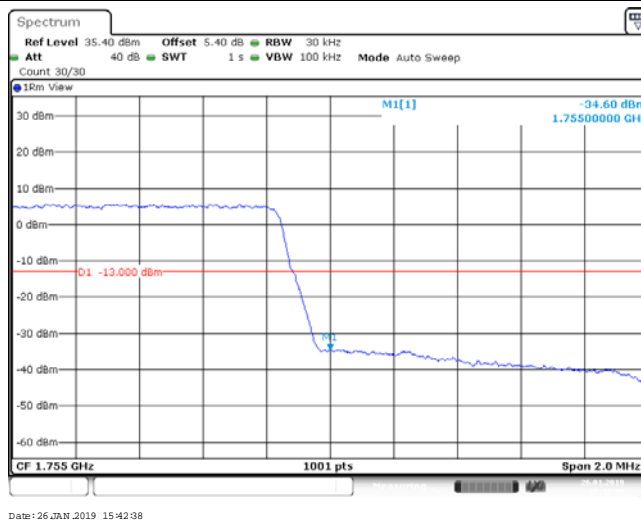


Band4\_1.4MHz\_16QAM\_20393\_6RB#0



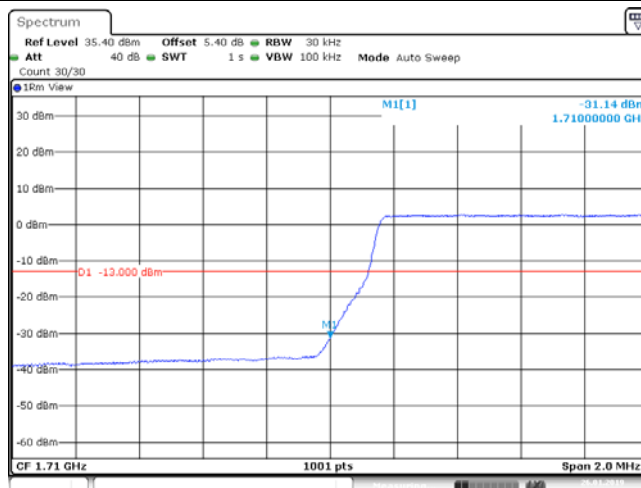
Band4\_3MHz\_QPSK\_19965\_1RB#0





Date: 26 JAN 2019 15:44:08

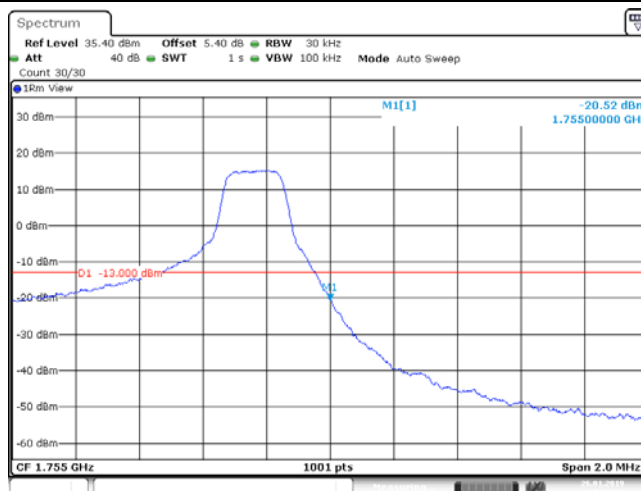
Band4\_3MHz\_QPSK\_19965\_15RB#0



Date: 26 JAN 2019 15:45:04

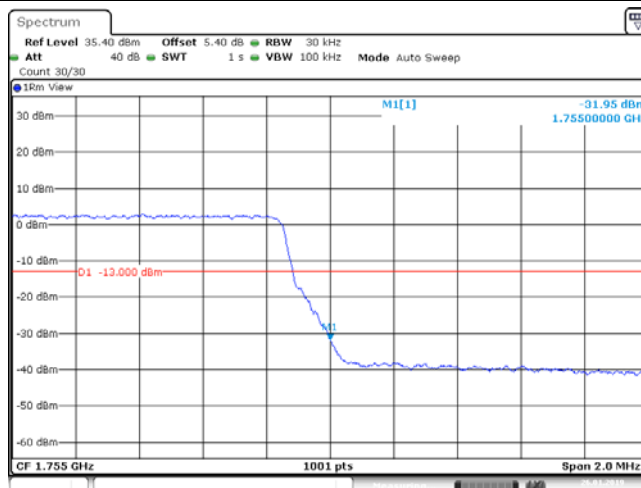
Band4\_3MHz\_QPSK\_20385\_1RB#14





Date: 26 JAN 2019 15:47:07

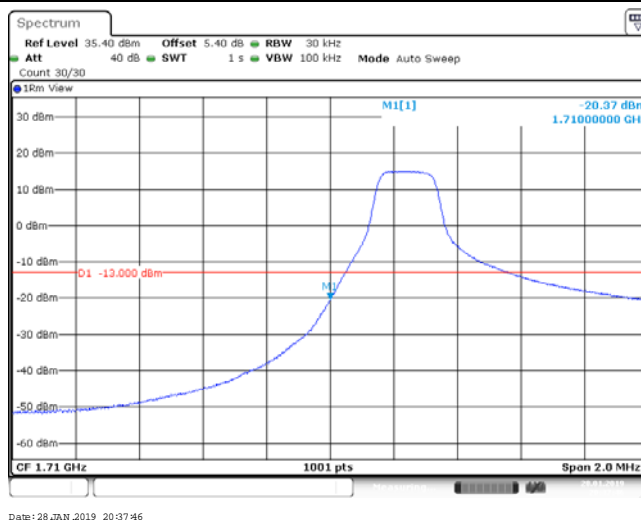
Band4\_3MHz\_QPSK\_20385\_15RB#0



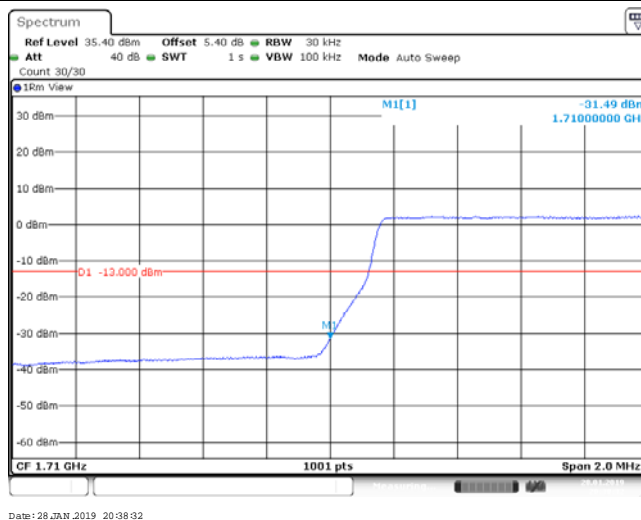
Date: 26 JAN 2019 15:48:04

Band4\_3MHz\_64QAM\_19965\_1RB#0



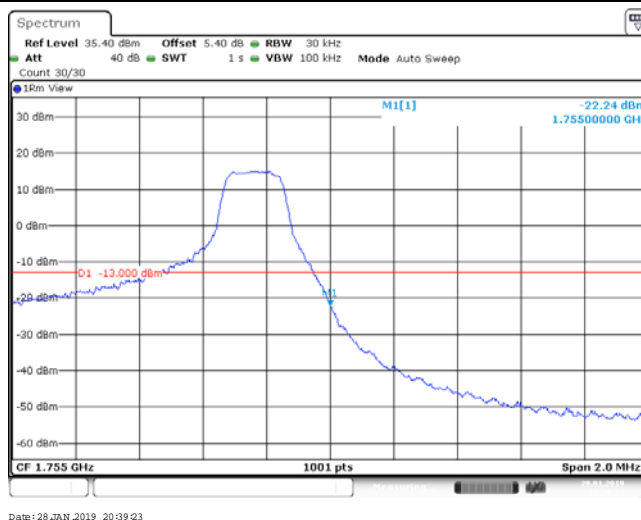


Band4\_3MHz\_64QAM\_19965\_15RB#0

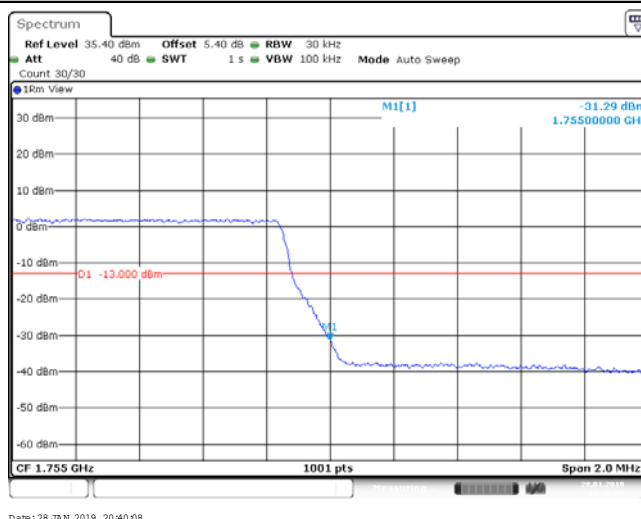


Band4\_3MHz\_64QAM\_20385\_1RB#14



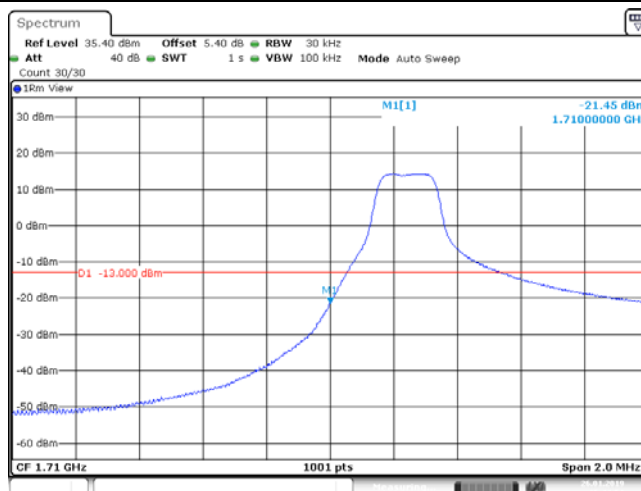


Band4\_3MHz\_64QAM\_20385\_15RB#0



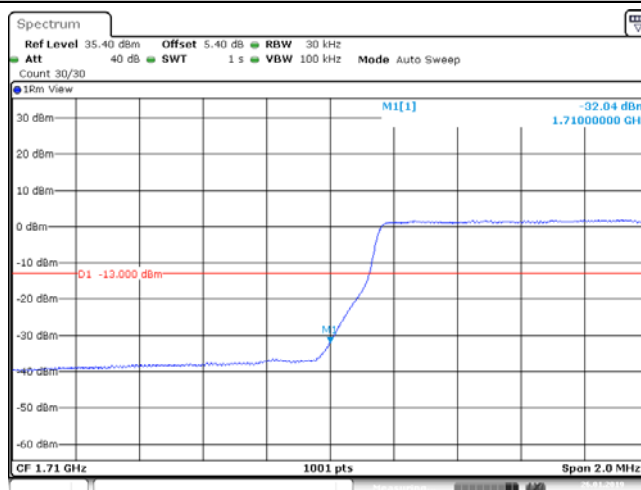
Band4\_3MHz\_16QAM\_19965\_1RB#0





Date: 26 JAN 2019 15:44:51

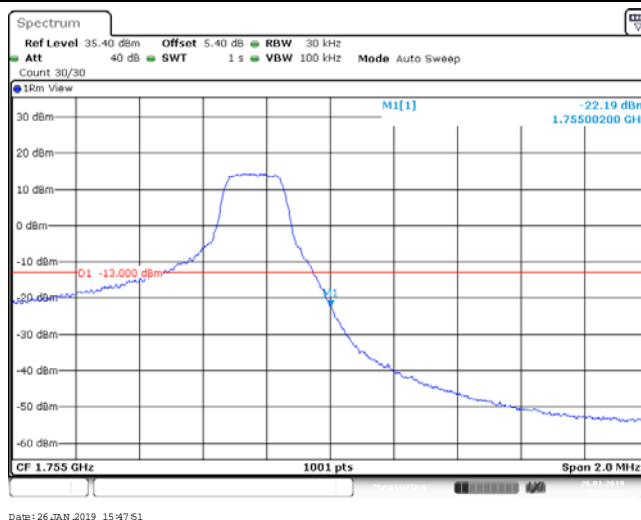
Band4\_3MHz\_16QAM\_19965\_15RB#0



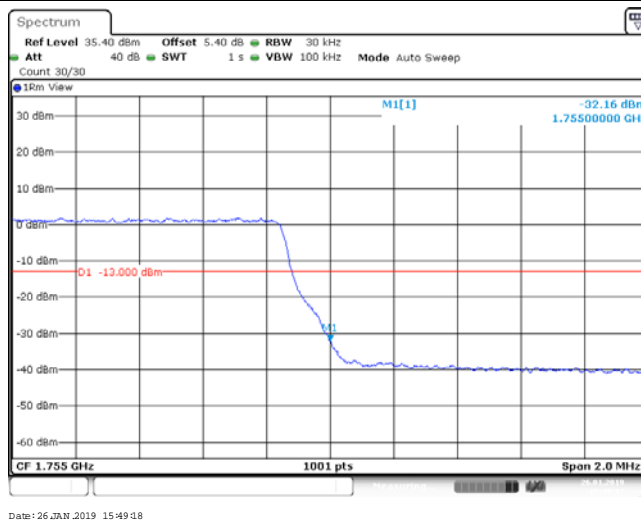
Date: 26 JAN 2019 15:46:17

Band4\_3MHz\_16QAM\_20385\_1RB#14



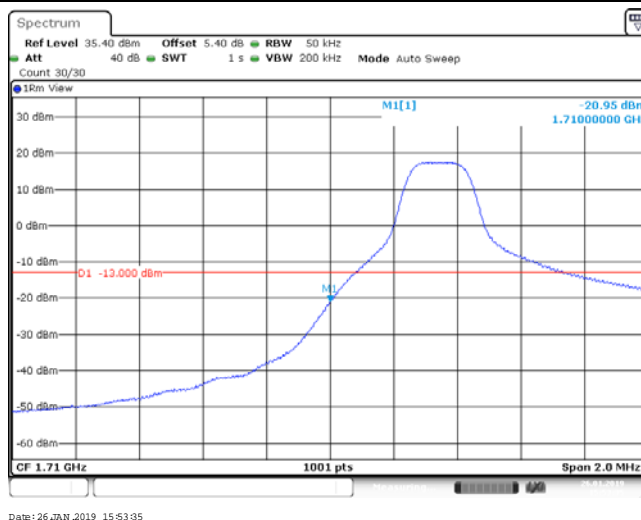


Band4\_3MHz\_16QAM\_20385\_15RB#0

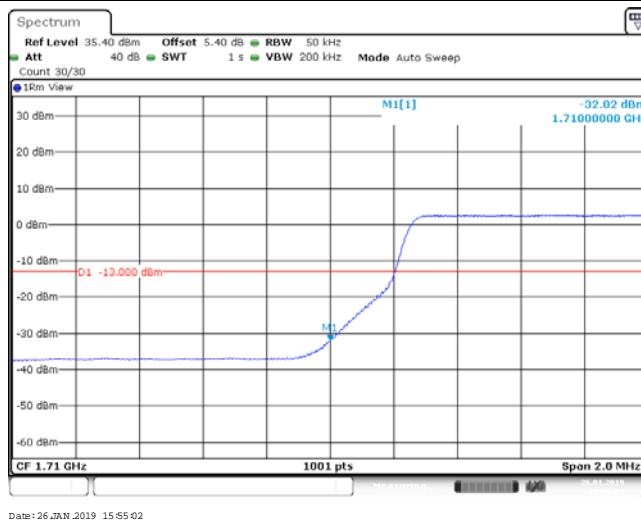


Band4\_5MHz\_QPSK\_19975\_1RB#0



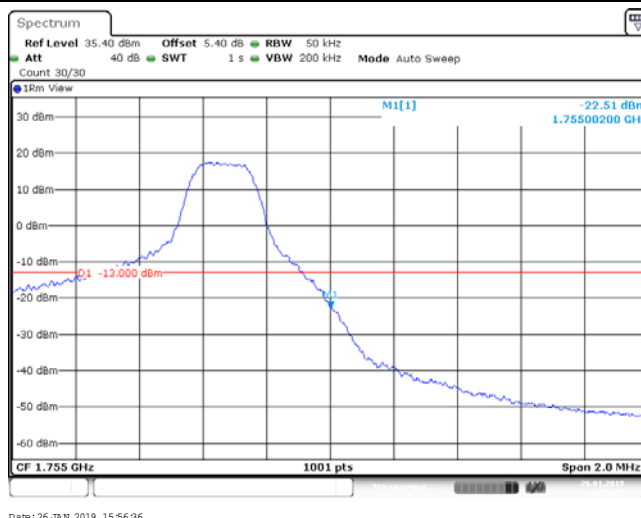


Band4\_5MHz\_QPSK\_19975\_25RB#0

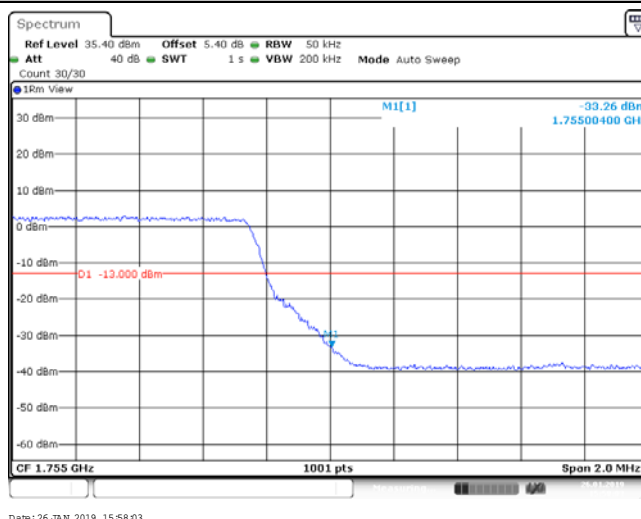


Band4\_5MHz\_QPSK\_20375\_1RB#24





**Band4\_5MHz\_QPSK\_20375\_25RB#0**

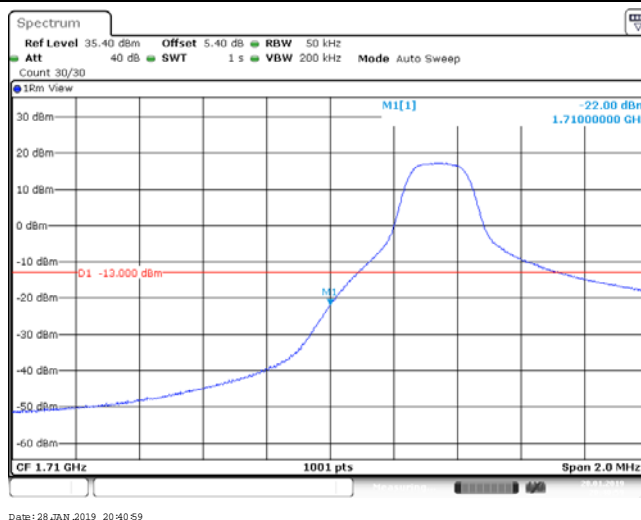


**Band4\_5MHz\_64QAM\_19975\_1RB#0**

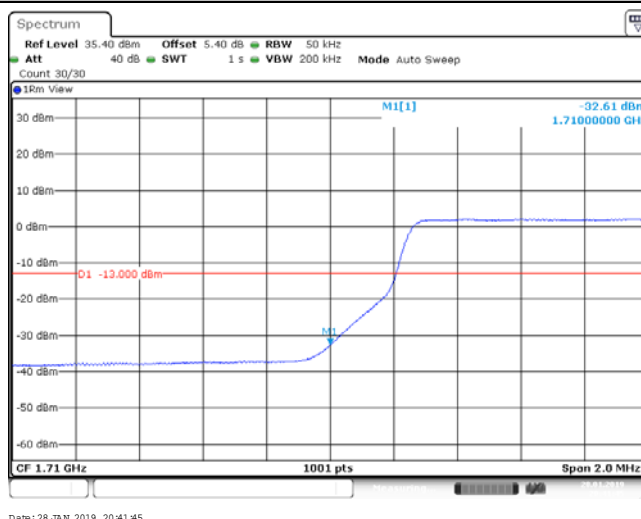


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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

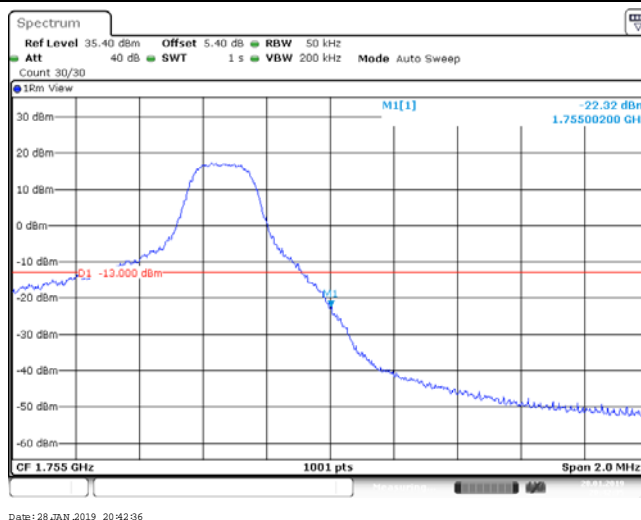


Band4\_5MHz\_64QAM\_19975\_25RB#0

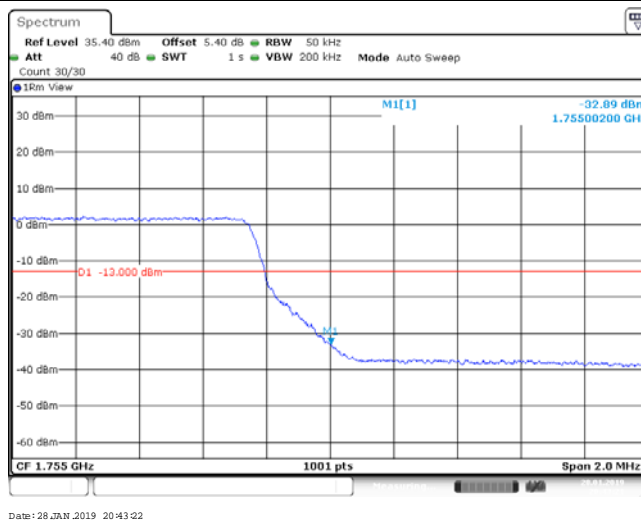


Band4\_5MHz\_64QAM\_20375\_1RB#24



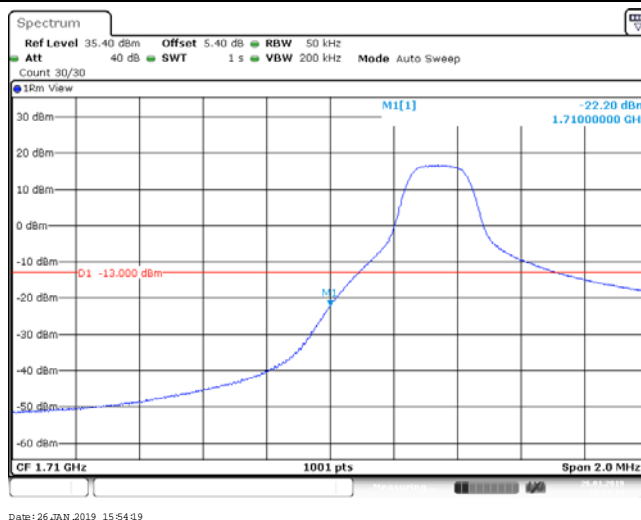


Band4\_5MHz\_64QAM\_20375\_25RB#0

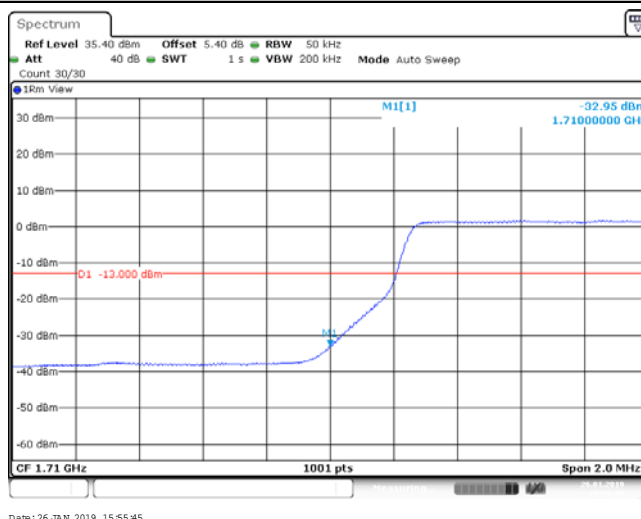


Band4\_5MHz\_16QAM\_19975\_1RB#0



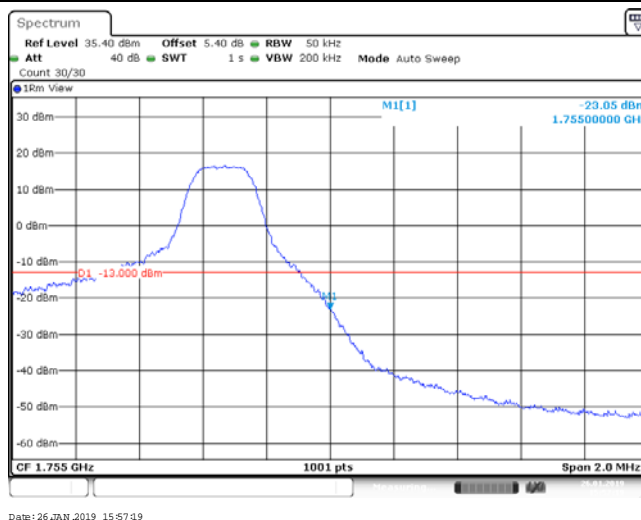


Band4\_5MHz\_16QAM\_19975\_25RB#0

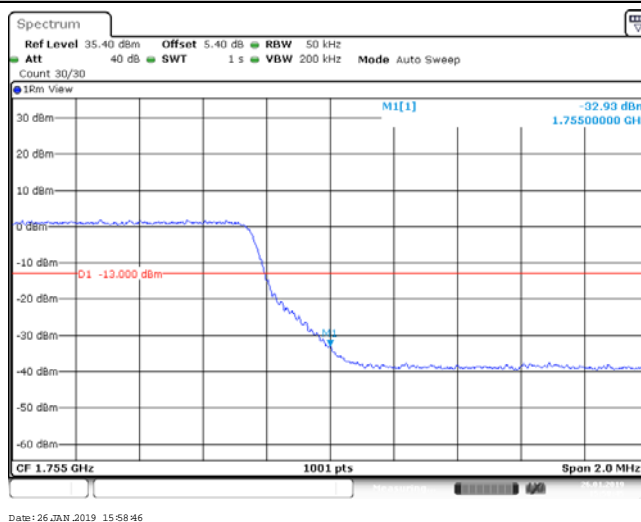


Band4\_5MHz\_16QAM\_20375\_1RB#24



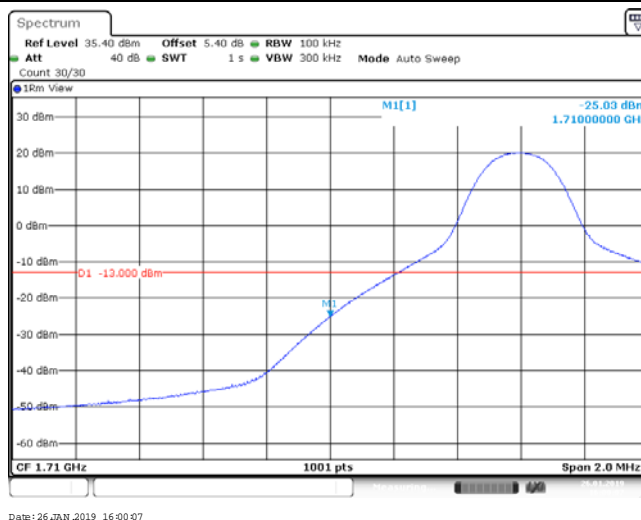


Band4\_5MHz\_16QAM\_20375\_25RB#0

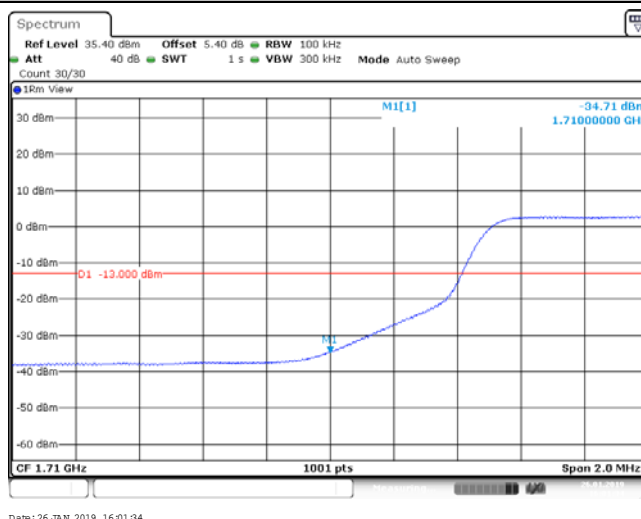


Band4\_10MHz\_QPSK\_20000\_1RB#0



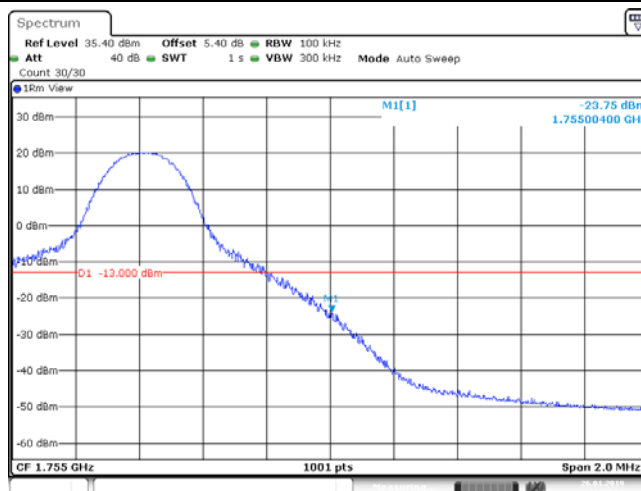


Band4\_10MHz\_QPSK\_20000\_50RB#0



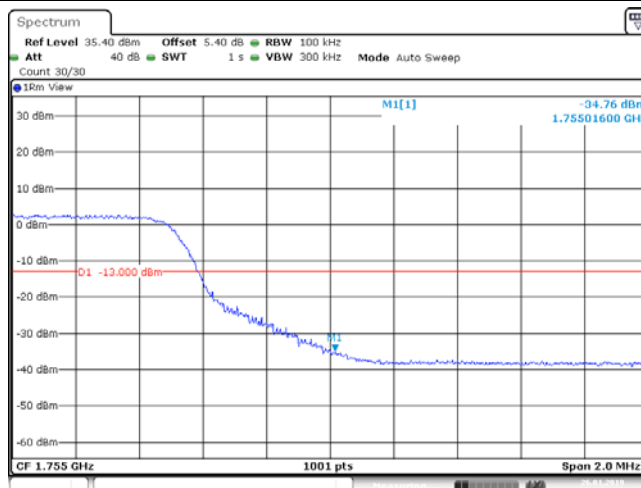
Band4\_10MHz\_QPSK\_20350\_1RB#49





Date: 26 JAN 2019 16:03:08

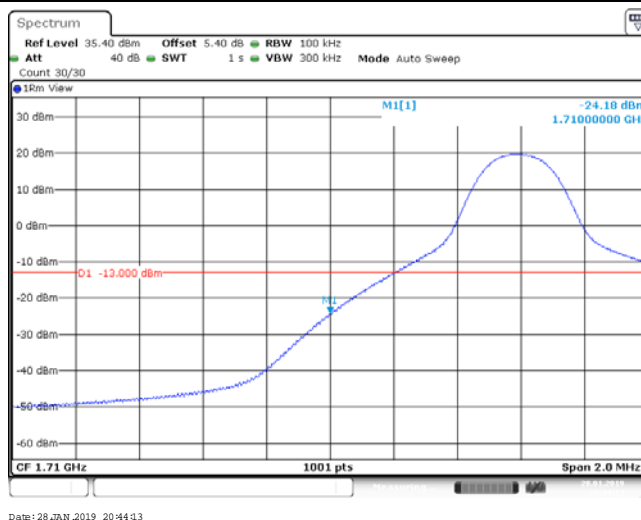
Band4\_10MHz\_QPSK\_20350\_50RB#0



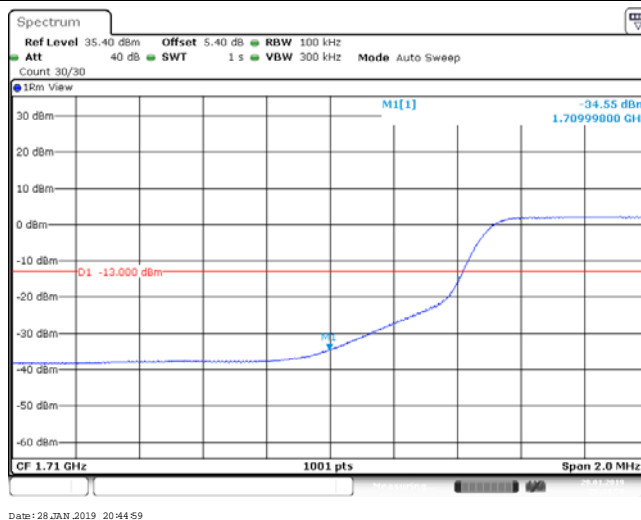
Date: 26 JAN 2019 16:04:06

Band4\_10MHz\_64QAM\_20000\_1RB#0



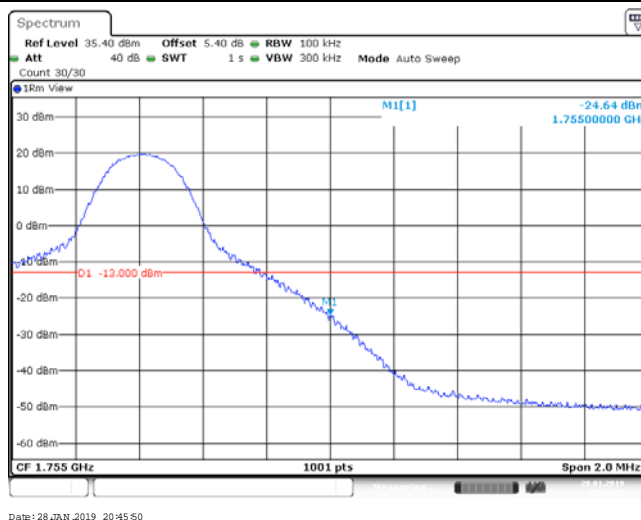


Band4\_10MHz\_64QAM\_20000\_50RB#0

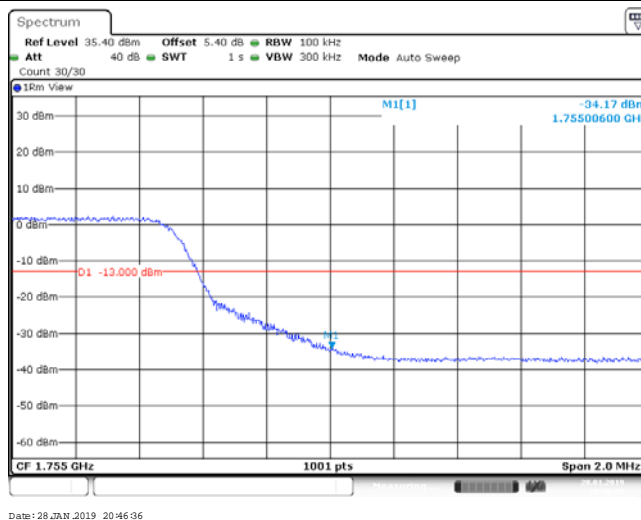


Band4\_10MHz\_64QAM\_20350\_1RB#49



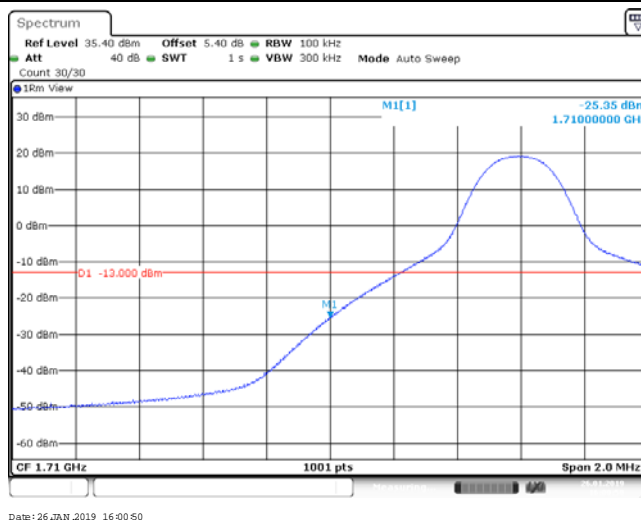


Band4\_10MHz\_64QAM\_20350\_50RB#0

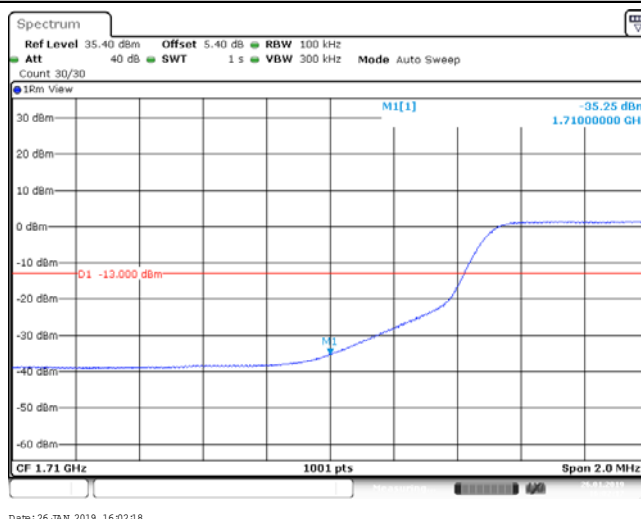


Band4\_10MHz\_16QAM\_20000\_1RB#0



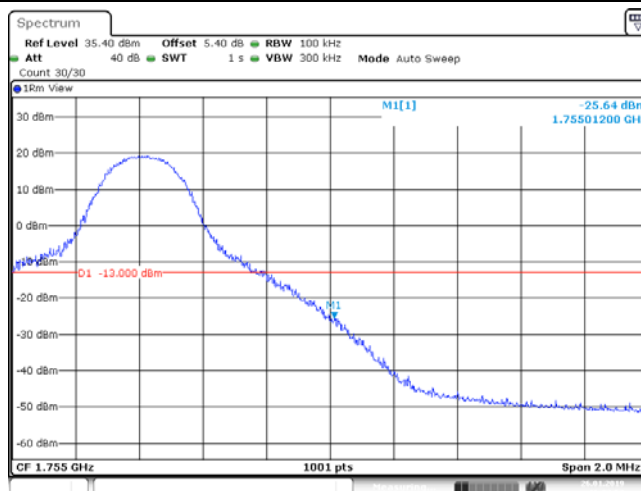


**Band4\_10MHz\_16QAM\_20000\_50RB#0**



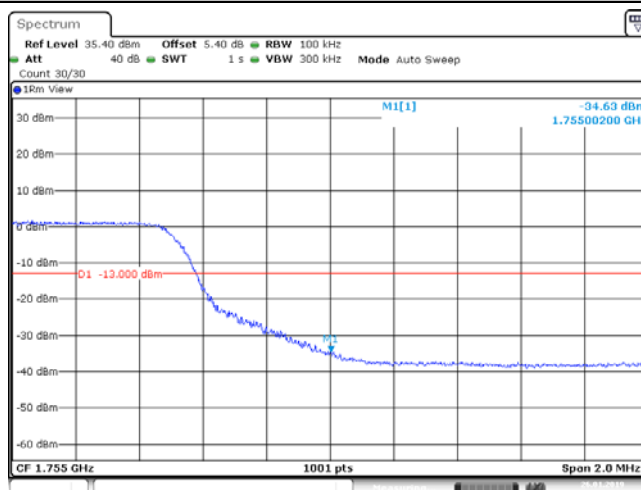
**Band4\_10MHz\_16QAM\_20350\_1RB#49**





Date: 26 JAN 2019 16:03:52

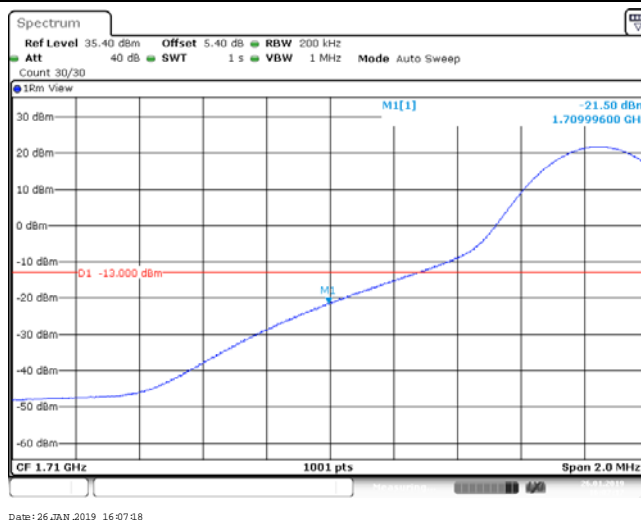
Band4\_10MHz\_16QAM\_20350\_50RB#0



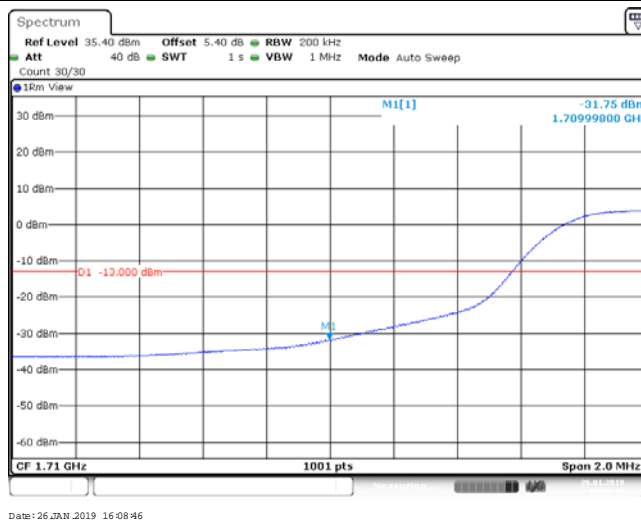
Date: 26 JAN 2019 16:05:20

Band4\_15MHz\_QPSK\_20025\_1RB#0



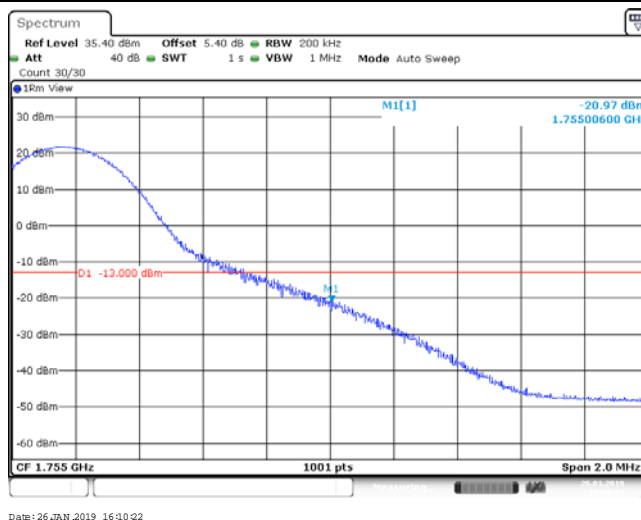


Band4\_15MHz\_QPSK\_20025\_75RB#0

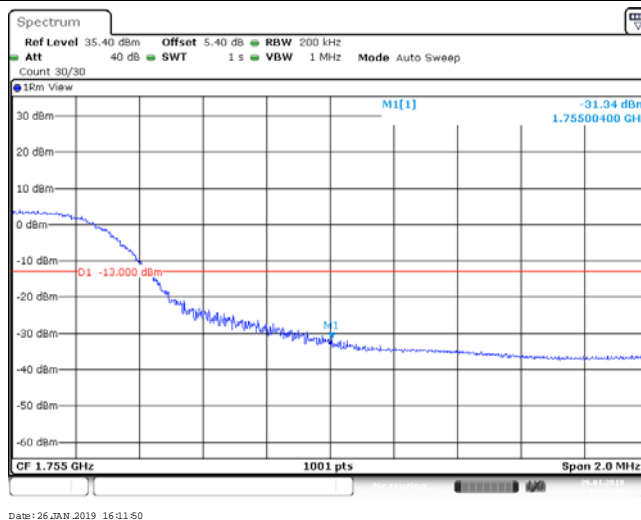


Band4\_15MHz\_QPSK\_20325\_1RB#74



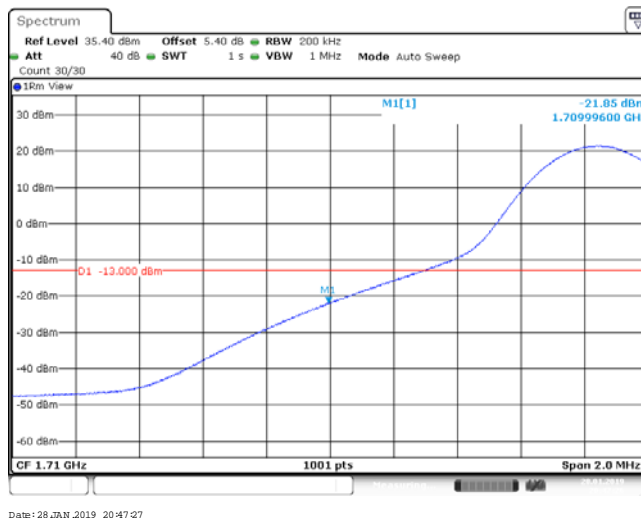


Band4\_15MHz\_QPSK\_20325\_75RB#0

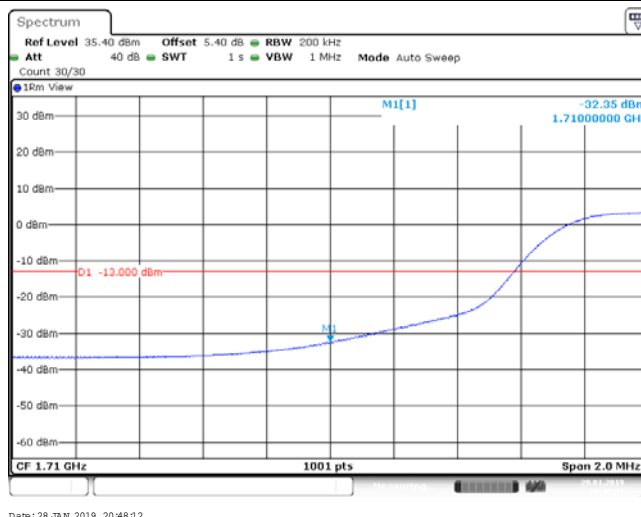


Band4\_15MHz\_64QAM\_20025\_1RB#0



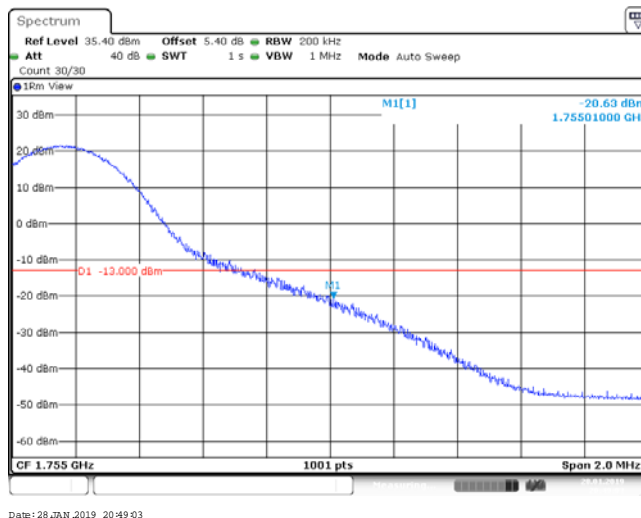


Band4\_15MHz\_64QAM\_20025\_75RB#0

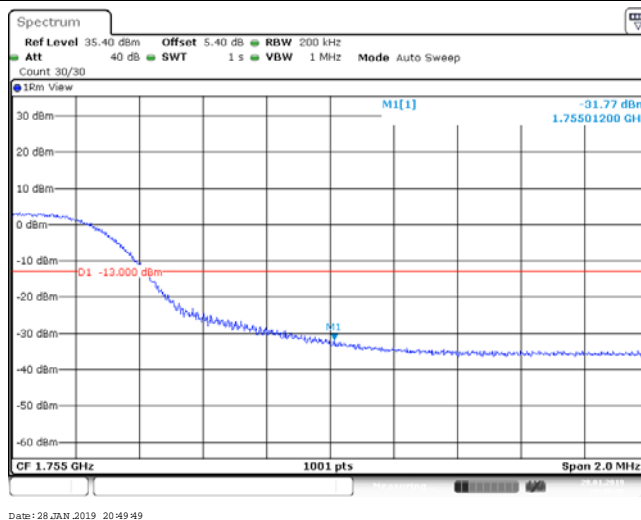


Band4\_15MHz\_64QAM\_20325\_1RB#74



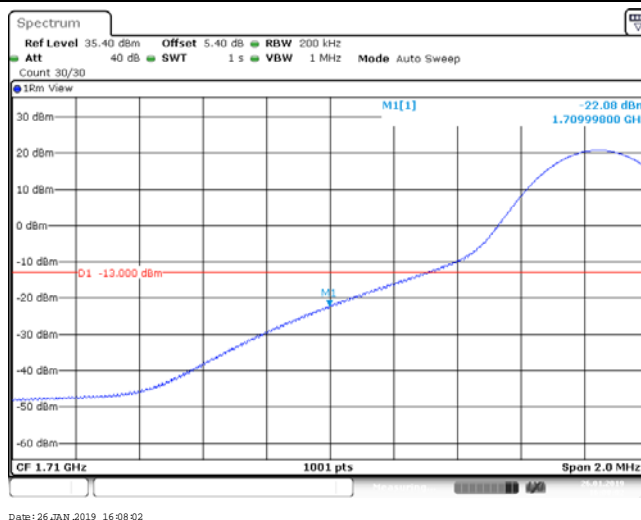


Band4\_15MHz\_64QAM\_20325\_75RB#0

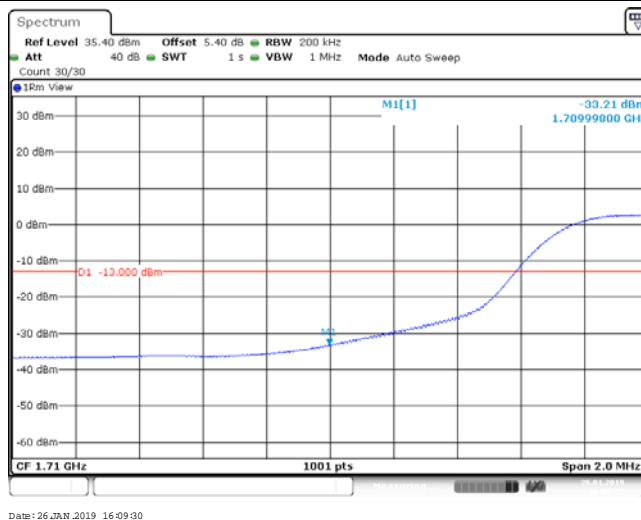


Band4\_15MHz\_16QAM\_20025\_1RB#0



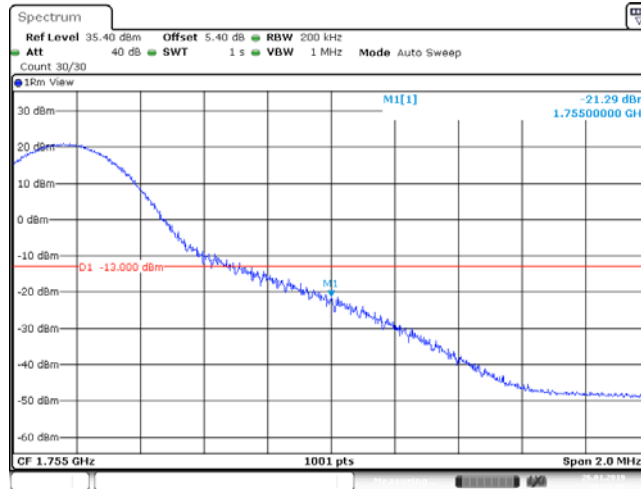


Band4\_15MHz\_16QAM\_20025\_75RB#0



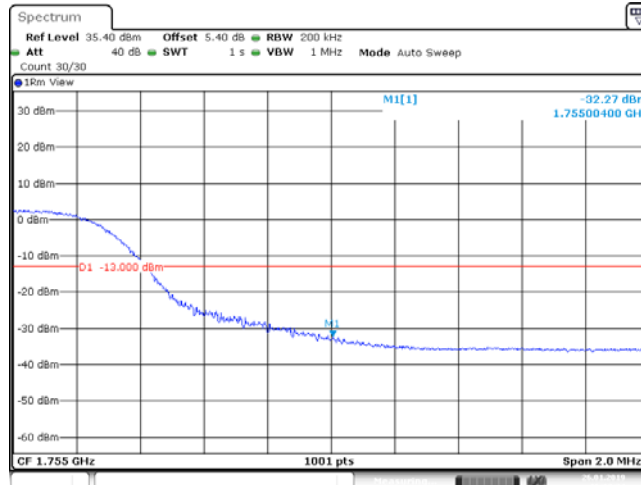
Band4\_15MHz\_16QAM\_20325\_1RB#74





Date: 26 JAN 2019 16:11:06

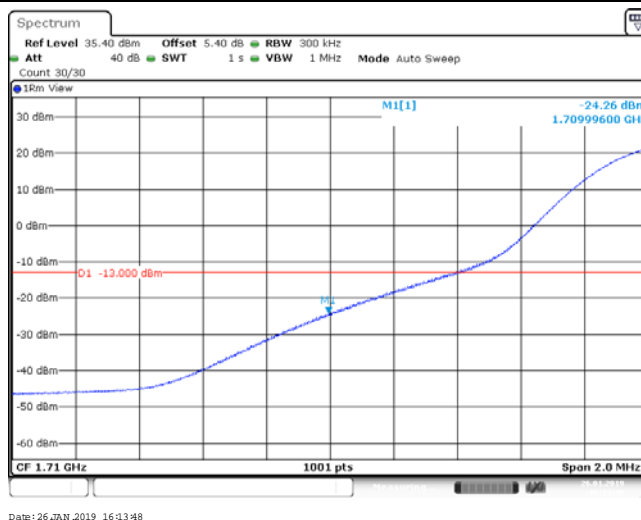
**Band4\_15MHz\_16QAM\_20325\_75RB#0**



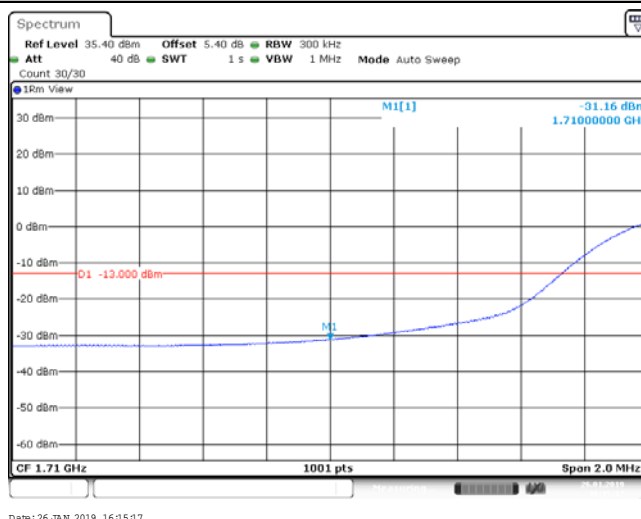
Date: 26 JAN 2019 16:12:34

**Band4\_20MHz\_QPSK\_20050\_1RB#0**





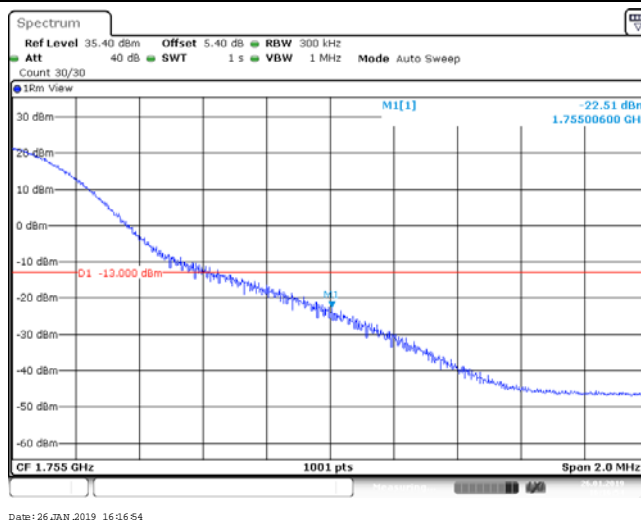
**Band4\_20MHz\_QPSK\_20050\_100RB#0**



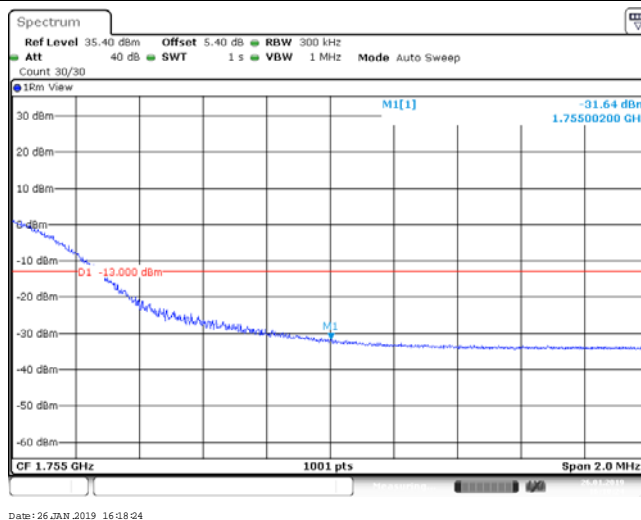
**Band4\_20MHz\_QPSK\_20300\_1RB#99**



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)

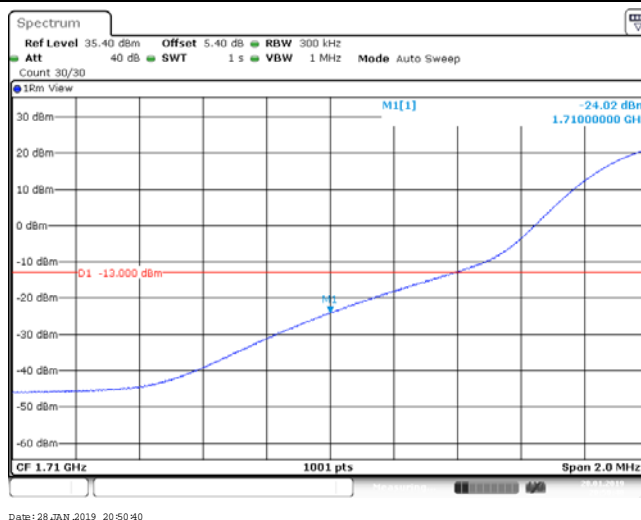


Band4\_20MHz\_QPSK\_20300\_100RB#0

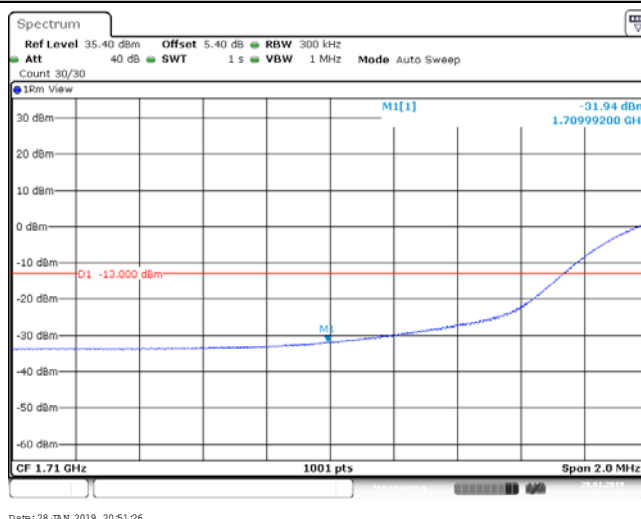


Band4\_20MHz\_64QAM\_20050\_1RB#0



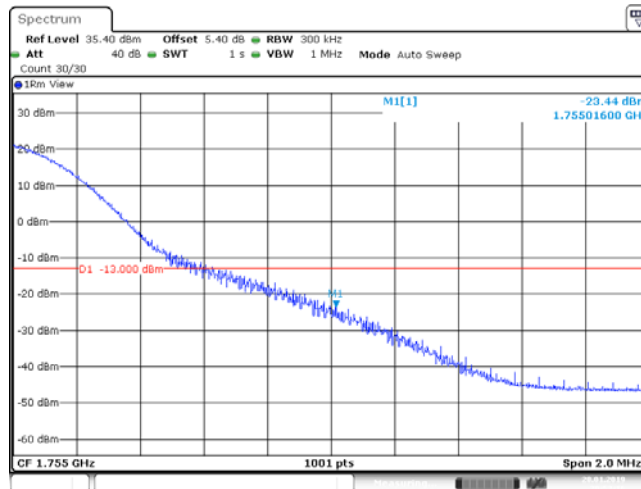


Band4\_20MHz\_64QAM\_20050\_100RB#0



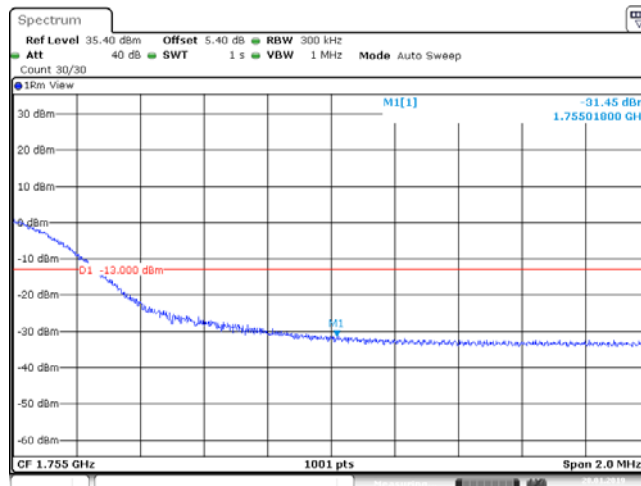
Band4\_20MHz\_64QAM\_20300\_1RB#99





Date: 28 JAN 2019 20:52:16

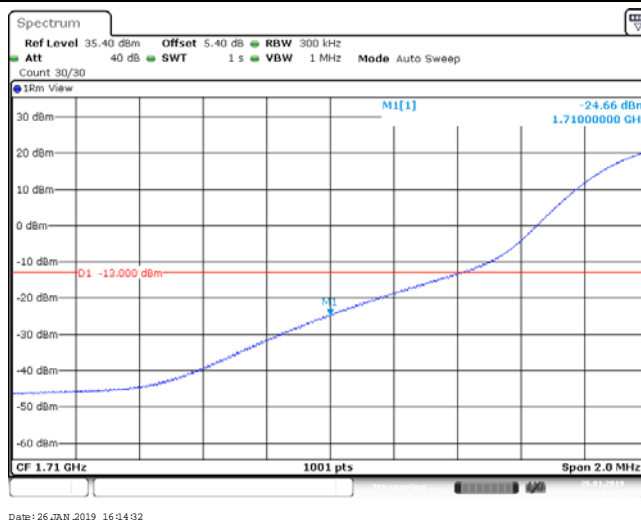
Band4\_20MHz\_64QAM\_20300\_100RB#0



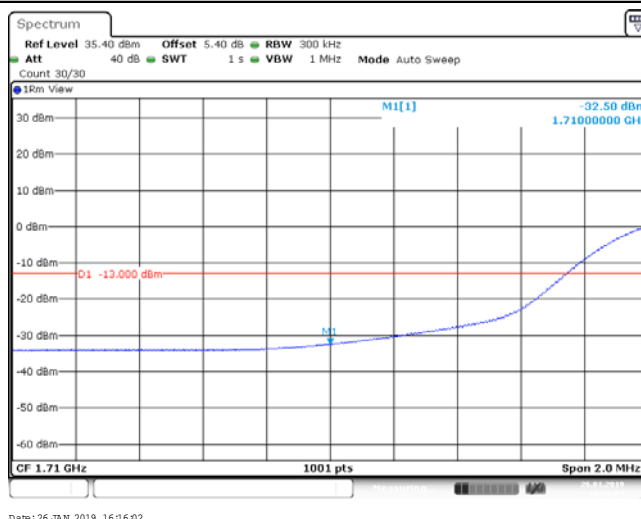
Date: 28 JAN 2019 20:53:03

Band4\_20MHz\_16QAM\_20050\_1RB#0



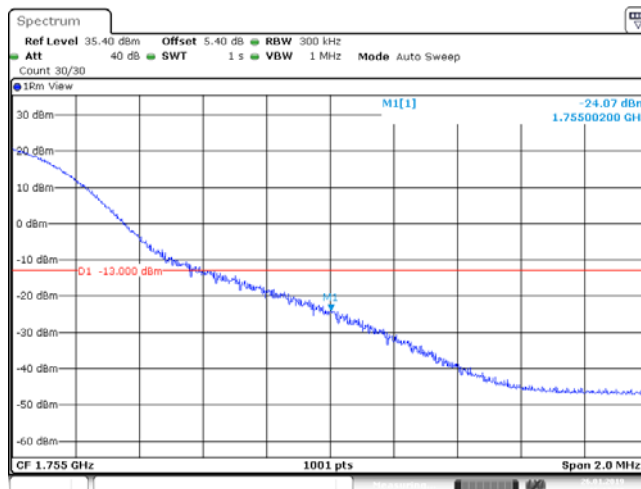


Band4\_20MHz\_16QAM\_20050\_100RB#0



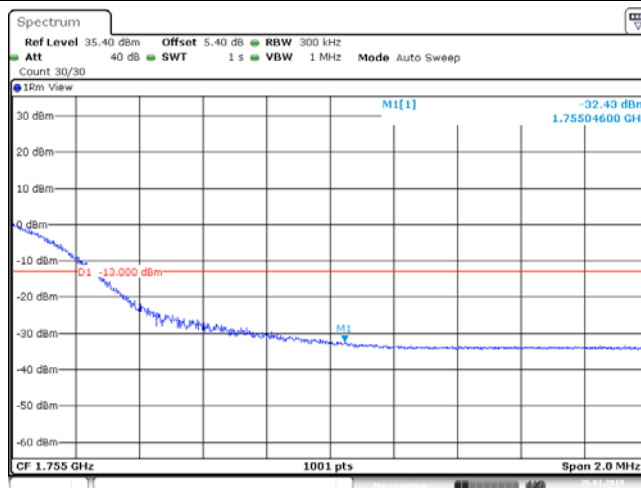
Band4\_20MHz\_16QAM\_20300\_1RB#99





Date: 26 JAN 2019 16:17:39

## Band4\_20MHz\_16QAM\_20300\_100RB#0



Date: 26 JAN 2019 16:19:09



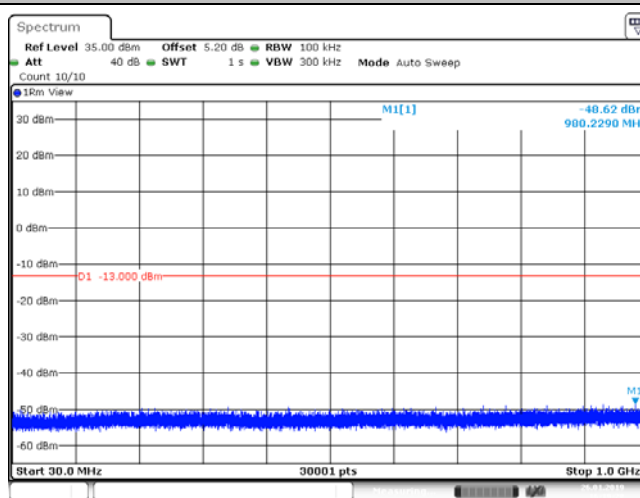
## 6. Spurious Emission at Antenna Terminal

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

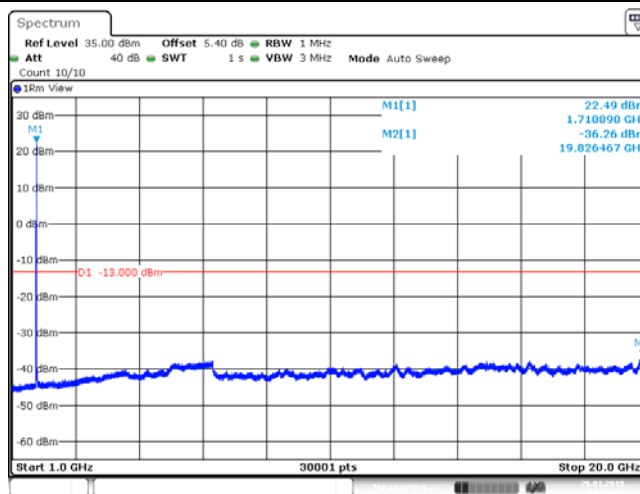
Remark2: only the worst case data displayed in this report.

### 6.1. Test Plots

Band4\_20MHz\_QPSK\_20050\_1RB#0

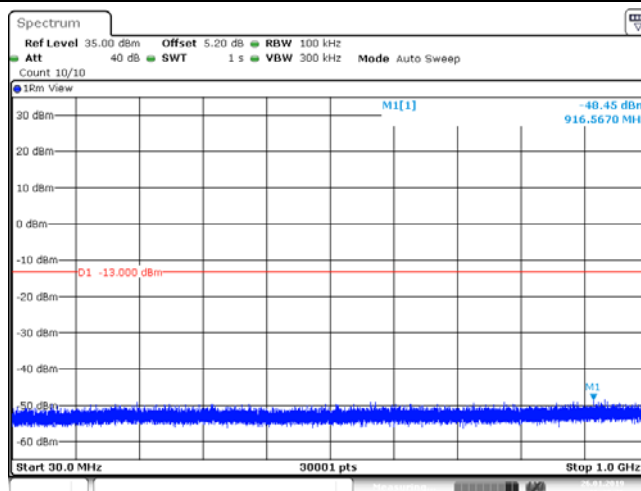


Band4\_20MHz\_QPSK\_20050\_1RB#0



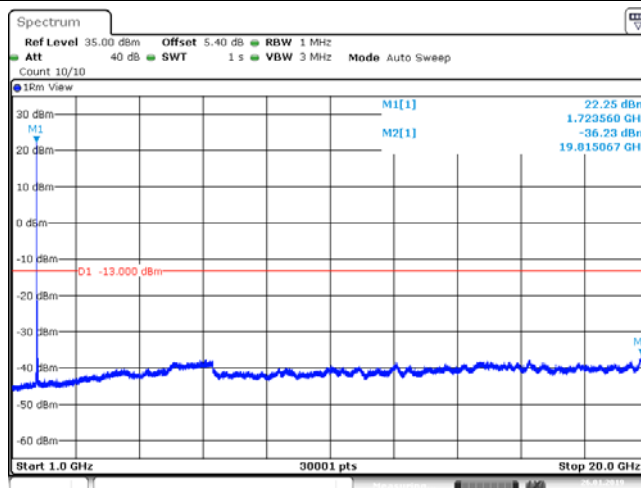
Band4\_20MHz\_QPSK\_20175\_1RB#0





Date: 26 JAN 2019 16:20:37

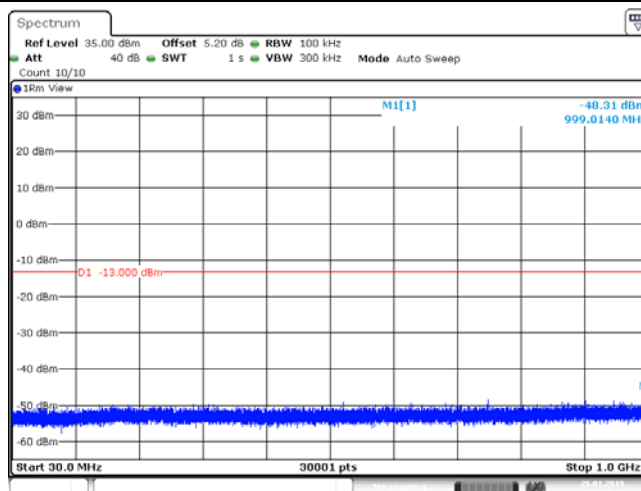
Band4\_20MHz\_QPSK\_20175\_1RB#0



Date: 26 JAN 2019 16:20:53

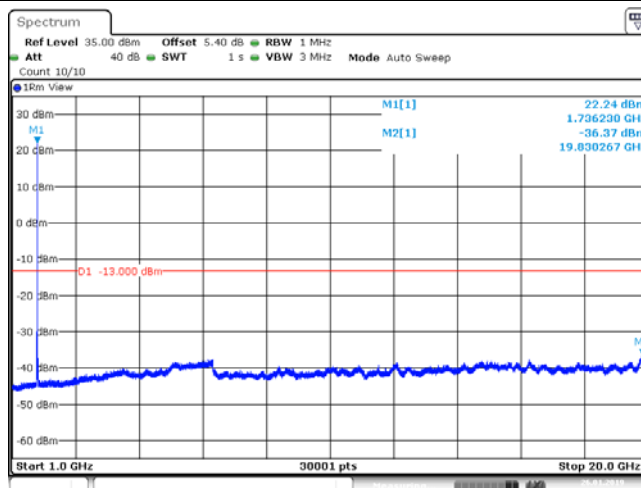
Band4\_20MHz\_QPSK\_20300\_1RB#0





Date: 26 JAN 2019 16:21:45

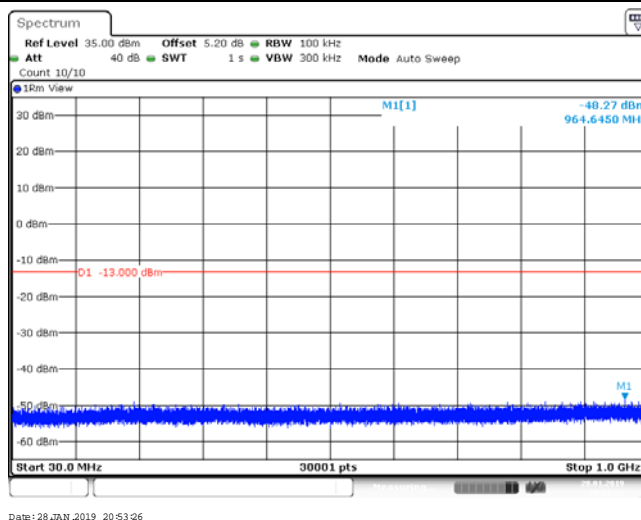
Band4\_20MHz\_QPSK\_20300\_1RB#0



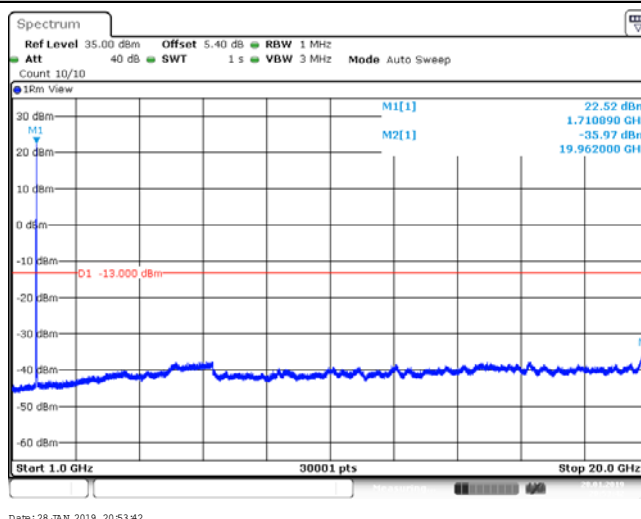
Date: 26 JAN 2019 16:22:01

Band4\_20MHz\_64QAM\_20050\_1RB#0





Band4\_20MHz\_64QAM\_20050\_1RB#0

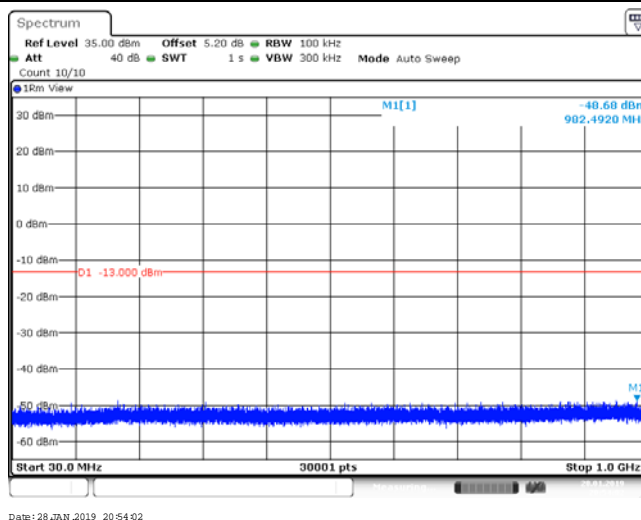


Band4\_20MHz\_64QAM\_20175\_1RB#0

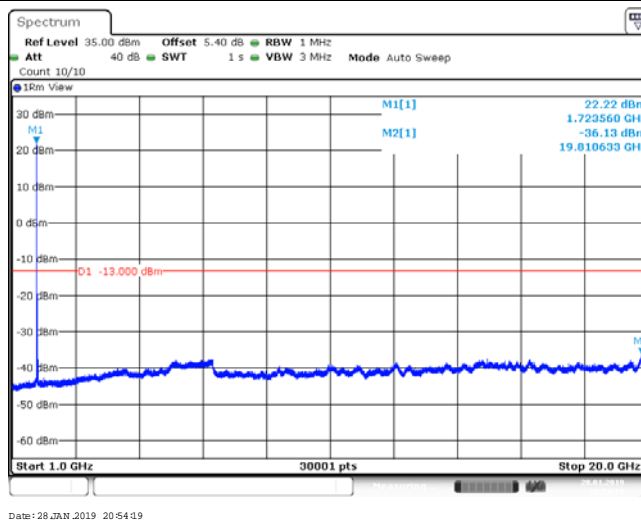


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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

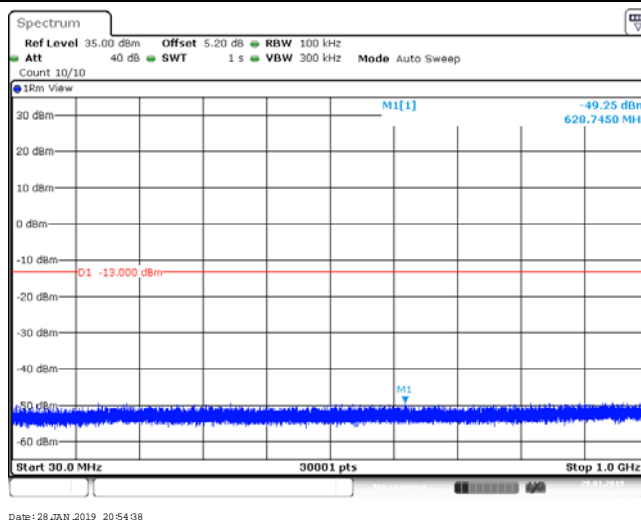


Band4\_20MHz\_64QAM\_20175\_1RB#0

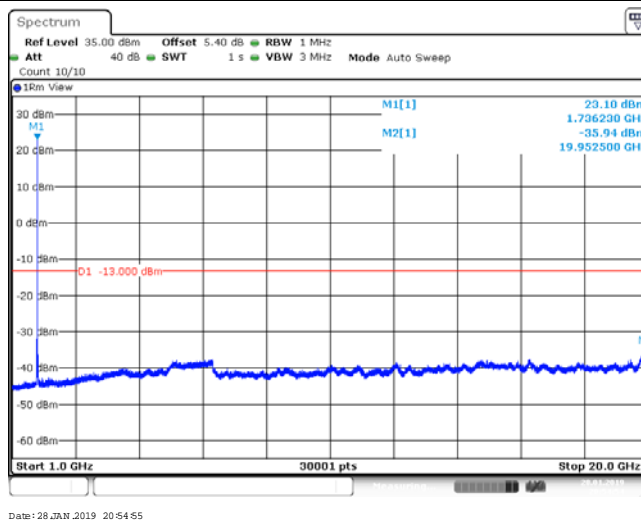


Band4\_20MHz\_64QAM\_20300\_1RB#0



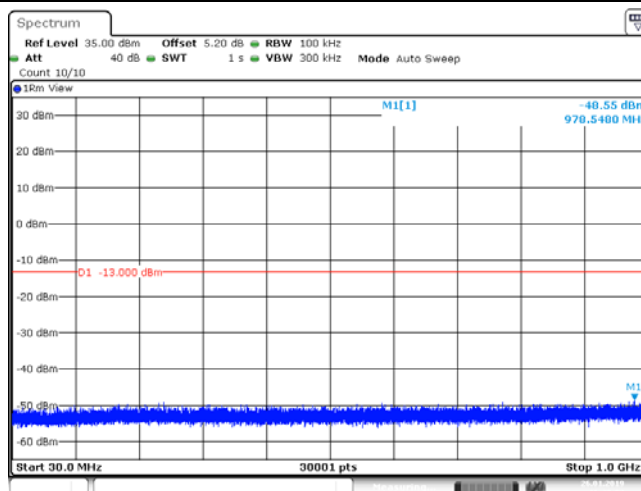


Band4\_20MHz\_64QAM\_20300\_1RB#0



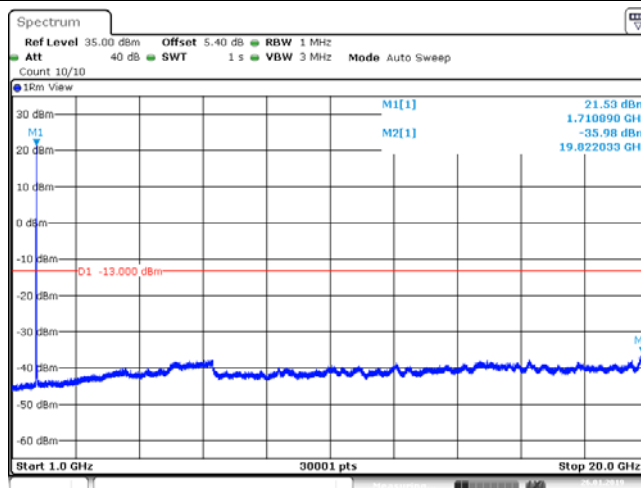
Band4\_20MHz\_16QAM\_20050\_1RB#0





Date: 26 JAN 2019 16:20:02

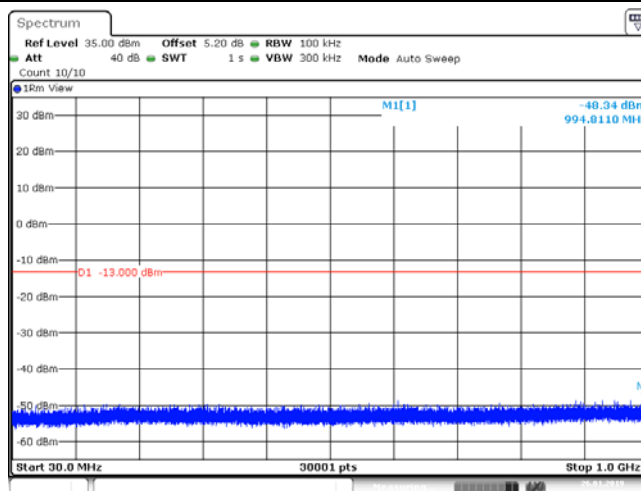
Band4\_20MHz\_16QAM\_20050\_1RB#0



Date: 26 JAN 2019 16:20:08

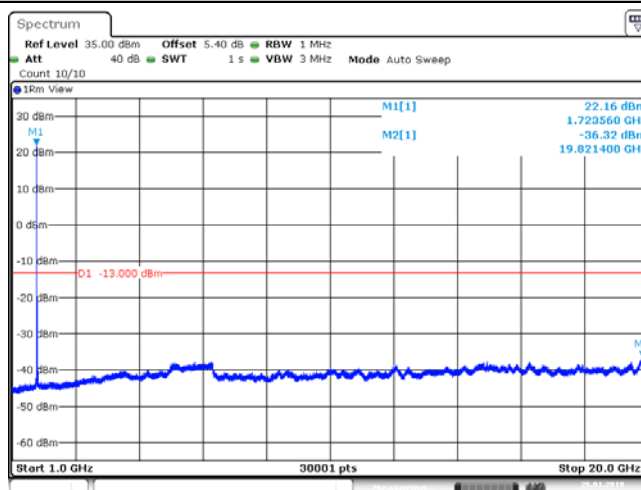
Band4\_20MHz\_16QAM\_20175\_1RB#0





Date: 26 JAN 2019 16:21:10

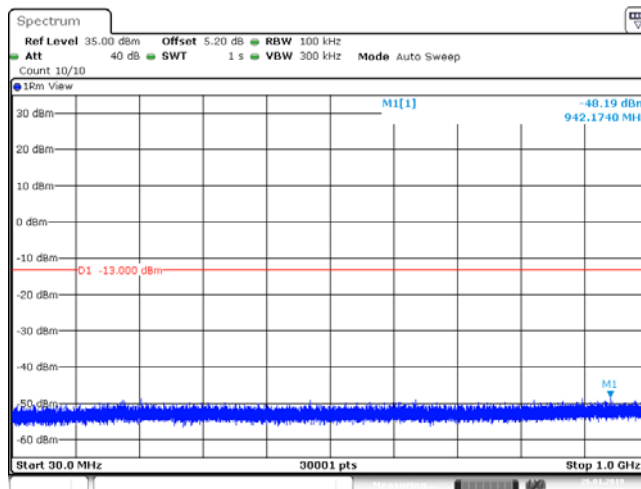
Band4\_20MHz\_16QAM\_20175\_1RB#0



Date: 26 JAN 2019 16:21:26

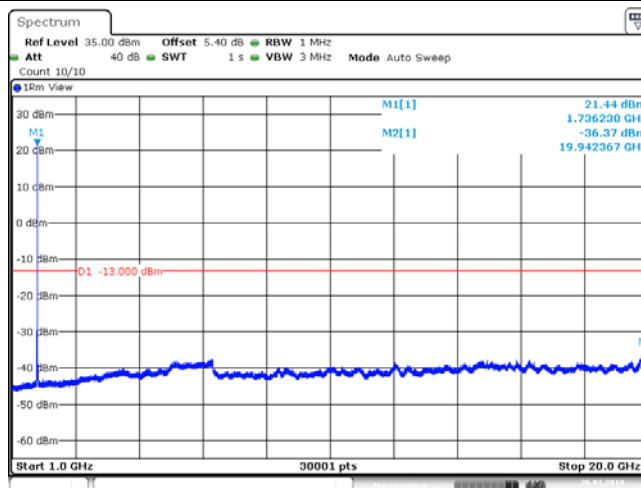
Band4\_20MHz\_16QAM\_20300\_1RB#0





Date: 26 JAN 2019 16:22:18

## Band4\_20MHz\_16QAM\_20300\_1RB#0



Date: 26 JAN 2019 16:22:34



SGS-CSTC Standards Technical Services Co., Ltd.  
Shenzhen Branch (CCC 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](mailto: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. Field Strength of Spurious Radiation

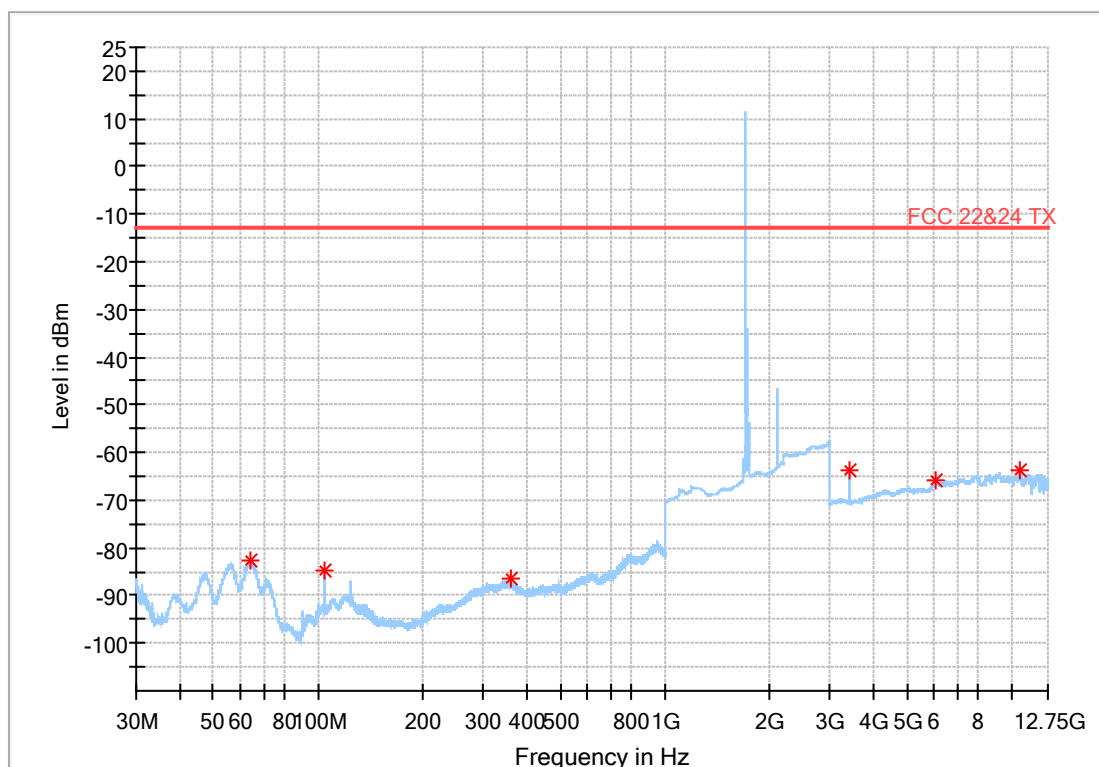
### 7.1. Main Antenna

#### 7.1.1. Test BAND = LTE BAND 4

##### 7.1.1.1. Test Mode =LTE/TM1

##### 7.1.1.1.1. LCH-Vertical

Full Spectrum



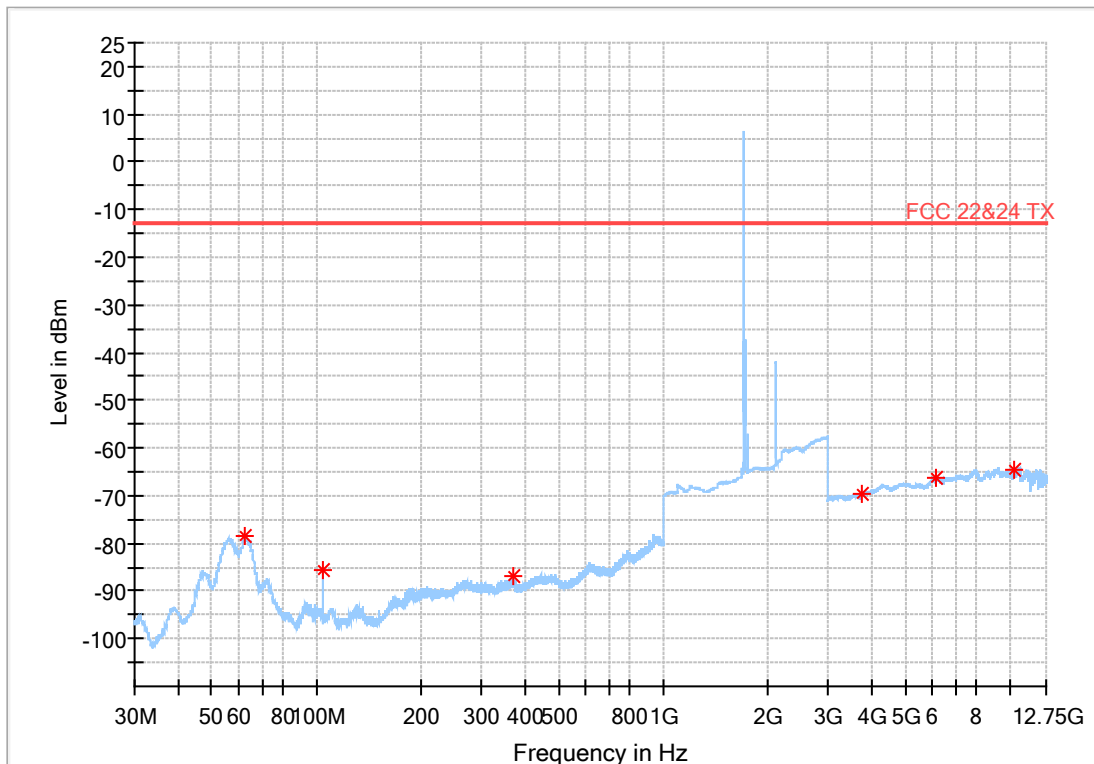
### Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
64.250000	-82.68	-13.00	69.68	---	---	200.0	V	0.0	-100.0
104.300000	-84.62	-13.00	71.62	---	---	200.0	V	100.0	-106.8
361.700000	-86.42	-13.00	73.42	---	---	200.0	V	170.0	-101.4
3422.175000	-63.56	-13.00	50.56	---	---	200.0	V	213.0	-105.5
6053.050000	-65.96	-13.00	52.96	---	---	200.0	V	0.0	-99.8
10647.900000	-63.92	-13.00	50.92	---	---	200.0	V	0.0	-96.2



### 7.1.1.1.2. LCH-Horizontal

#### Full Spectrum



### Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
62.750000	-78.28	-13.00	65.28	---	---	200.0	H	310.0	-95.4
104.300000	-85.42	-13.00	72.42	---	---	200.0	H	77.0	-109.6
371.150000	-87.00	-13.00	74.00	---	---	200.0	H	334.0	-103.5
3748.800000	-69.53	-13.00	56.53	---	---	200.0	H	0.0	-104.5
6172.325000	-66.34	-13.00	53.34	---	---	200.0	H	0.0	-100.0
10266.350000	-64.59	-13.00	51.59	---	---	200.0	H	1.0	-96.6



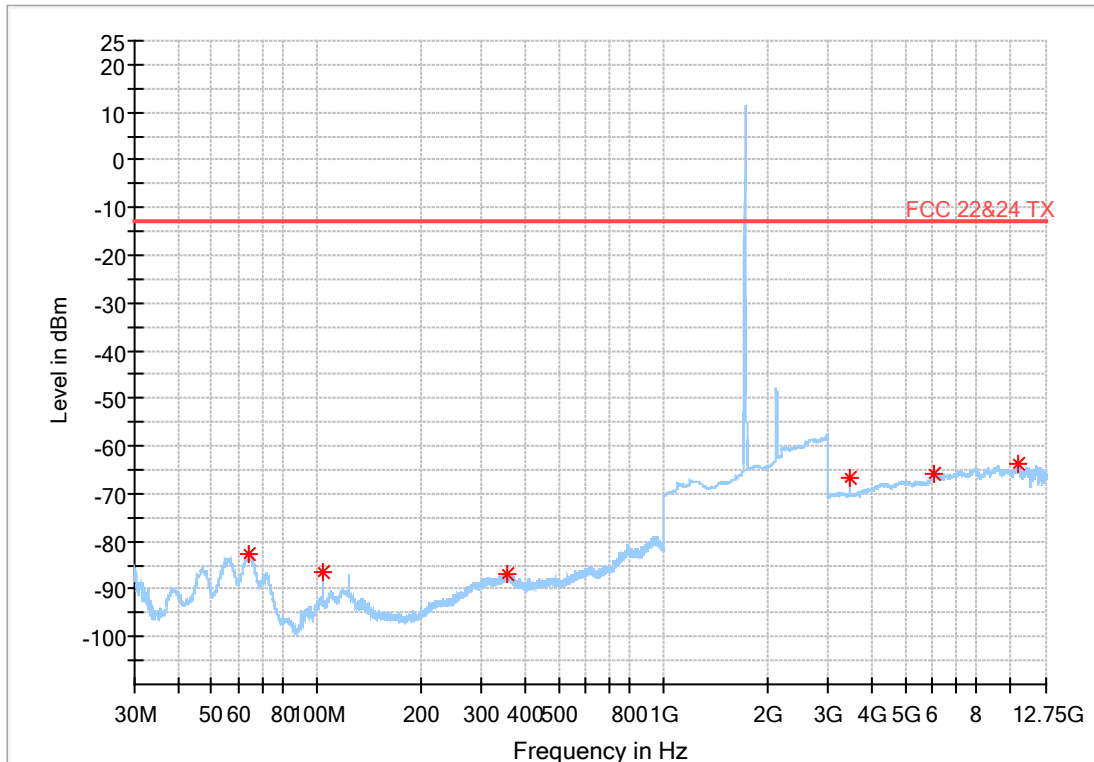
Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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

Full Spectrum



Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
63.700000	-82.60	-13.00	69.60	---	---	200.0	V	286.0	-100.1
104.300000	-86.38	-13.00	73.38	---	---	200.0	V	52.0	-106.8
357.700000	-86.92	-13.00	73.92	---	---	200.0	V	169.0	-101.3
3446.875000	-66.85	-13.00	53.85	---	---	200.0	V	211.0	-105.4
6039.075000	-65.95	-13.00	52.95	---	---	200.0	V	0.0	-99.9
10631.975000	-63.85	-13.00	50.85	---	---	200.0	V	0.0	-96.3

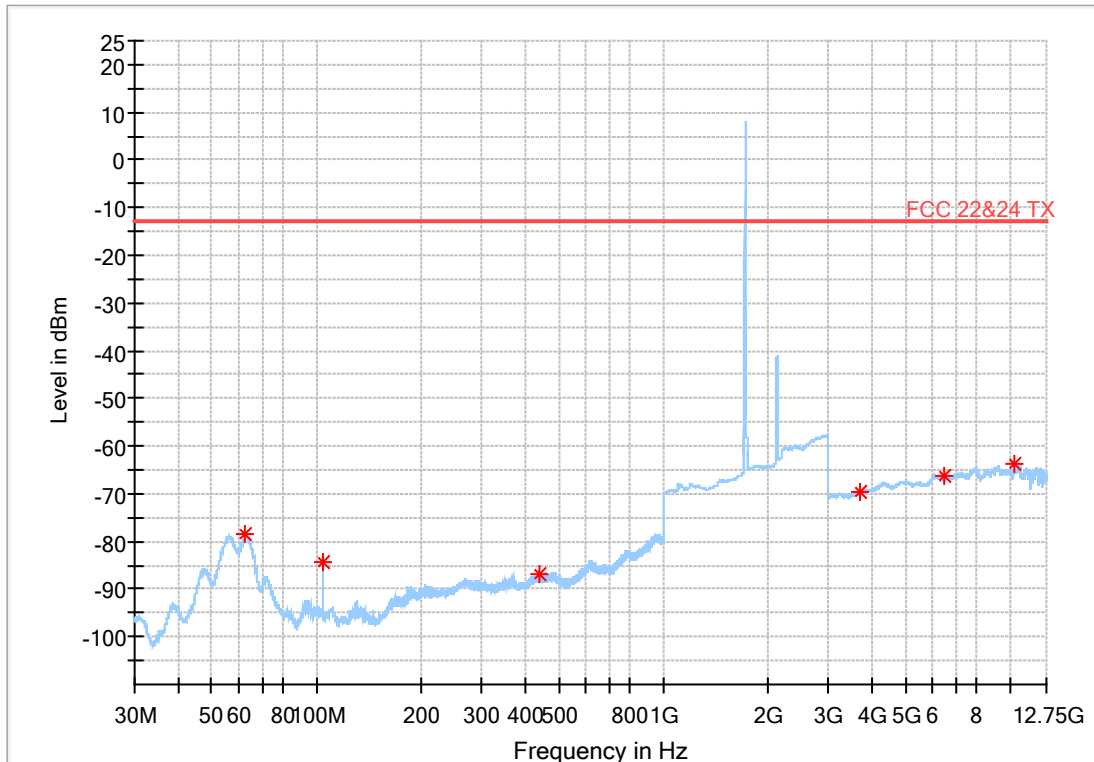


Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic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

#### 7.1.1.1.4. MCH-Horizontal

##### Full Spectrum



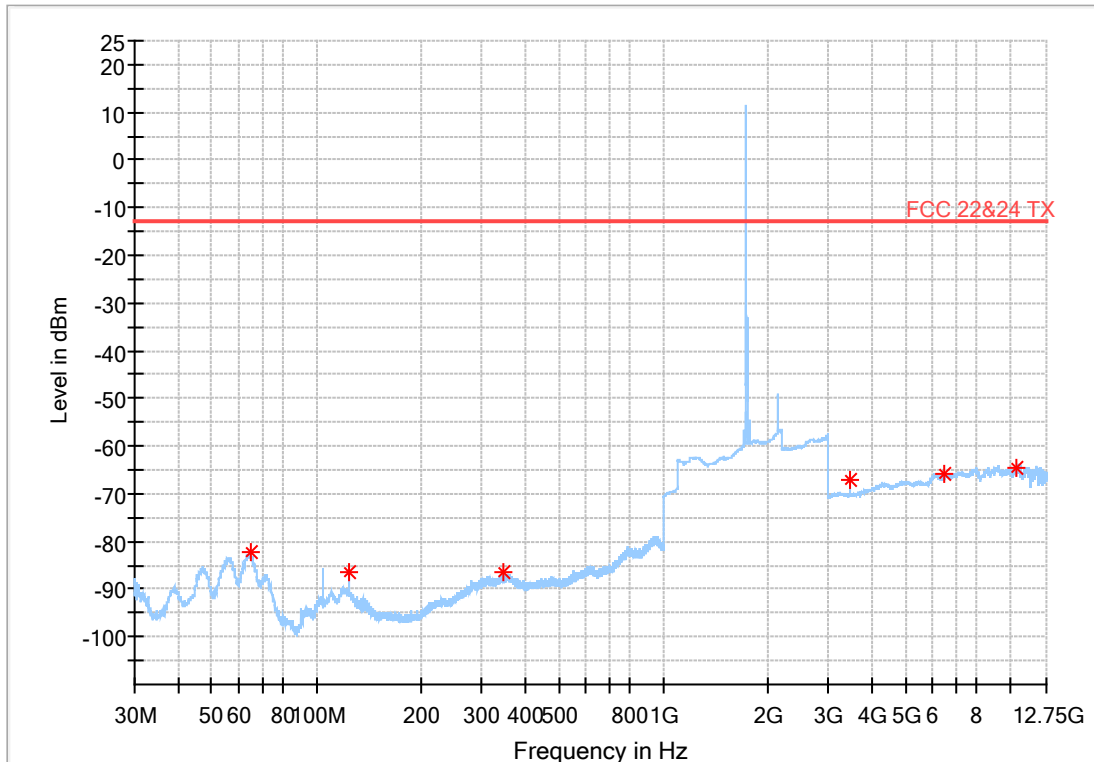
#### Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
62.600000	-78.28	-13.00	65.28	---	---	200.0	H	31.0	-95.2
104.300000	-84.33	-13.00	71.33	---	---	200.0	H	287.0	-109.6
443.400000	-86.70	-13.00	73.70	---	---	200.0	H	287.0	-100.8
3716.300000	-69.63	-13.00	56.63	---	---	200.0	H	0.0	-104.7
6499.275000	-66.09	-13.00	53.09	---	---	200.0	H	211.0	-99.3
10341.750000	-63.88	-13.00	50.88	---	---	200.0	H	1.0	-96.5



### 7.1.1.1.5. HCH-Vertical

#### Full Spectrum



### Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
64.650000	-82.33	-13.00	69.33	---	---	200.0	V	120.0	-99.9
125.000000	-86.55	-13.00	73.55	---	---	200.0	V	358.0	-103.8
348.600000	-86.64	-13.00	73.64	---	---	200.0	V	0.0	-101.6
3471.900000	-67.22	-13.00	54.22	---	---	200.0	V	213.0	-105.4
6486.925000	-66.02	-13.00	53.02	---	---	200.0	V	0.0	-99.1
10416.500000	-64.63	-13.00	51.63	---	---	200.0	V	1.0	-96.4



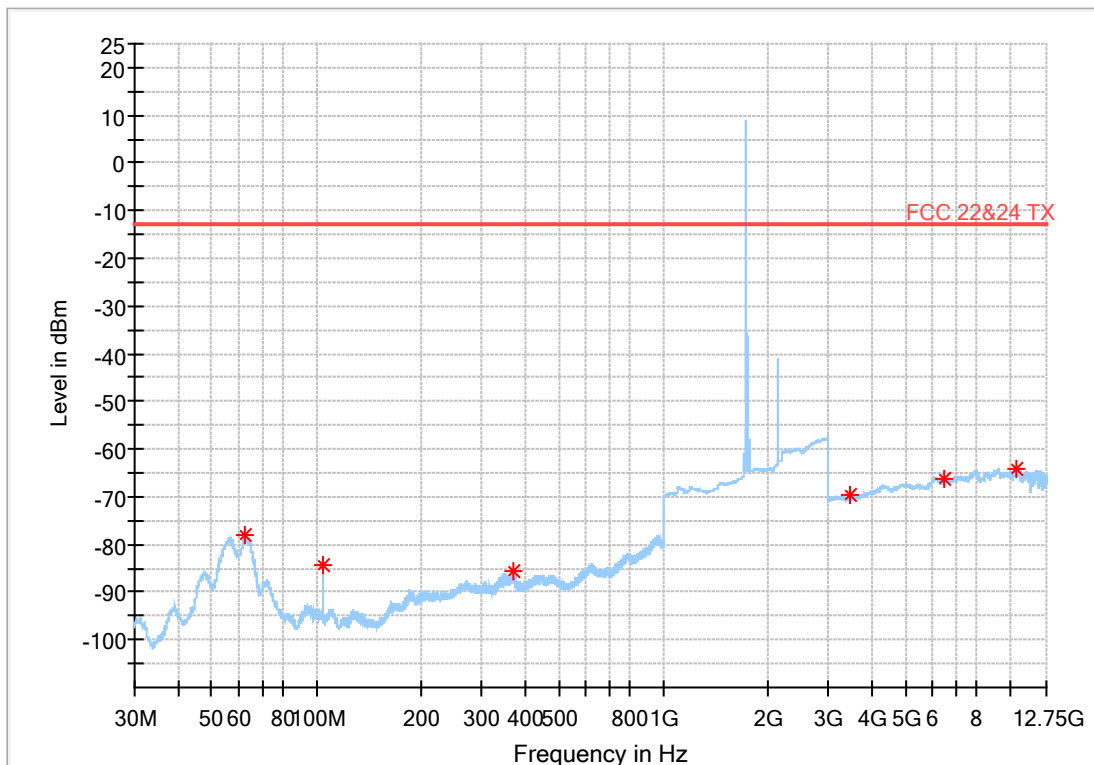
SGS-CSTC Standards Technical Services Co., Ltd.  
Shenzhen Branch Testing Center FCC Laboratory

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](mailto: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.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

#### 7.1.1.1.6. HCH-Horizontal

##### Full Spectrum



#### Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
62.300000	-78.24	-13.00	65.24	---	---	200.0	H	32.0	-95.0
104.300000	-84.27	-13.00	71.27	---	---	200.0	H	288.0	-109.6
372.550000	-85.52	-13.00	72.52	---	---	200.0	H	0.0	-103.5
3472.225000	-69.70	-13.00	56.70	---	---	200.0	H	0.0	-105.5
6494.400000	-66.07	-13.00	53.07	---	---	200.0	H	0.0	-99.3
10416.500000	-64.06	-13.00	51.06	---	---	200.0	H	1.0	-96.4



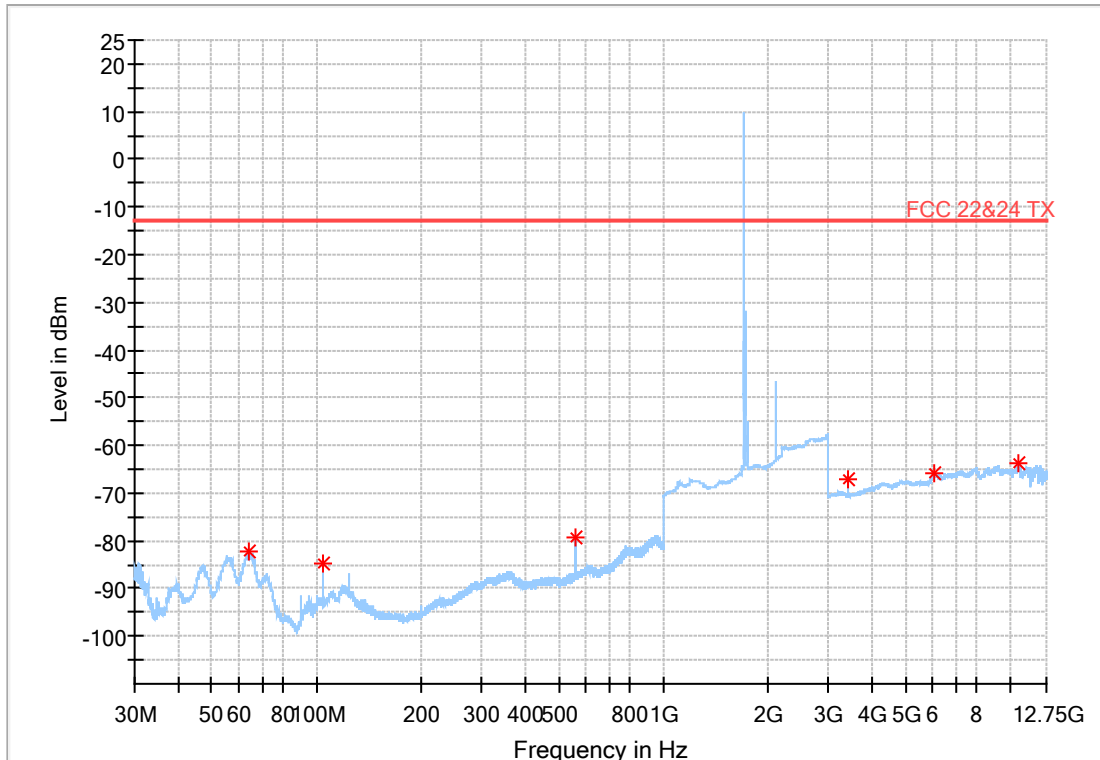
## 7.2. Secondary Antenna

### 7.2.1. Test BAND = LTE BAND 4

#### 7.2.1.1. Test Mode =LTE/TM1

##### 7.2.1.1.1. LCH-Vertical

Full Spectrum



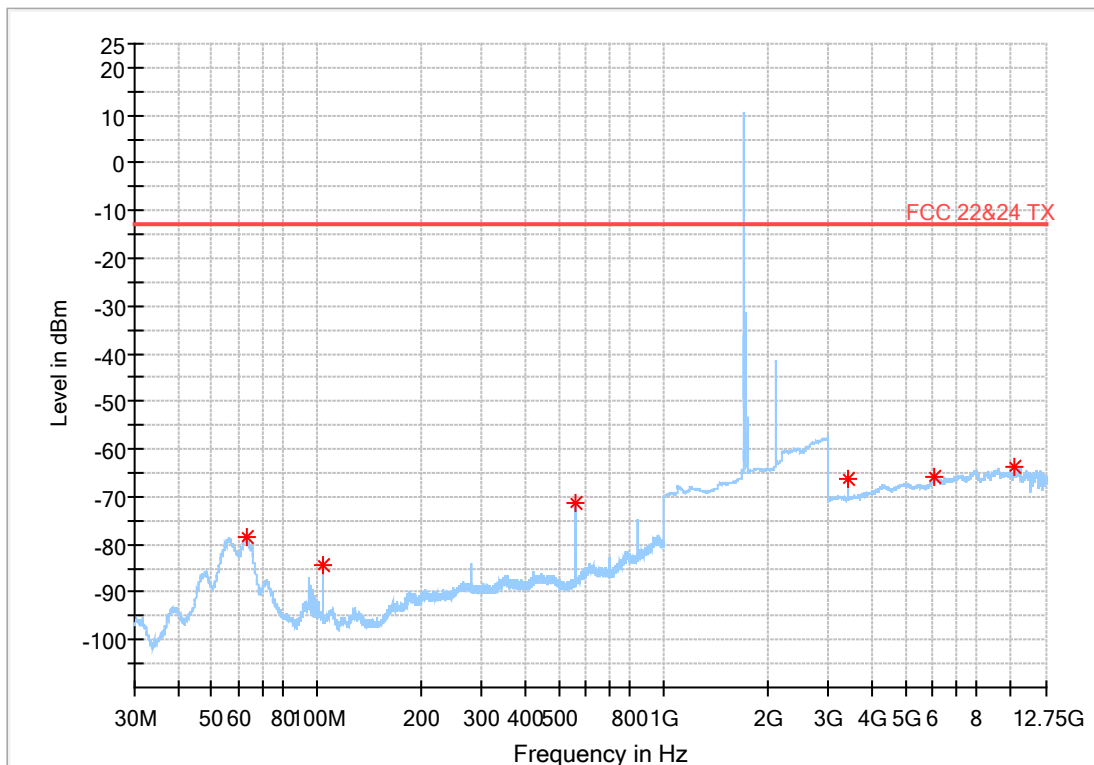
## Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
64.300000	-82.20	-13.00	69.20	---	---	200.0	V	359.0	-99.9
104.250000	-84.87	-13.00	71.87	---	---	200.0	V	336.0	-106.8
561.604167	-79.20	-13.00	66.20	---	---	200.0	V	116.0	-100.3
3422.175000	-67.09	-13.00	54.09	---	---	200.0	V	213.0	-105.5
6059.225000	-65.85	-13.00	52.85	---	---	200.0	V	0.0	-99.7
10617.025000	-63.87	-13.00	50.87	---	---	200.0	V	0.0	-96.3



### 7.2.1.1.2. LCH-Horizontal

#### Full Spectrum



### Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
63.300000	-78.30	-13.00	65.30	---	---	200.0	H	76.0	-96.0
104.300000	-84.22	-13.00	71.22	---	---	200.0	H	263.0	-109.6
561.604167	-71.39	-13.00	58.39	---	---	200.0	H	337.0	-100.8
3422.175000	-66.47	-13.00	53.47	---	---	200.0	H	213.0	-105.7
6049.150000	-65.87	-13.00	52.87	---	---	200.0	H	213.0	-99.9
10266.675000	-63.85	-13.00	50.85	---	---	200.0	H	2.0	-96.6



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

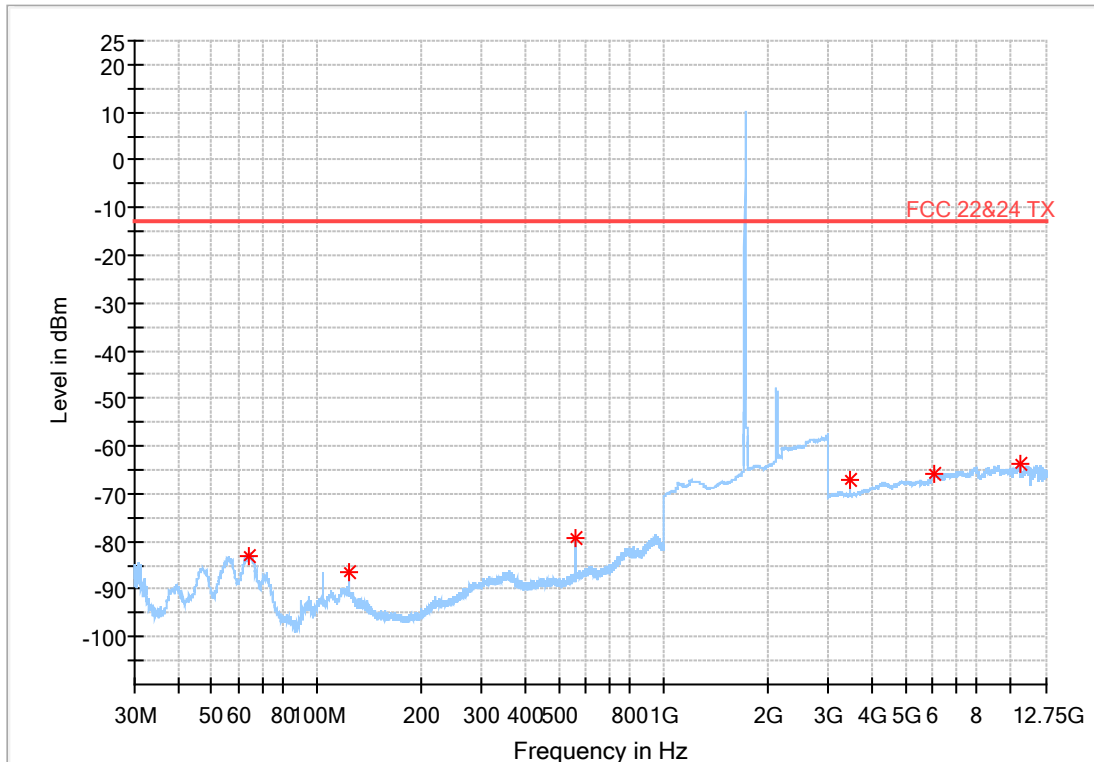
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

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



### 7.2.1.1.3. MCH-Vertical

#### Full Spectrum



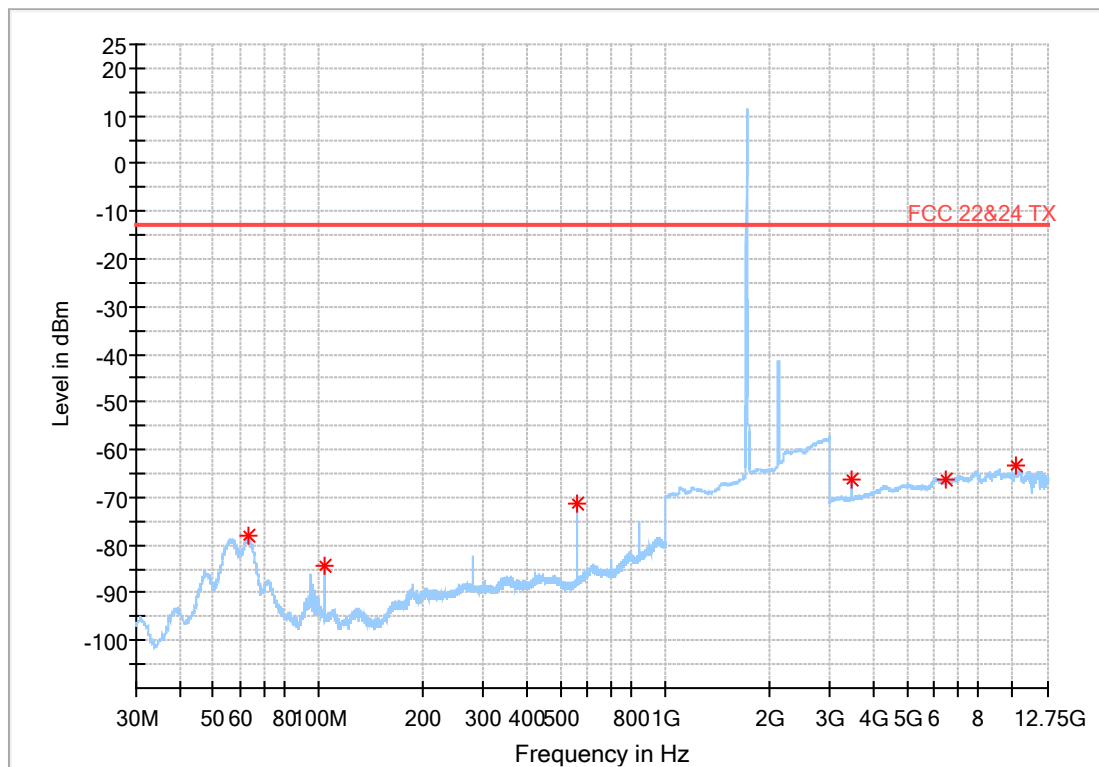
### Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
63.750000	-82.89	-13.00	69.89	---	---	200.0	V	148.0	-100.1
125.000000	-86.60	-13.00	73.60	---	---	200.0	V	77.0	-103.8
561.558333	-79.48	-13.00	66.48	---	---	200.0	V	114.0	-100.3
3446.875000	-66.95	-13.00	53.95	---	---	200.0	V	212.0	-105.4
6042.325000	-65.79	-13.00	52.79	---	---	200.0	V	2.0	-99.9
10660.900000	-63.88	-13.00	50.88	---	---	200.0	V	0.0	-96.2



## 7.2.1.1.4. MCH-Horizontal

Full Spectrum



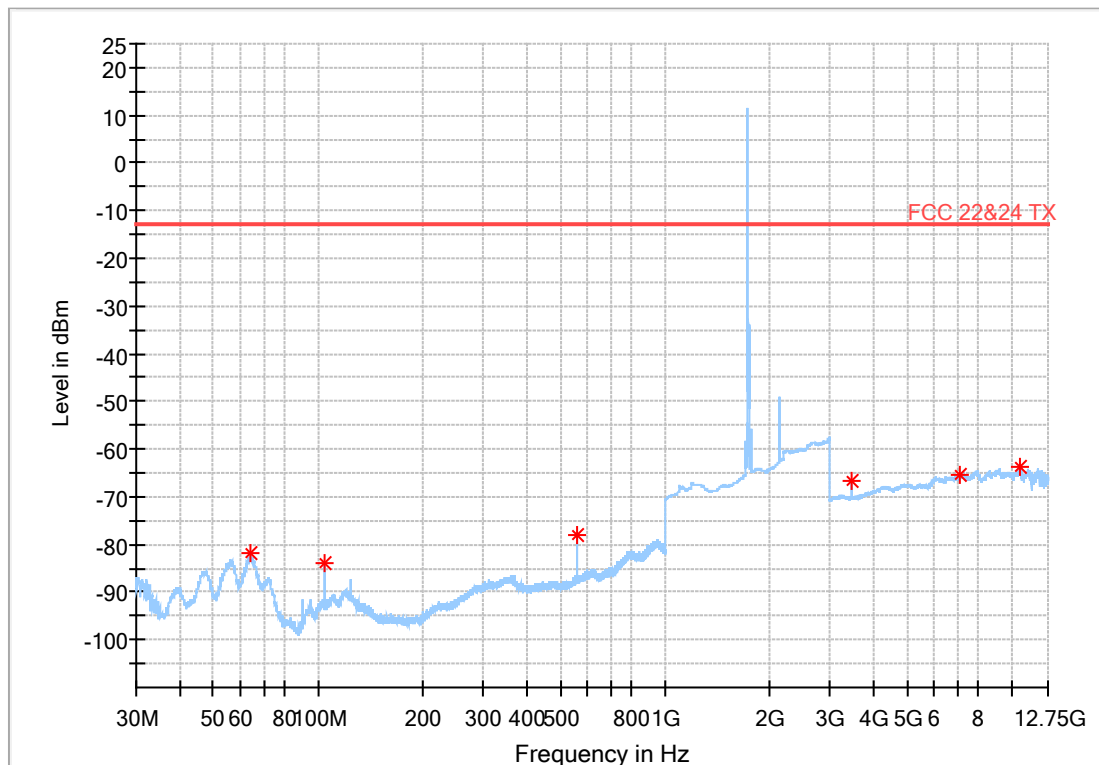
## Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
63.000000	-78.06	-13.00	65.06	---	---	200.0	H	334.0	-95.7
104.300000	-84.42	-13.00	71.42	---	---	200.0	H	100.0	-109.6
561.604167	-71.41	-13.00	58.41	---	---	200.0	H	338.0	-100.8
3446.875000	-66.19	-13.00	53.19	---	---	200.0	H	212.0	-105.6
6483.025000	-66.06	-13.00	53.06	---	---	200.0	H	212.0	-99.4
10341.425000	-63.41	-13.00	50.41	---	---	200.0	H	2.0	-96.5



## 7.2.1.1.5. HCH-Vertical

## Full Spectrum



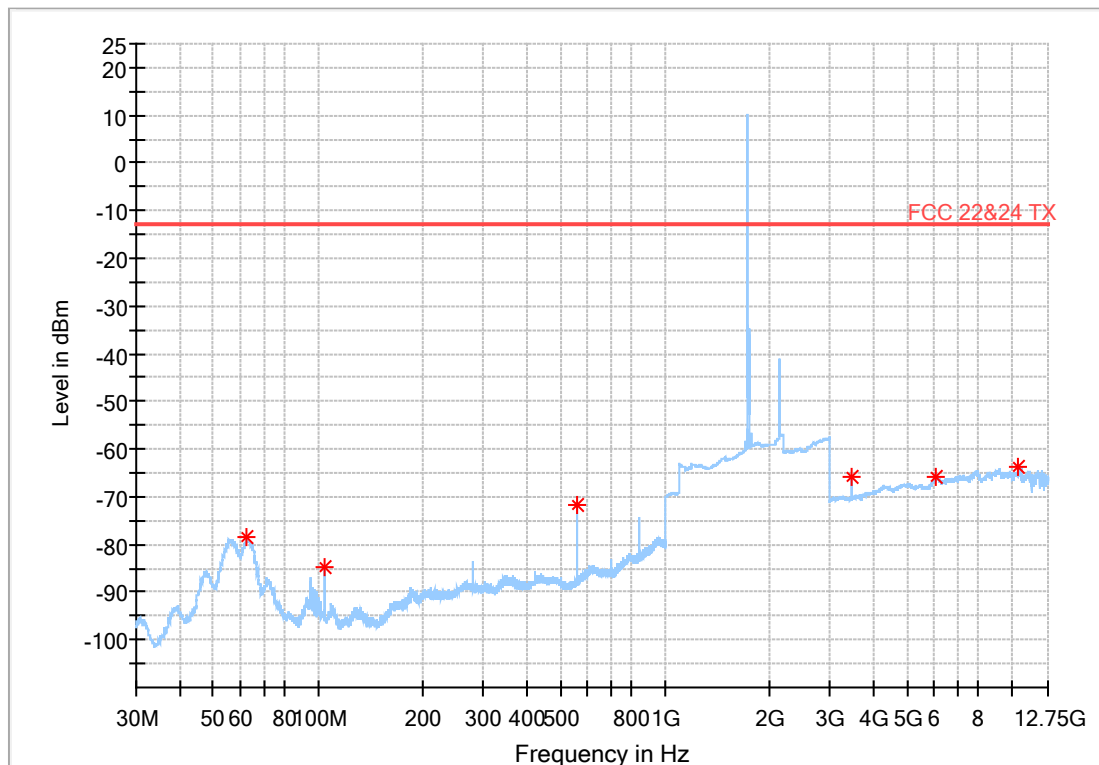
## Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
64.400000	-81.70	-13.00	68.70	---	---	200.0	V	147.0	-99.9
104.250000	-83.81	-13.00	70.81	---	---	200.0	V	194.0	-106.8
561.604167	-78.22	-13.00	65.22	---	---	200.0	V	115.0	-100.3
3472.225000	-66.69	-13.00	53.69	---	---	200.0	V	212.0	-105.4
7062.825000	-65.56	-13.00	52.56	---	---	200.0	V	1.0	-98.9
10628.725000	-63.91	-13.00	50.91	---	---	200.0	V	1.0	-96.3



### 7.2.1.1.6. HCH-Horizontal

#### Full Spectrum



### Critical\_Freqs

Frequency (MHz)	Average (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
62.050000	-78.60	-13.00	65.60	---	---	200.0	H	0.0	-95.0
104.300000	-84.72	-13.00	71.72	---	---	200.0	H	147.0	-109.6
561.604167	-71.60	-13.00	58.60	---	---	200.0	H	338.0	-100.8
3471.900000	-65.99	-13.00	52.99	---	---	200.0	H	213.0	-105.5
6056.950000	-65.95	-13.00	52.95	---	---	200.0	H	2.0	-99.8
10416.500000	-63.81	-13.00	50.81	---	---	200.0	H	2.0	-96.4

#### Remark:

- 1) The disturbance above 12.75GHz and 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.
- 2) We have tested all modulation and all Bandwidth , but only the worst case data presented in this report.





## 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
Band4	20MHz	QPSK	20050	100RB#0	VL	NT	-0.20	-0.000116	±2.5	PASS
Band4	20MHz	QPSK	20050	100RB#0	VN	NT	-1.20	-0.000698	±2.5	PASS
Band4	20MHz	QPSK	20050	100RB#0	VH	NT	-0.20	-0.000116	±2.5	PASS
Band4	20MHz	QPSK	20175	100RB#0	VL	NT	1.90	0.001097	±2.5	PASS
Band4	20MHz	QPSK	20175	100RB#0	VN	NT	1.80	0.001039	±2.5	PASS
Band4	20MHz	QPSK	20175	100RB#0	VH	NT	2.00	0.001154	±2.5	PASS
Band4	20MHz	QPSK	20300	100RB#0	VL	NT	2.00	0.001146	±2.5	PASS
Band4	20MHz	QPSK	20300	100RB#0	VN	NT	2.10	0.001203	±2.5	PASS
Band4	20MHz	QPSK	20300	100RB#0	VH	NT	2.10	0.001203	±2.5	PASS
Band4	20MHz	64QAM	20050	100RB#0	VL	NT	0.50	0.000291	±2.5	PASS
Band4	20MHz	64QAM	20050	100RB#0	VN	NT	-0.10	-0.000058	±2.5	PASS
Band4	20MHz	64QAM	20050	100RB#0	VH	NT	0.20	0.000116	±2.5	PASS
Band4	20MHz	64QAM	20175	100RB#0	VL	NT	2.50	0.001443	±2.5	PASS
Band4	20MHz	64QAM	20175	100RB#0	VN	NT	2.50	0.001443	±2.5	PASS
Band4	20MHz	64QAM	20175	100RB#0	VH	NT	2.50	0.001443	±2.5	PASS
Band4	20MHz	64QAM	20300	100RB#0	VL	NT	2.50	0.001433	±2.5	PASS
Band4	20MHz	64QAM	20300	100RB#0	VN	NT	2.00	0.001146	±2.5	PASS
Band4	20MHz	64QAM	20300	100RB#0	VH	NT	2.50	0.001433	±2.5	PASS
Band4	20MHz	16QAM	20050	100RB#0	VL	NT	0.00	0.000000	±2.5	PASS
Band4	20MHz	16QAM	20050	100RB#0	VN	NT	0.30	0.000174	±2.5	PASS
Band4	20MHz	16QAM	20050	100RB#0	VH	NT	0.20	0.000116	±2.5	PASS
Band4	20MHz	16QAM	20175	100RB#0	VL	NT	1.80	0.001039	±2.5	PASS
Band4	20MHz	16QAM	20175	100RB#0	VN	NT	2.10	0.001212	±2.5	PASS
Band4	20MHz	16QAM	20175	100RB#0	VH	NT	1.90	0.001097	±2.5	PASS
Band4	20MHz	16QAM	20300	100RB#0	VL	NT	1.80	0.001032	±2.5	PASS
Band4	20MHz	16QAM	20300	100RB#0	VN	NT	2.50	0.001433	±2.5	PASS
Band4	20MHz	16QAM	20300	100RB#0	VH	NT	1.80	0.001032	±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
Band4	20MHz	QPSK	20050	100RB#0	NV	-30	0.10	0.000058	±2.5	PASS
Band4	20MHz	QPSK	20050	100RB#0	NV	-20	0.00	0.000000	±2.5	PASS
Band4	20MHz	QPSK	20050	100RB#0	NV	0	-0.30	-0.000174	±2.5	PASS
Band4	20MHz	QPSK	20050	100RB#0	NV	10	-0.10	-0.000058	±2.5	PASS
Band4	20MHz	QPSK	20050	100RB#0	NV	20	0.10	0.000058	±2.5	PASS
Band4	20MHz	QPSK	20050	100RB#0	NV	30	-0.10	-0.000058	±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](mailto: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



Band4	20MHz	QPSK	20050	100RB#0	NV	40	-0.30	-0.000174	±2.5	PASS
Band4	20MHz	QPSK	20050	100RB#0	NV	50	0.00	0.000000	±2.5	PASS
Band4	20MHz	QPSK	20175	100RB#0	NV	-30	2.40	0.001385	±2.5	PASS
Band4	20MHz	QPSK	20175	100RB#0	NV	-20	2.00	0.001154	±2.5	PASS
Band4	20MHz	QPSK	20175	100RB#0	NV	0	2.20	0.001270	±2.5	PASS
Band4	20MHz	QPSK	20175	100RB#0	NV	10	2.00	0.001154	±2.5	PASS
Band4	20MHz	QPSK	20175	100RB#0	NV	20	2.40	0.001385	±2.5	PASS
Band4	20MHz	QPSK	20175	100RB#0	NV	30	2.20	0.001270	±2.5	PASS
Band4	20MHz	QPSK	20175	100RB#0	NV	40	1.50	0.000866	±2.5	PASS
Band4	20MHz	QPSK	20175	100RB#0	NV	50	1.90	0.001097	±2.5	PASS
Band4	20MHz	QPSK	20300	100RB#0	NV	-30	1.90	0.001089	±2.5	PASS
Band4	20MHz	QPSK	20300	100RB#0	NV	-20	2.10	0.001203	±2.5	PASS
Band4	20MHz	QPSK	20300	100RB#0	NV	0	1.70	0.000974	±2.5	PASS
Band4	20MHz	QPSK	20300	100RB#0	NV	10	2.00	0.001146	±2.5	PASS
Band4	20MHz	QPSK	20300	100RB#0	NV	20	2.00	0.001146	±2.5	PASS
Band4	20MHz	QPSK	20300	100RB#0	NV	30	2.30	0.001318	±2.5	PASS
Band4	20MHz	QPSK	20300	100RB#0	NV	40	2.70	0.001547	±2.5	PASS
Band4	20MHz	QPSK	20300	100RB#0	NV	50	2.10	0.001203	±2.5	PASS
Band4	20MHz	64QAM	20050	100RB#0	NV	-30	0.40	0.000233	±2.5	PASS
Band4	20MHz	64QAM	20050	100RB#0	NV	-20	-0.50	-0.000291	±2.5	PASS
Band4	20MHz	64QAM	20050	100RB#0	NV	0	0.10	0.000058	±2.5	PASS
Band4	20MHz	64QAM	20050	100RB#0	NV	10	0.50	0.000291	±2.5	PASS
Band4	20MHz	64QAM	20050	100RB#0	NV	20	0.20	0.000116	±2.5	PASS
Band4	20MHz	64QAM	20050	100RB#0	NV	30	0.30	0.000174	±2.5	PASS
Band4	20MHz	64QAM	20050	100RB#0	NV	40	0.20	0.000116	±2.5	PASS
Band4	20MHz	64QAM	20050	100RB#0	NV	50	0.10	0.000058	±2.5	PASS
Band4	20MHz	64QAM	20175	100RB#0	NV	-30	2.00	0.001154	±2.5	PASS
Band4	20MHz	64QAM	20175	100RB#0	NV	-20	2.40	0.001385	±2.5	PASS
Band4	20MHz	64QAM	20175	100RB#0	NV	0	2.50	0.001443	±2.5	PASS
Band4	20MHz	64QAM	20175	100RB#0	NV	10	2.40	0.001385	±2.5	PASS
Band4	20MHz	64QAM	20175	100RB#0	NV	20	2.40	0.001385	±2.5	PASS
Band4	20MHz	64QAM	20175	100RB#0	NV	30	2.60	0.001501	±2.5	PASS
Band4	20MHz	64QAM	20175	100RB#0	NV	40	2.50	0.001443	±2.5	PASS
Band4	20MHz	64QAM	20175	100RB#0	NV	50	2.40	0.001385	±2.5	PASS
Band4	20MHz	64QAM	20300	100RB#0	NV	-30	2.30	0.001318	±2.5	PASS
Band4	20MHz	64QAM	20300	100RB#0	NV	-20	2.60	0.001490	±2.5	PASS
Band4	20MHz	64QAM	20300	100RB#0	NV	0	2.40	0.001375	±2.5	PASS
Band4	20MHz	64QAM	20300	100RB#0	NV	10	2.30	0.001318	±2.5	PASS
Band4	20MHz	64QAM	20300	100RB#0	NV	20	2.50	0.001433	±2.5	PASS
Band4	20MHz	64QAM	20300	100RB#0	NV	30	2.30	0.001318	±2.5	PASS
Band4	20MHz	64QAM	20300	100RB#0	NV	40	2.20	0.001261	±2.5	PASS
Band4	20MHz	64QAM	20300	100RB#0	NV	50	2.30	0.001318	±2.5	PASS
Band4	20MHz	16QAM	20050	100RB#0	NV	-30	0.10	0.000058	±2.5	PASS
Band4	20MHz	16QAM	20050	100RB#0	NV	-20	-0.40	-0.000233	±2.5	PASS
Band4	20MHz	16QAM	20050	100RB#0	NV	0	0.10	0.000058	±2.5	PASS
Band4	20MHz	16QAM	20050	100RB#0	NV	10	-0.30	-0.000174	±2.5	PASS
Band4	20MHz	16QAM	20050	100RB#0	NV	20	0.00	0.000000	±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](mailto: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.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



Band4	20MHz	16QAM	20050	100RB#0	NV	30	0.00	0.000000	±2.5	PASS
Band4	20MHz	16QAM	20050	100RB#0	NV	40	-0.30	-0.000174	±2.5	PASS
Band4	20MHz	16QAM	20050	100RB#0	NV	50	-0.20	-0.000116	±2.5	PASS
Band4	20MHz	16QAM	20175	100RB#0	NV	-30	1.80	0.001039	±2.5	PASS
Band4	20MHz	16QAM	20175	100RB#0	NV	-20	1.50	0.000866	±2.5	PASS
Band4	20MHz	16QAM	20175	100RB#0	NV	0	1.70	0.000981	±2.5	PASS
Band4	20MHz	16QAM	20175	100RB#0	NV	10	1.80	0.001039	±2.5	PASS
Band4	20MHz	16QAM	20175	100RB#0	NV	20	2.60	0.001501	±2.5	PASS
Band4	20MHz	16QAM	20175	100RB#0	NV	30	1.90	0.001097	±2.5	PASS
Band4	20MHz	16QAM	20175	100RB#0	NV	40	1.70	0.000981	±2.5	PASS
Band4	20MHz	16QAM	20175	100RB#0	NV	50	2.10	0.001212	±2.5	PASS
Band4	20MHz	16QAM	20300	100RB#0	NV	-30	2.00	0.001146	±2.5	PASS
Band4	20MHz	16QAM	20300	100RB#0	NV	-20	1.60	0.000917	±2.5	PASS
Band4	20MHz	16QAM	20300	100RB#0	NV	0	1.80	0.001032	±2.5	PASS
Band4	20MHz	16QAM	20300	100RB#0	NV	10	2.00	0.001146	±2.5	PASS
Band4	20MHz	16QAM	20300	100RB#0	NV	20	1.80	0.001032	±2.5	PASS
Band4	20MHz	16QAM	20300	100RB#0	NV	30	1.80	0.001032	±2.5	PASS
Band4	20MHz	16QAM	20300	100RB#0	NV	40	1.90	0.001089	±2.5	PASS
Band4	20MHz	16QAM	20300	100RB#0	NV	50	1.70	0.000974	±2.5	PASS

The End



SGS-CSTC Standards Technical Services Co., Ltd.  
Shenzhen Branch (CCC 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](mailto: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