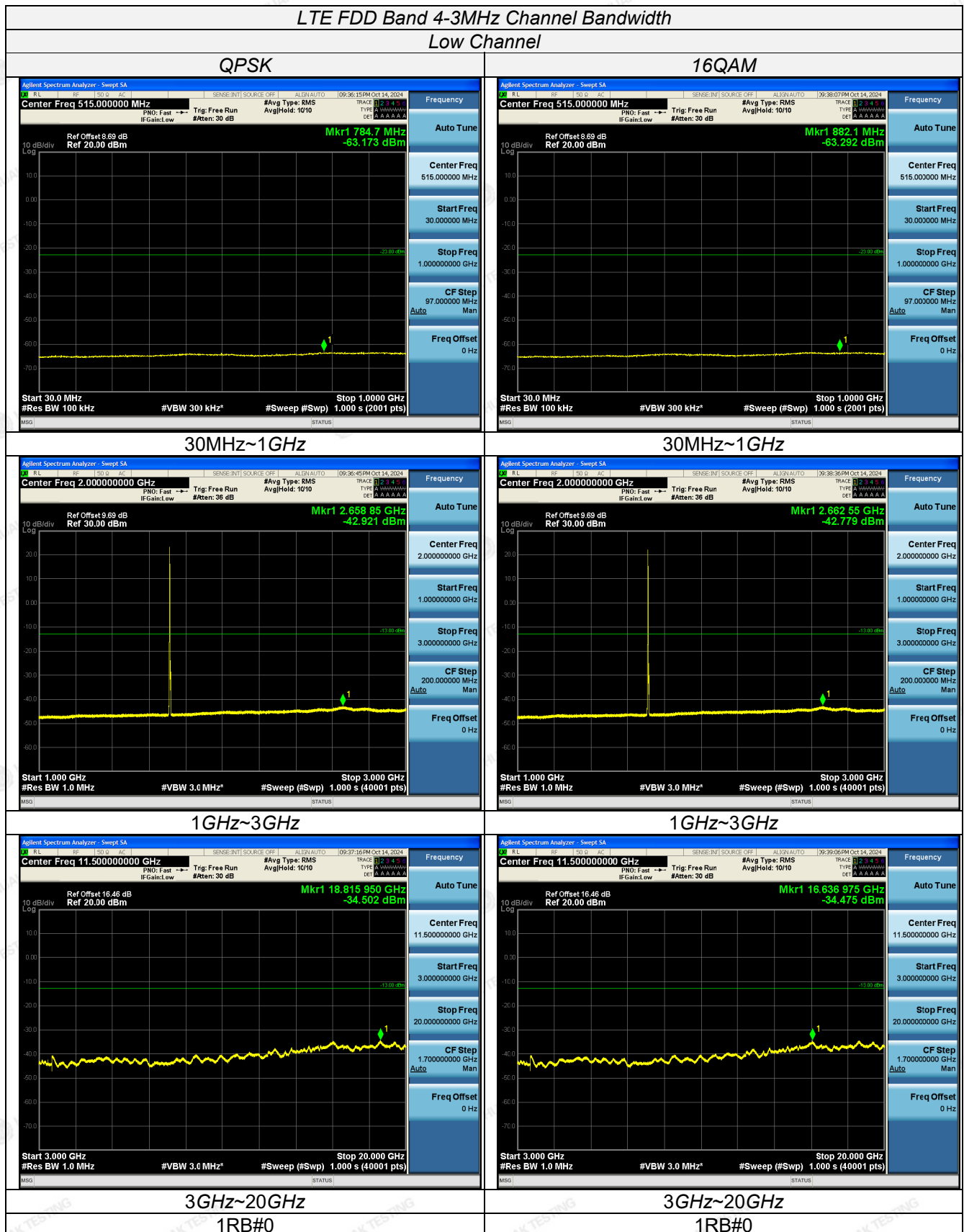




The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity 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

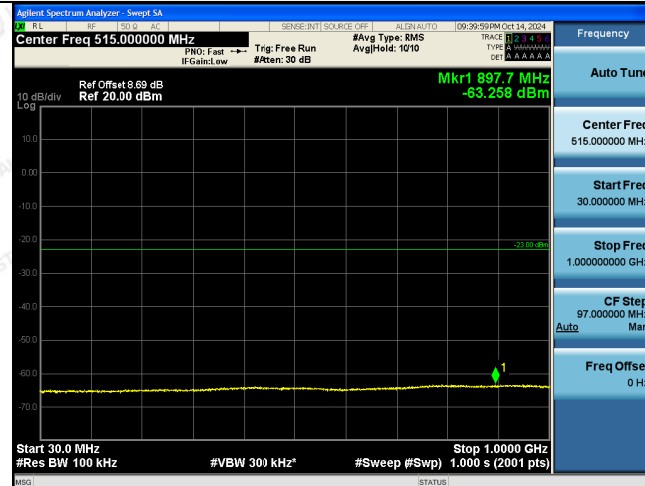
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



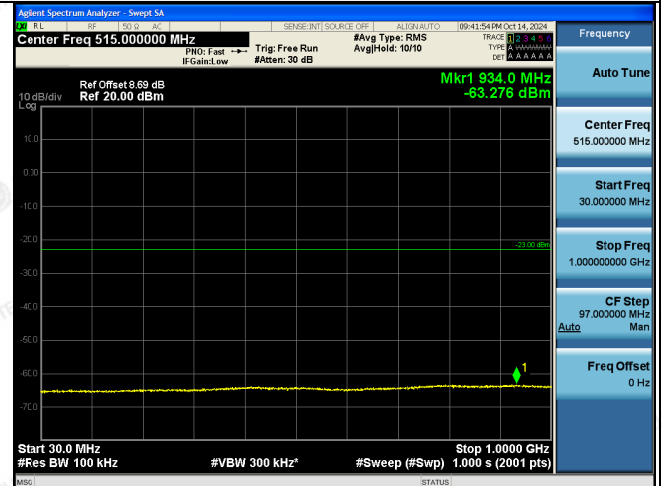
LTE FDD Band 4-3MHz Channel Bandwidth

Middle Channel

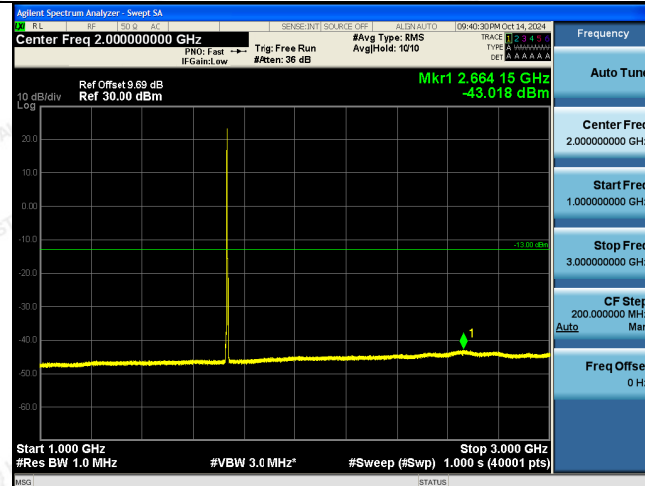
QPSK



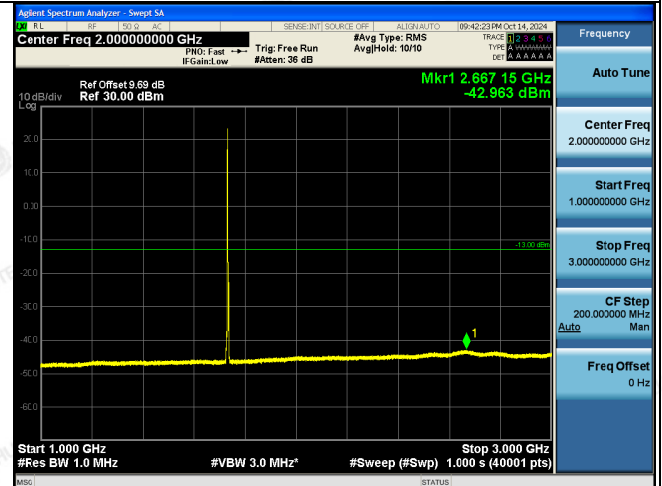
16QAM



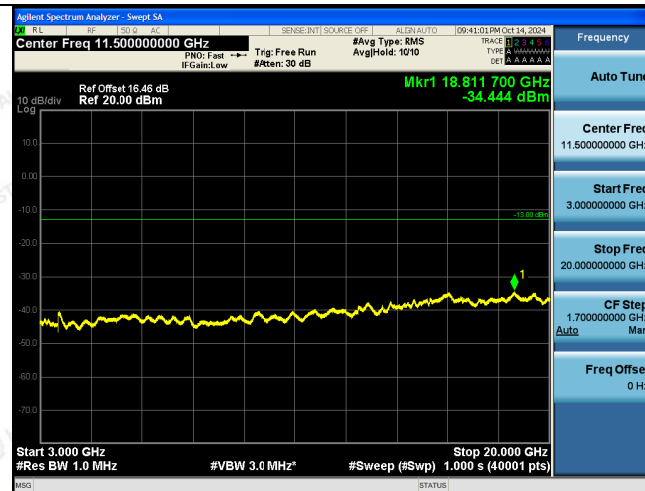
30MHz~1GHz



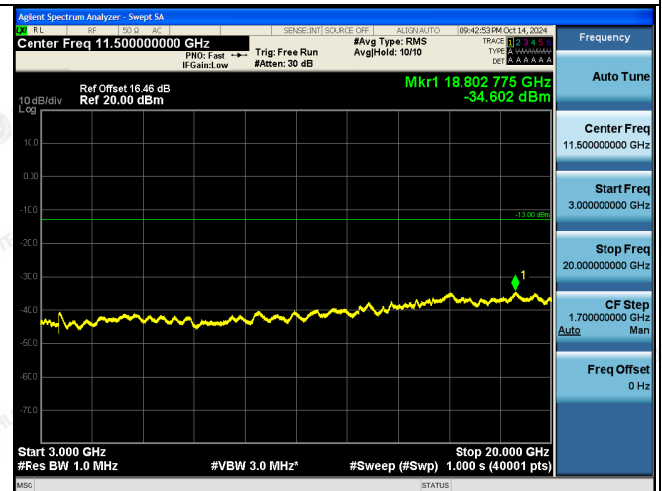
30MHz~1GHz



1GHz~3GHz



1GHz~3GHz

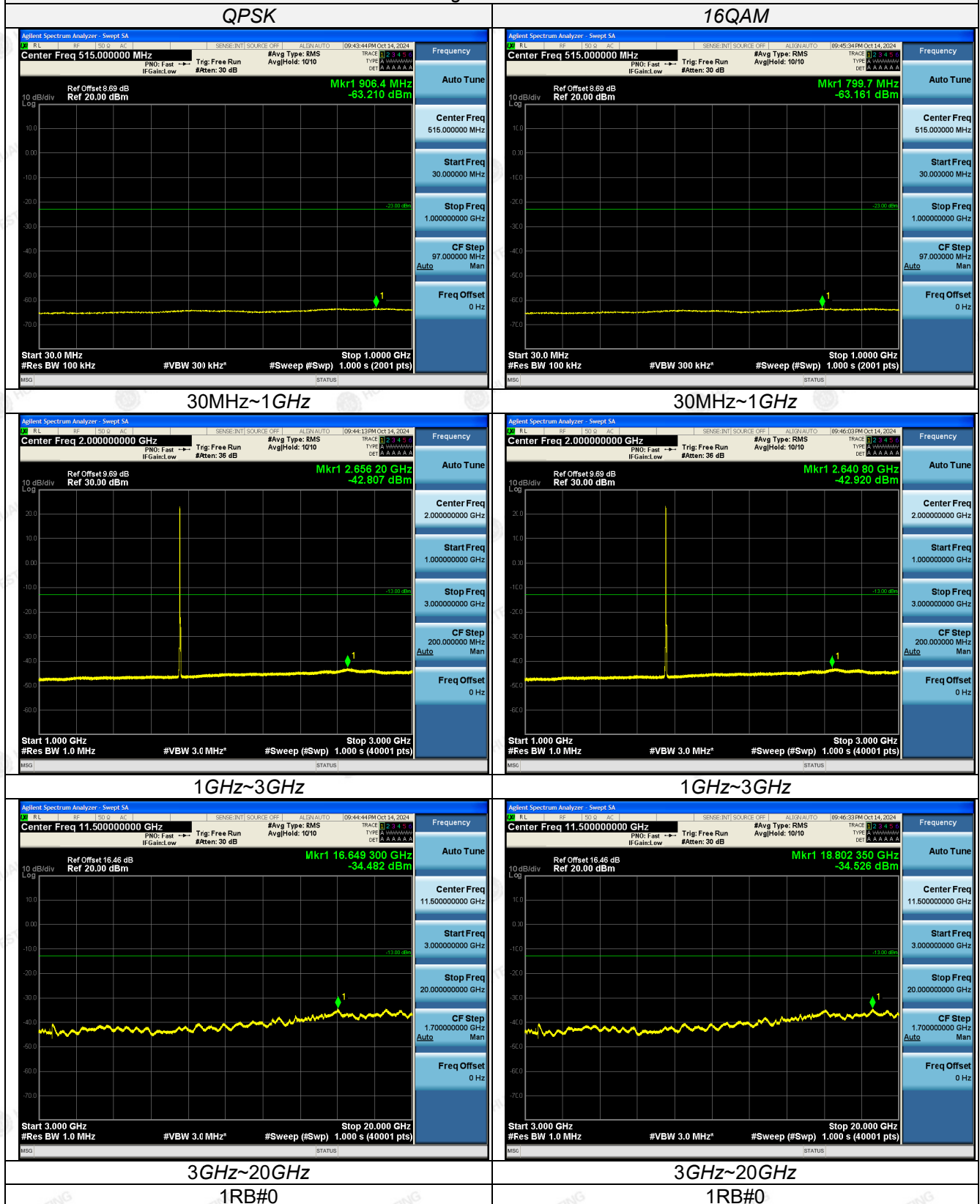


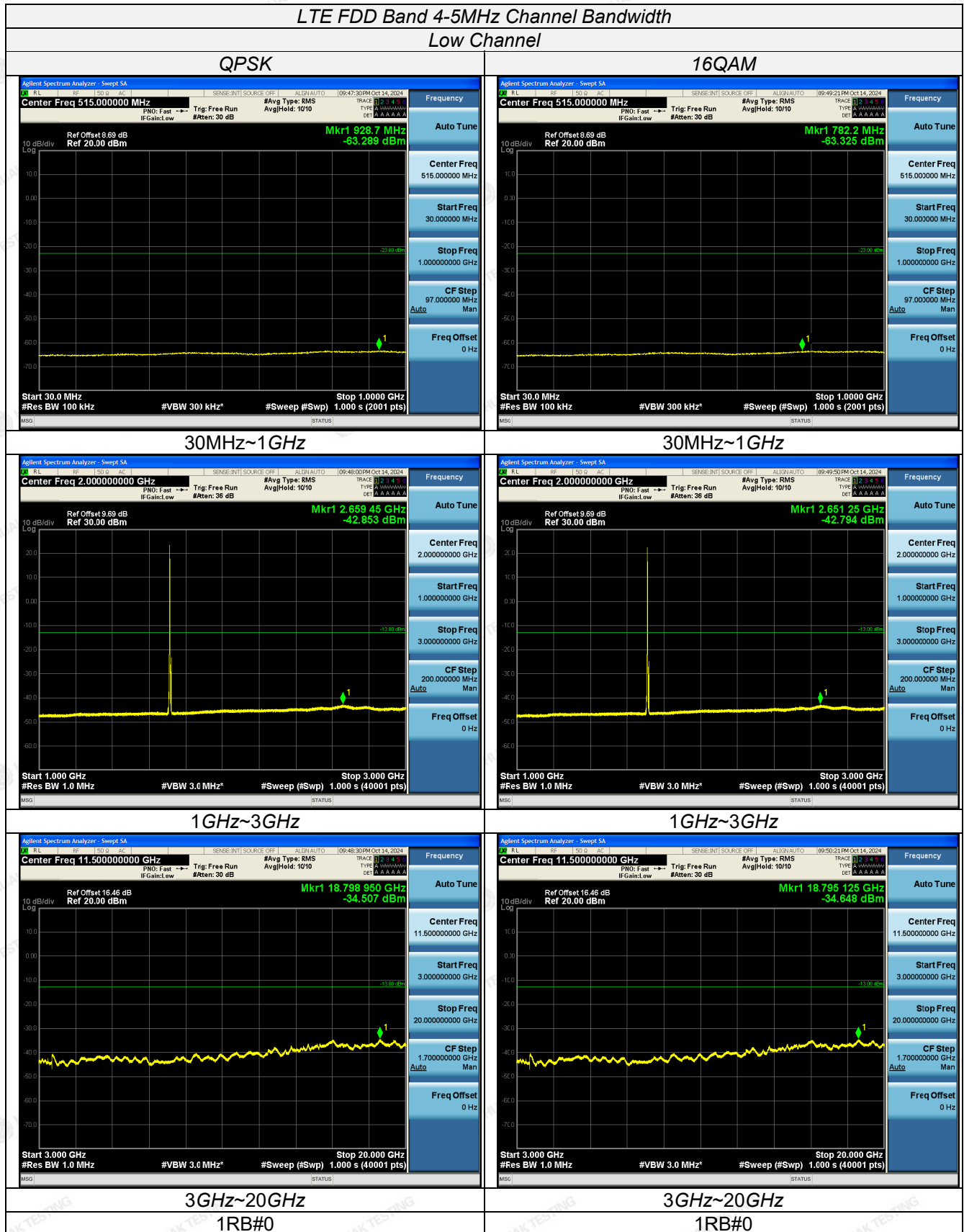
3GHz~20GHz

1RB#0

3GHz~20GHz

1RB#0

LTE FDD Band 4-3MHz Channel Bandwidth
High Channel

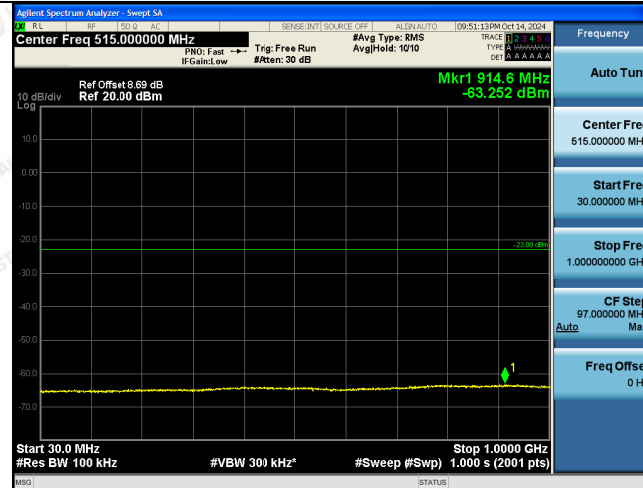




LTE FDD Band 4-5MHz Channel Bandwidth

Middle Channel

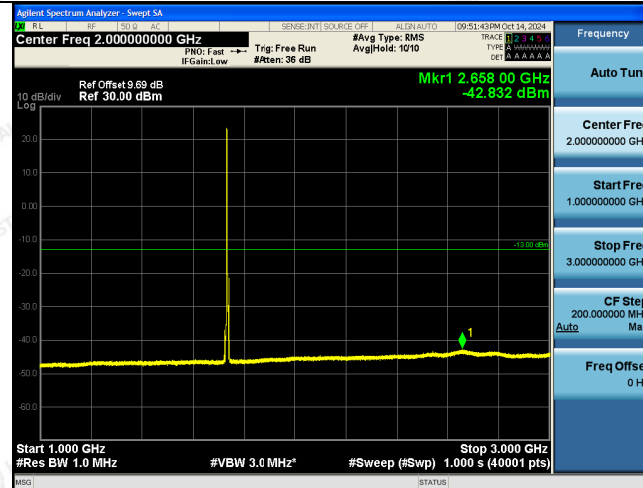
QPSK



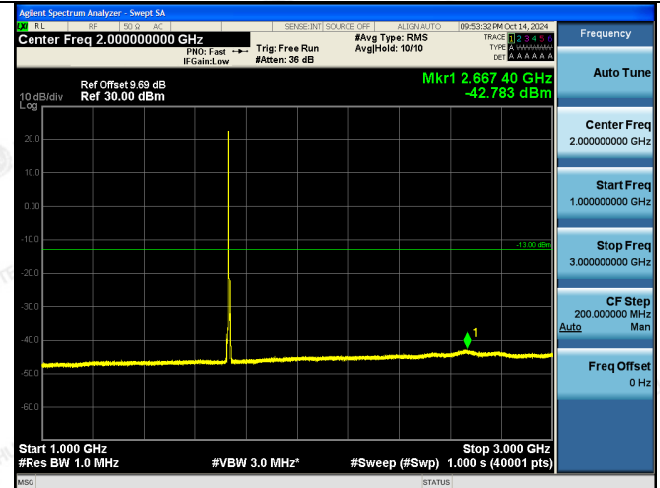
16QAM



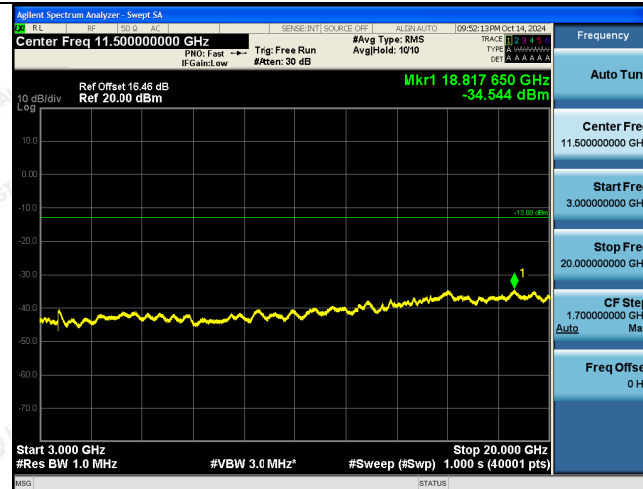
30MHz~1GHz



30MHz~1GHz



1GHz~3GHz



1GHz~3GHz



3GHz~20GHz

1RB#0

3GHz~20GHz

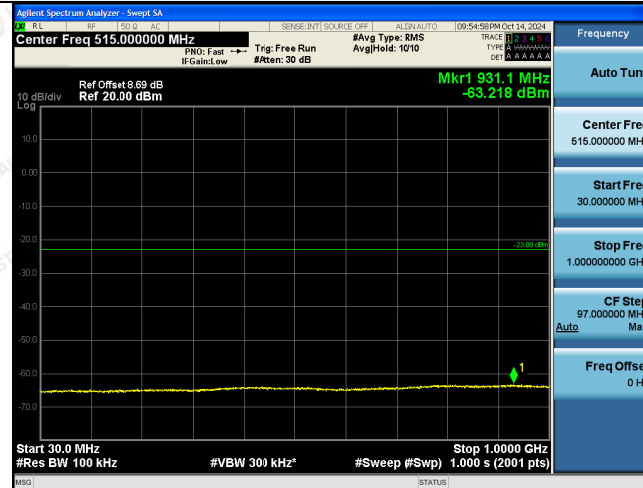
1RB#0



LTE FDD Band 4-5MHz Channel Bandwidth

High Channel

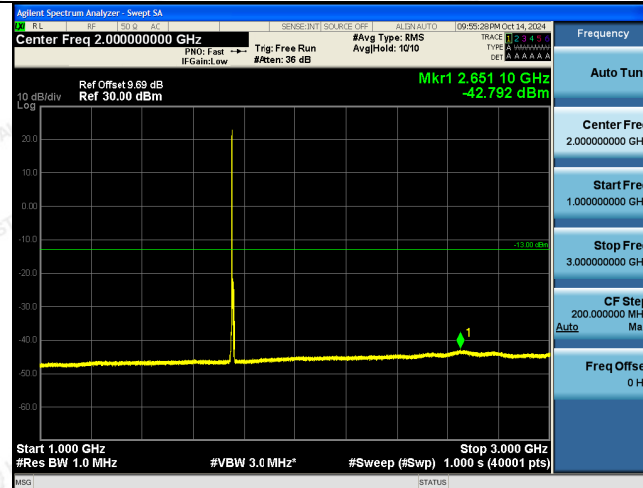
QPSK



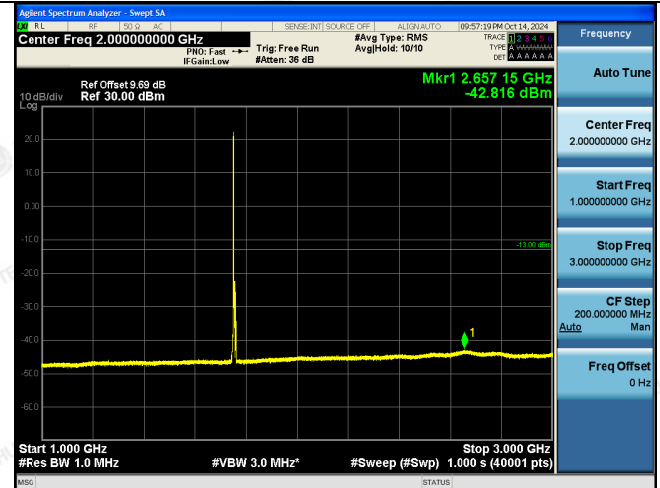
16QAM



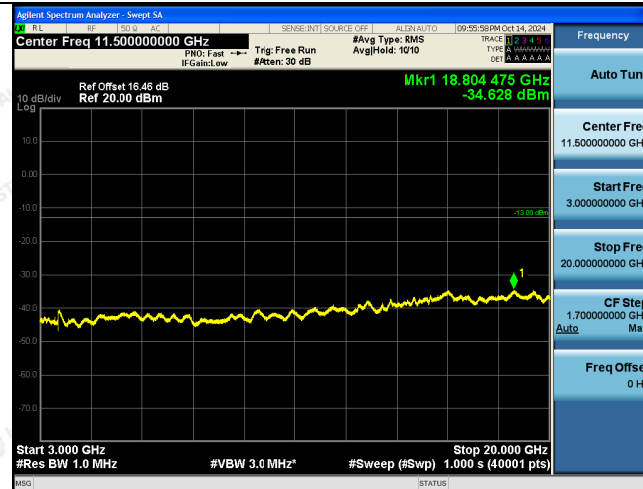
30MHz~1GHz



30MHz~1GHz



1GHz~3GHz



1GHz~3GHz

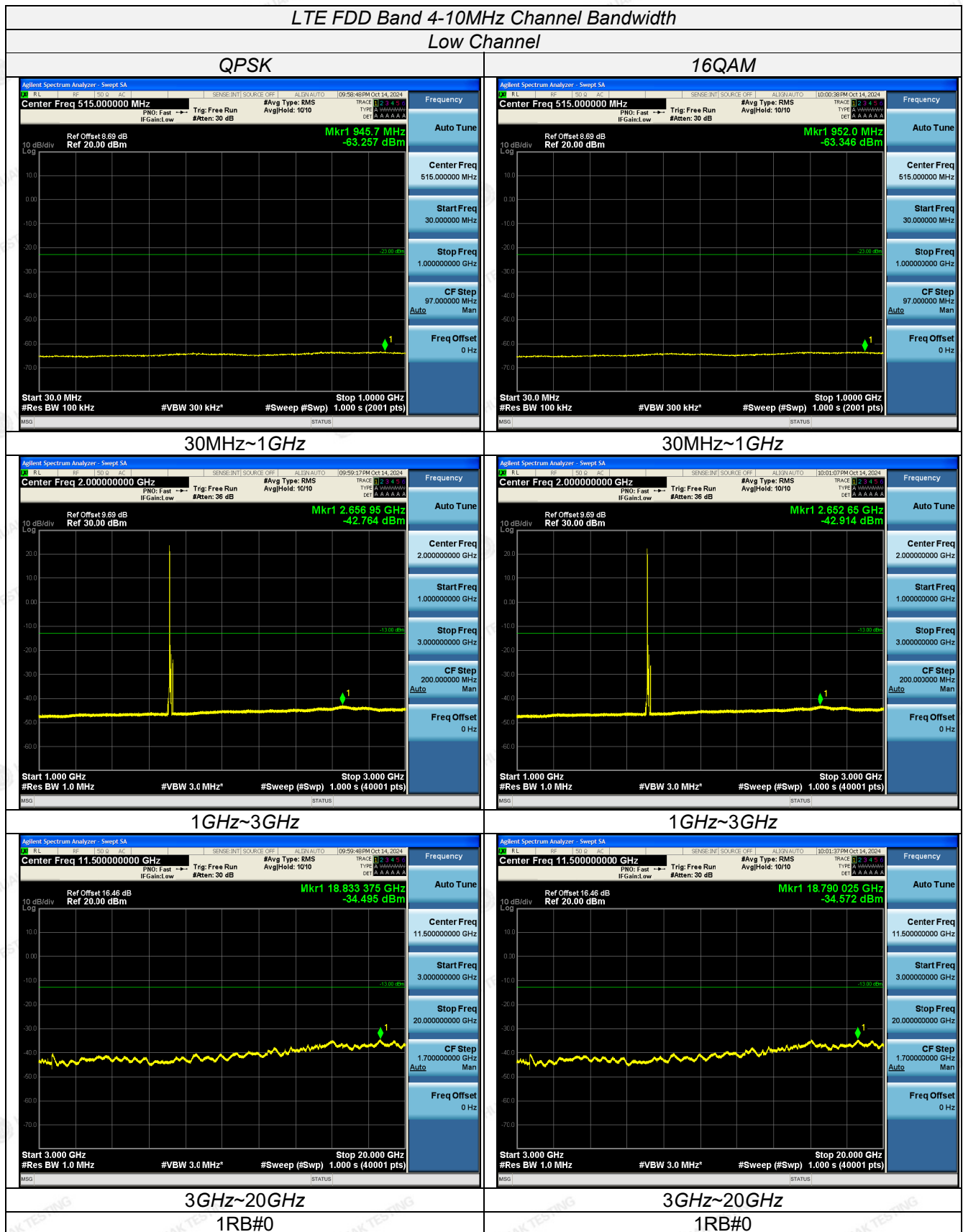


3GHz~20GHz

1RB#0

3GHz~20GHz

1RB#0

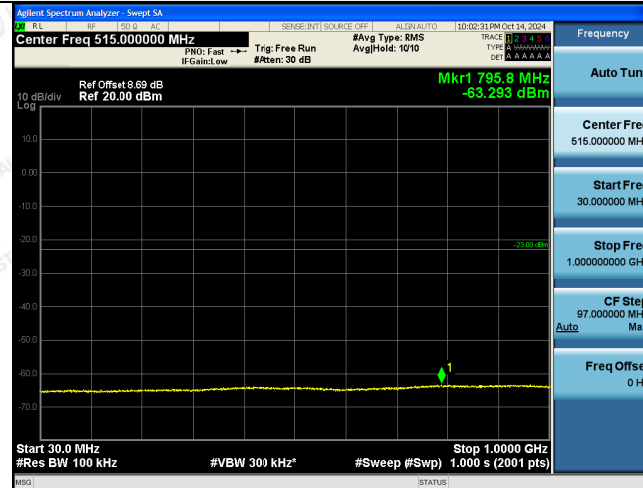




LTE FDD Band 4-10MHz Channel Bandwidth

Middle Channel

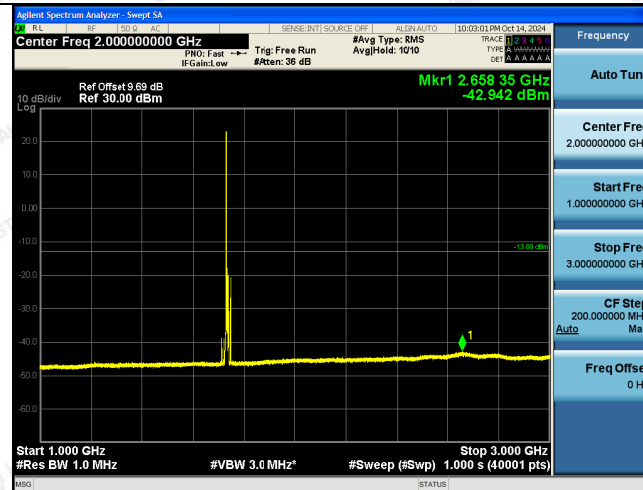
QPSK



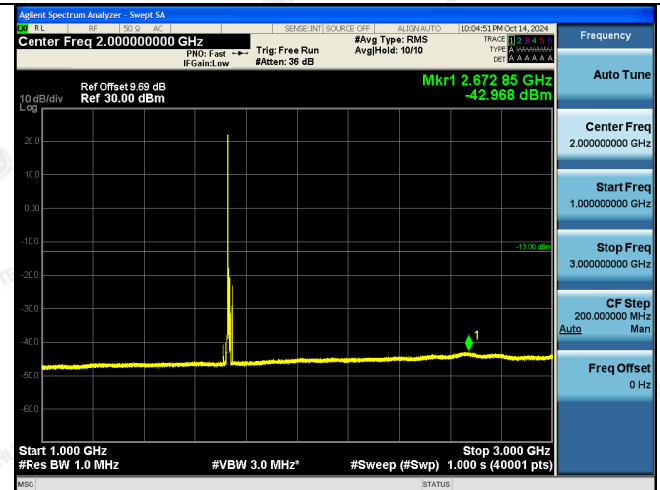
16QAM



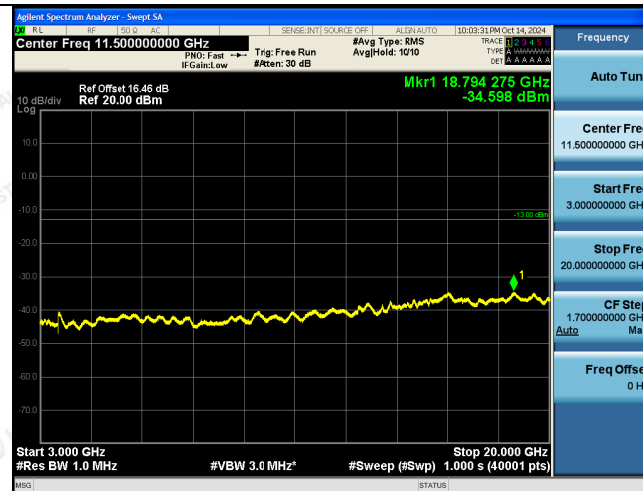
30MHz~1GHz



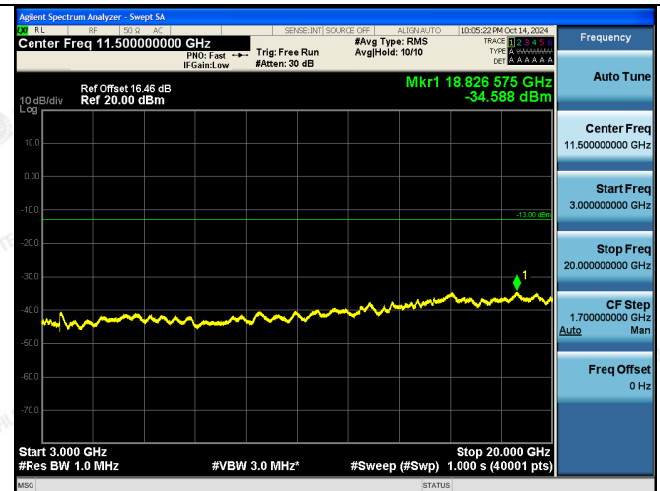
30MHz~1GHz



1GHz~3GHz



1GHz~3GHz



3GHz~20GHz

1RB#0

3GHz~20GHz

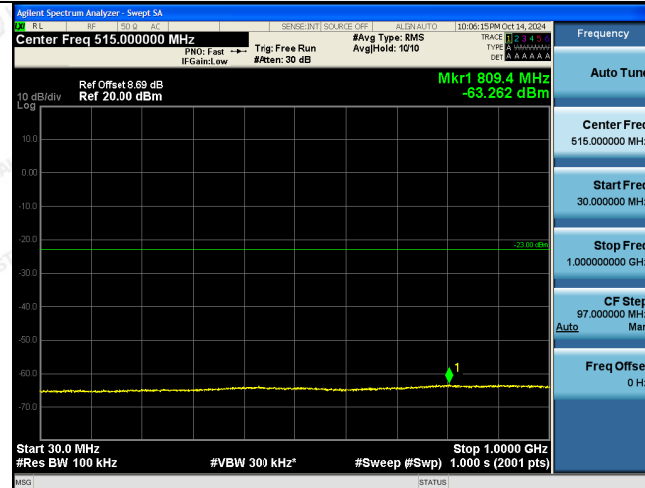
1RB#0



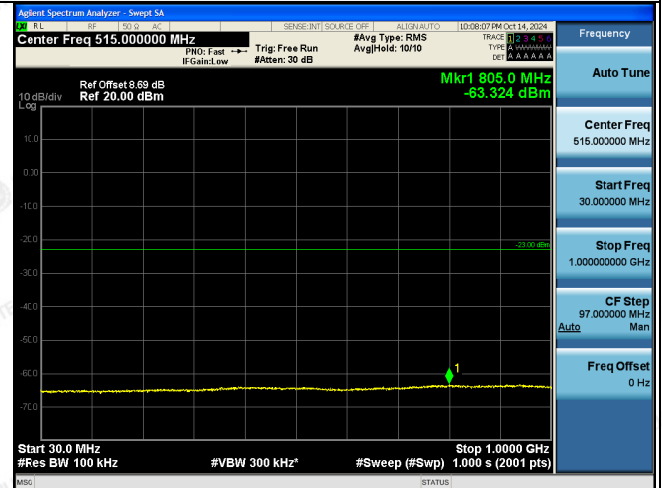
LTE FDD Band 4-10MHz Channel Bandwidth

High Channel

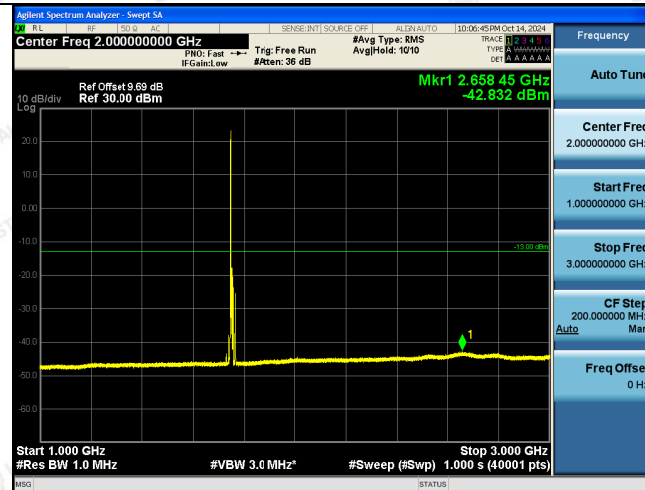
QPSK



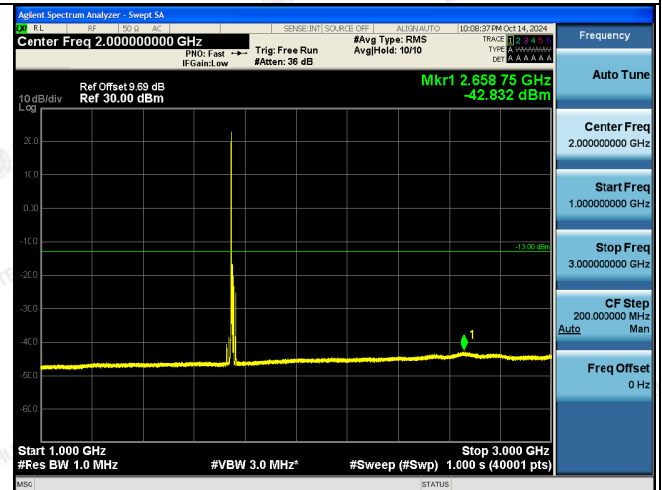
16QAM



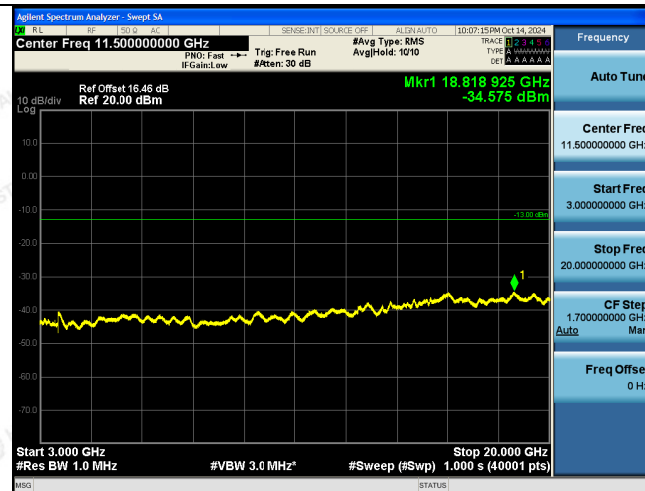
30MHz~1GHz



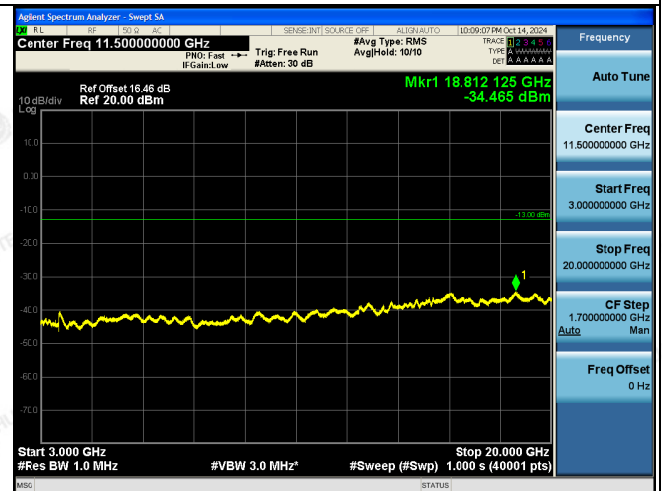
30MHz~1GHz



1GHz~3GHz



1GHz~3GHz



3GHz~20GHz

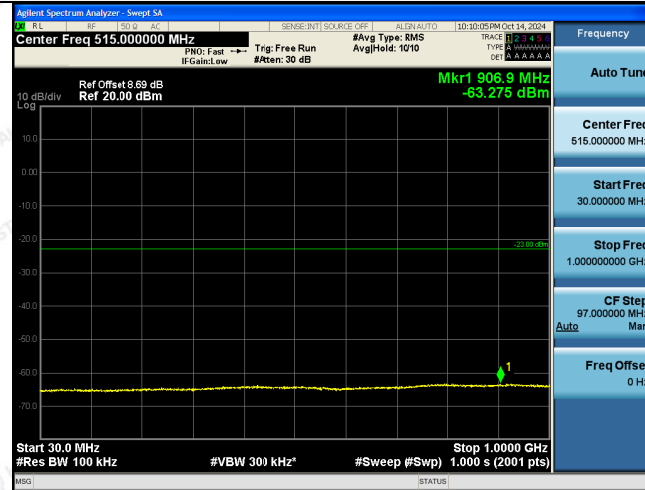
1RB#0

3GHz~20GHz

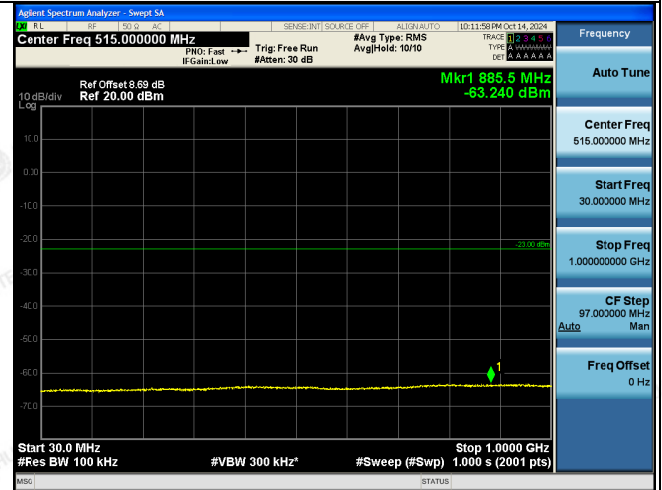
1RB#0

LTE FDD Band 4-15MHz Channel Bandwidth
Low Channel

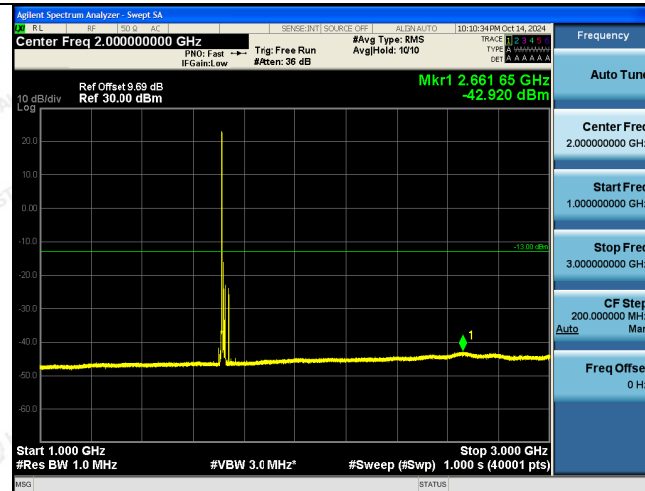
QPSK



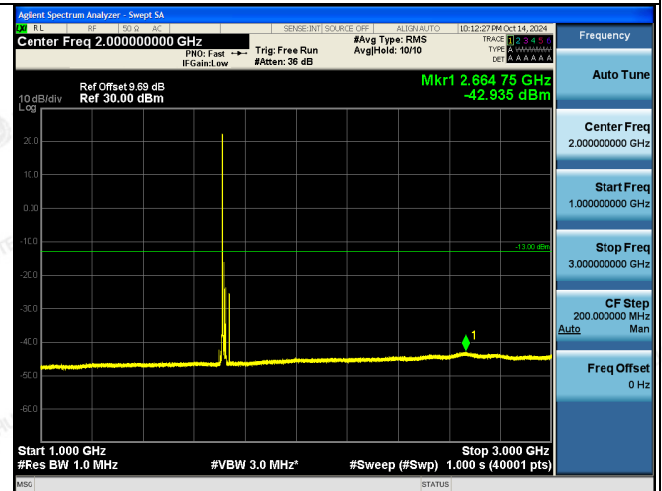
16QAM



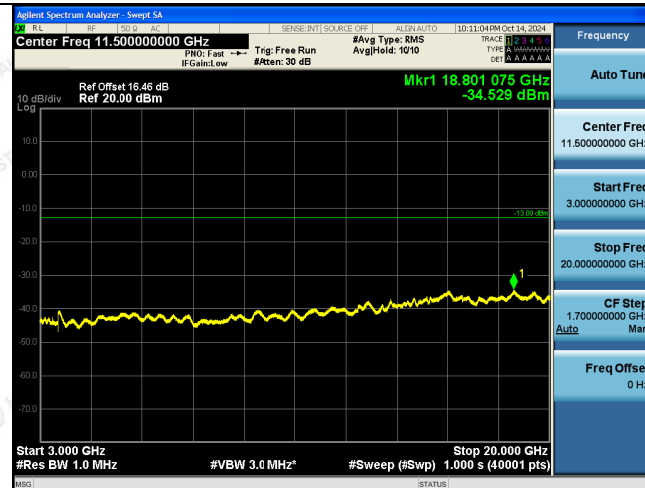
30MHz~1GHz



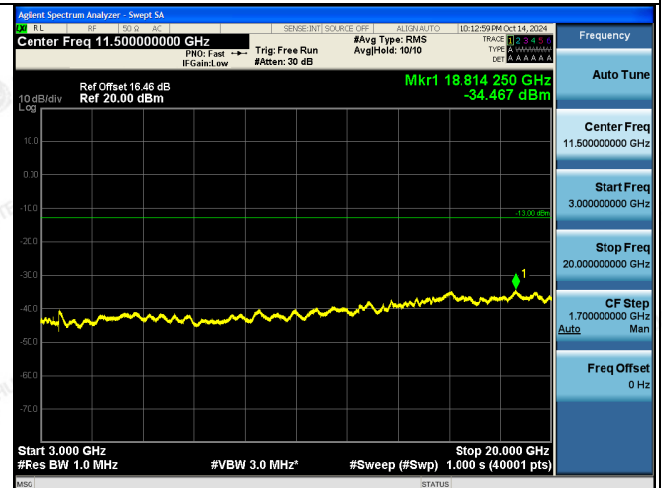
30MHz~1GHz



1GHz~3GHz



1GHz~3GHz



3GHz~20GHz

1RB#0

3GHz~20GHz

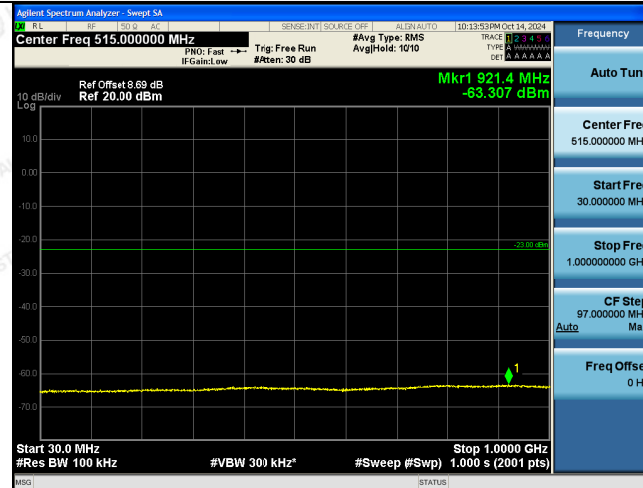
1RB#0



LTE FDD Band 4-15MHz Channel Bandwidth

Middle Channel

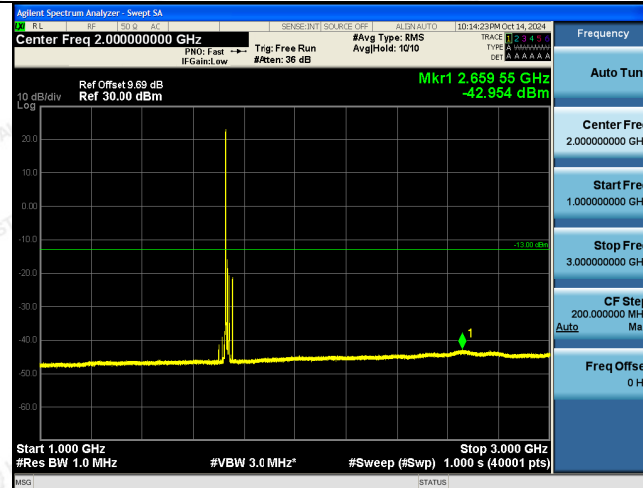
QPSK



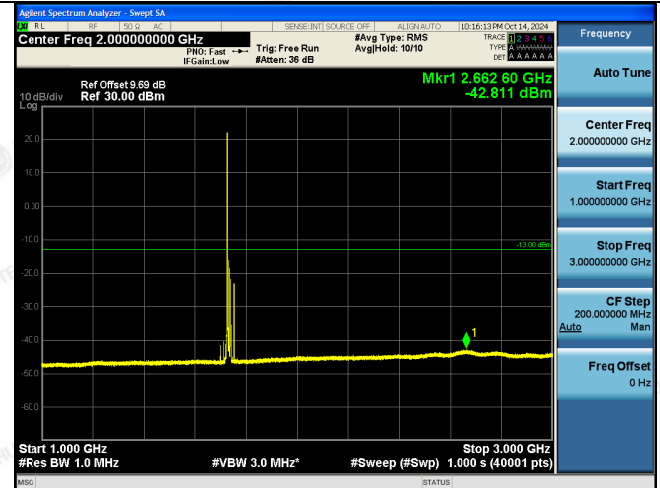
16QAM



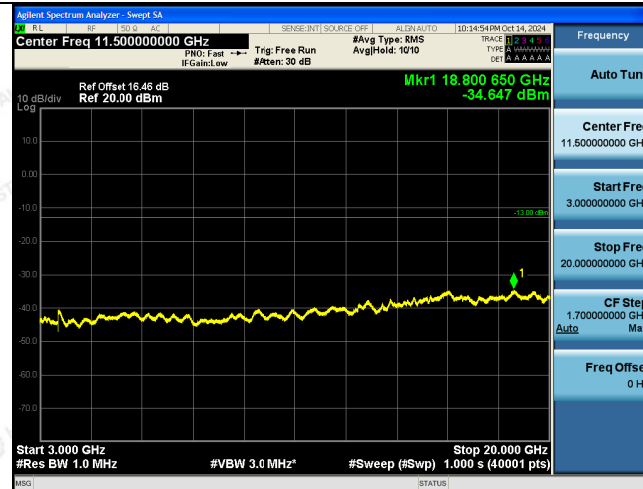
30MHz~1GHz



30MHz~1GHz



1GHz~3GHz



1GHz~3GHz



3GHz~20GHz

1RB#0

3GHz~20GHz

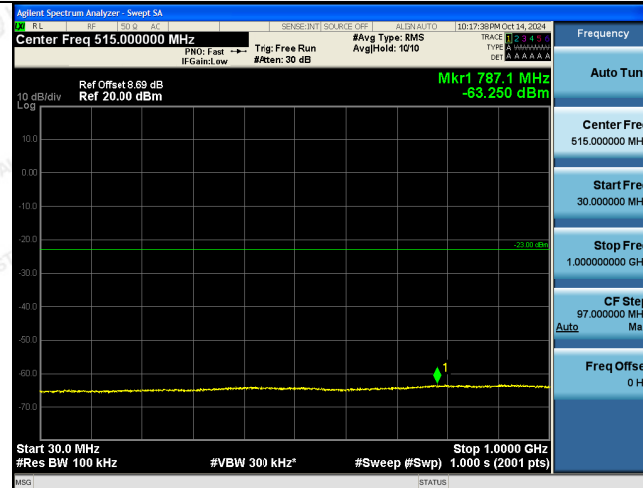
1RB#0



LTE FDD Band 4-15MHz Channel Bandwidth

High Channel

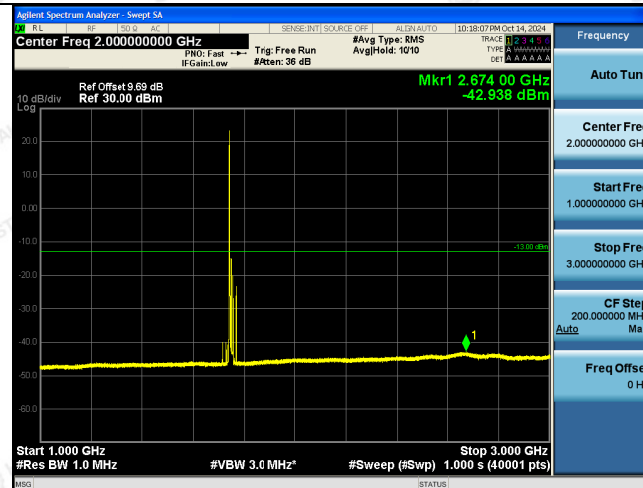
QPSK



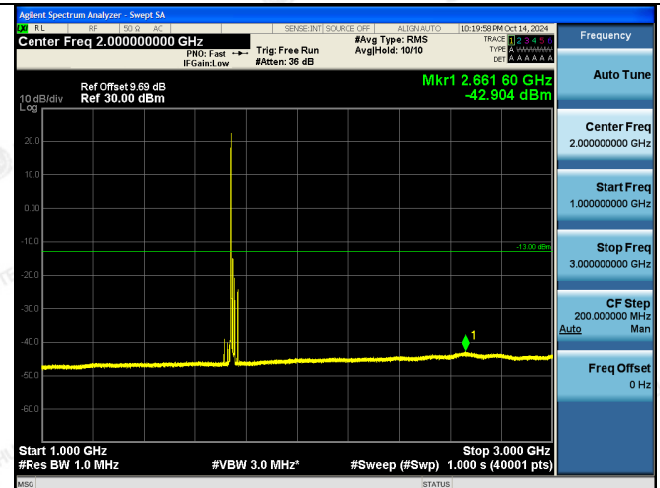
16QAM



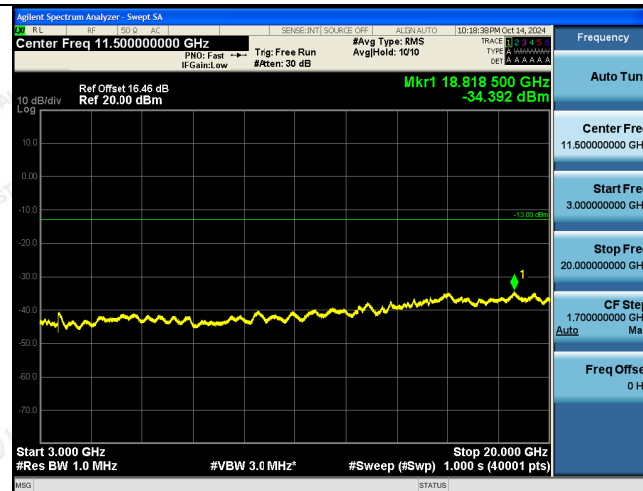
30MHz~1GHz



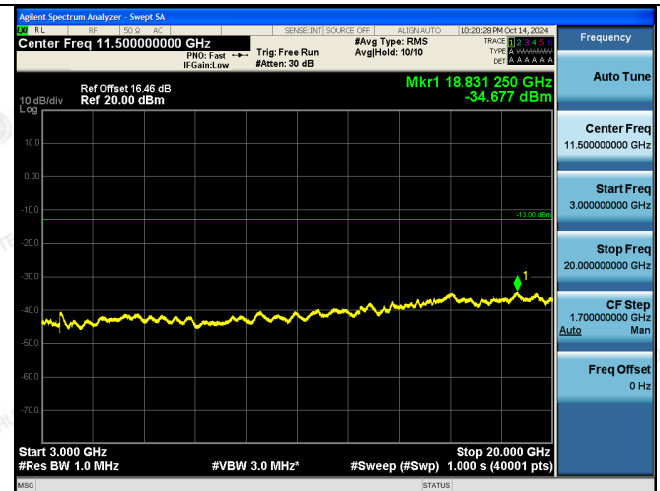
30MHz~1GHz



1GHz~3GHz



1GHz~3GHz

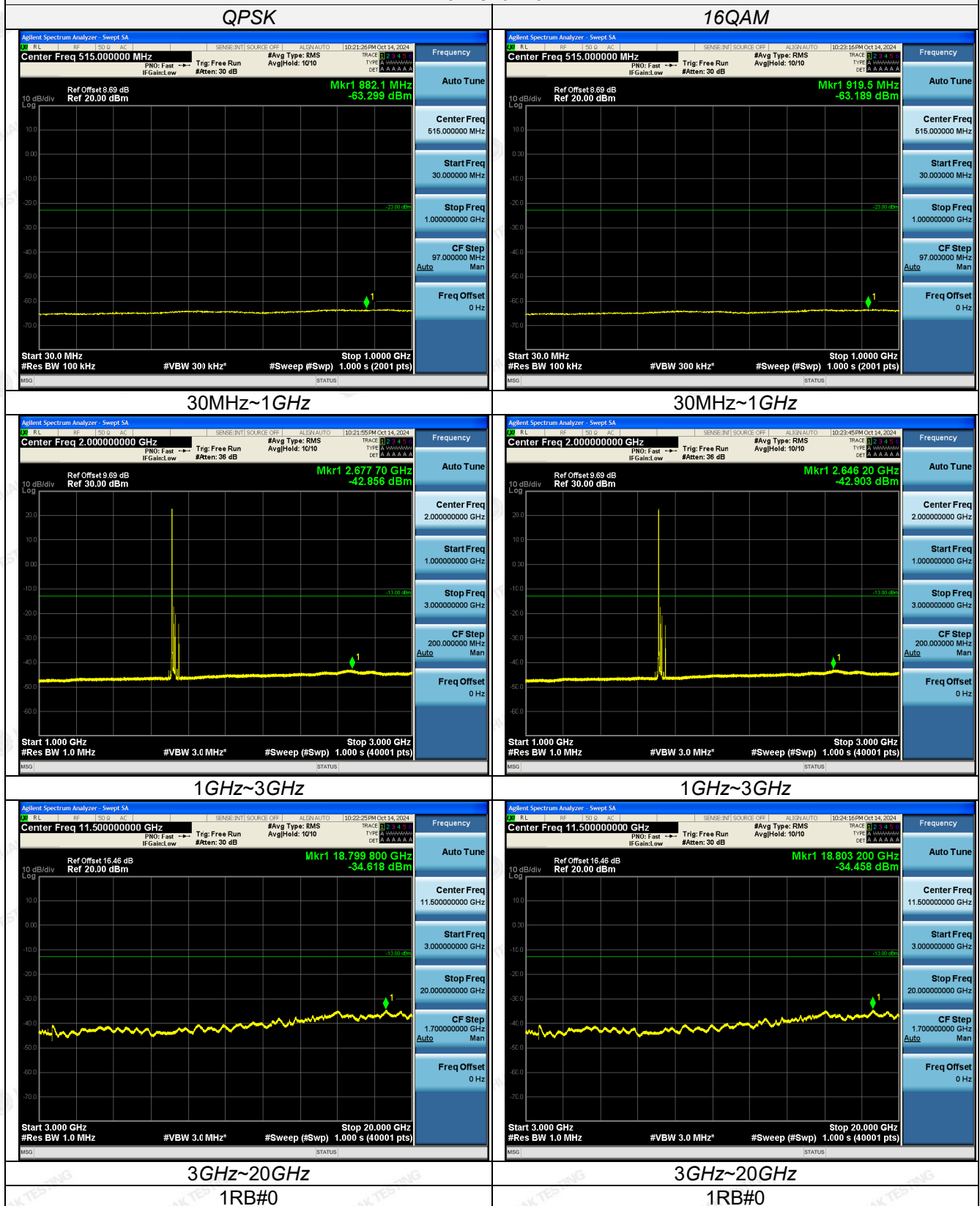


3GHz~20GHz

1RB#0

3GHz~20GHz

1RB#0

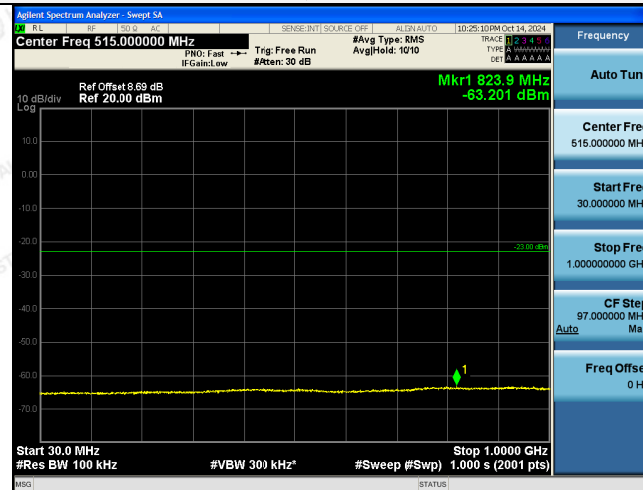
LTE FDD Band 4-20MHz Channel Bandwidth
Low Channel



LTE FDD Band 4-20MHz Channel Bandwidth

Middle Channel

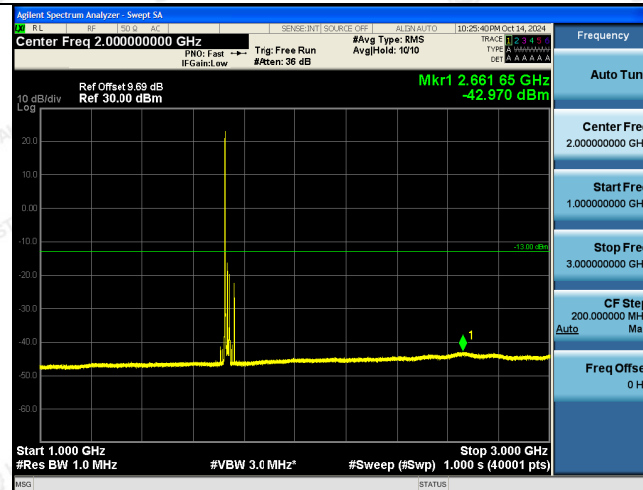
QPSK



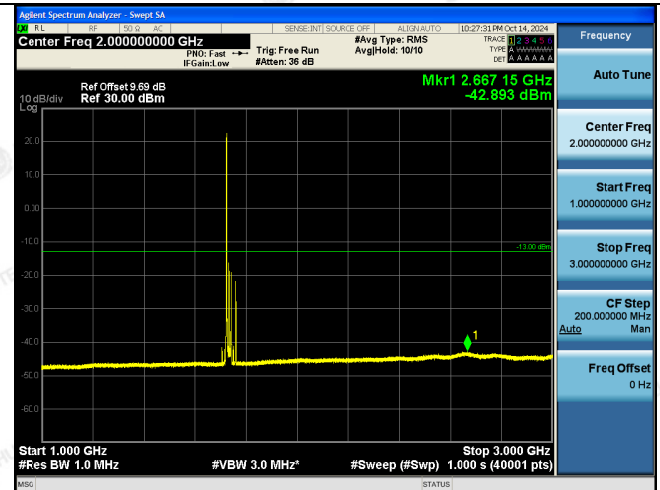
16QAM



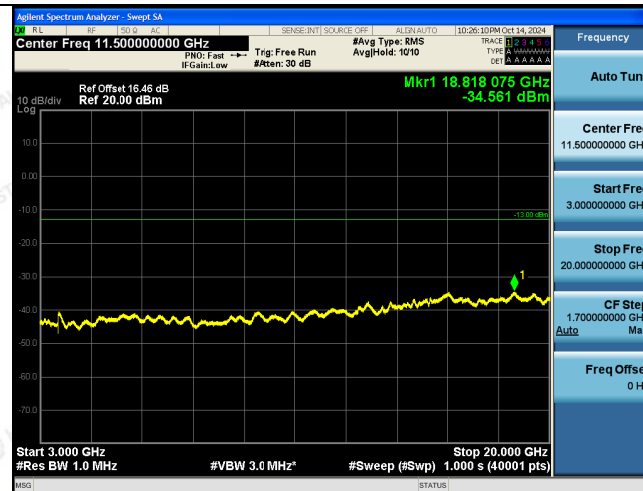
30MHz~1GHz



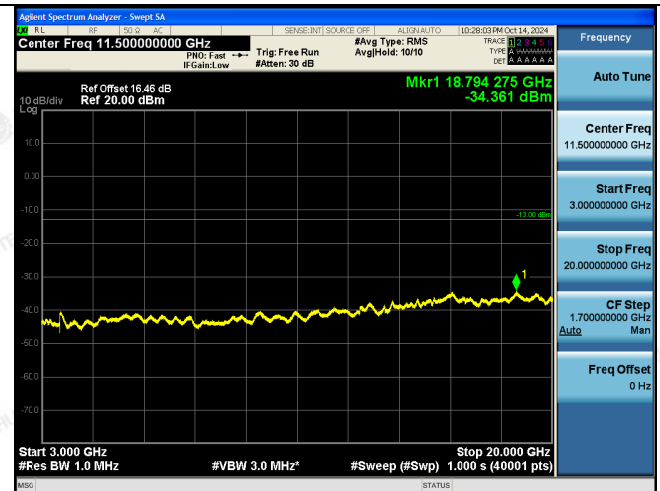
30MHz~1GHz



1GHz~3GHz



1GHz~3GHz



3GHz~20GHz

1RB#0

3GHz~20GHz

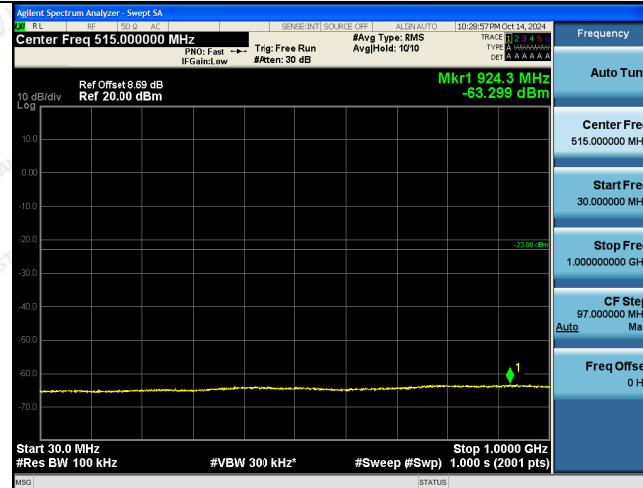
1RB#0



LTE FDD Band 4-20MHz Channel Bandwidth

High Channel

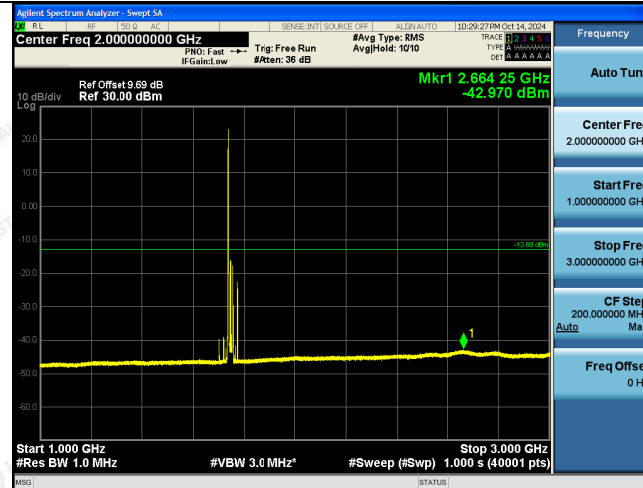
QPSK



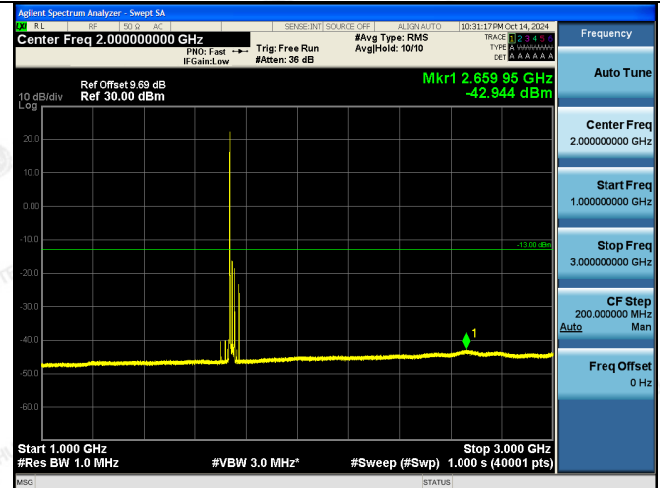
16QAM



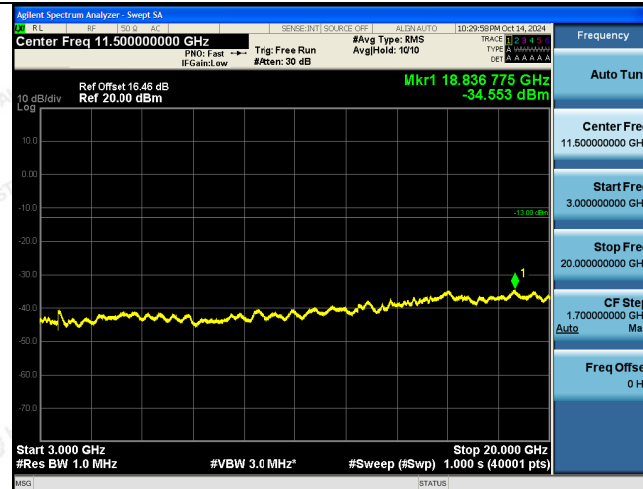
30MHz~1GHz



30MHz~1GHz



1GHz~3GHz



1GHz~3GHz



3GHz~20GHz

1RB#0

3GHz~20GHz

1RB#0

**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	-46.09	4.02	3.00	12.5	-37.61	-13.00	24.61	H
5132.1	-49.19	5.11	3.00	13.38	-40.92	-13.00	27.92	H
3421.4	-51.59	4.02	3.00	12.5	-43.11	-13.00	30.11	V
5132.1	-50.77	5.11	3.00	13.38	-42.5	-13.00	29.5	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	-44.54	4.02	3.00	12.45	-36.11	-13.00	23.11	H
5197.5	-48.35	5.11	3.00	13.38	-40.08	-13.00	27.08	H
3465.0	-49.45	4.02	3.00	12.45	-41.02	-13.00	28.02	V
5197.5	-47.09	5.11	3.00	13.38	-38.82	-13.00	25.82	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	-44.07	4.02	3.00	12.21	-35.88	-13.00	22.88	H
5262.9	-46.02	5.11	3.00	13.26	-37.87	-13.00	24.87	H
3508.6	-48.24	4.02	3.00	12.21	-40.05	-13.00	27.05	V
5262.9	-48.21	5.11	3.00	13.26	-40.06	-13.00	27.06	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	-48.77	4.02	3.00	12.5	-40.29	-13.00	27.29	H
5134.5	-50.50	5.11	3.00	13.38	-42.23	-13.00	29.23	H
3423.0	-51.07	4.02	3.00	12.5	-42.59	-13.00	29.59	V
5134.5	-48.34	5.11	3.00	13.38	-40.07	-13.00	27.07	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	-44.74	4.02	3.00	12.45	-36.31	-13.00	23.31	H
5197.5	-47.11	5.11	3.00	13.38	-38.84	-13.00	25.84	H
3465.0	-50.15	4.02	3.00	12.45	-41.72	-13.00	28.72	V
5197.5	-48.46	5.11	3.00	13.38	-40.19	-13.00	27.19	V



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	-43.63	4.02	3.00	12.21	-35.44	-13.00	22.44	H
5260.5	-48.19	5.11	3.00	13.26	-40.04	-13.00	27.04	H
3507.0	-49.56	4.02	3.00	12.21	-41.37	-13.00	28.37	V
5260.5	-48.14	5.11	3.00	13.26	-39.99	-13.00	26.99	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	-46.71	4.02	3.00	12.5	-38.23	-13.00	25.23	H
5137.5	-50.78	5.11	3.00	13.38	-42.51	-13.00	29.51	H
3425.0	-55.70	4.02	3.00	12.5	-47.22	-13.00	34.22	V
5137.5	-54.56	5.11	3.00	13.38	-46.29	-13.00	33.29	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	-43.58	4.02	3.00	12.45	-35.15	-13.00	22.15	H
5197.5	-48.11	5.11	3.00	13.38	-39.84	-13.00	26.84	H
3465.0	-49.93	4.02	3.00	12.45	-41.5	-13.00	28.5	V
5197.5	-46.62	5.11	3.00	13.38	-38.35	-13.00	25.35	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	-41.92	4.02	3.00	12.21	-33.73	-13.00	20.73	H
5257.5	-47.24	5.11	3.00	13.26	-39.09	-13.00	26.09	H
3505.0	-49.23	4.02	3.00	12.21	-41.04	-13.00	28.04	V
5257.5	-47.37	5.11	3.00	13.26	-39.22	-13.00	26.22	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	-47.97	4.02	3.00	12.5	-39.49	-13.00	26.49	H
5145.0	-52.36	5.11	3.00	13.38	-44.09	-13.00	31.09	H
3430.0	-52.27	4.02	3.00	12.5	-43.79	-13.00	30.79	V
5145.0	-50.03	5.11	3.00	13.38	-41.76	-13.00	28.76	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	-44.09	4.02	3.00	12.45	-35.66	-13.00	22.66	H
5197.5	-47.61	5.11	3.00	13.38	-39.34	-13.00	26.34	H
3465.0	-48.52	4.02	3.00	12.45	-40.09	-13.00	27.09	V
5197.5	-48.78	5.11	3.00	13.38	-40.51	-13.00	27.51	V



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	-42.54	4.02	3.00	12.21	-34.35	-13.00	21.35	H
5250.0	-47.05	5.11	3.00	13.26	-38.9	-13.00	25.9	H
3500.0	-48.89	4.02	3.00	12.21	-40.7	-13.00	27.7	V
5250.0	-48.88	5.11	3.00	13.26	-40.73	-13.00	27.73	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	-47.56	4.02	3.00	12.5	-39.08	-13.00	26.08	H
5152.5	-52.38	5.11	3.00	13.38	-44.11	-13.00	31.11	H
3435.0	-52.95	4.02	3.00	12.5	-44.47	-13.00	31.47	V
5152.5	-54.48	5.11	3.00	13.38	-46.21	-13.00	33.21	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	-44.28	4.02	3.00	12.45	-35.85	-13.00	22.85	H
5197.5	-47.18	5.11	3.00	13.38	-38.91	-13.00	25.91	H
3465.0	-49.89	4.02	3.00	12.45	-41.46	-13.00	28.46	V
5197.5	-48.80	5.11	3.00	13.38	-40.53	-13.00	27.53	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	-43.32	4.02	3.00	12.21	-35.13	-13.00	22.13	H
5242.5	-46.45	5.11	3.00	13.26	-38.3	-13.00	25.3	H
3495.0	-49.66	4.02	3.00	12.21	-41.47	-13.00	28.47	V
5242.5	-47.13	5.11	3.00	13.26	-38.98	-13.00	25.98	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	-48.42	4.02	3.00	12.5	-39.94	-13.00	26.94	H
5160.0	-51.46	5.11	3.00	13.38	-43.19	-13.00	30.19	H
3440.0	-50.65	4.02	3.00	12.5	-42.17	-13.00	29.17	V
5160.0	-51.96	5.11	3.00	13.38	-43.69	-13.00	30.69	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	-40.75	4.02	3.00	12.45	-32.32	-13.00	19.32	H
5197.5	-47.84	5.11	3.00	13.38	-39.57	-13.00	26.57	H
3465.0	-49.91	4.02	3.00	12.45	-41.48	-13.00	28.48	V
5197.5	-47.03	5.11	3.00	13.38	-38.76	-13.00	25.76	V



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	-42.81	4.02	3.00	12.21	-34.62	-13.00	21.62	H
5235.0	-46.47	5.11	3.00	13.26	-38.32	-13.00	25.32	H
3490.0	-48.96	4.02	3.00	12.21	-40.77	-13.00	27.77	V
5235.0	-49.22	5.11	3.00	13.26	-41.07	-13.00	28.07	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	-48.53	4.02	3.00	12.5	-40.05	-13.00	27.05	H
5132.1	-49.99	5.11	3.00	13.38	-41.72	-13.00	28.72	H
3421.4	-55.93	4.02	3.00	12.5	-47.45	-13.00	34.45	V
5132.1	-49.65	5.11	3.00	13.38	-41.38	-13.00	28.38	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	-44.83	4.02	3.00	12.45	-36.4	-13.00	23.4	H
5197.5	-48.16	5.11	3.00	13.38	-39.89	-13.00	26.89	H
3465.0	-48.99	4.02	3.00	12.45	-40.56	-13.00	27.56	V
5197.5	-46.67	5.11	3.00	13.38	-38.4	-13.00	25.4	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	-42.66	4.02	3.00	12.21	-34.47	-13.00	21.47	H
5262.9	-47.38	5.11	3.00	13.26	-39.23	-13.00	26.23	H
3508.6	-50.12	4.02	3.00	12.21	-41.93	-13.00	28.93	V
5262.9	-48.27	5.11	3.00	13.26	-40.12	-13.00	27.12	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	-48.30	4.02	3.00	12.5	-39.82	-13.00	26.82	H
5134.5	-50.18	5.11	3.00	13.38	-41.91	-13.00	28.91	H
3423.0	-51.45	4.02	3.00	12.5	-42.97	-13.00	29.97	V
5134.5	-52.21	5.11	3.00	13.38	-43.94	-13.00	30.94	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	-44.42	4.02	3.00	12.45	-35.99	-13.00	22.99	H
5197.5	-47.47	5.11	3.00	13.38	-39.2	-13.00	26.2	H
3465.0	-50.26	4.02	3.00	12.45	-41.83	-13.00	28.83	V
5197.5	-46.78	5.11	3.00	13.38	-38.51	-13.00	25.51	V



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	-42.36	4.02	3.00	12.21	-34.17	-13.00	21.17	H
5260.5	-47.04	5.11	3.00	13.26	-38.89	-13.00	25.89	H
3507.0	-49.10	4.02	3.00	12.21	-40.91	-13.00	27.91	V
5260.5	-47.27	5.11	3.00	13.26	-39.12	-13.00	26.12	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	-46.20	4.02	3.00	12.5	-37.72	-13.00	24.72	H
5137.5	-53.50	5.11	3.00	13.38	-45.23	-13.00	32.23	H
3425.0	-52.22	4.02	3.00	12.5	-43.74	-13.00	30.74	V
5137.5	-48.75	5.11	3.00	13.38	-40.48	-13.00	27.48	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	-44.40	4.02	3.00	12.45	-35.97	-13.00	22.97	H
5197.5	-47.47	5.11	3.00	13.38	-39.2	-13.00	26.2	H
3465.0	-48.73	4.02	3.00	12.45	-40.3	-13.00	27.3	V
5197.5	-47.89	5.11	3.00	13.38	-39.62	-13.00	26.62	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	-42.56	4.02	3.00	12.21	-34.37	-13.00	21.37	H
5257.5	-48.04	5.11	3.00	13.26	-39.89	-13.00	26.89	H
3505.0	-49.26	4.02	3.00	12.21	-41.07	-13.00	28.07	V
5257.5	-47.63	5.11	3.00	13.26	-39.48	-13.00	26.48	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	-47.42	4.02	3.00	12.5	-38.94	-13.00	25.94	H
5145.0	-48.01	5.11	3.00	13.38	-39.74	-13.00	26.74	H
3430.0	-51.29	4.02	3.00	12.5	-42.81	-13.00	29.81	V
5145.0	-48.44	5.11	3.00	13.38	-40.17	-13.00	27.17	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	-43.88	4.02	3.00	12.45	-35.45	-13.00	22.45	H
5197.5	-48.07	5.11	3.00	13.38	-39.8	-13.00	26.8	H
3465.0	-49.06	4.02	3.00	12.45	-40.63	-13.00	27.63	V
5197.5	-47.46	5.11	3.00	13.38	-39.19	-13.00	26.19	V



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	-41.56	4.02	3.00	12.21	-33.37	-13.00	20.37	H
5250.0	-46.83	5.11	3.00	13.26	-38.68	-13.00	25.68	H
3500.0	-49.20	4.02	3.00	12.21	-41.01	-13.00	28.01	V
5250.0	-47.76	5.11	3.00	13.26	-39.61	-13.00	26.61	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	-47.59	4.02	3.00	12.5	-39.11	-13.00	26.11	H
5152.5	-51.36	5.11	3.00	13.38	-43.09	-13.00	30.09	H
3435.0	-52.81	4.02	3.00	12.5	-44.33	-13.00	31.33	V
5152.5	-53.79	5.11	3.00	13.38	-45.52	-13.00	32.52	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	-44.83	4.02	3.00	12.45	-36.4	-13.00	23.4	H
5197.5	-47.01	5.11	3.00	13.38	-38.74	-13.00	25.74	H
3465.0	-49.81	4.02	3.00	12.45	-41.38	-13.00	28.38	V
5197.5	-46.77	5.11	3.00	13.38	-38.5	-13.00	25.5	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	-43.36	4.02	3.00	12.21	-35.17	-13.00	22.17	H
5242.5	-47.64	5.11	3.00	13.26	-39.49	-13.00	26.49	H
3495.0	-49.10	4.02	3.00	12.21	-40.91	-13.00	27.91	V
5242.5	-48.49	5.11	3.00	13.26	-40.34	-13.00	27.34	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	-47.16	4.02	3.00	12.5	-38.68	-13.00	25.68	H
5160.0	-51.11	5.11	3.00	13.38	-42.84	-13.00	29.84	H
3440.0	-51.53	4.02	3.00	12.5	-43.05	-13.00	30.05	V
5160.0	-50.67	5.11	3.00	13.38	-42.4	-13.00	29.4	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	-44.32	4.02	3.00	12.45	-35.89	-13.00	22.89	H
5197.5	-46.51	5.11	3.00	13.38	-38.24	-13.00	25.24	H
3465.0	-49.19	4.02	3.00	12.45	-40.76	-13.00	27.76	V
5197.5	-49.36	5.11	3.00	13.38	-41.09	-13.00	28.09	V



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	-41.27	4.02	3.00	12.21	-33.08	-13.00	20.08	H
5235.0	-47.03	5.11	3.00	13.26	-38.88	-13.00	25.88	H
3490.0	-48.45	4.02	3.00	12.21	-40.26	-13.00	27.26	V
5235.0	-48.85	5.11	3.00	13.26	-40.7	-13.00	27.7	V

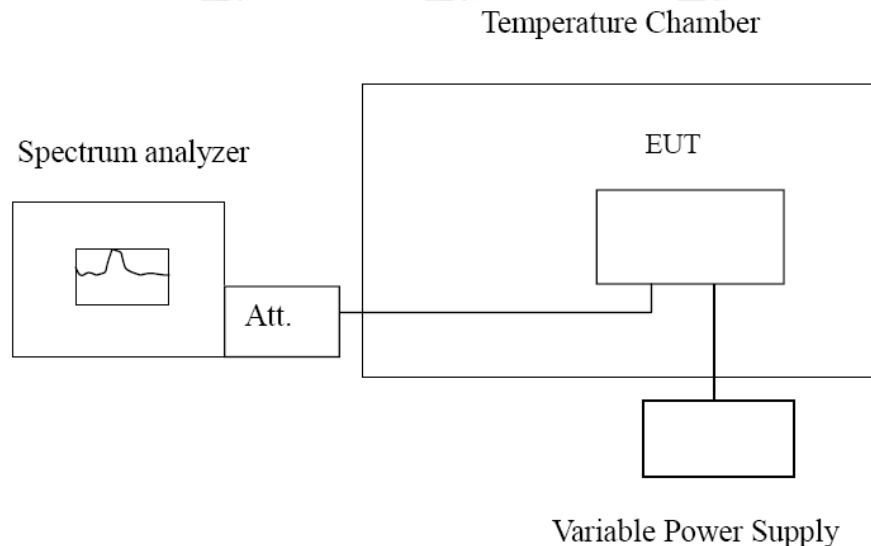


3.6 Frequency Stability Under Temperature & Voltage Variations

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°C.
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°C increments from -30°C to +50°C. 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°C.
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 °C increments from +50°C to -30°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. 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 ($\pm 15\%$) and endpoint, record the maximum frequency change.

**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).

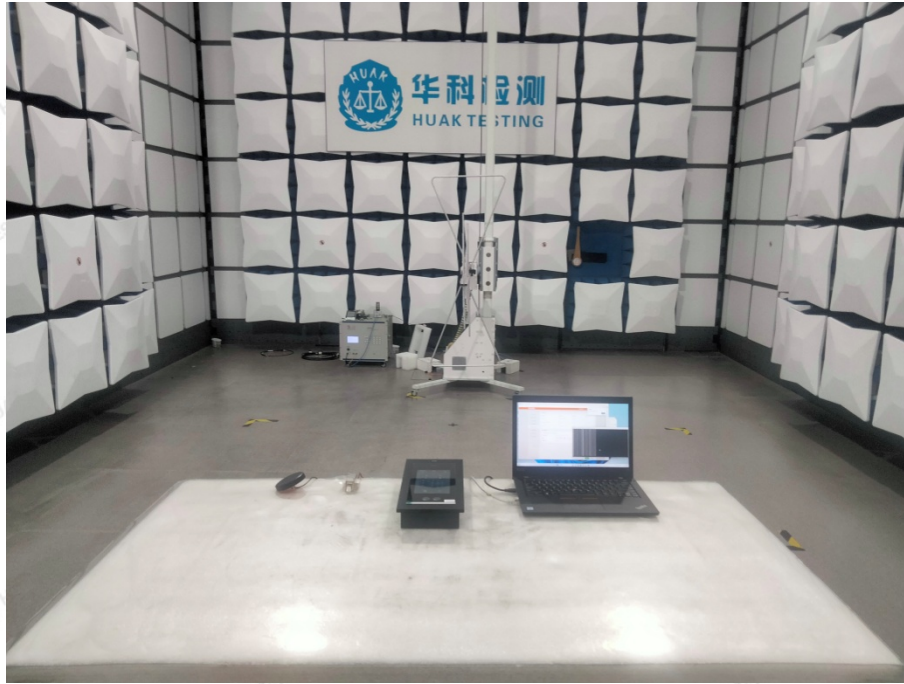
LTE FDD Band 4				
DC Power(V)	Temperature (°C)	Frequency error(Hz)	Frequency error(ppm)	Verdict
10.2	20	5.92	0.003461	PASS
12	20	3.58	0.002093	PASS
13.8	20	4.33	0.002531	PASS
12	-30	3.02	0.001765	PASS
12	-20	4.69	0.002742	PASS
12	-10	5.54	0.003238	PASS
12	0	4.56	0.002666	PASS
12	10	3.42	0.001999	PASS
12	20	5.01	0.002929	PASS
12	30	2.92	0.001685	PASS
12	40	3.86	0.002228	PASS
12	50	4.01	0.002315	PASS

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

LTE FDD Band 4				
DC Power(V)	Temperature (°C)	Frequency error(Hz)	Frequency error(ppm)	Verdict
10.2	20	3.98	0.002327	PASS
12	20	4.71	0.002753	PASS
13.8	20	6.94	0.004057	PASS
12	-30	4.32	0.002525	PASS
12	-20	2.86	0.001672	PASS
12	-10	2.79	0.001631	PASS
12	0	4.26	0.002490	PASS
12	10	2.78	0.001625	PASS
12	20	4.31	0.002519	PASS
12	30	4.36	0.002517	PASS
12	40	3.81	0.002199	PASS
12	50	3.05	0.001760	PASS



4 Test Setup Photos of the EUT





5 Photos of the EUT

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

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