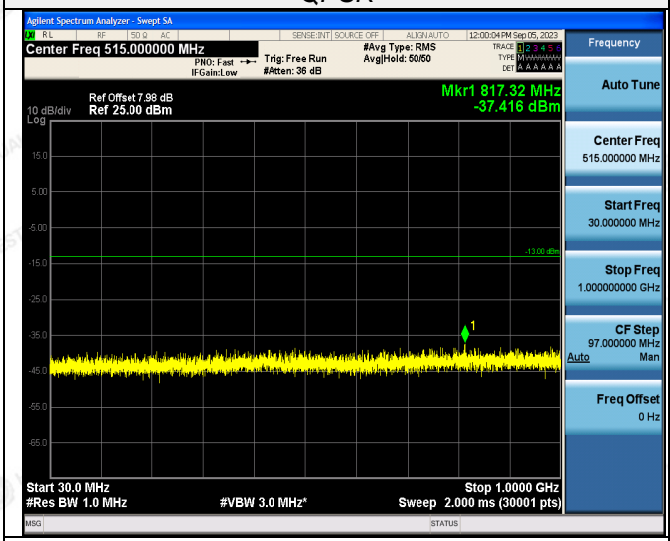
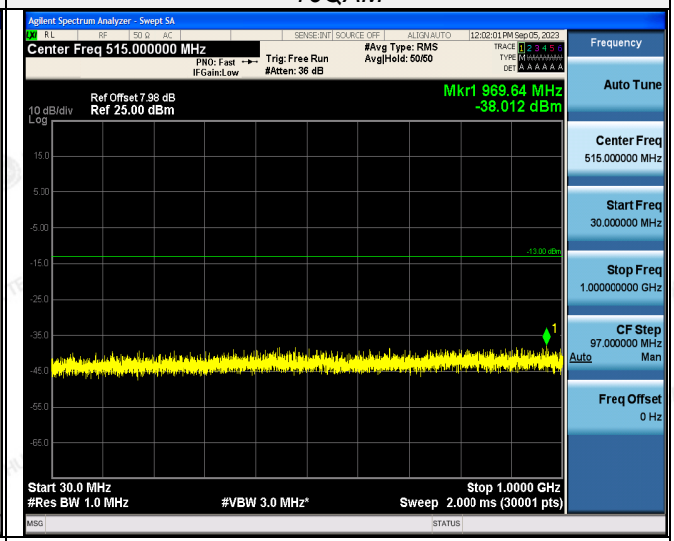
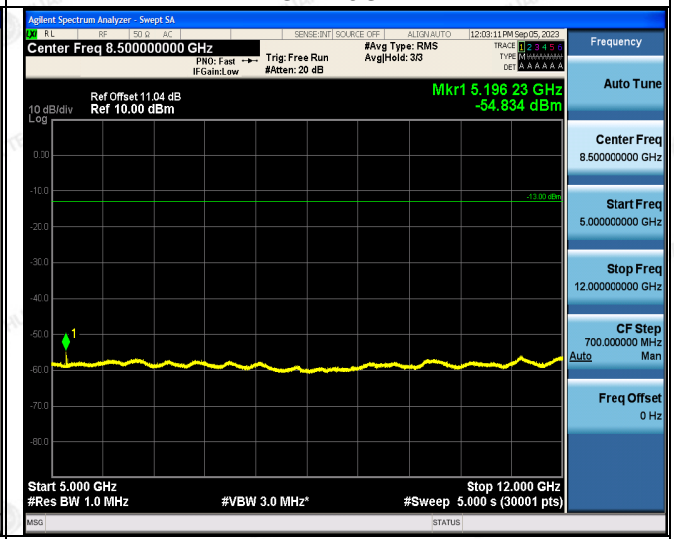
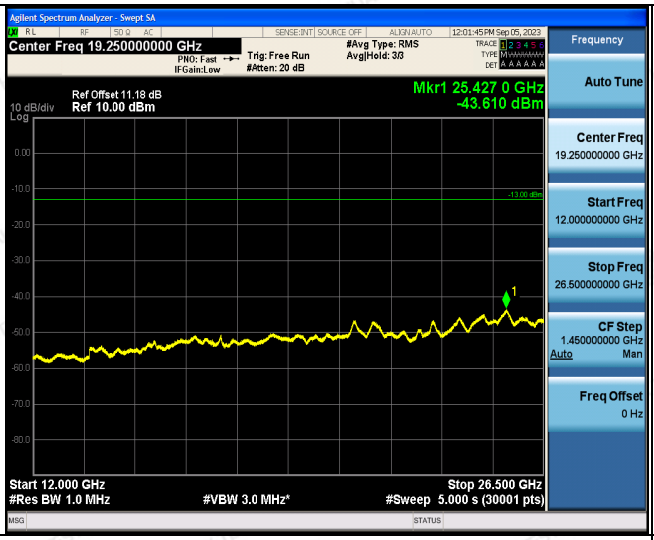
LTE FDD Band 4-3MHz Channel Bandwidth	
Low Channel	
QPSK	16QAM
	
30MHz~1GHz	30MHz~1GHz
1GHz~5GHz	1GHz~5GHz
	
5GHz~12GHz	5GHz~12GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

TEL：+86-755 2302 9901 FAX ：+86-755 2302 9901 E-mail：service@cer-mark.com
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



12GHz~26.5GHz

1RB#0

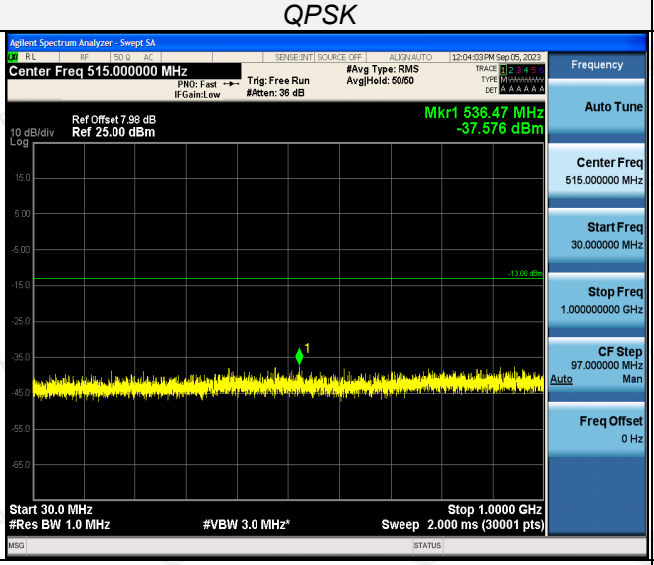
12GHz~26.5GHz

1RB#0

LTE FDD Band 4-3MHz Channel Bandwidth

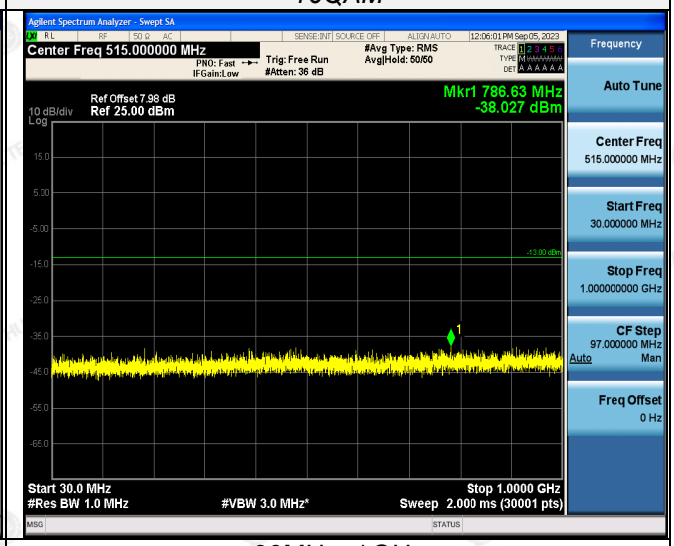
Middle Channel

QPSK

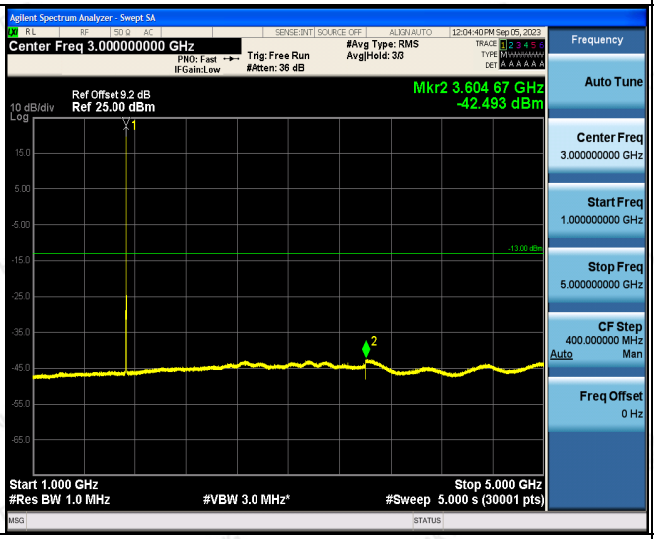


30MHz~1GHz

16QAM



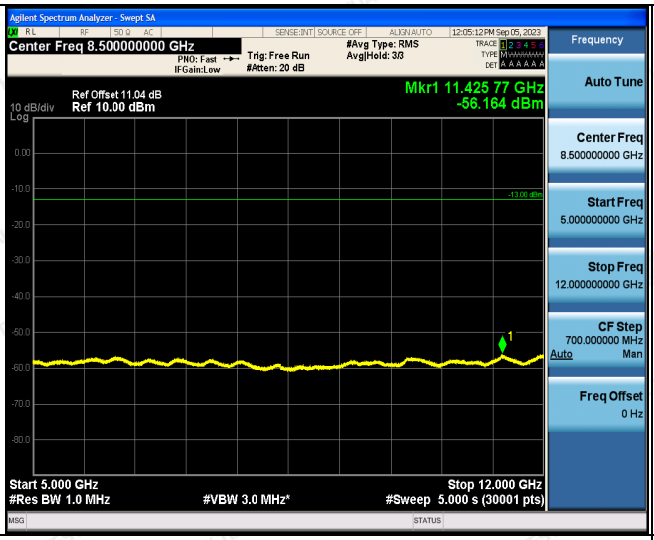
30MHz~1GHz



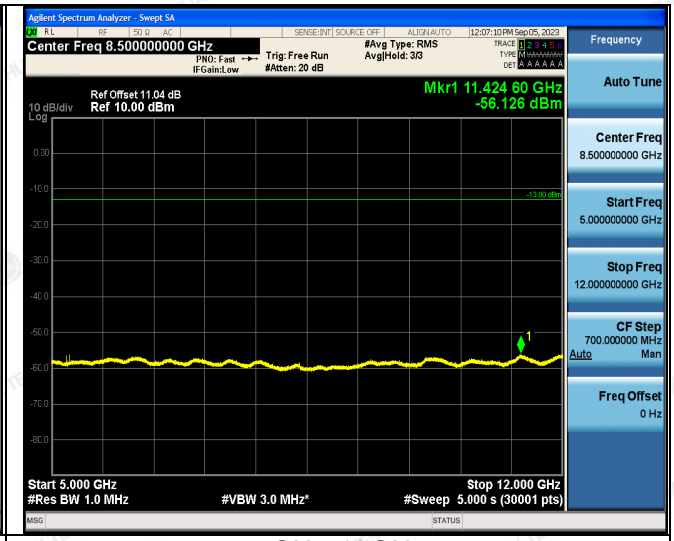
1GHz~5GHz

1GHz~5GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.



5GHz~12GHz



5GHz~12GHz

12GHz~26.5GHz

1RB#0

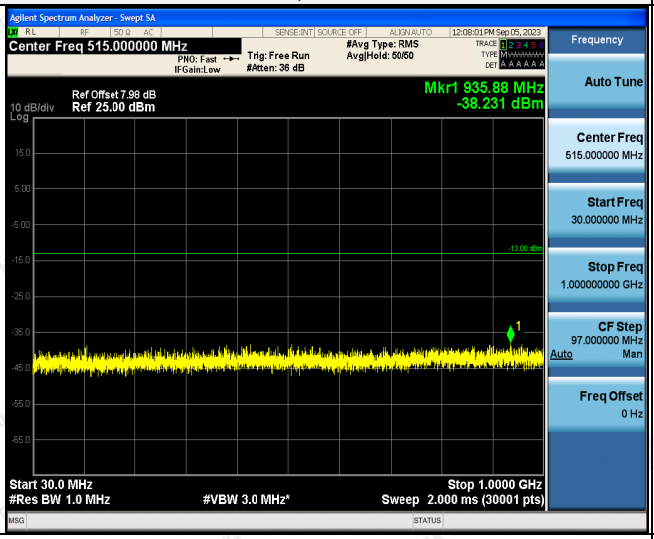
12GHz~26.5GHz

1RB#0

LTE FDD Band 4-3MHz Channel Bandwidth

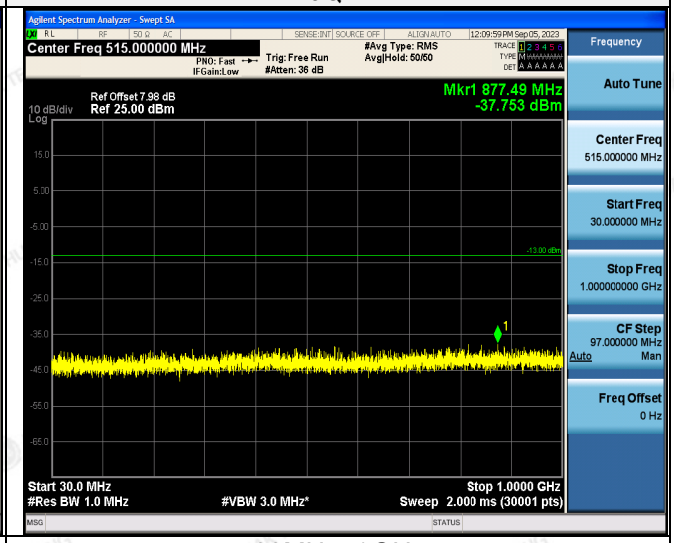
High Channel

QPSK



30MHz~1GHz

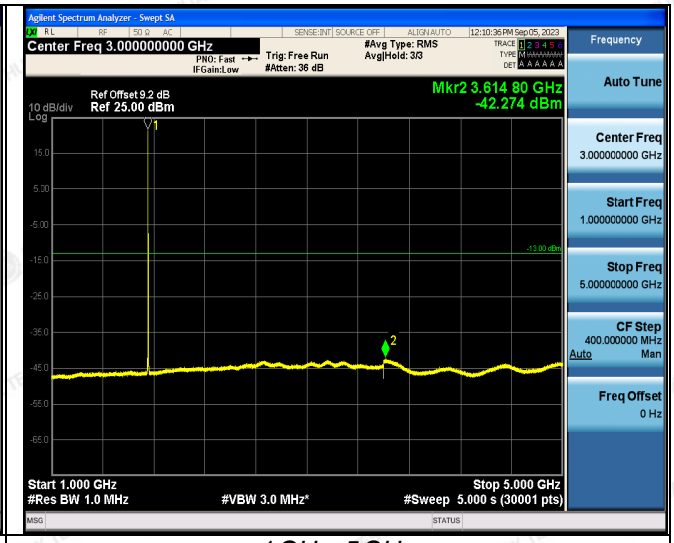
16QAM



30MHz~1GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

1GHz~5GHz



1GHz~5GHz

5GHz~12GHz

5GHz~12GHz

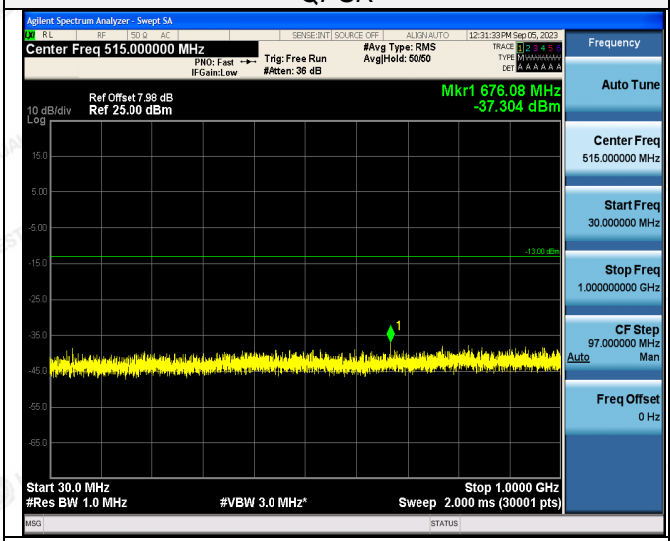
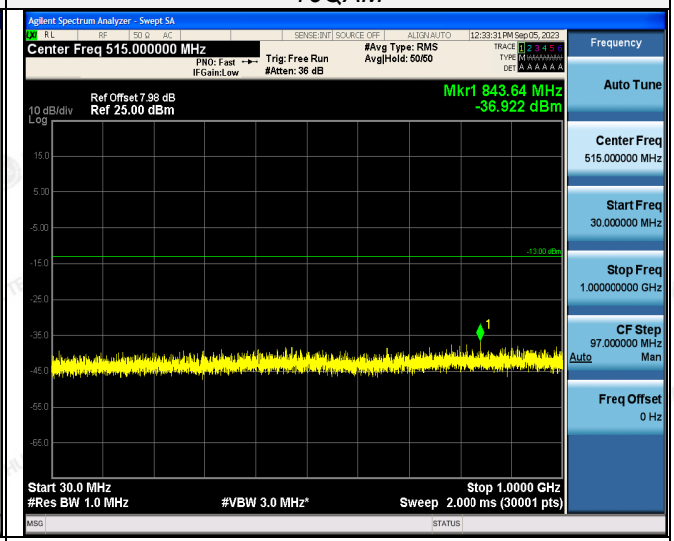
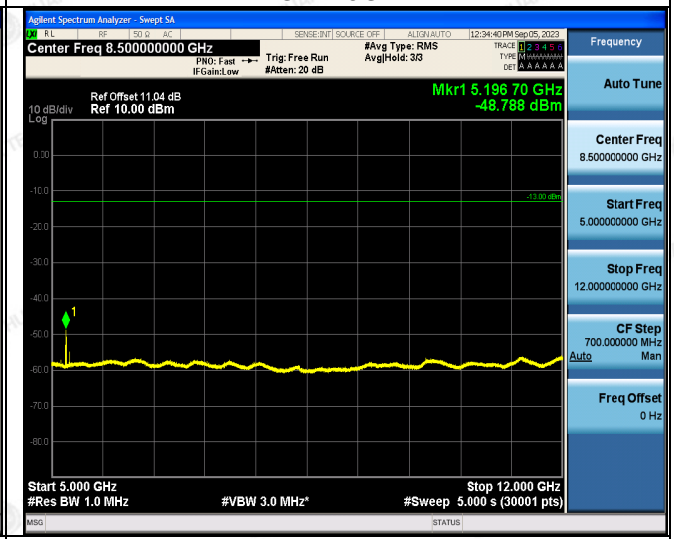
12GHz~26.5GHz

1RB#0

12GHz~26.5GHz

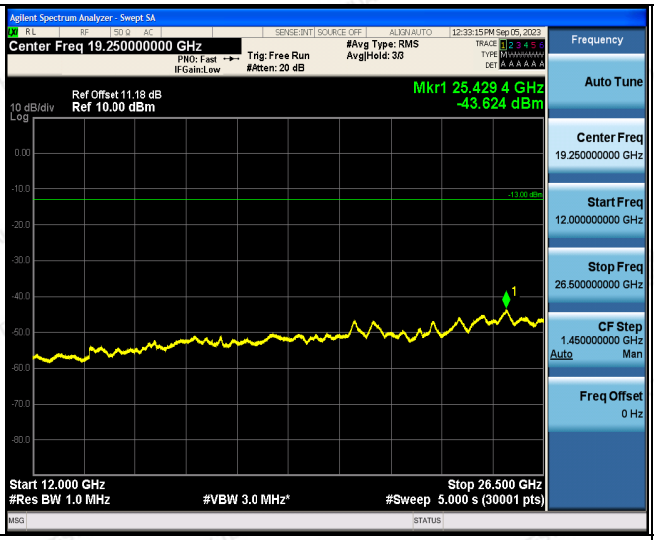
1RB#0

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

LTE FDD Band 4-5MHz Channel Bandwidth	
Low Channel	
QPSK	16QAM
	
30MHz~1GHz	30MHz~1GHz
1GHz~5GHz	1GHz~5GHz
	
5GHz~12GHz	5GHz~12GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

TEL：+86-755 2302 9901 FAX ：+86-755 2302 9901 E-mail：service@cer-mark.com
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



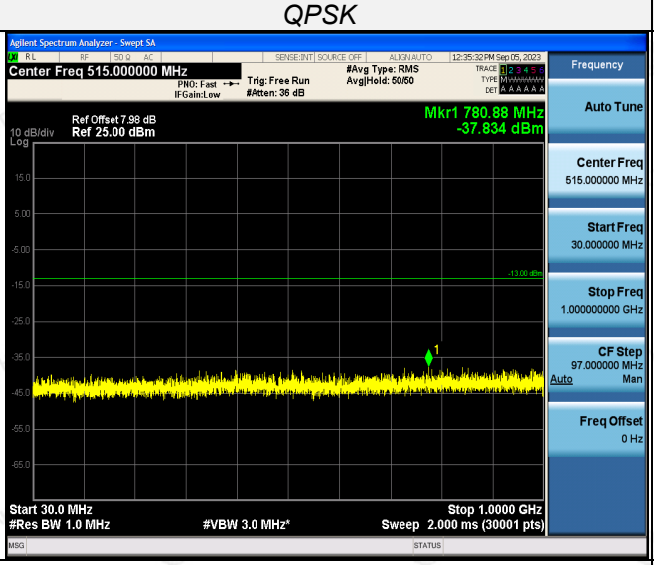
12GHz~26.5GHz

1RB#0

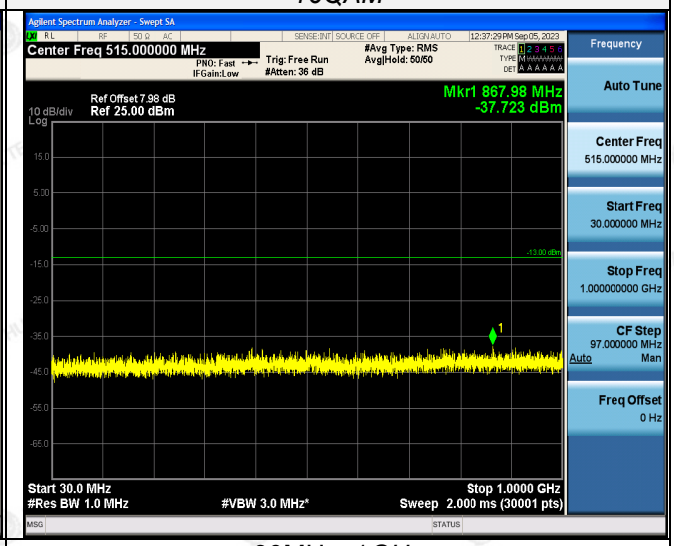
12GHz~26.5GHz

1RB#0

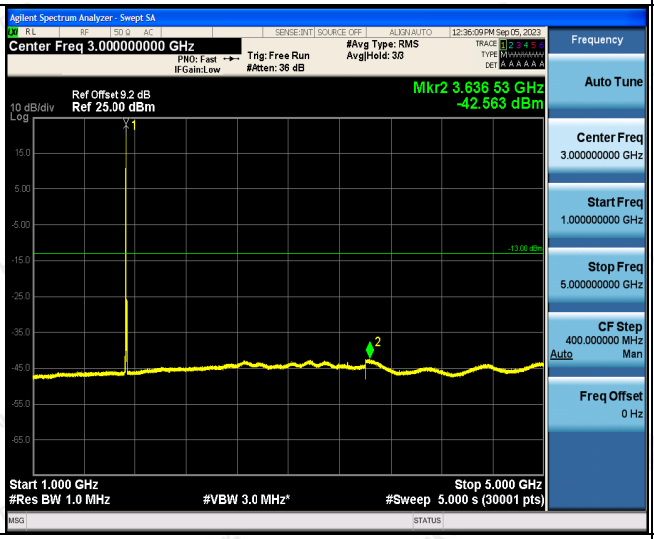
LTE FDD Band 4-5MHz Channel Bandwidth	
Middle Channel	
QPSK	16QAM



30MHz~1GHz



30MHz~1GHz

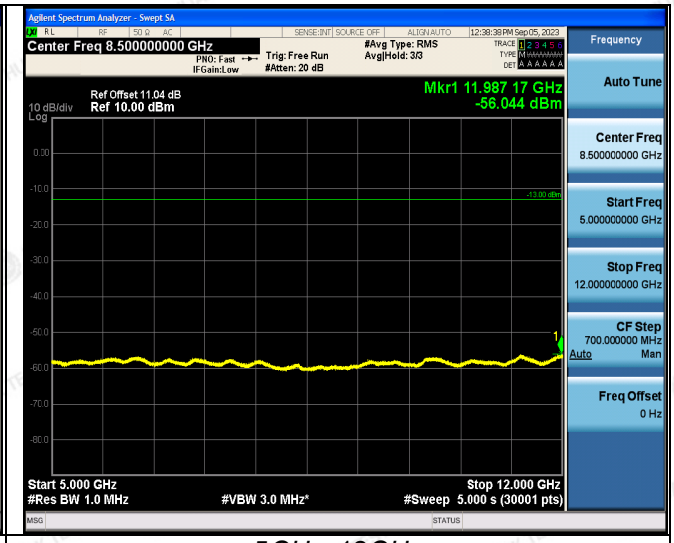


1GHz~5GHz

1GHz~5GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

5GHz~12GHz



5GHz~12GHz

12GHz~26.5GHz

1RB#0

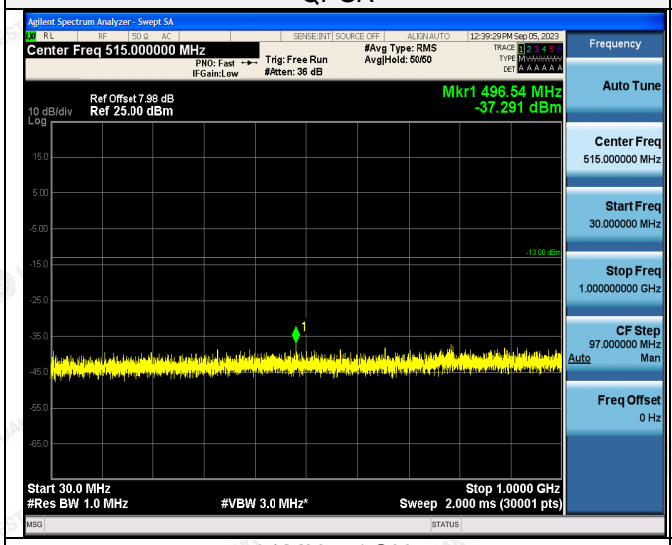
12GHz~26.5GHz

1RB#0

LTE FDD Band 4-5MHz Channel Bandwidth

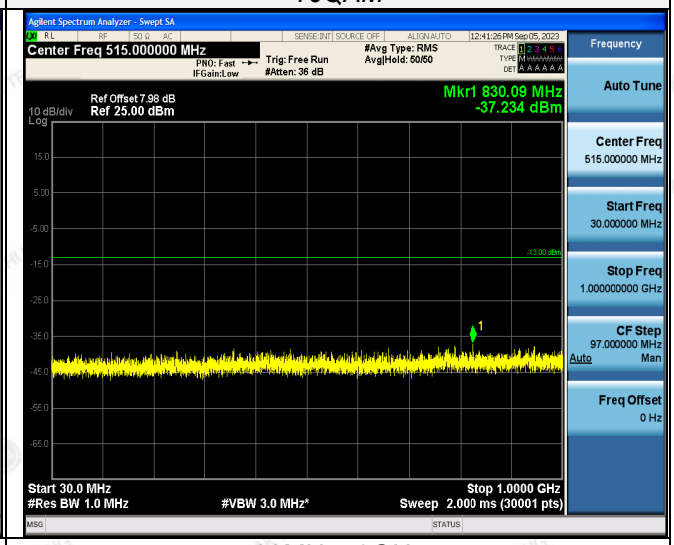
High Channel

QPSK



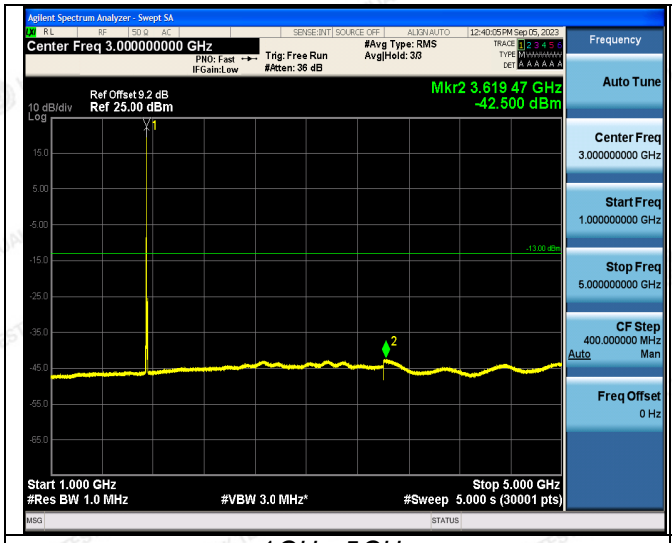
30MHz~1GHz

16QAM

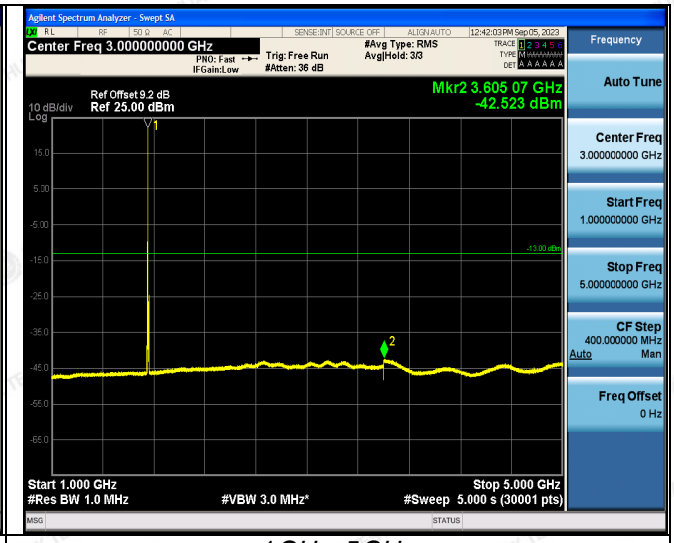


30MHz~1GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.



1GHz~5GHz



1GHz~5GHz

5GHz~12GHz

5GHz~12GHz

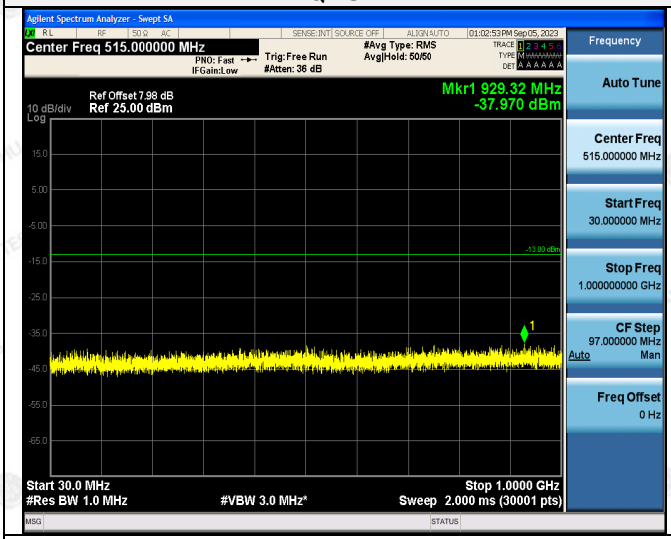
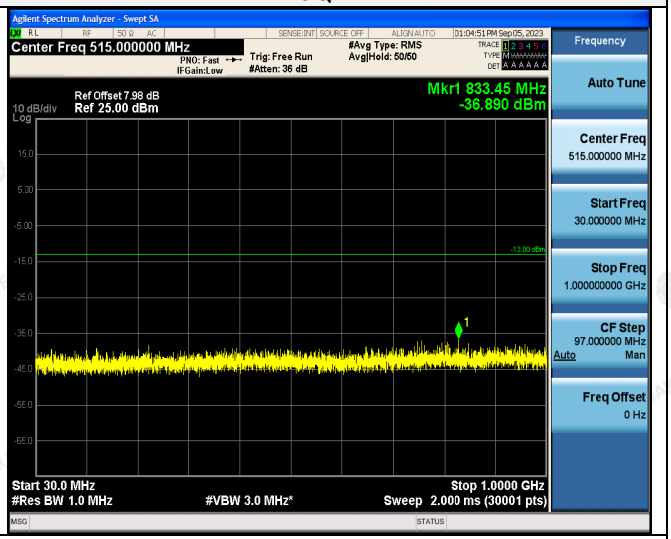
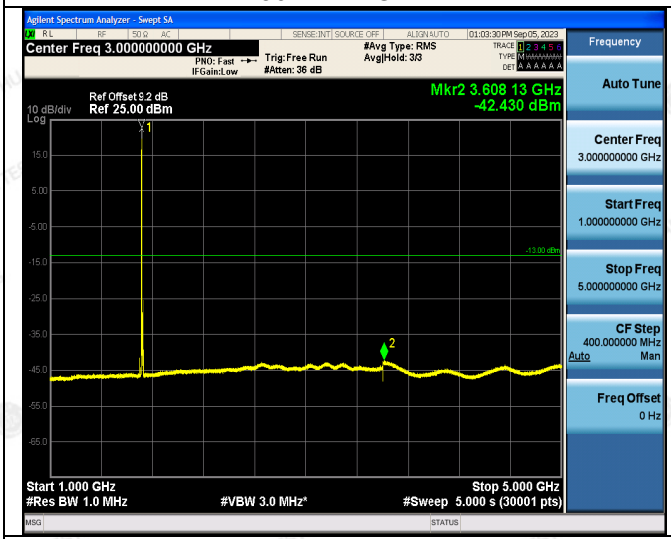
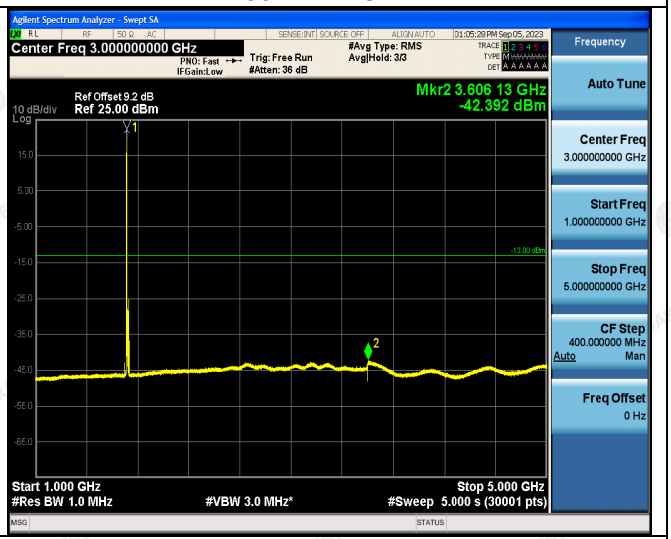
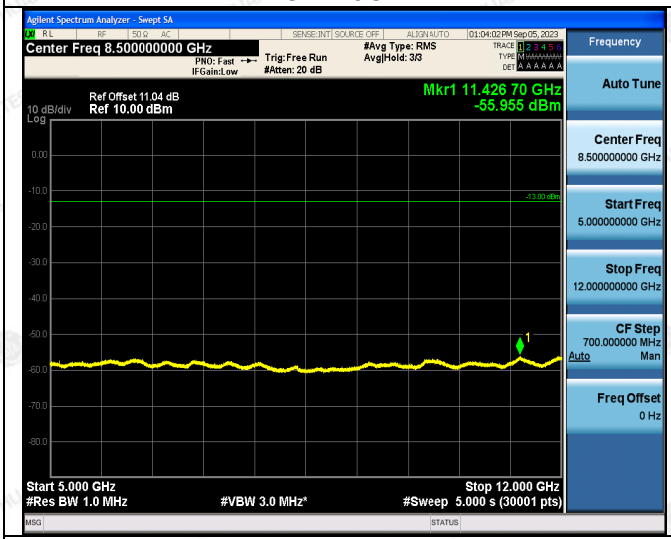
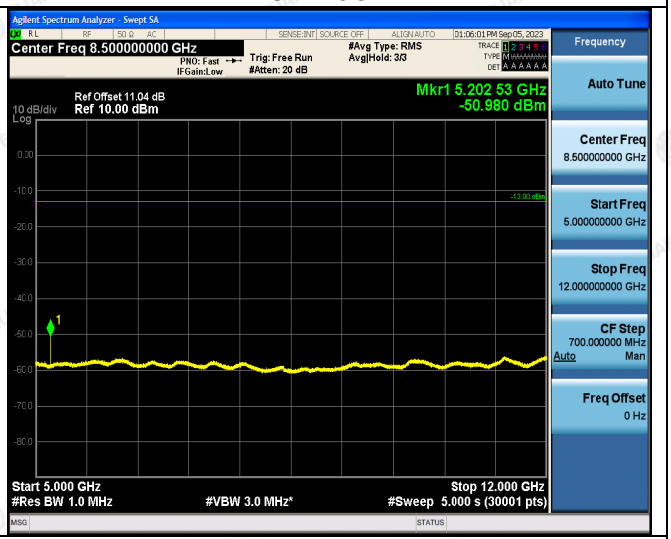
12GHz~26.5GHz

1RB#0

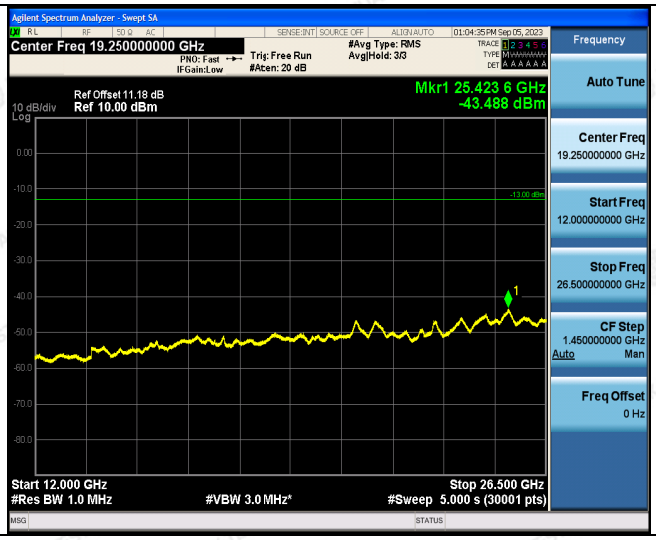
12GHz~26.5GHz

1RB#0

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

LTE FDD Band 4-10MHz Channel Bandwidth	
Low Channel	
QPSK	16QAM
	
30MHz~1GHz	30MHz~1GHz
	
1GHz~5GHz	1GHz~5GHz
	
5GHz~12GHz	5GHz~12GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.



12GHz~26.5GHz

1RB#0

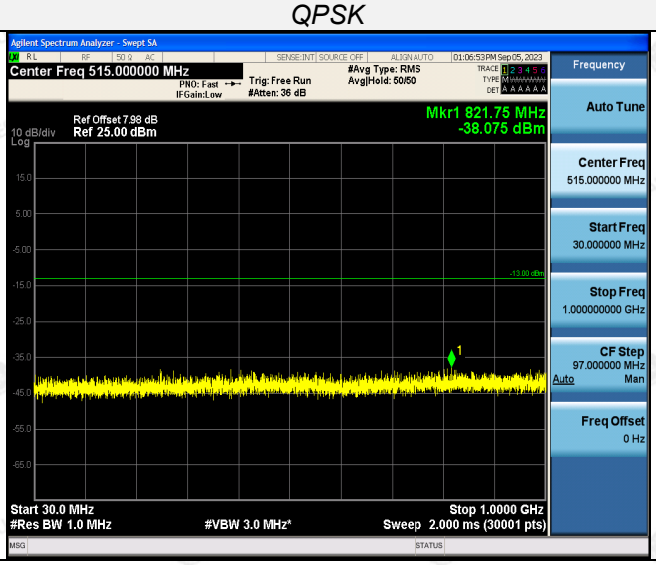
12GHz~26.5GHz

1RB#0

LTE FDD Band 4-10MHz Channel Bandwidth

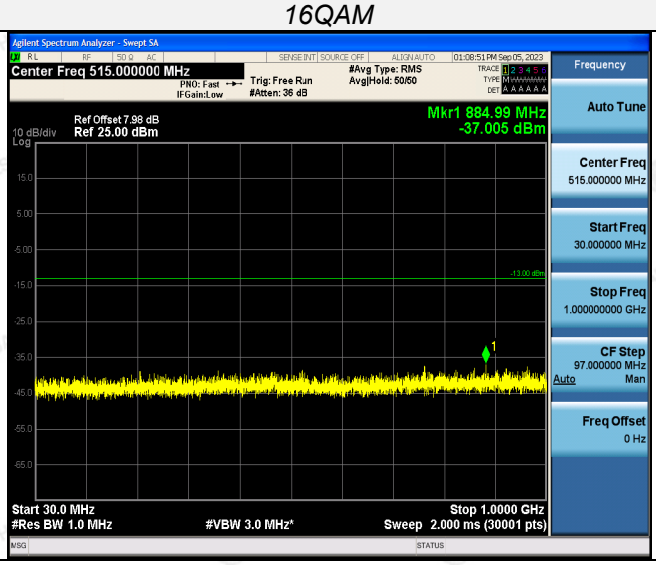
Middle Channel

QPSK

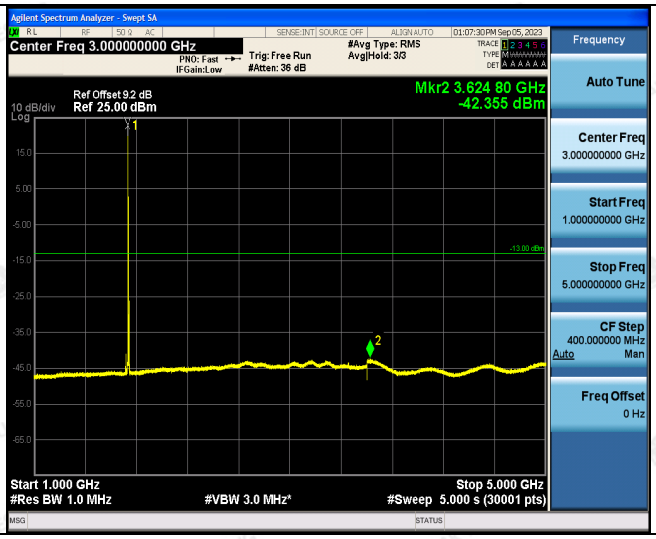


30MHz~1GHz

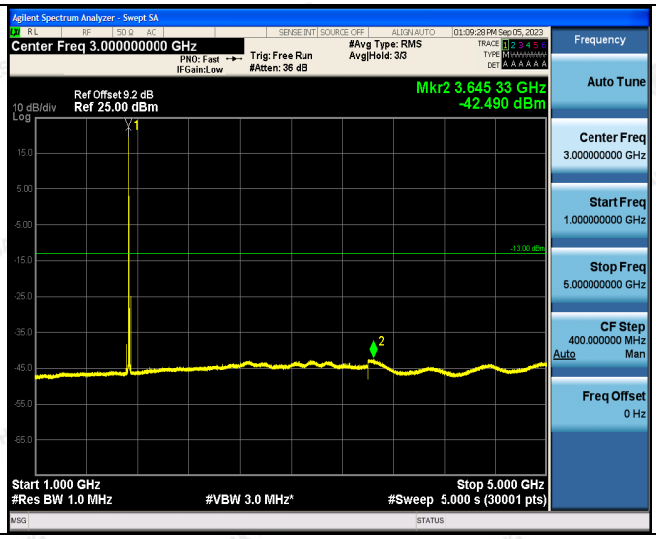
16QAM



30MHz~1GHz

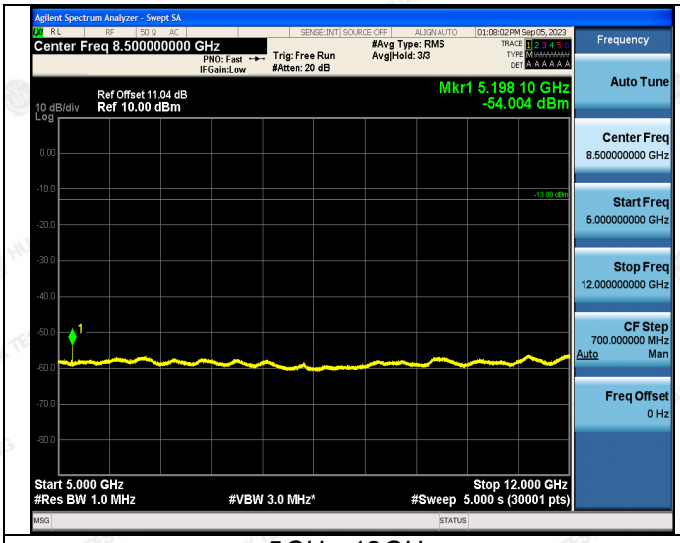


1GHz~5GHz

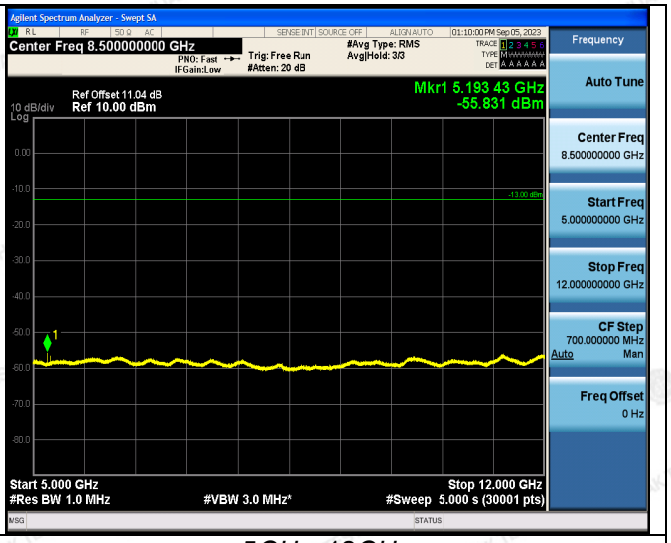


1GHz~5GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.



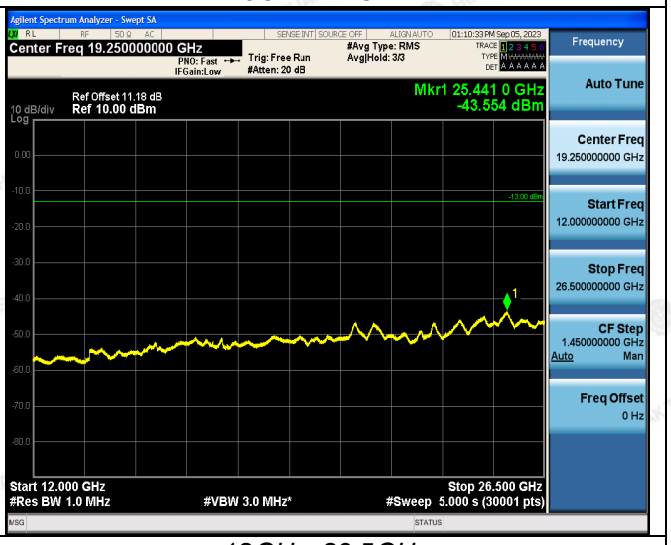
5GHz~12GHz



5GHz~12GHz

12GHz~26.5GHz

1RB#0



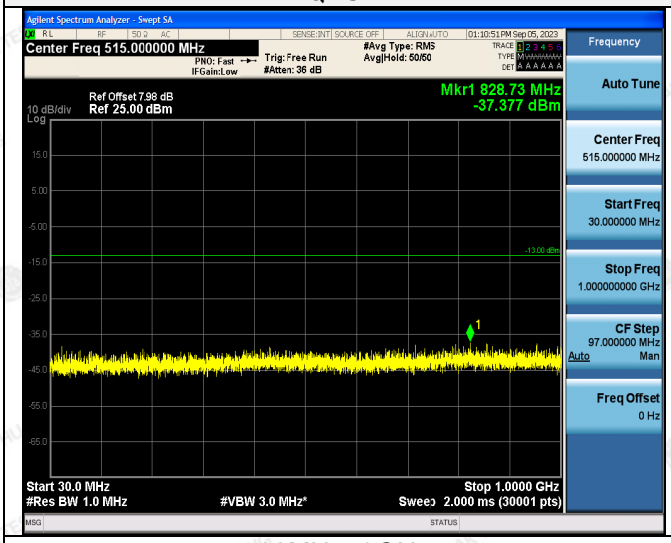
12GHz~26.5GHz

1RB#0

LTE FDD Band 4-10MHz Channel Bandwidth

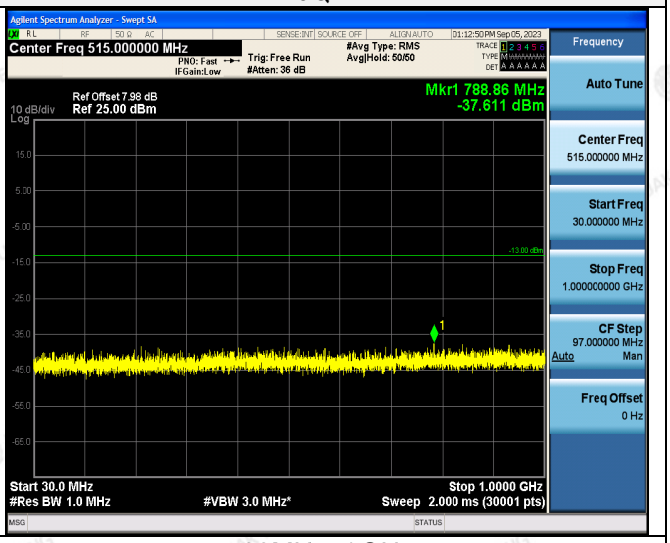
High Channel

QPSK



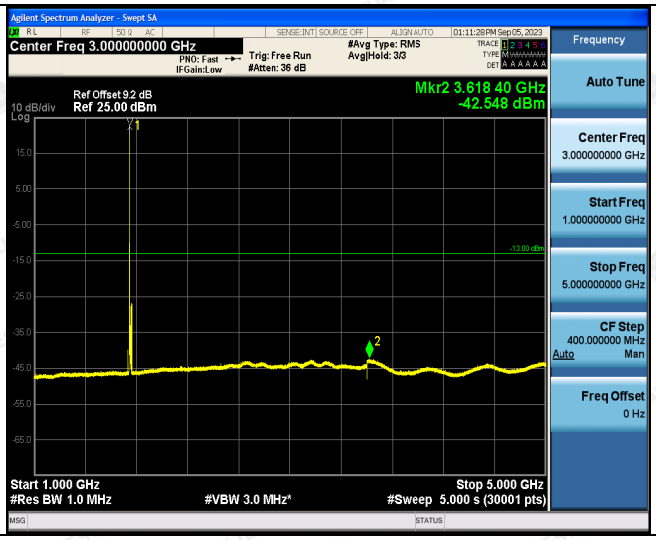
30MHz~1GHz

16QAM

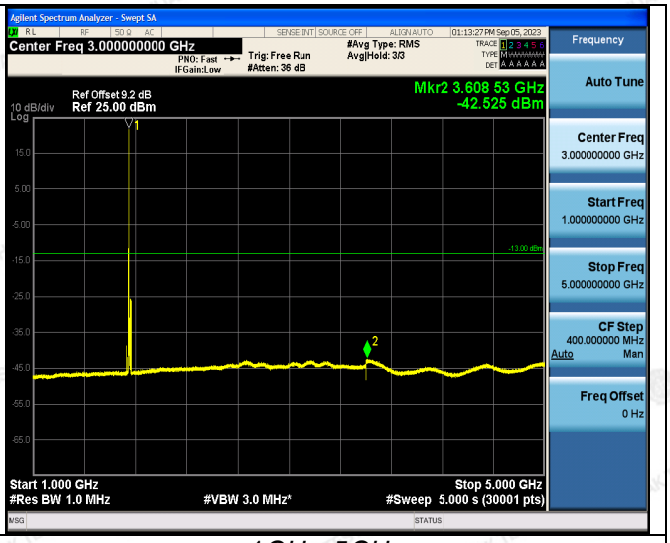


30MHz~1GHz

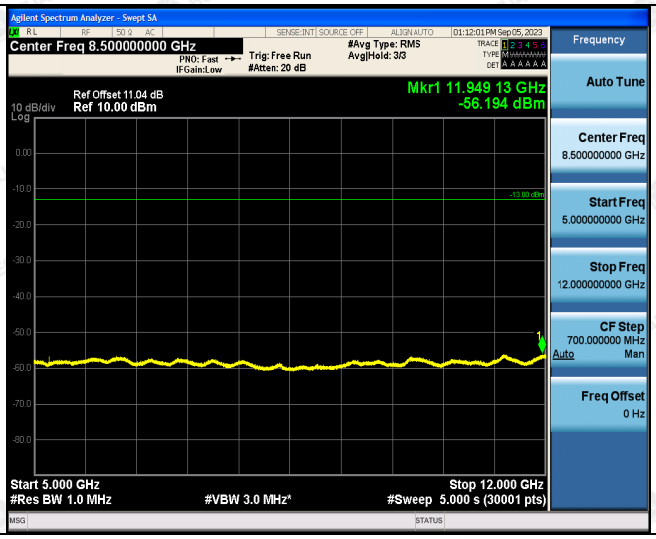
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.



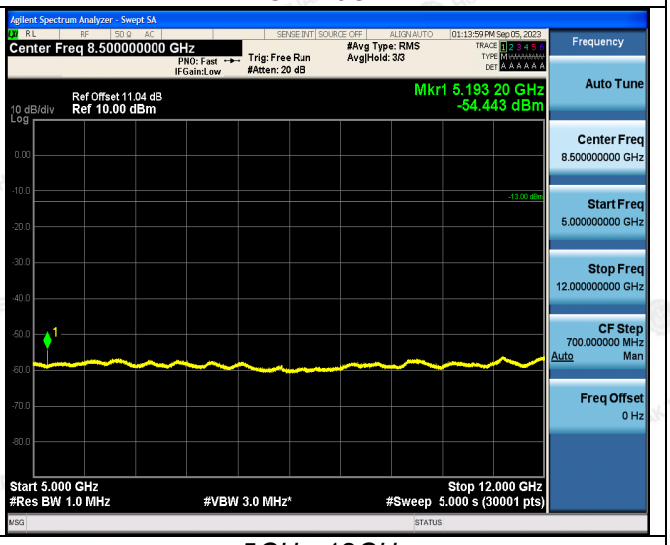
1GHz~5GHz



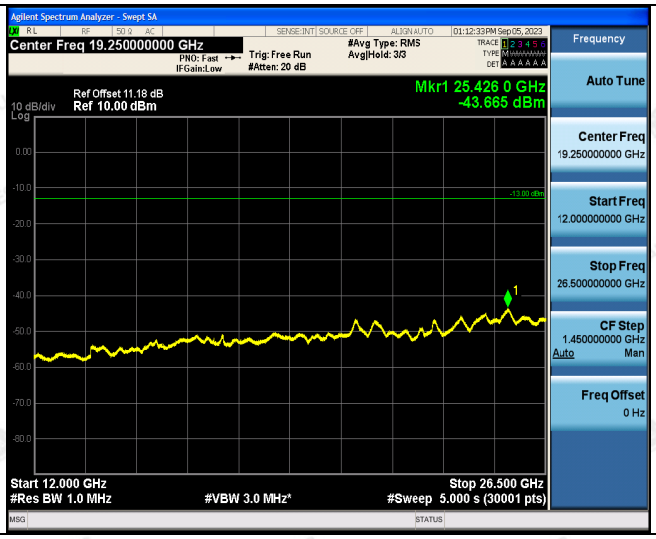
1GHz~5GHz



5GHz~12GHz

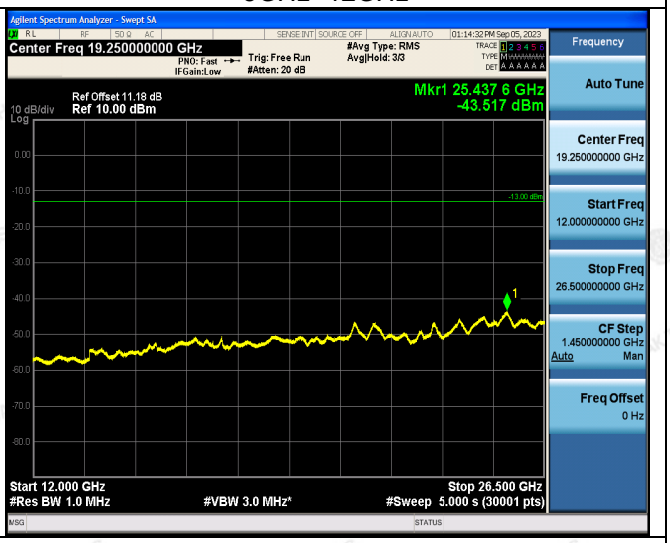


5GHz~12GHz



12GHz~26.5GHz

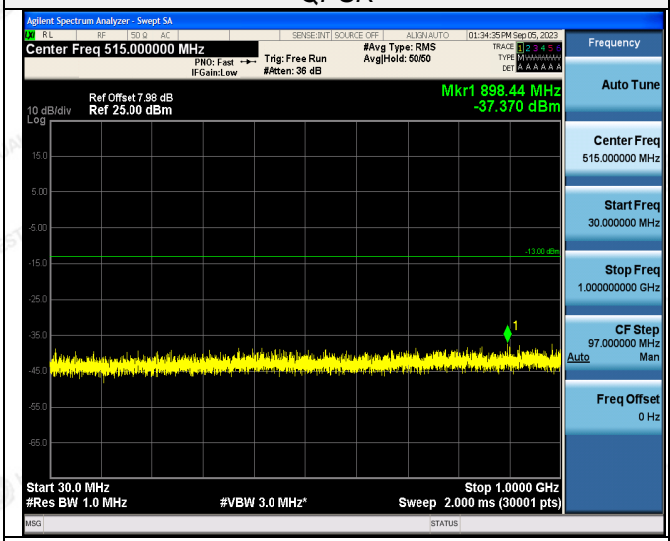
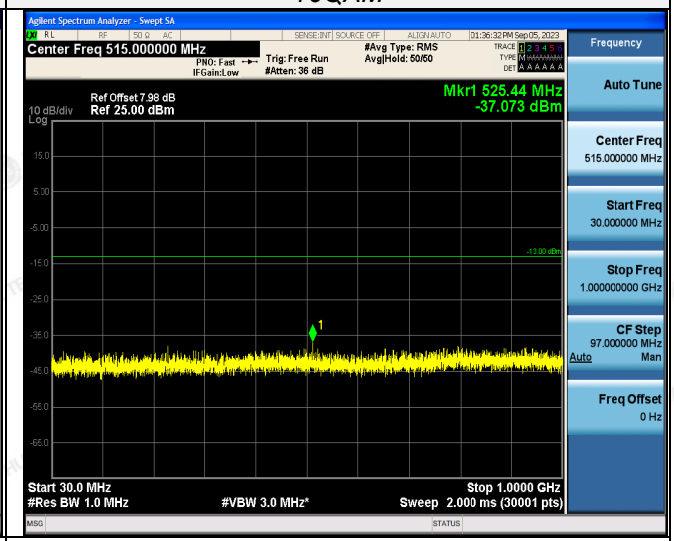
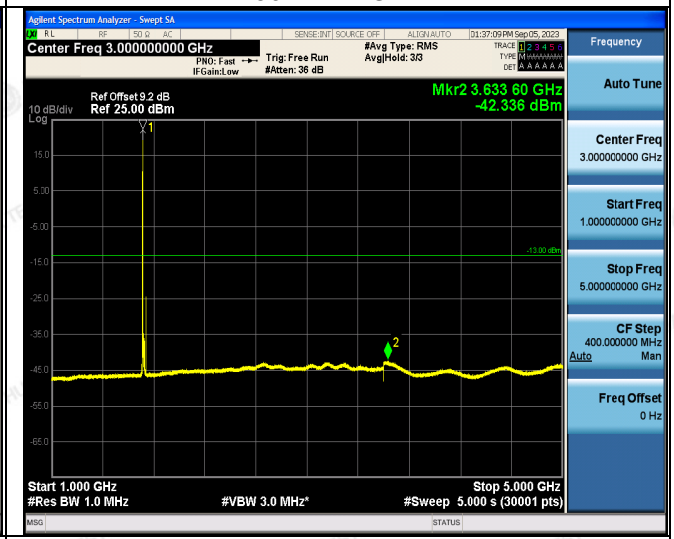
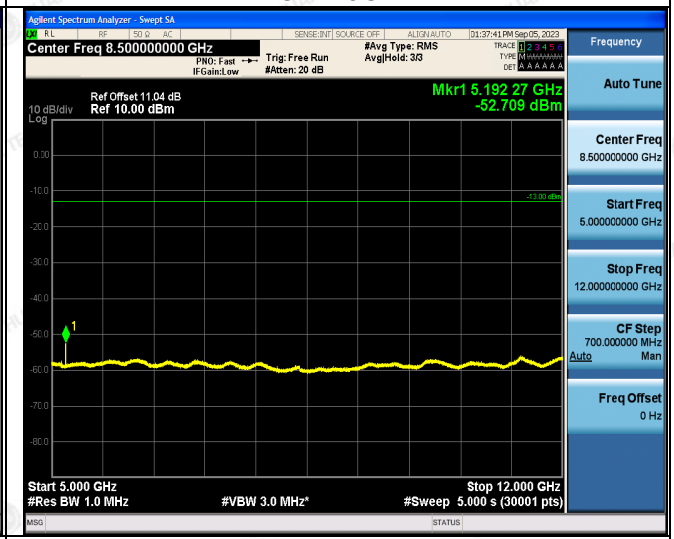
1RB#0



12GHz~26.5GHz

1RB#0

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

LTE FDD Band 4-15MHz Channel Bandwidth	
Low Channel	
QPSK	16QAM
	
30MHz~1GHz	30MHz~1GHz
	
1GHz~5GHz	1GHz~5GHz
	
5GHz~12GHz	5GHz~12GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

TEL：+86-755 2302 9901 FAX ：+86-755 2302 9901 E-mail：service@cer-mark.com
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

12GHz~26.5GHz

1RB#0

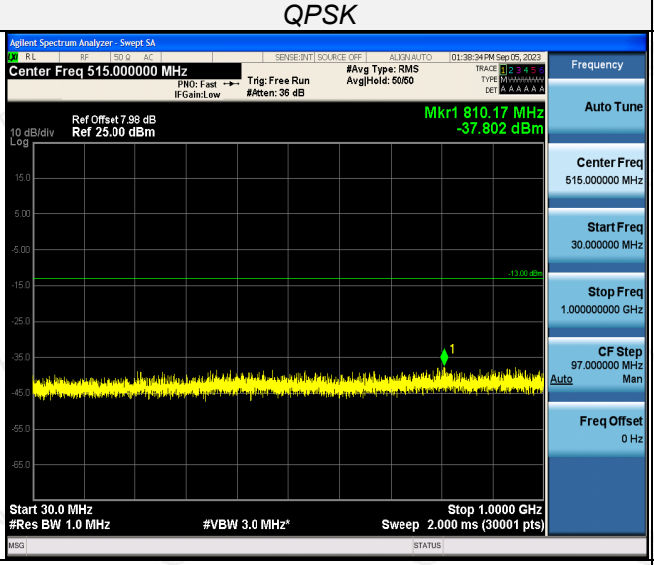
12GHz~26.5GHz

1RB#0

LTE FDD Band 4-15MHz Channel Bandwidth

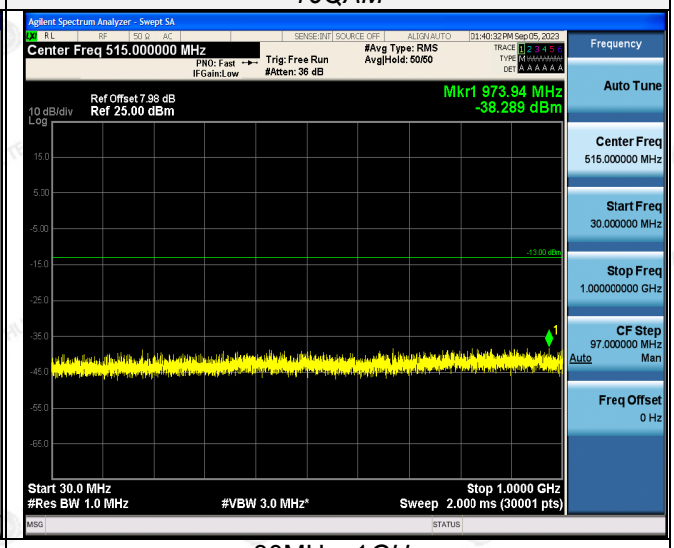
Middle Channel

QPSK

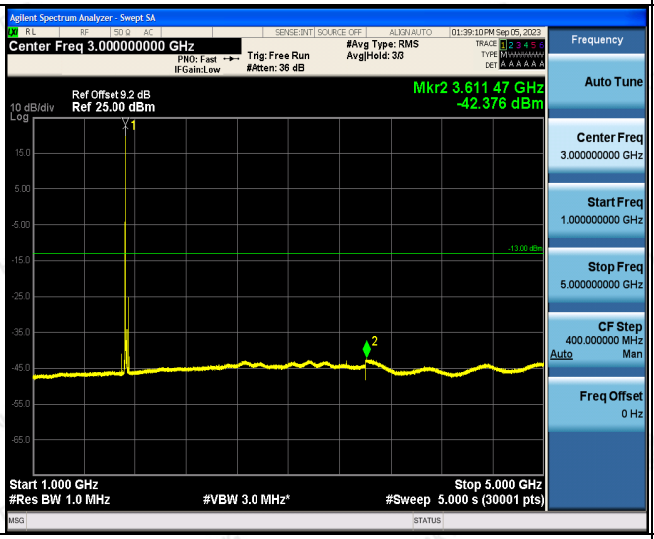


30MHz~1GHz

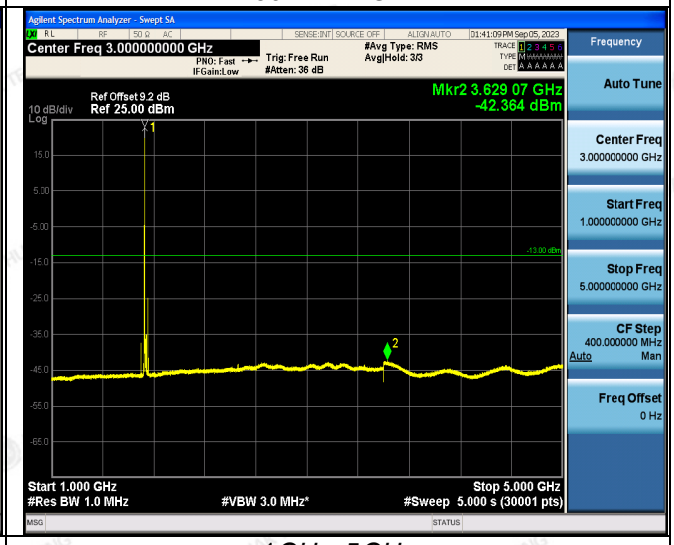
16QAM



30MHz~1GHz

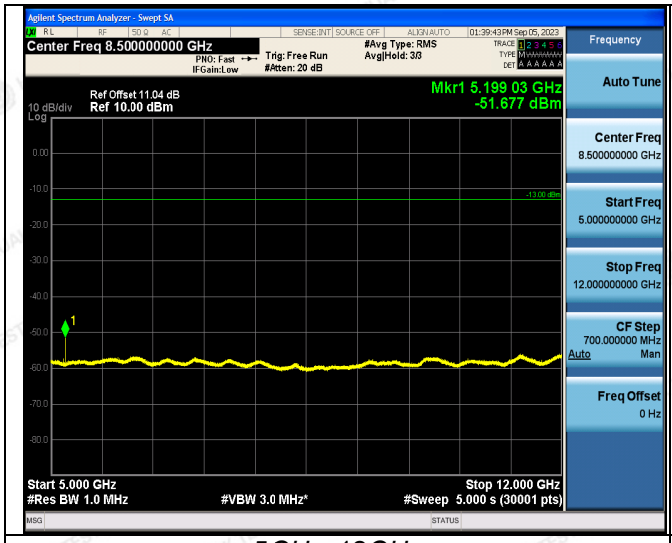


1GHz~5GHz

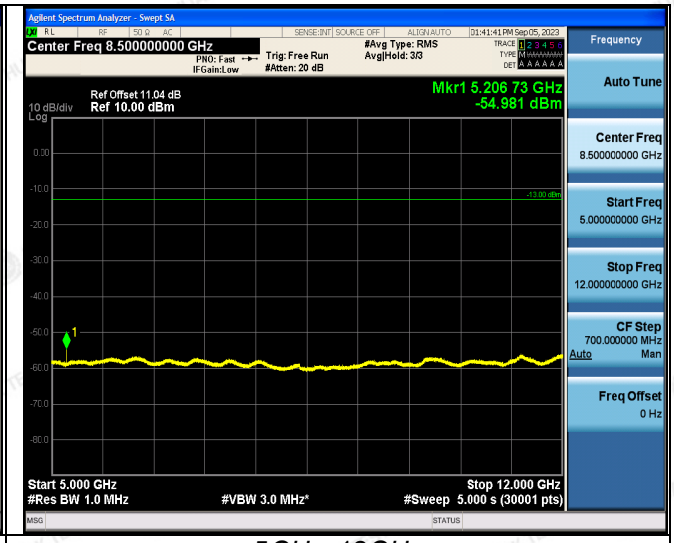


1GHz~5GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.



5GHz~12GHz



5GHz~12GHz

12GHz~26.5GHz

1RB#0

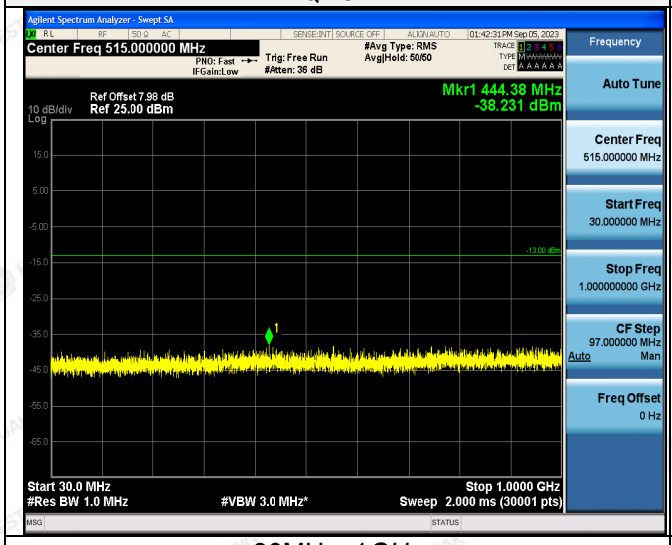
12GHz~26.5GHz

1RB#0

LTE FDD Band 4-15MHz Channel Bandwidth

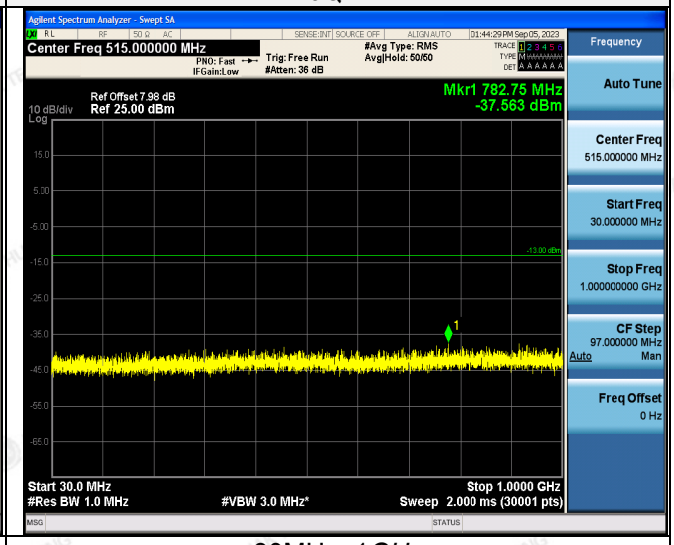
High Channel

QPSK



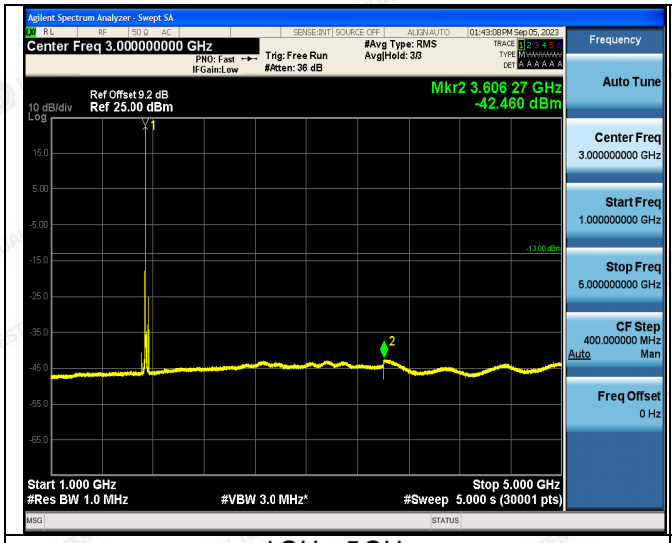
30MHz~1GHz

16QAM

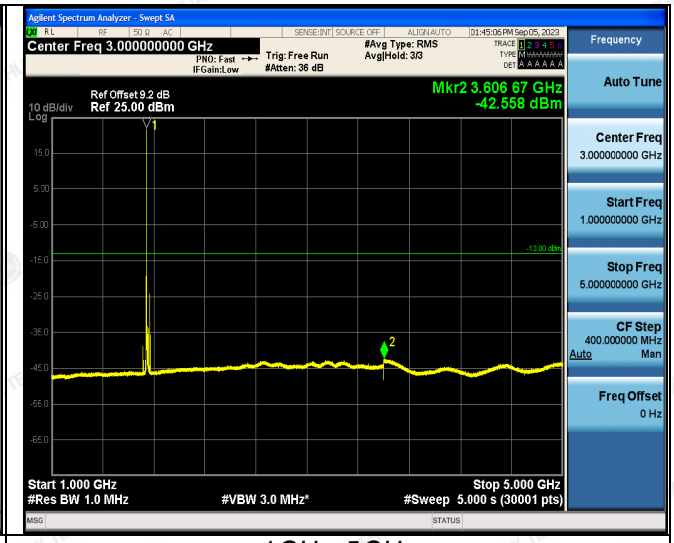


30MHz~1GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.



1GHz~5GHz



1GHz~5GHz

5GHz~12GHz

5GHz~12GHz

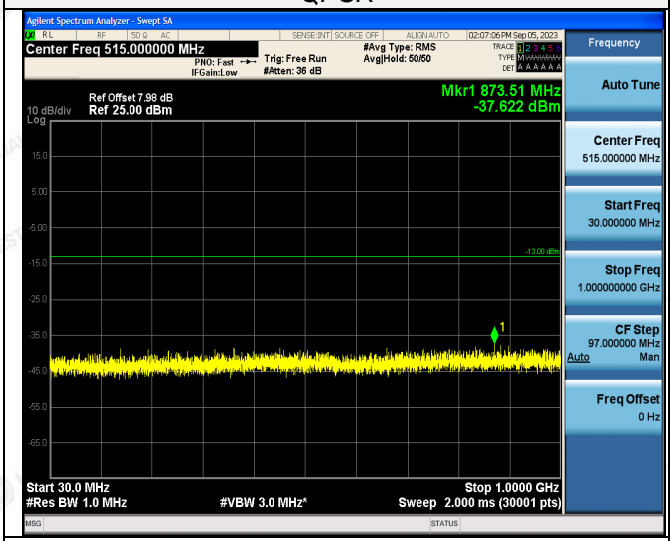
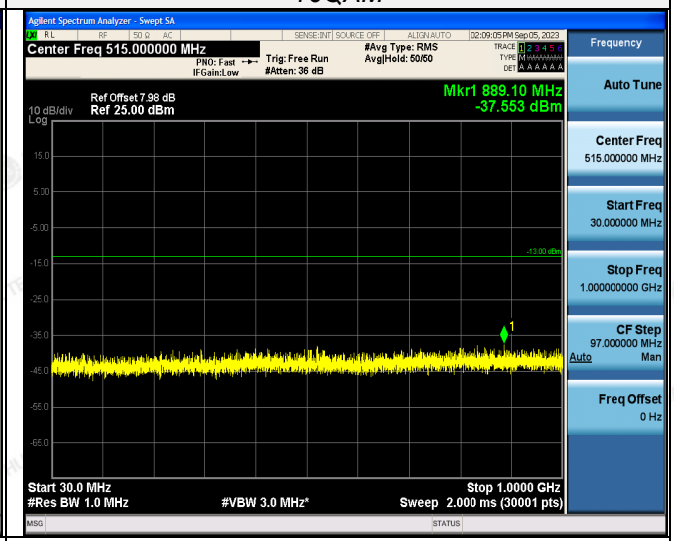
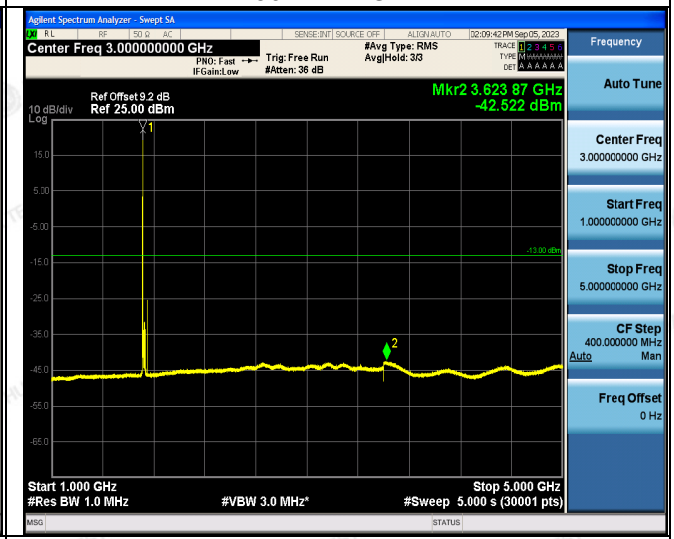
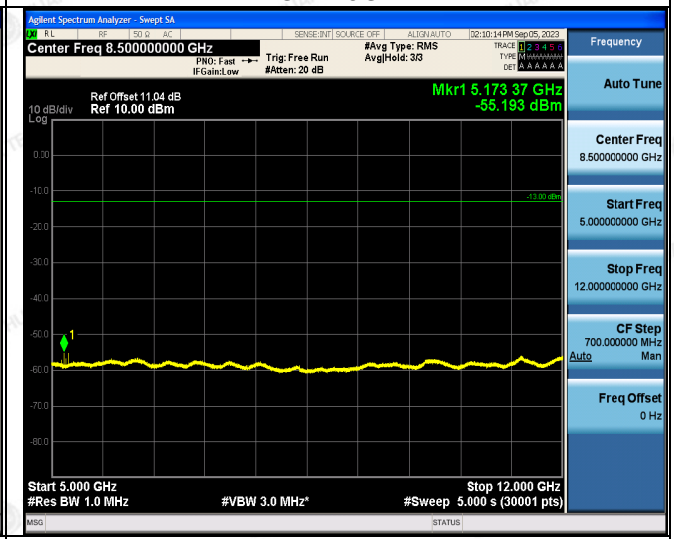
12GHz~26.5GHz

1RB#0

12GHz~26.5GHz

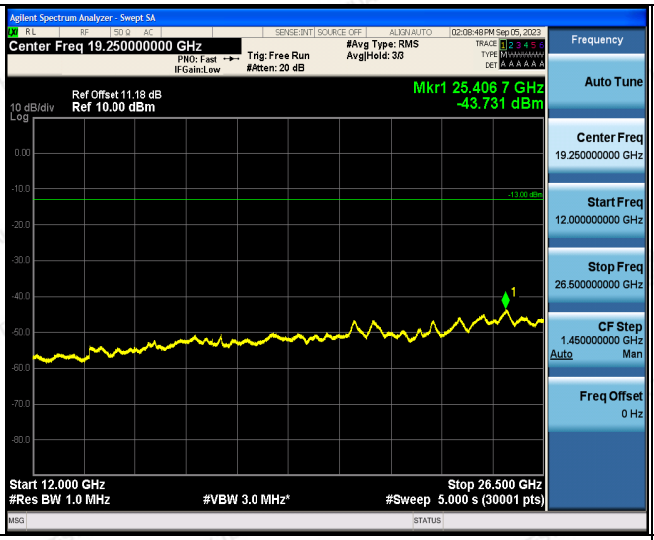
1RB#0

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

LTE FDD Band 4-20MHz Channel Bandwidth	
Low Channel	
QPSK	16QAM
	
30MHz~1GHz	30MHz~1GHz
	
1GHz~5GHz	1GHz~5GHz
	
5GHz~12GHz	5GHz~12GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

TEL：+86-755 2302 9901 FAX ：+86-755 2302 9901 E-mail：service@cer-mark.com
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



12GHz~26.5GHz

1RB#0

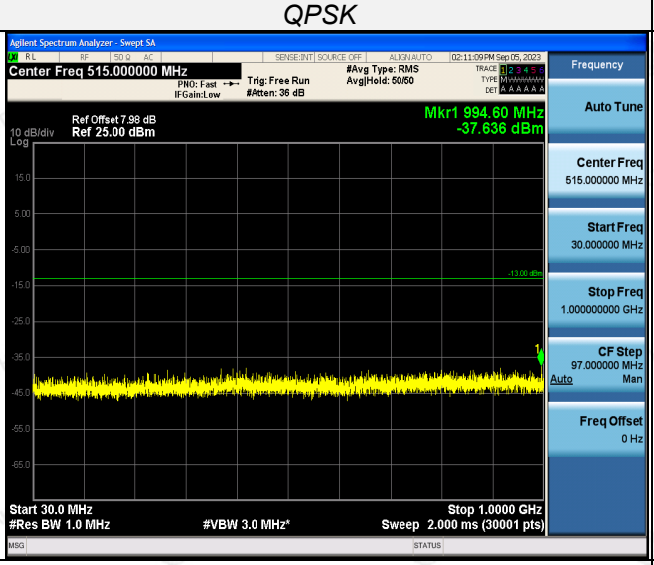
12GHz~26.5GHz

1RB#0

LTE FDD Band 4-20MHz Channel Bandwidth

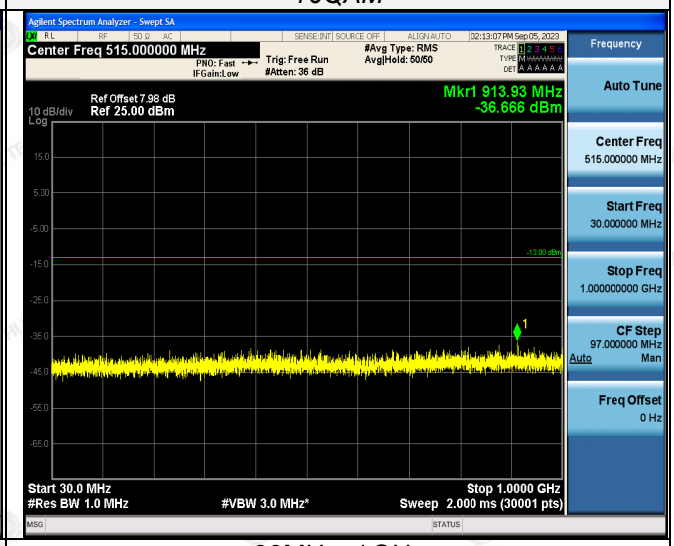
Middle Channel

QPSK

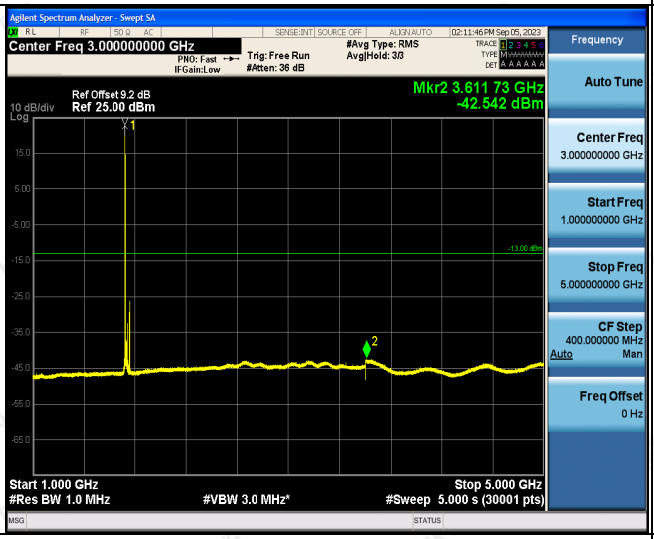


30MHz~1GHz

16QAM



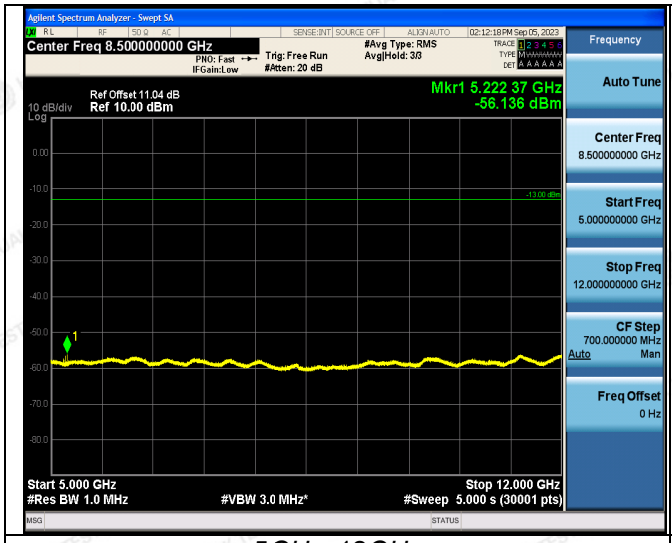
30MHz~1GHz



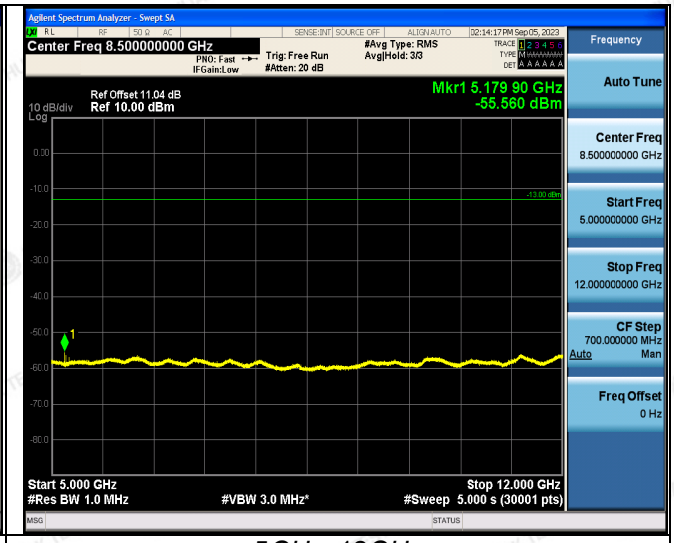
1GHz~5GHz

1GHz~5GHz

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.



5GHz~12GHz



5GHz~12GHz

12GHz~26.5GHz

1RB#0

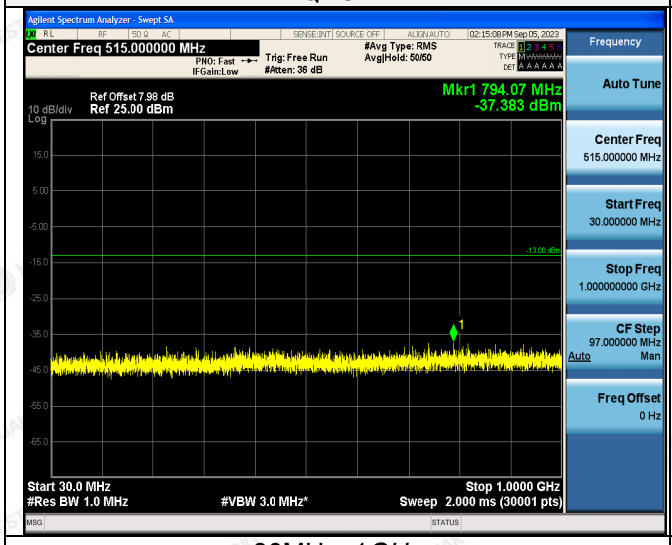
12GHz~26.5GHz

1RB#0

LTE FDD Band 4-20MHz Channel Bandwidth

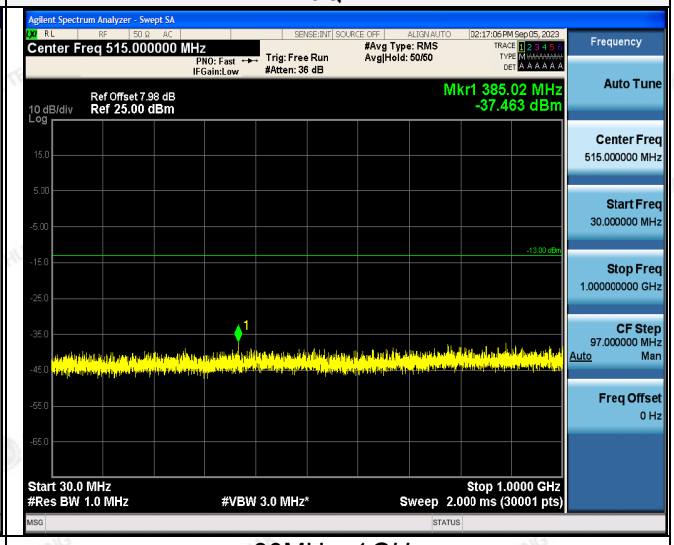
High Channel

QPSK



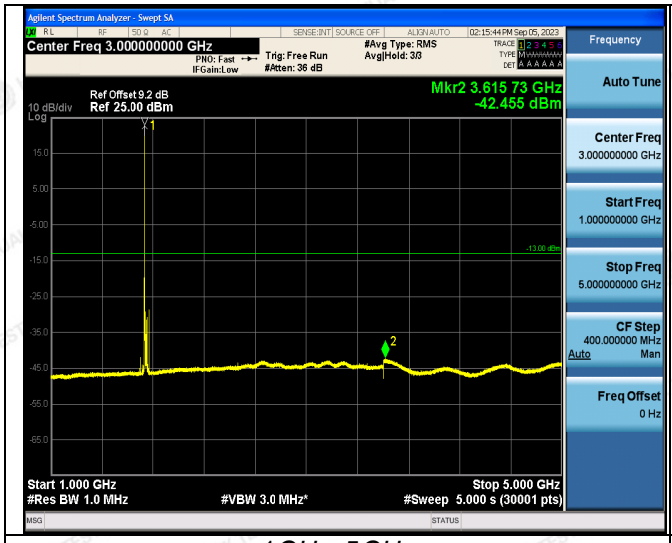
30MHz~1GHz

16QAM

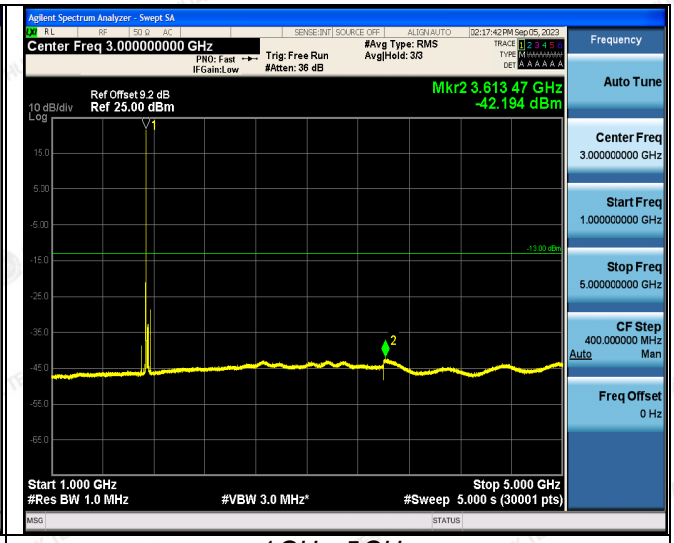


30MHz~1GHz

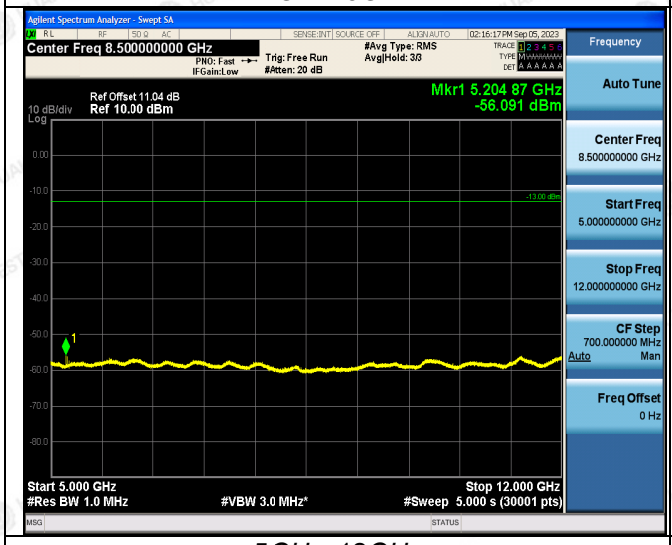
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.



1GHz~5GHz



1GHz~5GHz



5GHz~12GHz

5GHz~12GHz

12GHz~26.5GHz

12GHz~26.5GHz

1RB#0 | 1RB#0

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

Radiated Measurement:

Remark:
1. *We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case for each Channel Bandwidth of LTE FDD Band 4.*
2. *EIRP=P_{Mea}(dBm)-P_{cl}(dB) +G_a(dBi)*
3. *We were not recorded other points as values lower than limits.*
4. *Margin = Limit – EIRP*

LTE FDD Band 4_Channel Bandwidth 1.4MHz_QPSK_ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3421.4	-43.84	4.02	3.00	12.5	-35.36	-13.00	22.36	H
5132.1	-48.64	5.11	3.00	13.38	-40.37	-13.00	27.37	H
3421.4	-51.21	4.02	3.00	12.5	-42.73	-13.00	29.73	V
5132.1	-49.24	5.11	3.00	13.38	-40.97	-13.00	27.97	V

LTE FDD Band 4_Channel Bandwidth 1.4MHz_QPSK_ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-44.3	4.02	3.00	12.45	-35.87	-13.00	22.87	H
5197.5	-48.24	5.11	3.00	13.38	-39.97	-13.00	26.97	H
3465.0	-49.07	4.02	3.00	12.45	-40.64	-13.00	27.64	V
5197.5	-47.01	5.11	3.00	13.38	-38.74	-13.00	25.74	V

LTE FDD Band 4_Channel Bandwidth 1.4MHz_QPSK_ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3508.6	-43.92	4.02	3.00	12.21	-35.73	-13.00	22.73	H
5262.9	-46.43	5.11	3.00	13.26	-38.28	-13.00	25.28	H
3508.6	-48.22	4.02	3.00	12.21	-40.03	-13.00	27.03	V
5262.9	-48.01	5.11	3.00	13.26	-39.86	-13.00	26.86	V

LTE FDD Band 4_Channel Bandwidth 3MHz_QPSK_ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3423.0	-47.52	4.02	3.00	12.5	-39.04	-13.00	26.04	H
5134.5	-50.74	5.11	3.00	13.38	-42.47	-13.00	29.47	H
3423.0	-51.02	4.02	3.00	12.5	-42.54	-13.00	29.54	V
5134.5	-47.99	5.11	3.00	13.38	-39.72	-13.00	26.72	V

LTE FDD Band 4_Channel Bandwidth 3MHz_QPSK_ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-44.58	4.02	3.00	12.45	-36.15	-13.00	23.15	H
5197.5	-47.08	5.11	3.00	13.38	-38.81	-13.00	25.81	H
3465.0	-49.82	4.02	3.00	12.45	-41.39	-13.00	28.39	V
5197.5	-48.26	5.11	3.00	13.38	-39.99	-13.00	26.99	V

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

LTE FDD Band 4_Channel Bandwidth 3MHz_QPSK_ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3507.0	-43.21	4.02	3.00	12.21	-35.02	-13.00	22.02	H
5260.5	-47.99	5.11	3.00	13.26	-39.84	-13.00	26.84	H
3507.0	-49.31	4.02	3.00	12.21	-41.12	-13.00	28.12	V
5260.5	-48.39	5.11	3.00	13.26	-40.24	-13.00	27.24	V

LTE FDD Band 4_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3425.0	-45.23	4.02	3.00	12.5	-36.75	-13.00	23.75	H
5137.5	-49.87	5.11	3.00	13.38	-41.6	-13.00	28.6	H
3425.0	-54.29	4.02	3.00	12.5	-45.81	-13.00	32.81	V
5137.5	-52.1	5.11	3.00	13.38	-43.83	-13.00	30.83	V

LTE FDD Band 4_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-43.92	4.02	3.00	12.45	-35.49	-13.00	22.49	H
5197.5	-47.73	5.11	3.00	13.38	-39.46	-13.00	26.46	H
3465.0	-50.23	4.02	3.00	12.45	-41.8	-13.00	28.8	V
5197.5	-46.85	5.11	3.00	13.38	-38.58	-13.00	25.58	V

LTE FDD Band 4_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3505.0	-41.93	4.02	3.00	12.21	-33.74	-13.00	20.74	H
5257.5	-47.67	5.11	3.00	13.26	-39.52	-13.00	26.52	H
3505.0	-48.8	4.02	3.00	12.21	-40.61	-13.00	27.61	V
5257.5	-47.65	5.11	3.00	13.26	-39.5	-13.00	26.5	V

LTE FDD Band 4_Channel Bandwidth 10MHz_QPSK_ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3430.0	-46.91	4.02	3.00	12.5	-38.43	-13.00	25.43	H
5145.0	-50.18	5.11	3.00	13.38	-41.91	-13.00	28.91	H
3430.0	-52.12	4.02	3.00	12.5	-43.64	-13.00	30.64	V
5145.0	-50.2	5.11	3.00	13.38	-41.93	-13.00	28.93	V

LTE FDD Band 4_Channel Bandwidth 10MHz_QPSK_ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-43.73	4.02	3.00	12.45	-35.3	-13.00	22.3	H
5197.5	-47.72	5.11	3.00	13.38	-39.45	-13.00	26.45	H
3465.0	-48.68	4.02	3.00	12.45	-40.25	-13.00	27.25	V
5197.5	-48.42	5.11	3.00	13.38	-40.15	-13.00	27.15	V

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

LTE FDD Band 4_Channel Bandwidth 10MHz_QPSK_ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3500.0	-42.63	4.02	3.00	12.21	-34.44	-13.00	21.44	H
5250.0	-47.31	5.11	3.00	13.26	-39.16	-13.00	26.16	H
3500.0	-48.66	4.02	3.00	12.21	-40.47	-13.00	27.47	V
5250.0	-49.21	5.11	3.00	13.26	-41.06	-13.00	28.06	V

LTE FDD Band 4_Channel Bandwidth 15MHz_QPSK_ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3435.0	-46.21	4.02	3.00	12.5	-37.73	-13.00	24.73	H
5152.5	-51.45	5.11	3.00	13.38	-43.18	-13.00	30.18	H
3435.0	-51.19	4.02	3.00	12.5	-42.71	-13.00	29.71	V
5152.5	-52.46	5.11	3.00	13.38	-44.19	-13.00	31.19	V

LTE FDD Band 4_Channel Bandwidth 15MHz_QPSK_ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-44.02	4.02	3.00	12.45	-35.59	-13.00	22.59	H
5197.5	-47.25	5.11	3.00	13.38	-38.98	-13.00	25.98	H
3465.0	-50.32	4.02	3.00	12.45	-41.89	-13.00	28.89	V
5197.5	-48.35	5.11	3.00	13.38	-40.08	-13.00	27.08	V

LTE FDD Band 4_Channel Bandwidth 15MHz_QPSK_ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3495.0	-42.84	4.02	3.00	12.21	-34.65	-13.00	21.65	H
5242.5	-46.82	5.11	3.00	13.26	-38.67	-13.00	25.67	H
3495.0	-49.56	4.02	3.00	12.21	-41.37	-13.00	28.37	V
5242.5	-47.43	5.11	3.00	13.26	-39.28	-13.00	26.28	V

LTE FDD Band 4_Channel Bandwidth 20MHz_QPSK_ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3440.0	-48.82	4.02	3.00	12.5	-40.34	-13.00	27.34	H
5160.0	-50.84	5.11	3.00	13.38	-42.57	-13.00	29.57	H
3440.0	-50.09	4.02	3.00	12.5	-41.61	-13.00	28.61	V
5160.0	-50.39	5.11	3.00	13.38	-42.12	-13.00	29.12	V

LTE FDD Band 4_Channel Bandwidth 20MHz_QPSK_ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-40.34	4.02	3.00	12.45	-31.91	-13.00	18.91	H
5197.5	-48.06	5.11	3.00	13.38	-39.79	-13.00	26.79	H
3465.0	-49.49	4.02	3.00	12.45	-41.06	-13.00	28.06	V
5197.5	-47.11	5.11	3.00	13.38	-38.84	-13.00	25.84	V

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

LTE FDD Band 4_Channel Bandwidth 20MHz_QPSK_ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.0	-42.49	4.02	3.00	12.21	-34.3	-13.00	21.3	H
5235.0	-46.76	5.11	3.00	13.26	-38.61	-13.00	25.61	H
3490.0	-49.01	4.02	3.00	12.21	-40.82	-13.00	27.82	V
5235.0	-48.93	5.11	3.00	13.26	-40.78	-13.00	27.78	V

LTE FDD Band 4_Channel Bandwidth 1.4MHz_16QAM _ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3421.4	-48.36	4.02	3.00	12.5	-39.88	-13.00	26.88	H
5132.1	-50.09	5.11	3.00	13.38	-41.82	-13.00	28.82	H
3421.4	-53.73	4.02	3.00	12.5	-45.25	-13.00	32.25	V
5132.1	-48.63	5.11	3.00	13.38	-40.36	-13.00	27.36	V

LTE FDD Band 4_Channel Bandwidth 1.4MHz_16QAM _ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-45.01	4.02	3.00	12.45	-36.58	-13.00	23.58	H
5197.5	-48.39	5.11	3.00	13.38	-40.12	-13.00	27.12	H
3465.0	-49.46	4.02	3.00	12.45	-41.03	-13.00	28.03	V
5197.5	-46.56	5.11	3.00	13.38	-38.29	-13.00	25.29	V

LTE FDD Band 4_Channel Bandwidth 1.4MHz_16QAM _ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3508.6	-42.26	4.02	3.00	12.21	-34.07	-13.00	21.07	H
5262.9	-47.23	5.11	3.00	13.26	-39.08	-13.00	26.08	H
3508.6	-49.89	4.02	3.00	12.21	-41.7	-13.00	28.7	V
5262.9	-48.29	5.11	3.00	13.26	-40.14	-13.00	27.14	V

LTE FDD Band 4_Channel Bandwidth 3MHz_16QAM _ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3423.0	-46.68	4.02	3.00	12.5	-38.2	-13.00	25.2	H
5134.5	-49.08	5.11	3.00	13.38	-40.81	-13.00	27.81	H
3423.0	-51.34	4.02	3.00	12.5	-42.86	-13.00	29.86	V
5134.5	-50.3	5.11	3.00	13.38	-42.03	-13.00	29.03	V

LTE FDD Band 4_Channel Bandwidth 3MHz_16QAM _ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-44.01	4.02	3.00	12.45	-35.58	-13.00	22.58	H
5197.5	-47.59	5.11	3.00	13.38	-39.32	-13.00	26.32	H
3465.0	-49.92	4.02	3.00	12.45	-41.49	-13.00	28.49	V
5197.5	-46.78	5.11	3.00	13.38	-38.51	-13.00	25.51	V

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

LTE FDD Band 4_Channel Bandwidth 3MHz_16QAM _ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3507.0	-42.56	4.02	3.00	12.21	-34.37	-13.00	21.37	H
5260.5	-46.69	5.11	3.00	13.26	-38.54	-13.00	25.54	H
3507.0	-48.72	4.02	3.00	12.21	-40.53	-13.00	27.53	V
5260.5	-47.63	5.11	3.00	13.26	-39.48	-13.00	26.48	V

LTE FDD Band 4_Channel Bandwidth 5MHz_16QAM _ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3425.0	-45.84	4.02	3.00	12.5	-37.36	-13.00	24.36	H
5137.5	-53.45	5.11	3.00	13.38	-45.18	-13.00	32.18	H
3425.0	-50.2	4.02	3.00	12.5	-41.72	-13.00	28.72	V
5137.5	-47.43	5.11	3.00	13.38	-39.16	-13.00	26.16	V

LTE FDD Band 4_Channel Bandwidth 5MHz_16QAM _ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-43.98	4.02	3.00	12.45	-35.55	-13.00	22.55	H
5197.5	-47.95	5.11	3.00	13.38	-39.68	-13.00	26.68	H
3465.0	-48.9	4.02	3.00	12.45	-40.47	-13.00	27.47	V
5197.5	-47.64	5.11	3.00	13.38	-39.37	-13.00	26.37	V

LTE FDD Band 4_Channel Bandwidth 5MHz_16QAM _ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3505.0	-42.71	4.02	3.00	12.21	-34.52	-13.00	21.52	H
5257.5	-47.86	5.11	3.00	13.26	-39.71	-13.00	26.71	H
3505.0	-48.79	4.02	3.00	12.21	-40.6	-13.00	27.6	V
5257.5	-47.72	5.11	3.00	13.26	-39.57	-13.00	26.57	V

LTE FDD Band 4_Channel Bandwidth 10MHz_16QAM _ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3430.0	-46.92	4.02	3.00	12.5	-38.44	-13.00	25.44	H
5145.0	-48.04	5.11	3.00	13.38	-39.77	-13.00	26.77	H
3430.0	-51.29	4.02	3.00	12.5	-42.81	-13.00	29.81	V
5145.0	-48.25	5.11	3.00	13.38	-39.98	-13.00	26.98	V

LTE FDD Band 4_Channel Bandwidth 10MHz_16QAM _ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-44.21	4.02	3.00	12.45	-35.78	-13.00	22.78	H
5197.5	-47.71	5.11	3.00	13.38	-39.44	-13.00	26.44	H
3465.0	-49.52	4.02	3.00	12.45	-41.09	-13.00	28.09	V
5197.5	-47.27	5.11	3.00	13.38	-39	-13.00	26	V

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

LTE FDD Band 4_Channel Bandwidth 10MHz_16QAM _ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3500.0	-41.83	4.02	3.00	12.21	-33.64	-13.00	20.64	H
5250.0	-47.05	5.11	3.00	13.26	-38.9	-13.00	25.9	H
3500.0	-49.32	4.02	3.00	12.21	-41.13	-13.00	28.13	V
5250.0	-47.77	5.11	3.00	13.26	-39.62	-13.00	26.62	V

LTE FDD Band 4_Channel Bandwidth 15MHz_16QAM _ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3435.0	-46.35	4.02	3.00	12.5	-37.87	-13.00	24.87	H
5152.5	-49.31	5.11	3.00	13.38	-41.04	-13.00	28.04	H
3435.0	-52.82	4.02	3.00	12.5	-44.34	-13.00	31.34	V
5152.5	-51.48	5.11	3.00	13.38	-43.21	-13.00	30.21	V

LTE FDD Band 4_Channel Bandwidth 15MHz_16QAM _ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-44.85	4.02	3.00	12.45	-36.42	-13.00	23.42	H
5197.5	-46.67	5.11	3.00	13.38	-38.4	-13.00	25.4	H
3465.0	-49.98	4.02	3.00	12.45	-41.55	-13.00	28.55	V
5197.5	-47.22	5.11	3.00	13.38	-38.95	-13.00	25.95	V

LTE FDD Band 4_Channel Bandwidth 15MHz_16QAM _ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3495.0	-42.92	4.02	3.00	12.21	-34.73	-13.00	21.73	H
5242.5	-47.77	5.11	3.00	13.26	-39.62	-13.00	26.62	H
3495.0	-48.72	4.02	3.00	12.21	-40.53	-13.00	27.53	V
5242.5	-48.27	5.11	3.00	13.26	-40.12	-13.00	27.12	V

LTE FDD Band 4_Channel Bandwidth 20MHz_16QAM _ Low Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3440.0	-46.57	4.02	3.00	12.5	-38.09	-13.00	25.09	H
5160.0	-50.66	5.11	3.00	13.38	-42.39	-13.00	29.39	H
3440.0	-49.33	4.02	3.00	12.5	-40.85	-13.00	27.85	V
5160.0	-49.53	5.11	3.00	13.38	-41.26	-13.00	28.26	V

LTE FDD Band 4_Channel Bandwidth 20MHz_16QAM _ Middle Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465.0	-44.3	4.02	3.00	12.45	-35.87	-13.00	22.87	H
5197.5	-46.83	5.11	3.00	13.38	-38.56	-13.00	25.56	H
3465.0	-49.21	4.02	3.00	12.45	-40.78	-13.00	27.78	V
5197.5	-48.87	5.11	3.00	13.38	-40.6	-13.00	27.6	V

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

LTE FDD Band 4_Channel Bandwidth 20MHz_16QAM _ High Channel

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.0	-41.6	4.02	3.00	12.21	-33.41	-13.00	20.41	H
5235.0	-46.83	5.11	3.00	13.26	-38.68	-13.00	25.68	H
3490.0	-48.3	4.02	3.00	12.21	-40.11	-13.00	27.11	V
5235.0	-48.43	5.11	3.00	13.26	-40.28	-13.00	27.28	V

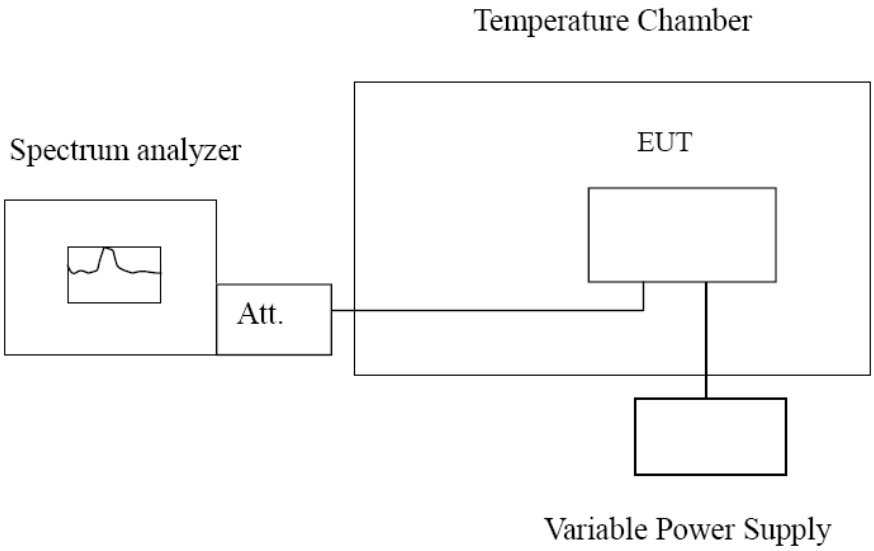
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

3.6 Frequency Stability Under Temperature & Voltage Variations

LIMIT

According to §27.54, §2.1055 requirement, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation and should not exceed 2.5ppm.

TEST CONFIGURATION



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603D.

Frequency Stability Under Temperature Variations:
In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMW500 DIGITAL RADIO COMMUNICATION TESTER.
1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30℃.
3. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on middle channel for LTE band 4, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10℃ increments from -30℃ to +50℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50℃.
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 ℃ increments from +50℃ to -30℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5℃ during the measurement procedure.

Frequency Stability Under Voltage Variations:
Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

TEST RESULTS

Remark:
1. We tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case.

LTE Band 4, 1.4MHz bandwidth, QPSK (worst case of all bandwidths).

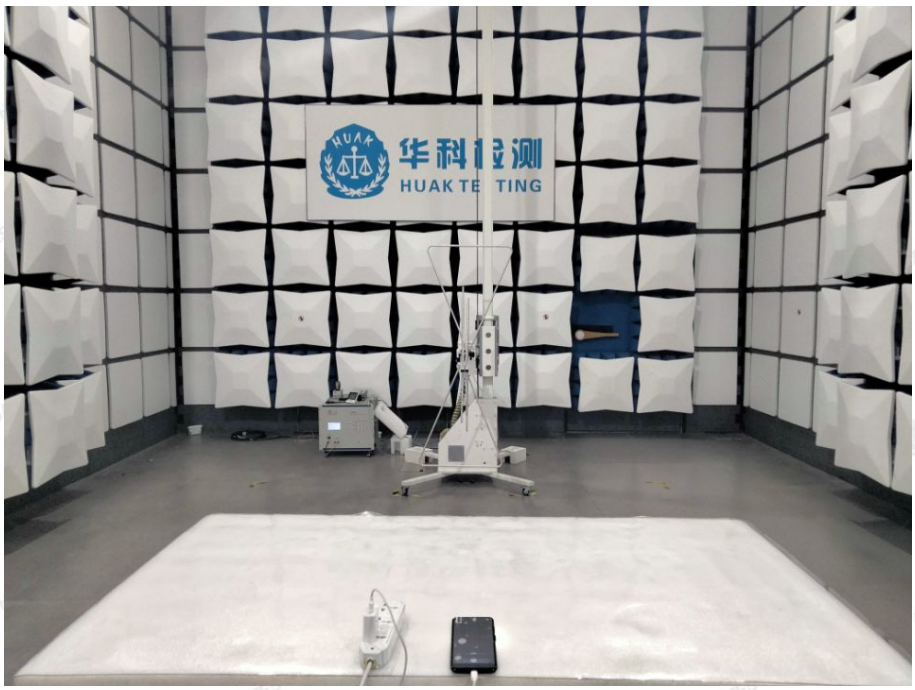
LTE FDD Band 4				
DC Power(V)	**Temperature (℃)**	**Frequency error(Hz)**	**Frequency error(ppm)**	**Verdict**
4.25	20	23.88	0.013959	PASS
5.0	20	19.54	0.011422	PASS
5.75	20	13.45	0.007862	PASS
5.0	-30	7.80	0.004560	PASS
5.0	-20	11.66	0.006816	PASS
5.0	-10	-8.31	-0.004858	PASS
5.0	0	-14.41	-0.008423	PASS
5.0	10	9.96	0.005822	PASS
5.0	20	-7.85	-0.004589	PASS
5.0	30	25.25	0.014574	PASS
5.0	40	-9.04	-0.005218	PASS
5.0	50	-2.76	-0.001593	PASS

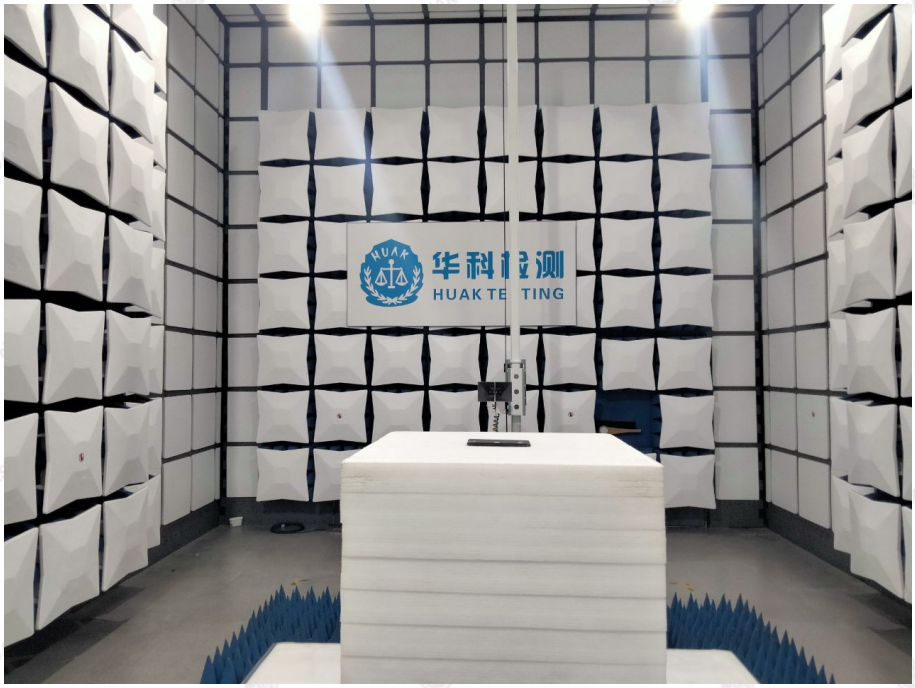
LTE Band 4, 1.4MHz bandwidth , 16QAM (worst case of all bandwidths)

LTE FDD Band 4				
DC Power(V)	**Temperature (℃)**	**Frequency error(Hz)**	**Frequency error(ppm)**	**Verdict**
4.25	20	-12.72	-0.007436	PASS
5.0	20	5.32	0.003110	PASS
5.75	20	6.59	0.003852	PASS
5.0	-30	4.78	0.002794	PASS
5.0	-20	-11.49	-0.006717	PASS
5.0	-10	-12.83	-0.007500	PASS
5.0	0	-10.34	-0.006044	PASS
5.0	10	7.75	0.004530	PASS
5.0	20	7.31	0.004273	PASS
5.0	30	-16.31	-0.009414	PASS
5.0	40	6.97	0.004023	PASS
5.0	50	-6.52	-0.003763	PASS

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

4 Test Setup Photos of the EUT





The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

5 Photos of the EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos.

.....End of Report.....

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China