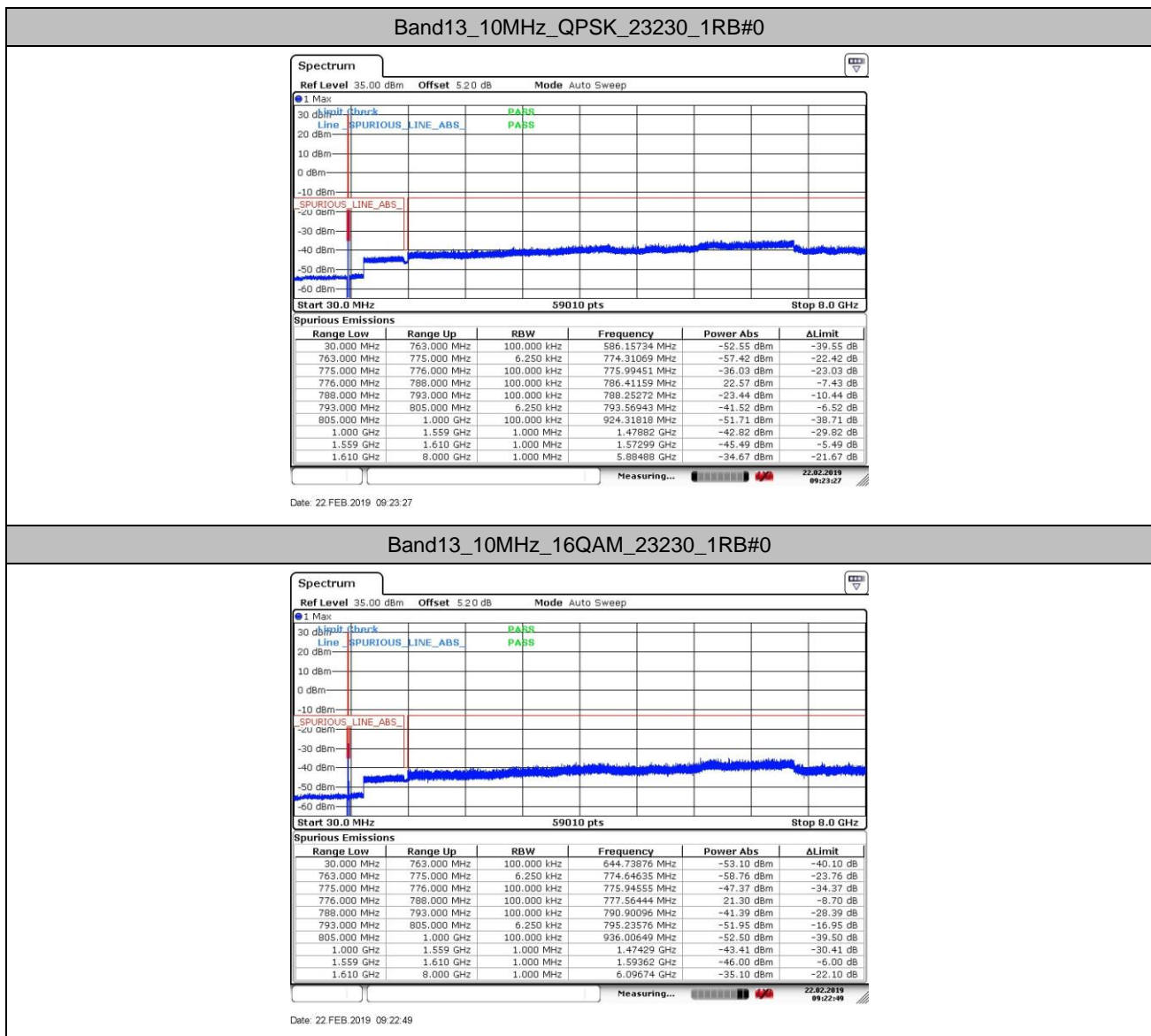
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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

## 6. Spurious Emission at Antenna Terminal

Remark1: 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 =  $k * (Span / RBW)$ " with  $k$  between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

Remark2: only the worst case data displayed in this report.

### 6.1. Test Plots



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](mailto:CN.Doccheck@sgs.com)

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

## 7. Field Strength of Spurious Radiation

### 7.1. Test BAND = LTE Band 13

#### 7.1.1. Test Mode = LTE/TM1 10MHz

##### 7.1.1.1. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
78.8424	-65.39	-13	52.39	Vertical
104.9328	-65.02	-13	52.02	Vertical
470.3654	-62.08	-13	49.08	Vertical
1558.3689	-59.73	-40	19.73	Vertical
4681.1002	-53.83	-13	30.83	Vertical
17997.555	-30.41	-13	17.41	Vertical
45.1147	-63.96	-13	50.96	Horizontal
164.5728	-63.10	-13	50.10	Horizontal
646.3562	-67.16	-13	54.16	Horizontal
1556.4779	-60.93	-40	20.93	Horizontal
3118.1378	-50.45	-13	33.45	Horizontal
17993.636	-35.98	-13	22.98	Horizontal

**Remark:**

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

We have tested all modulation and all Bandwidth , but 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-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](mailto:CN.Doccheck@sgs.com)



## 8. Frequency Stability

### 8.1. Frequency Vs Voltage

Voltage										
BAND	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	VL	NT	-9.28	-0.011866	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VN	NT	14.17	0.018120	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VH	NT	-5.43	-0.006948	±2.5	PASS
Band13	10MHz	16QAM	23230	27RB#0	VL	NT	-7.96	-0.010182	±2.5	PASS
Band13	10MHz	16QAM	23230	27RB#0	VN	NT	-7.64	-0.009774	±2.5	PASS
Band13	10MHz	16QAM	23230	27RB#0	VH	NT	-9.86	-0.012612	±2.5	PASS

### 8.2. Frequency Vs Temperature

Temperature										
BAND	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	10MHz	QPSK	23230	27RB#0	NV	-30	6.43	0.008227	±2.5	PASS
Band13	10MHz	QPSK	23230	27RB#0	NV	-20	-5.88	-0.007519	±2.5	PASS
Band13	10MHz	QPSK	23230	27RB#0	NV	0	-5.14	-0.006571	±2.5	PASS
Band13	10MHz	QPSK	23230	27RB#0	NV	10	3.88	0.004959	±2.5	PASS
Band13	10MHz	QPSK	23230	27RB#0	NV	20	11.32	0.014471	±2.5	PASS
Band13	10MHz	QPSK	23230	27RB#0	NV	30	-0.69	-0.000886	±2.5	PASS
Band13	10MHz	QPSK	23230	27RB#0	NV	40	-11.54	-0.014758	±2.5	PASS
Band13	10MHz	QPSK	23230	27RB#0	NV	50	-9.07	-0.011594	±2.5	PASS
Band13	10MHz	16QAM	23230	27RB#0	NV	-30	-2.53	-0.003237	±2.5	PASS
Band13	10MHz	16QAM	23230	27RB#0	NV	-20	-7.14	-0.009125	±2.5	PASS
Band13	10MHz	16QAM	23230	27RB#0	NV	0	9.60	0.012279	±2.5	PASS
Band13	10MHz	16QAM	23230	27RB#0	NV	10	15.00	0.019178	±2.5	PASS
Band13	10MHz	16QAM	23230	27RB#0	NV	20	-10.88	-0.013914	±2.5	PASS
Band13	10MHz	16QAM	23230	27RB#0	NV	30	-14.78	-0.018905	±2.5	PASS
Band13	10MHz	16QAM	23230	27RB#0	NV	40	-5.95	-0.007602	±2.5	PASS
Band13	10MHz	16QAM	23230	27RB#0	NV	50	13.00	0.016624	±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](mailto:CN.Doccheck@sgs.com)