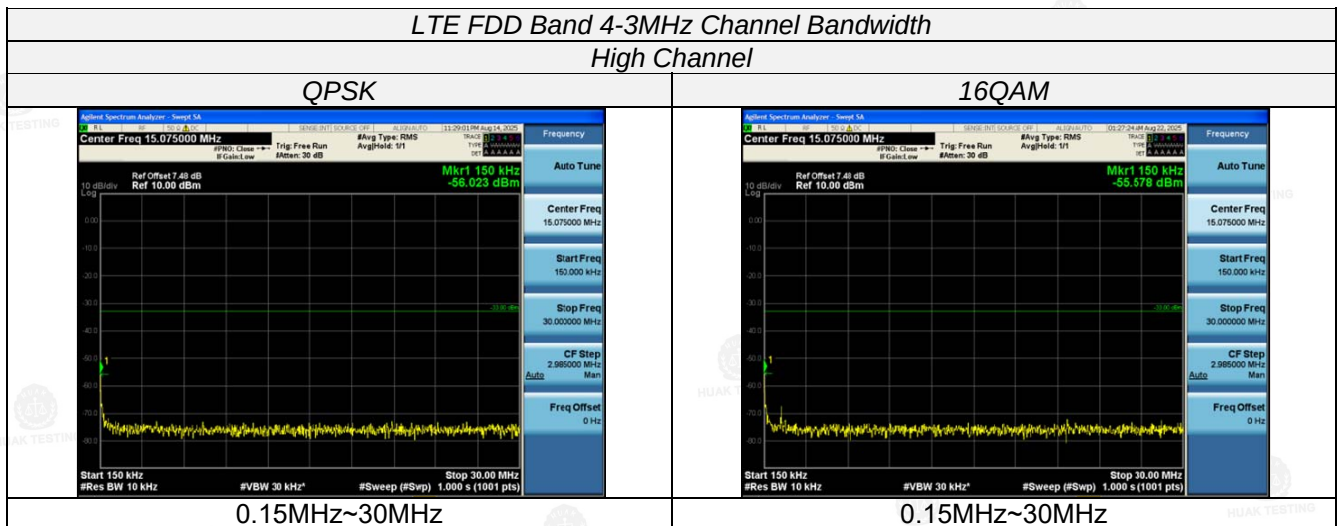
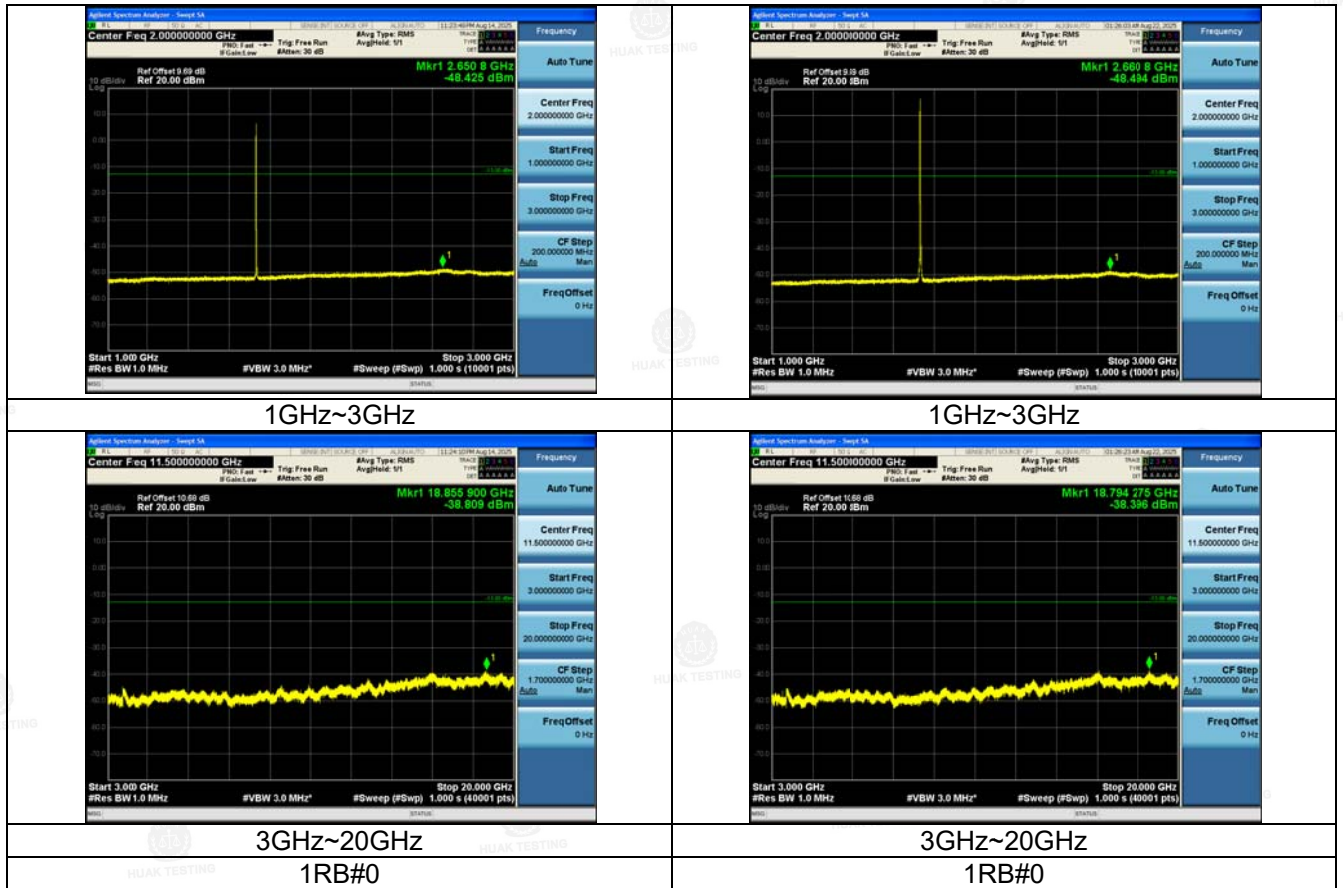
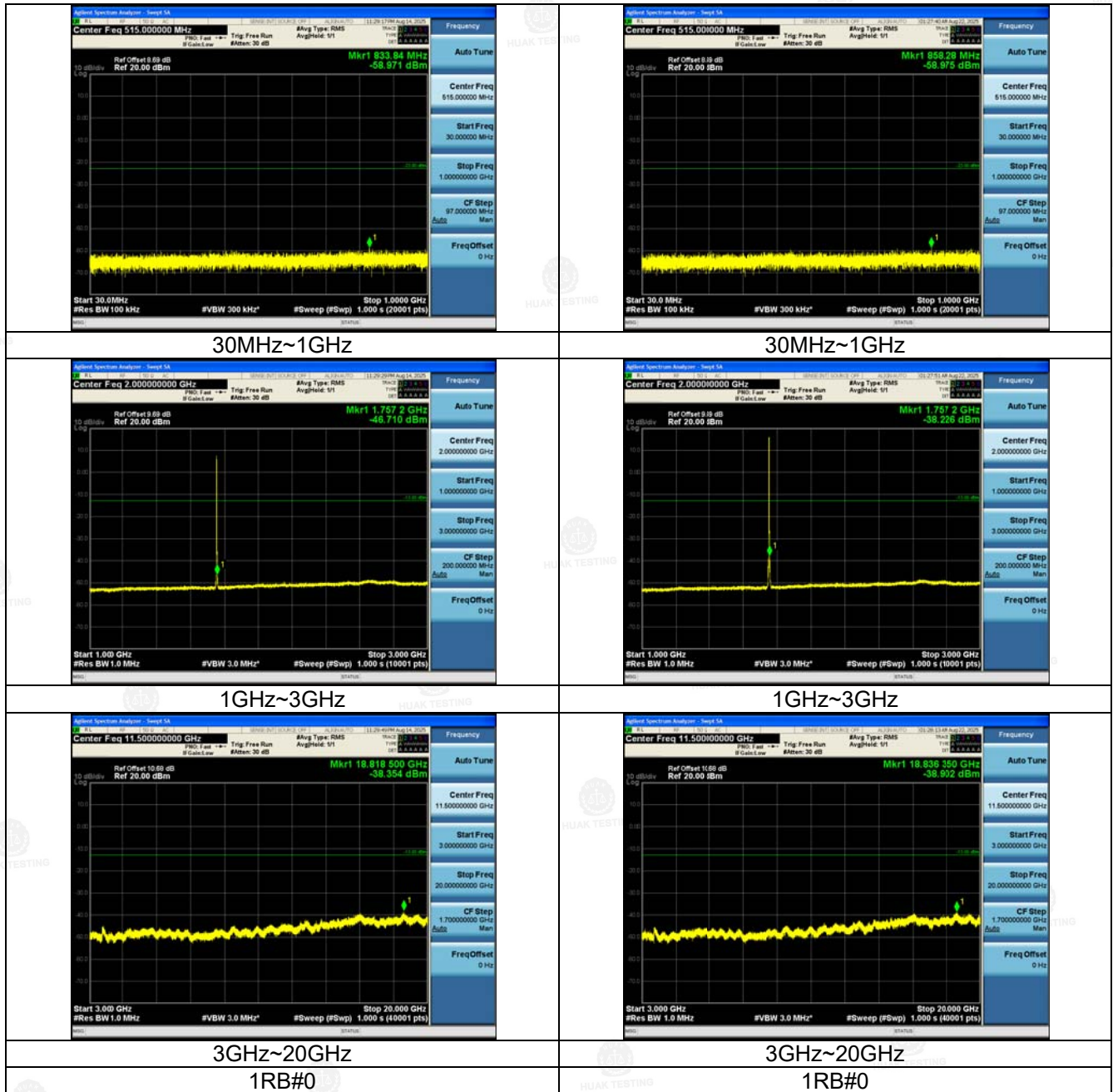
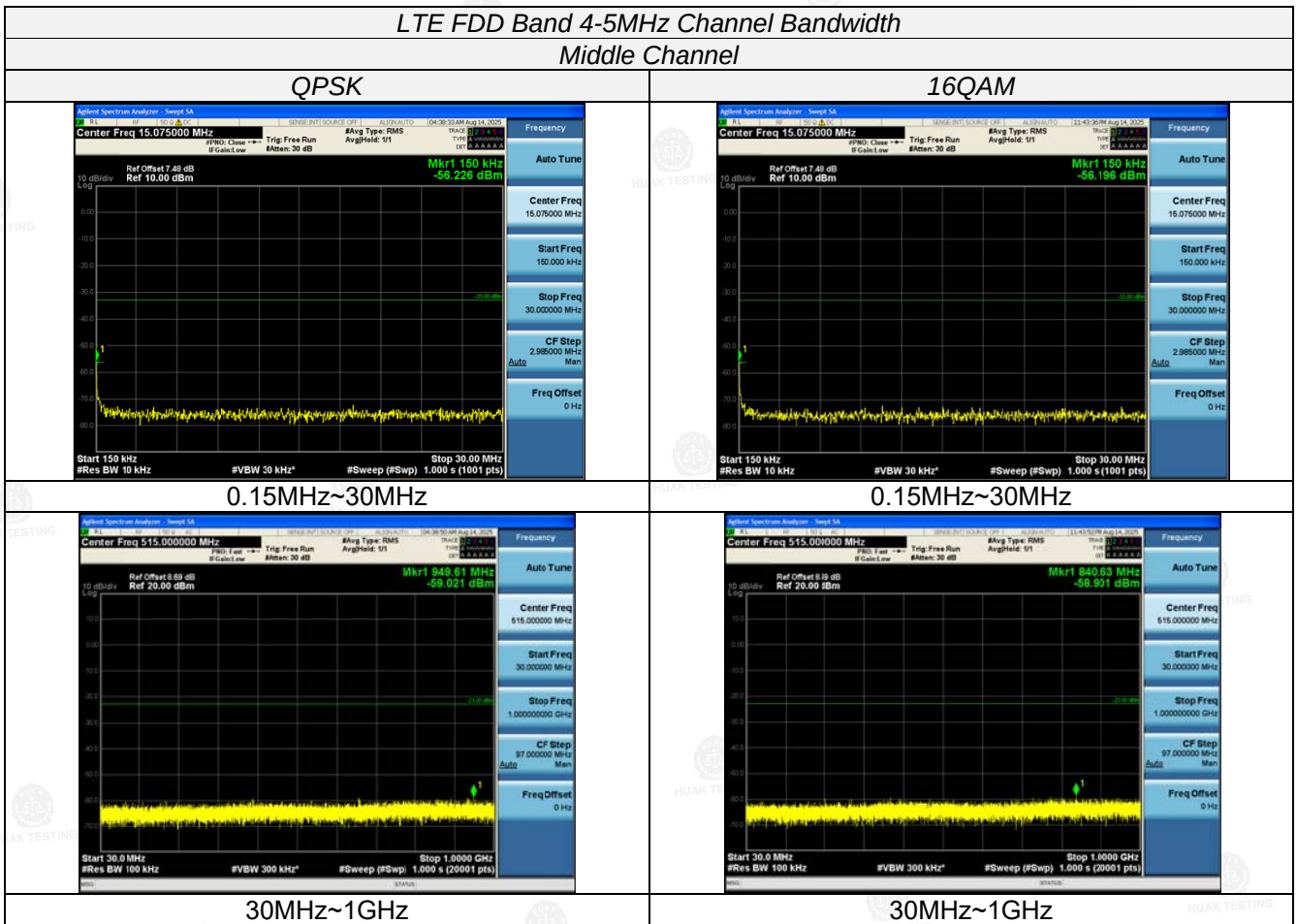
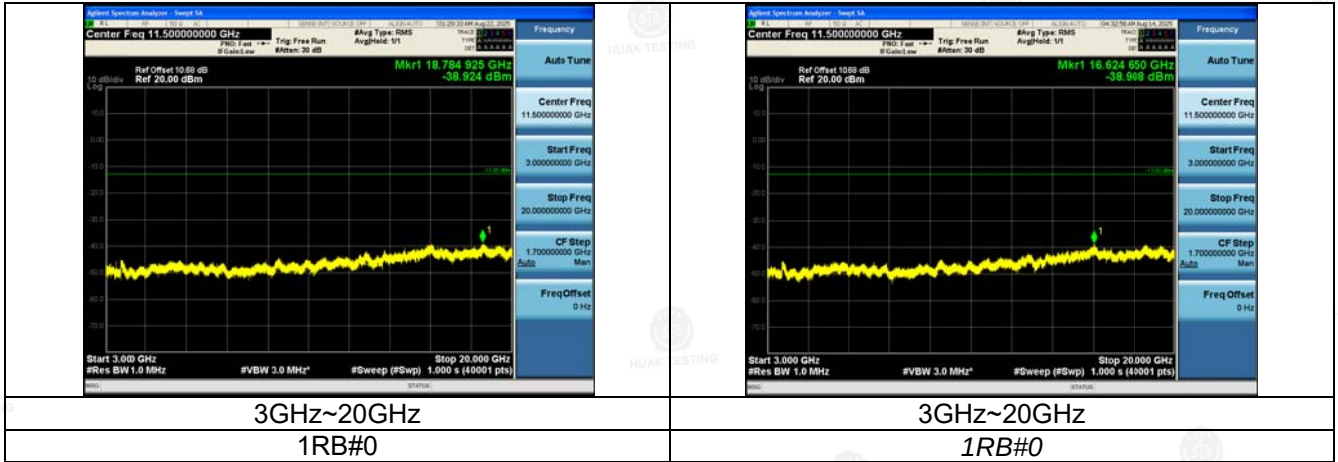


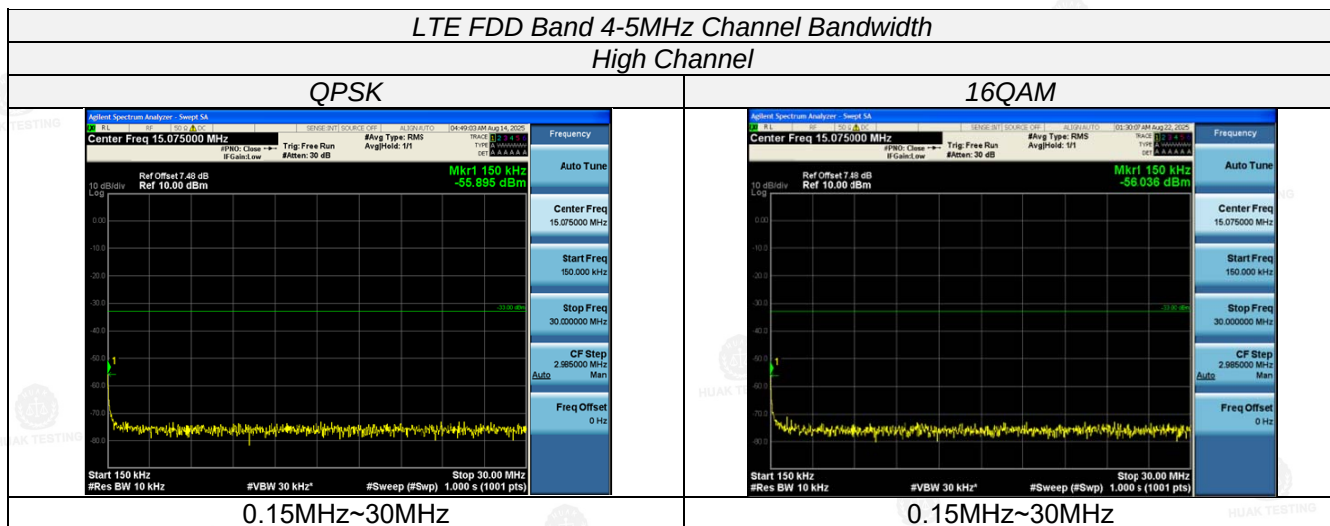
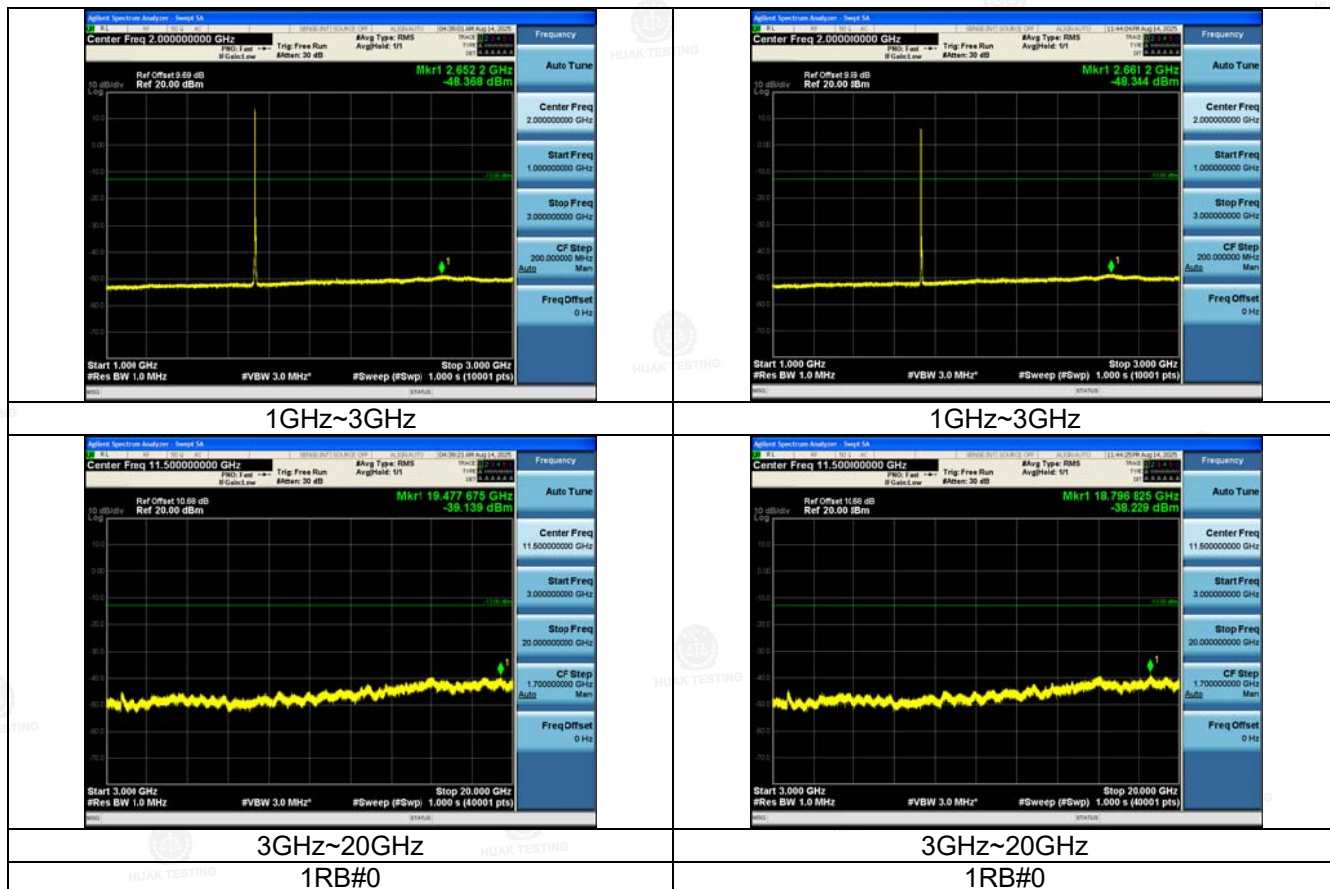


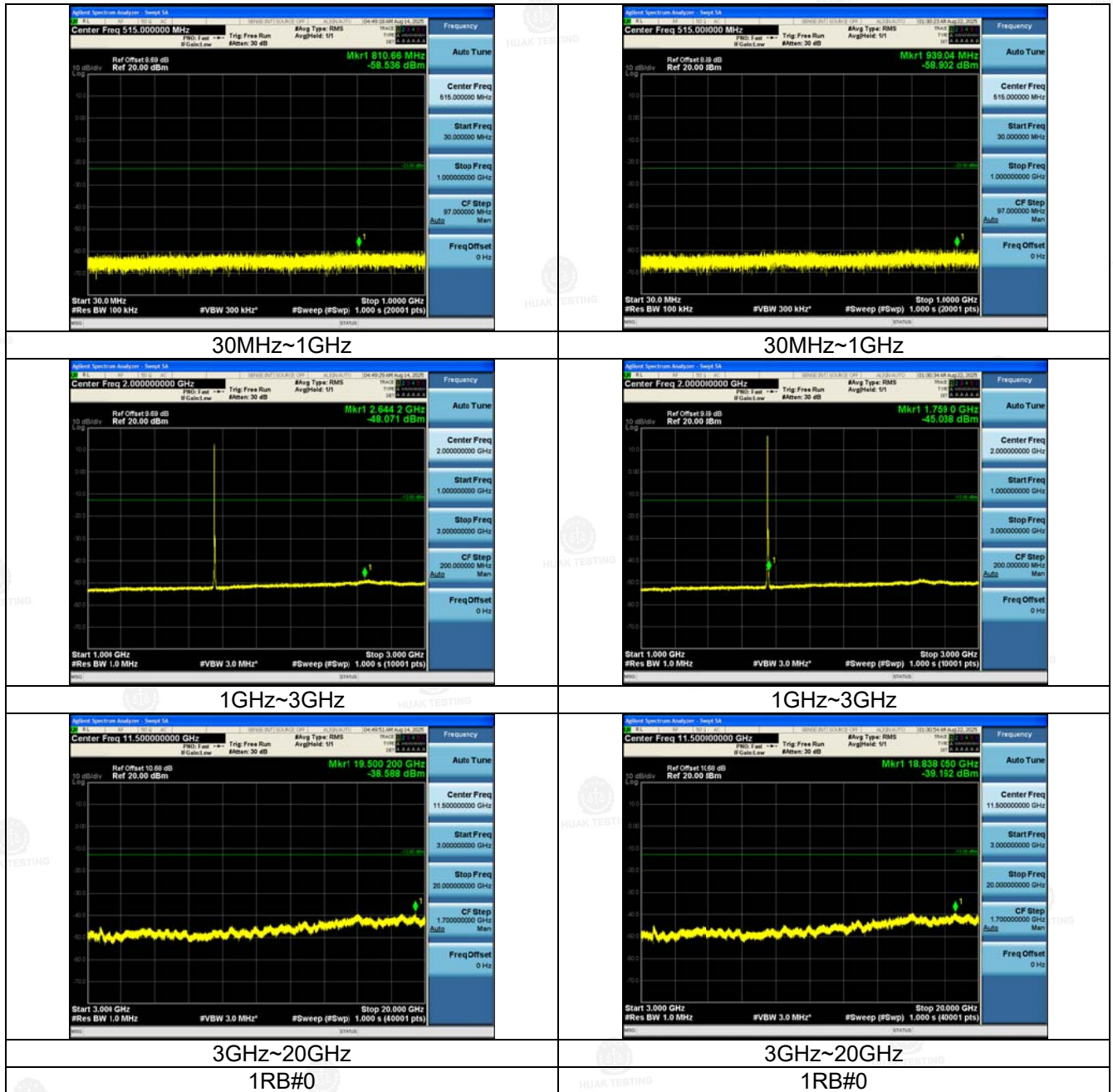




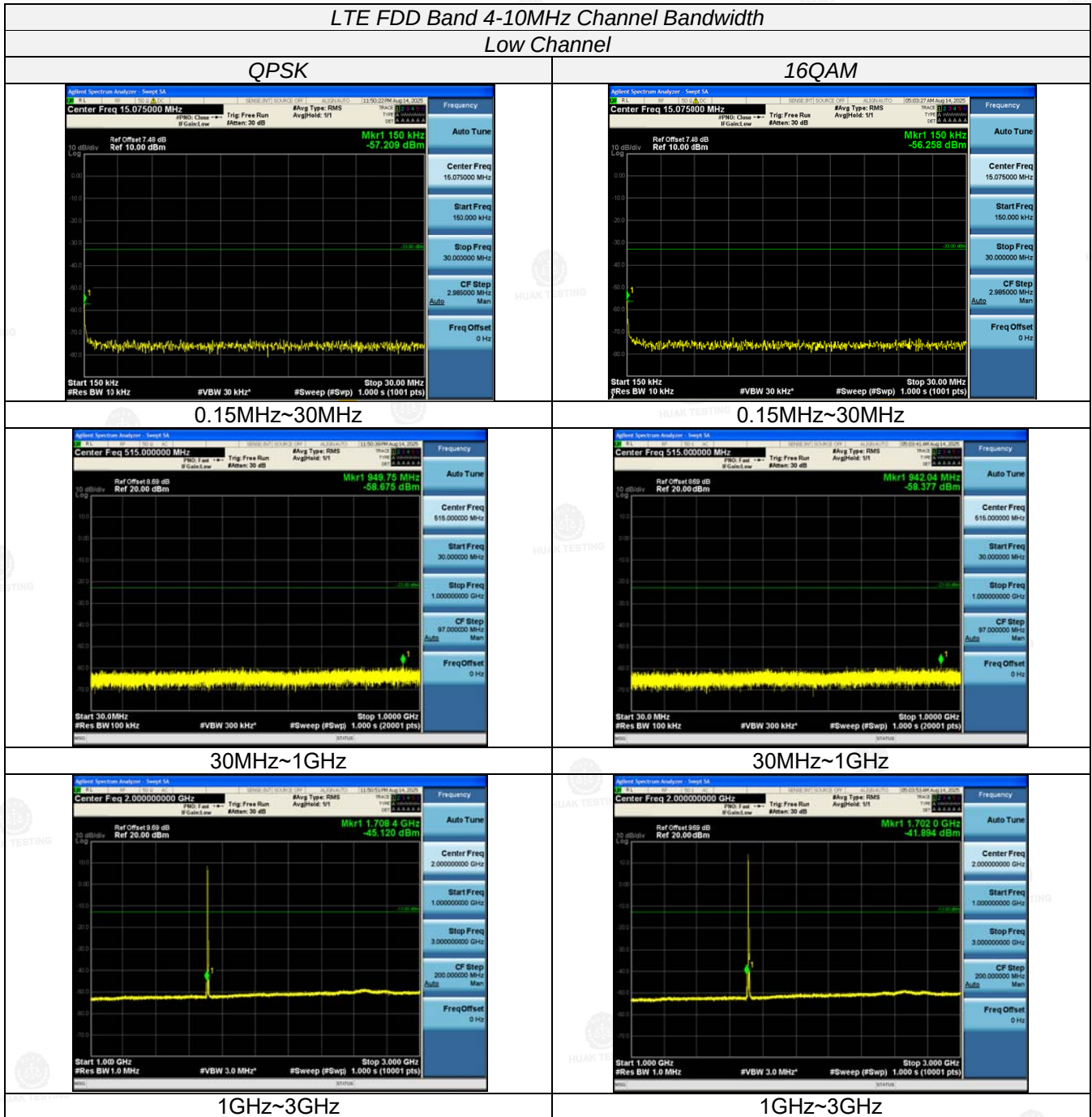
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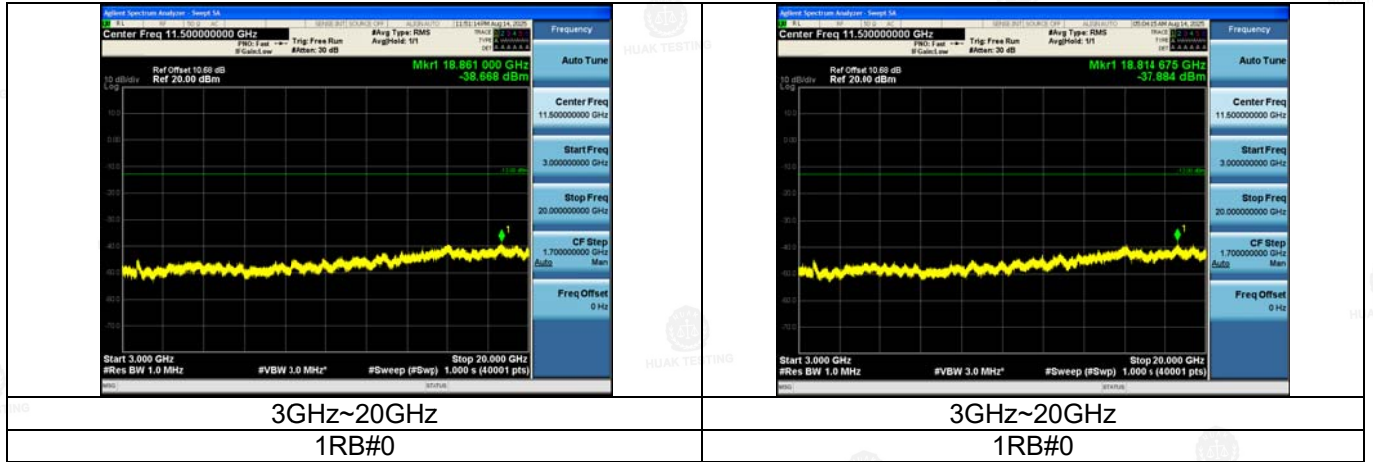




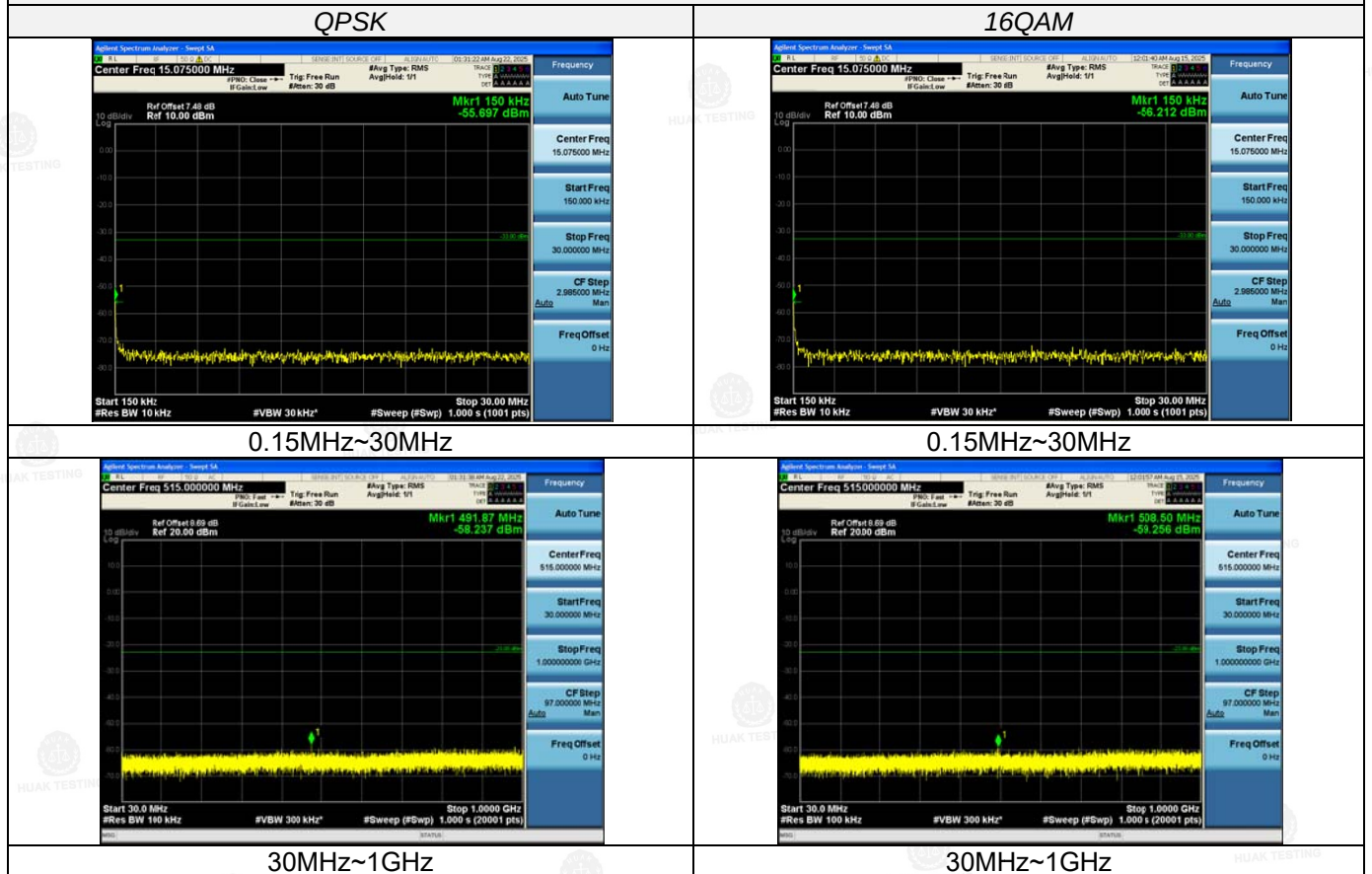


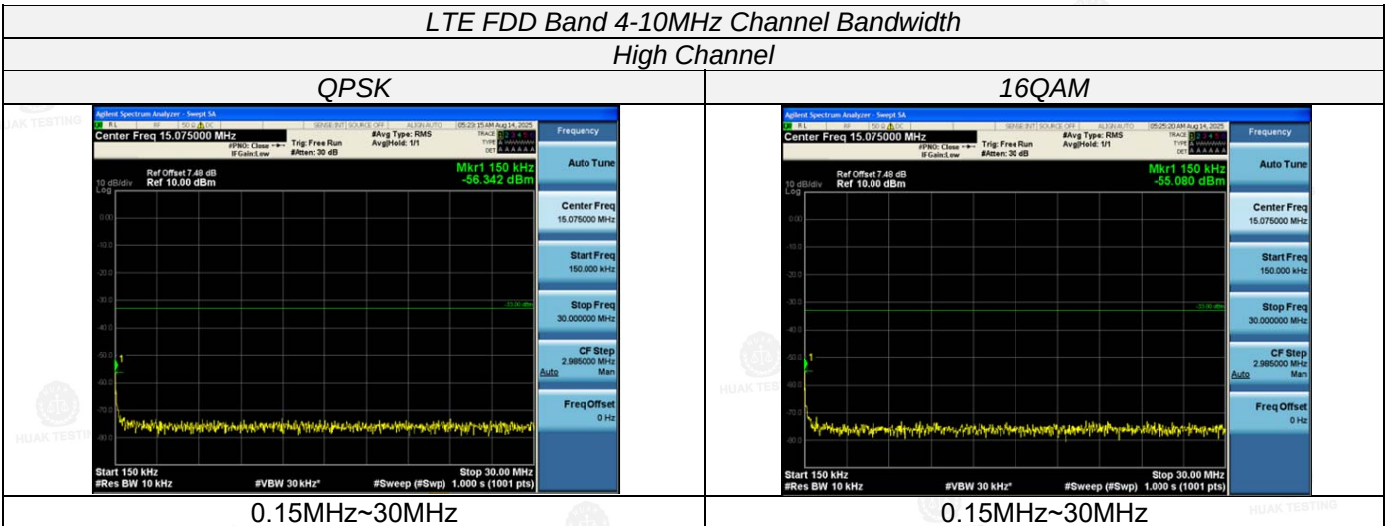
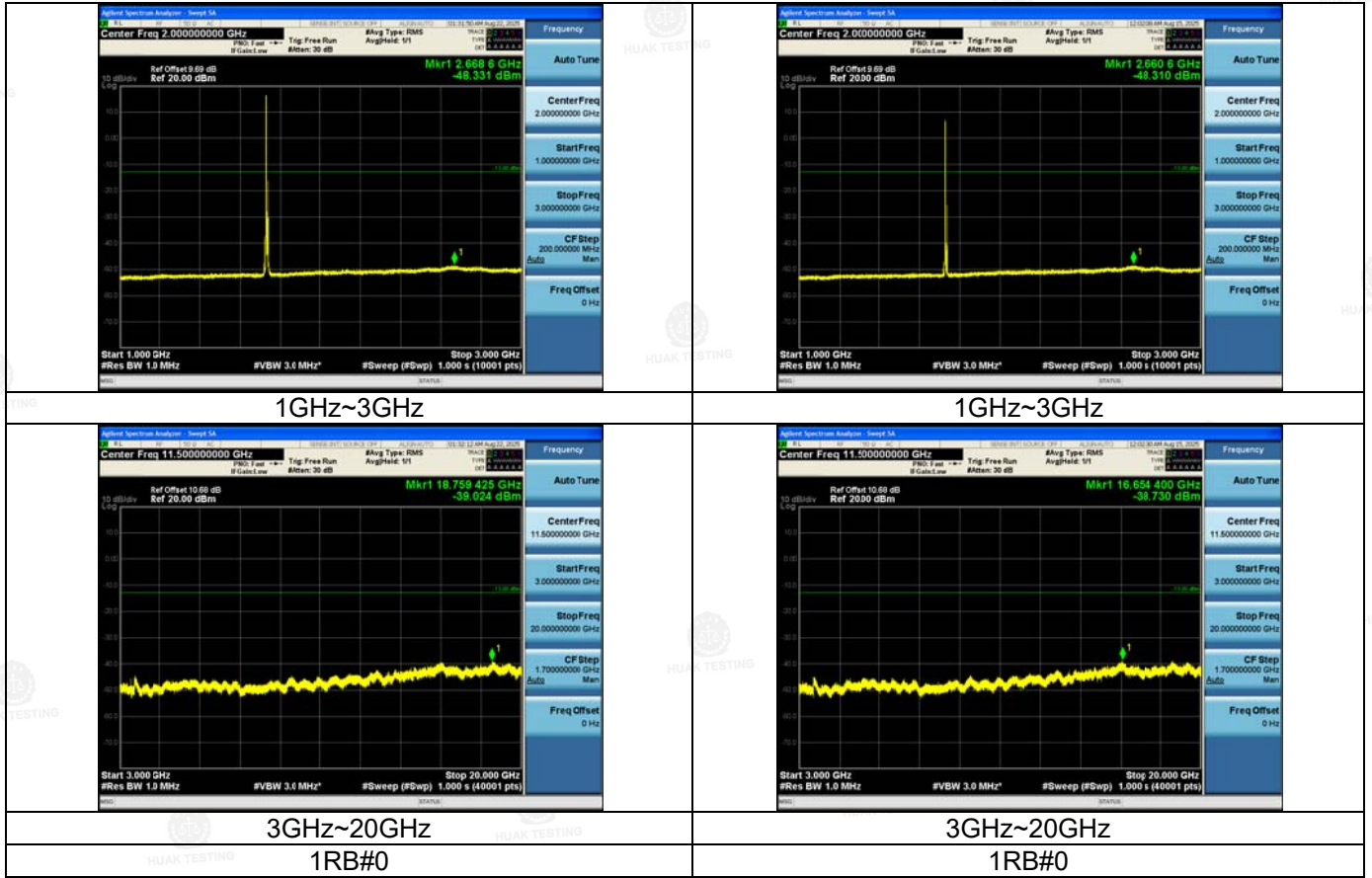
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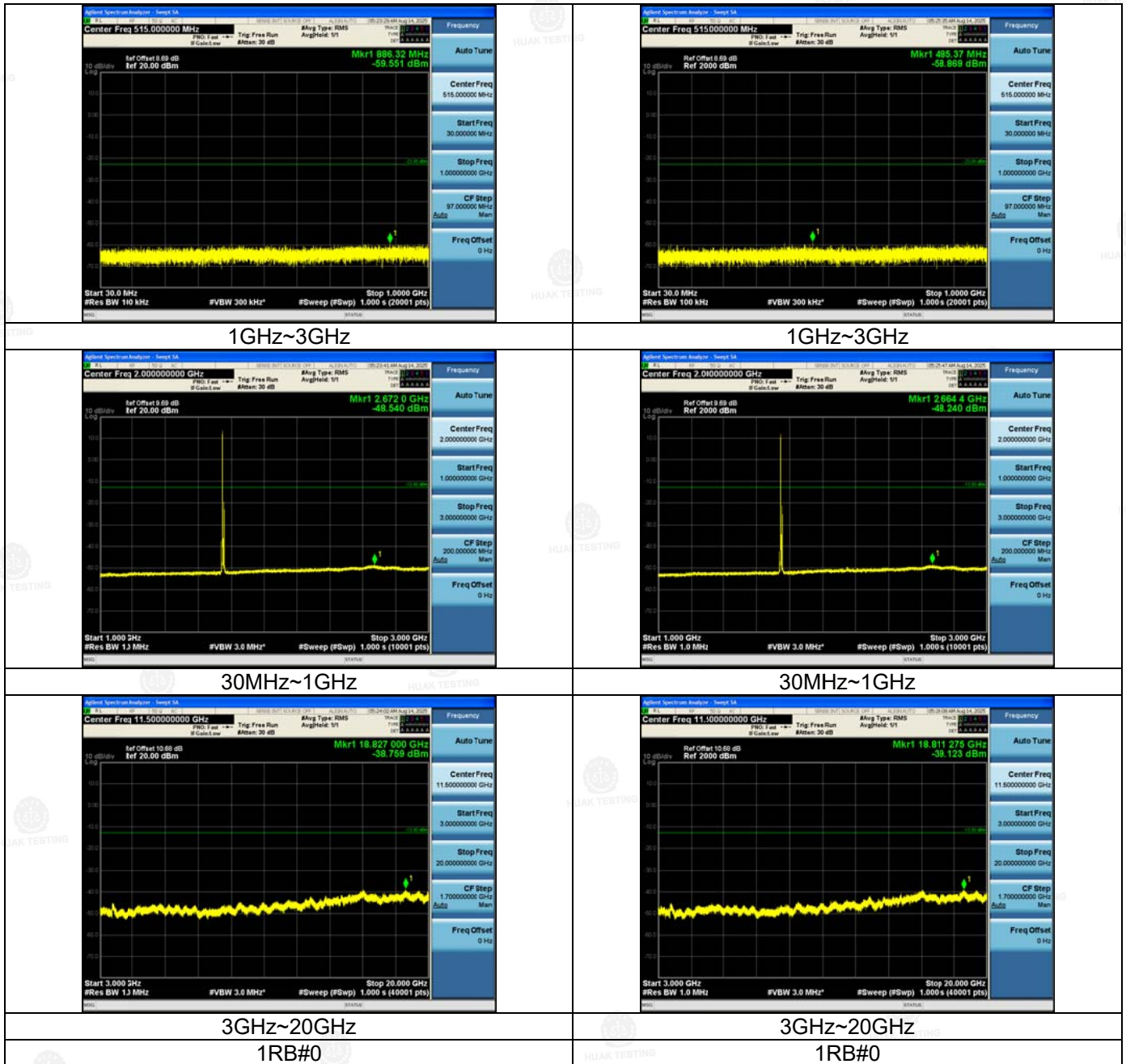
**LTE FDD Band 4-10MHz Channel Bandwidth
Middle Channel**





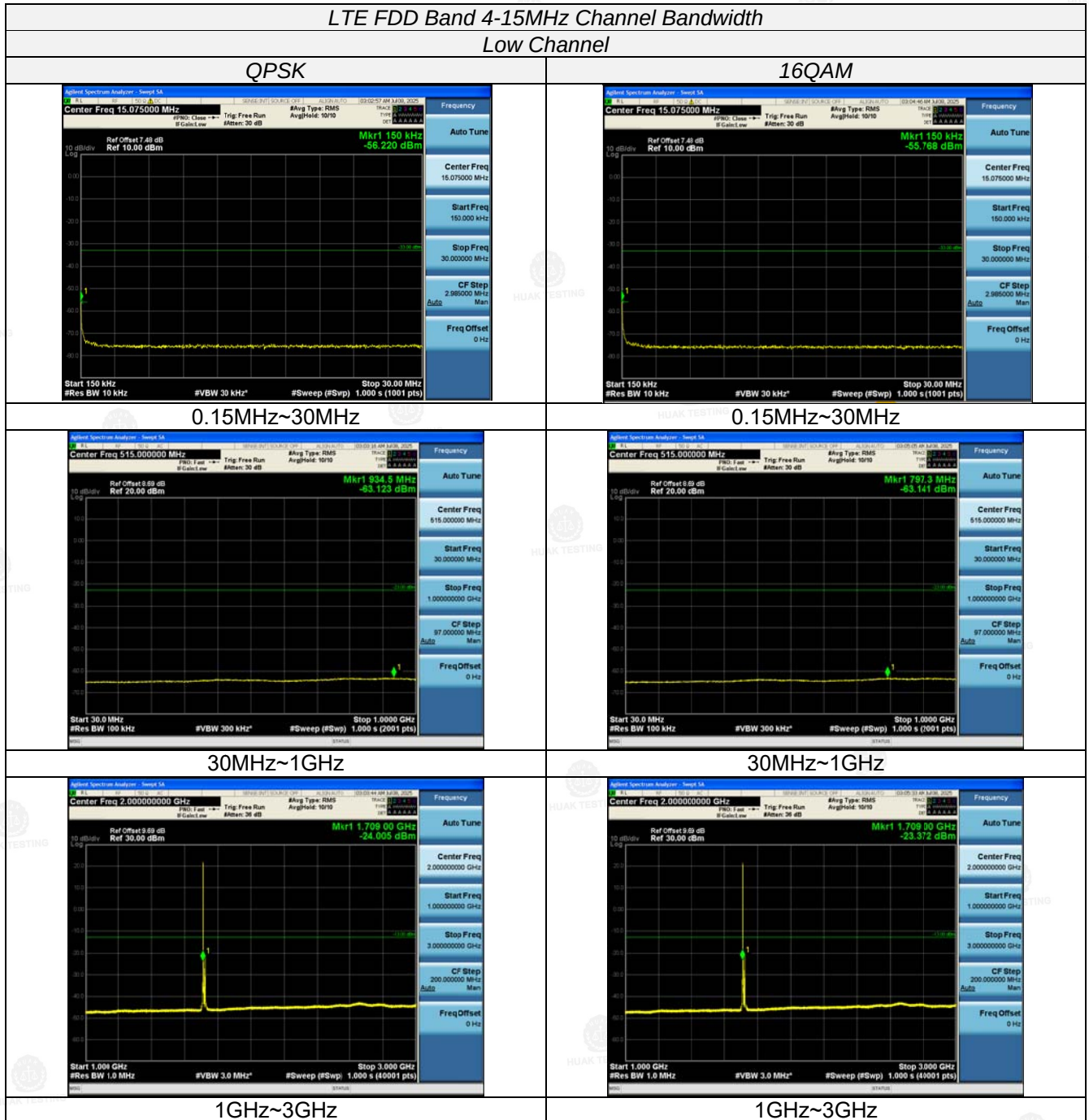
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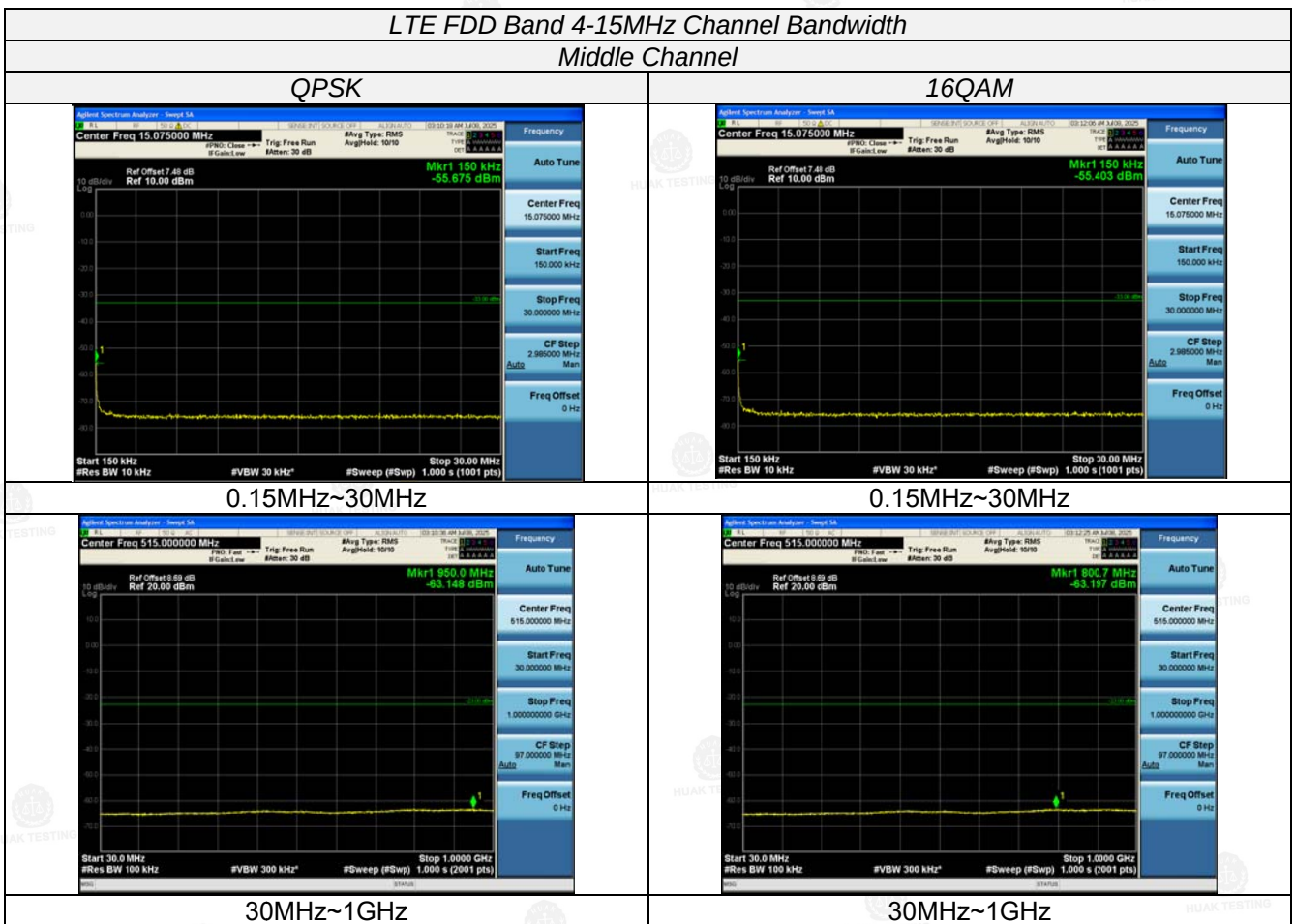
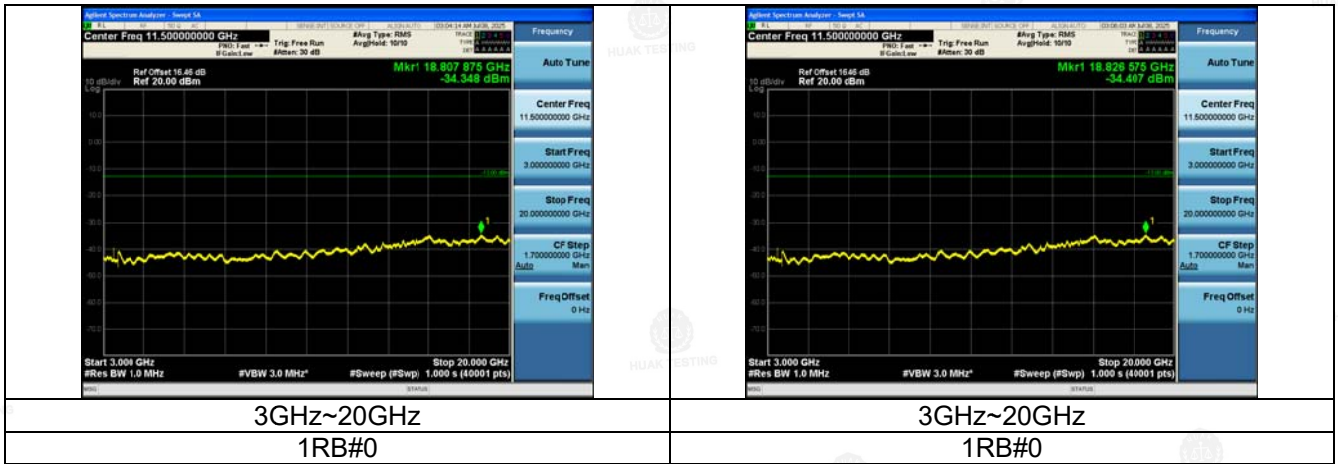


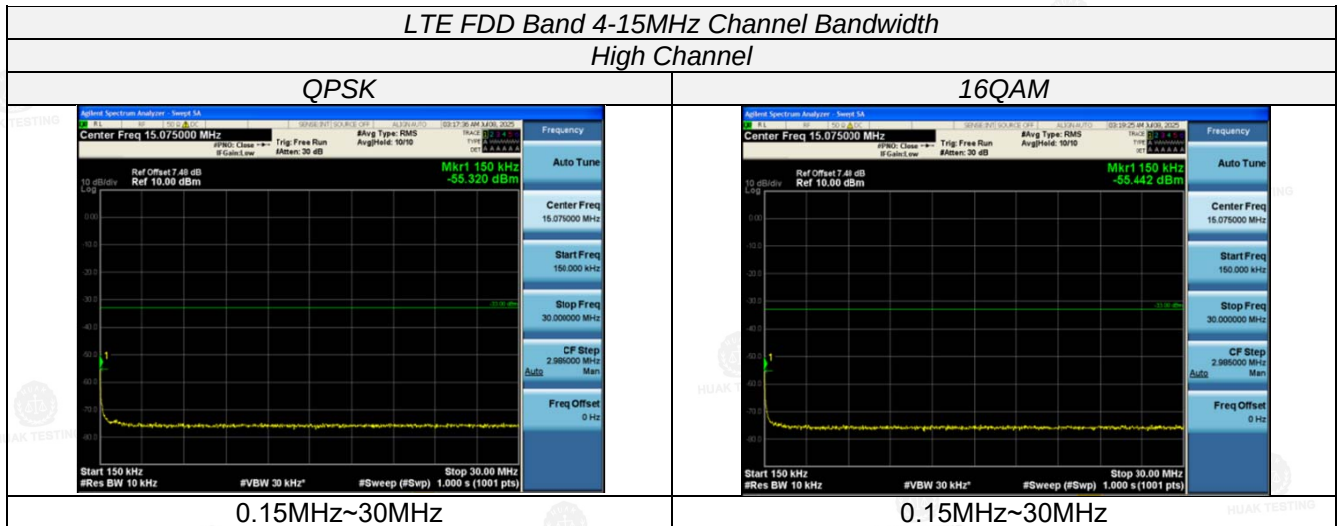
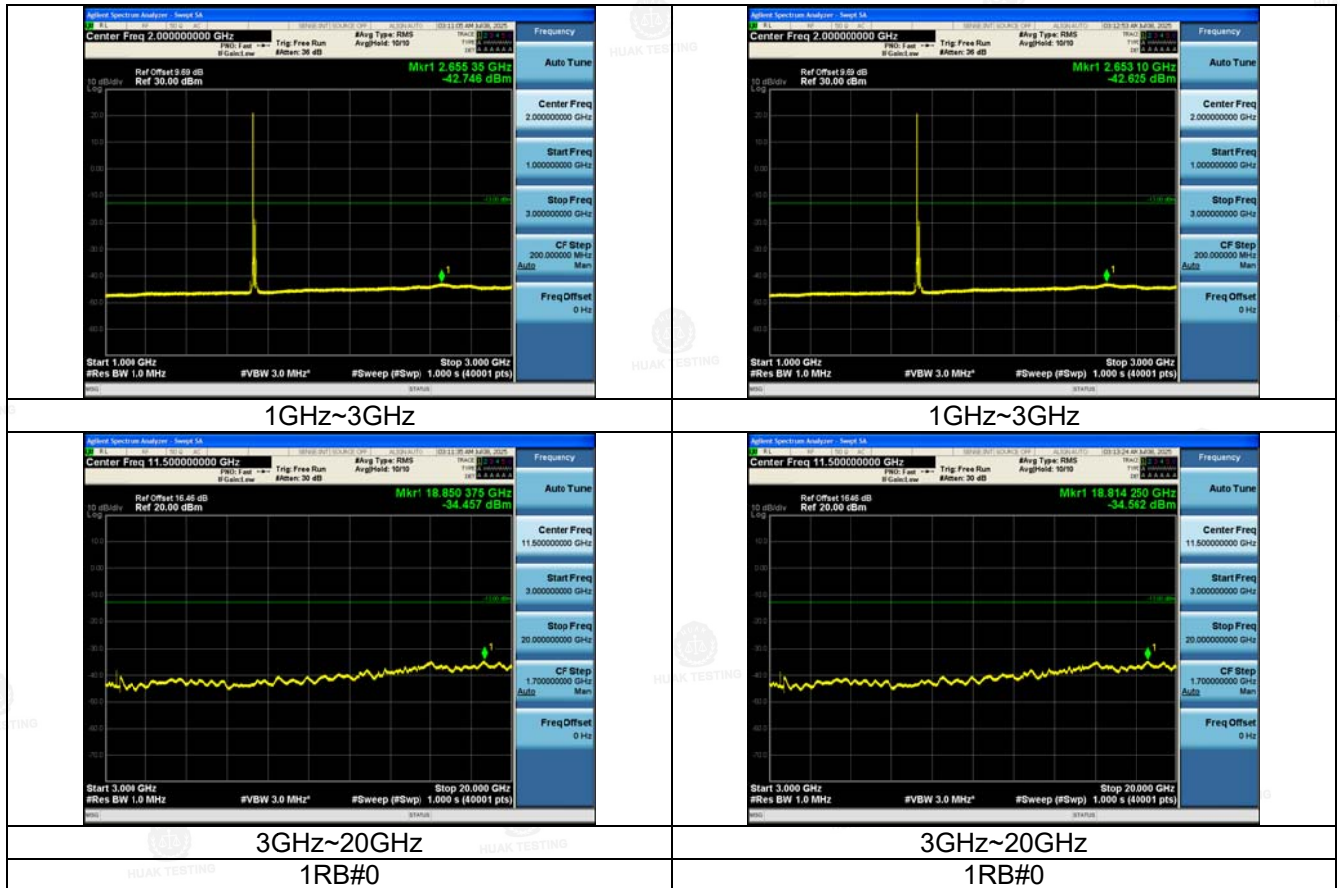
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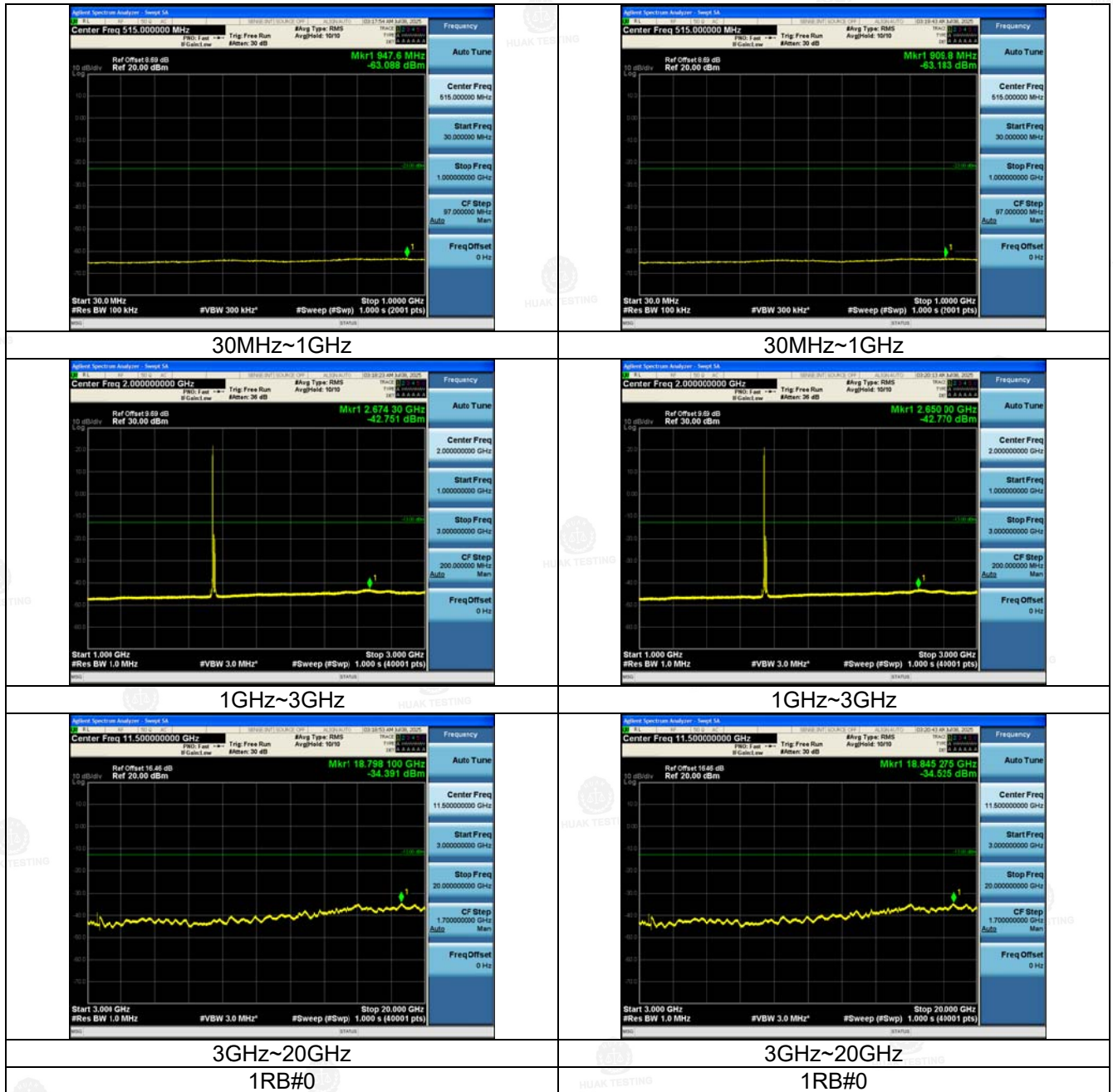
Shenzhen HUAKE Testing Technology Co., Ltd. Tel.: +86-0755-2302 9901 E-mail: info@huak.com Web.: www.huak.com
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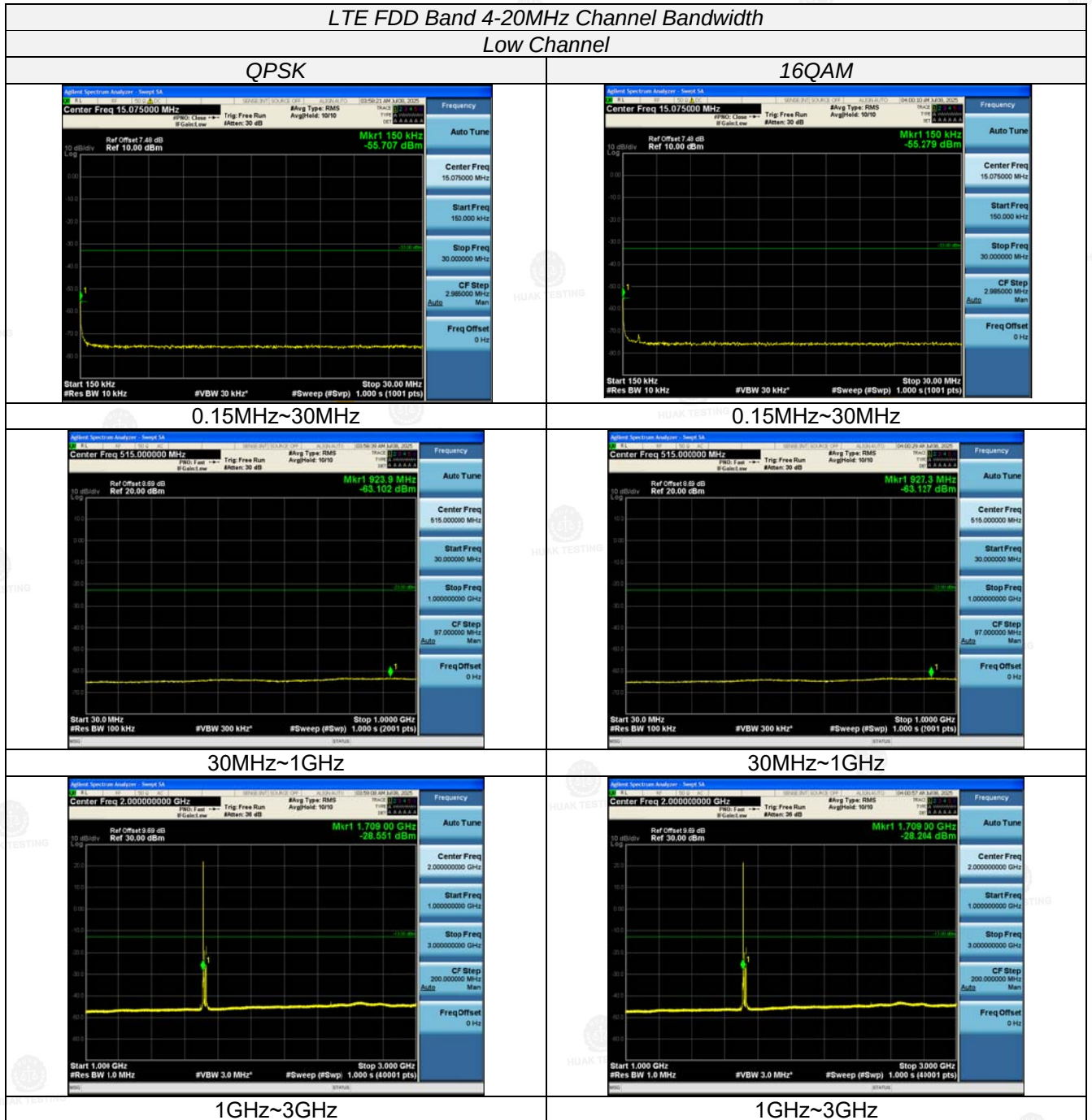
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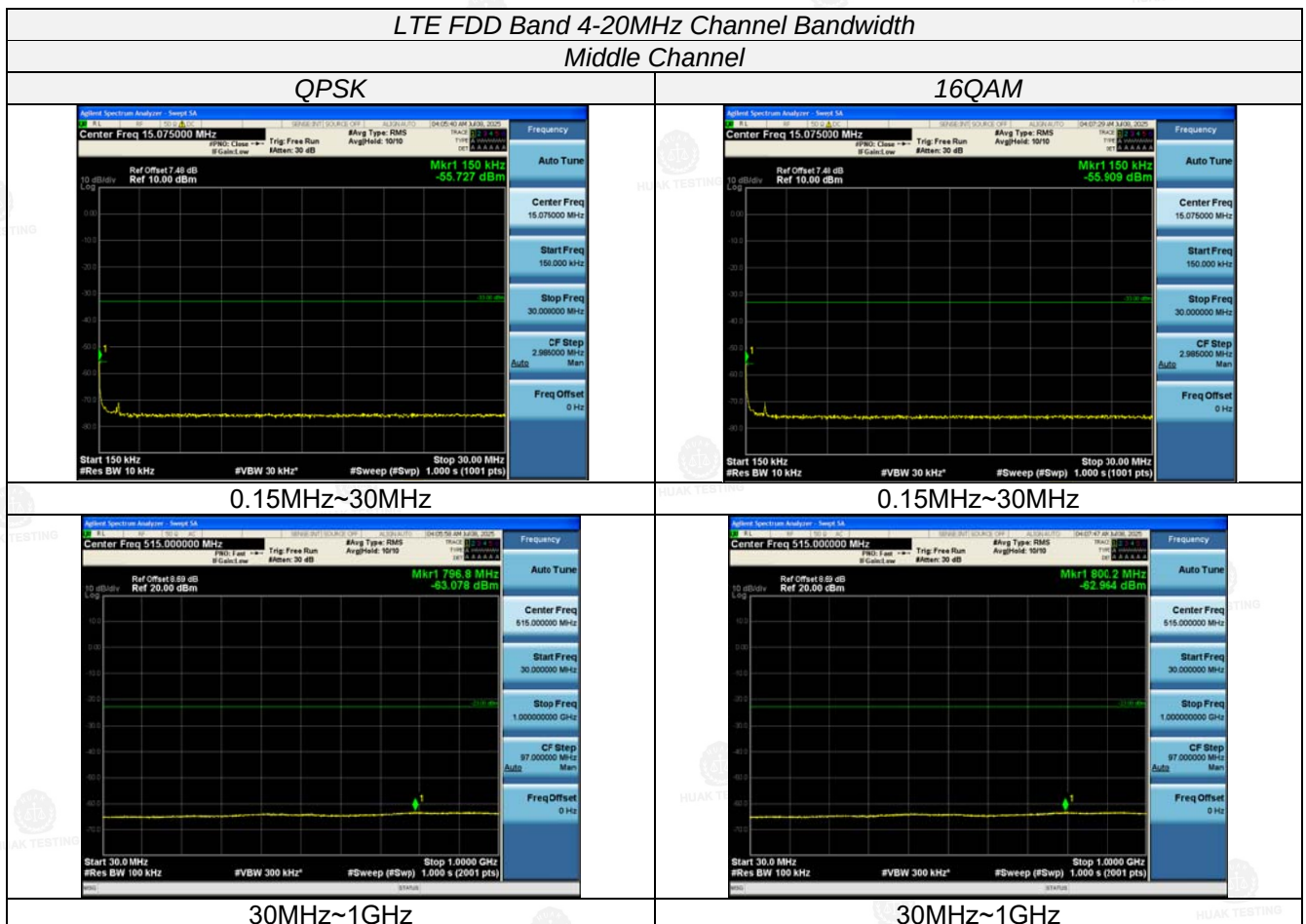
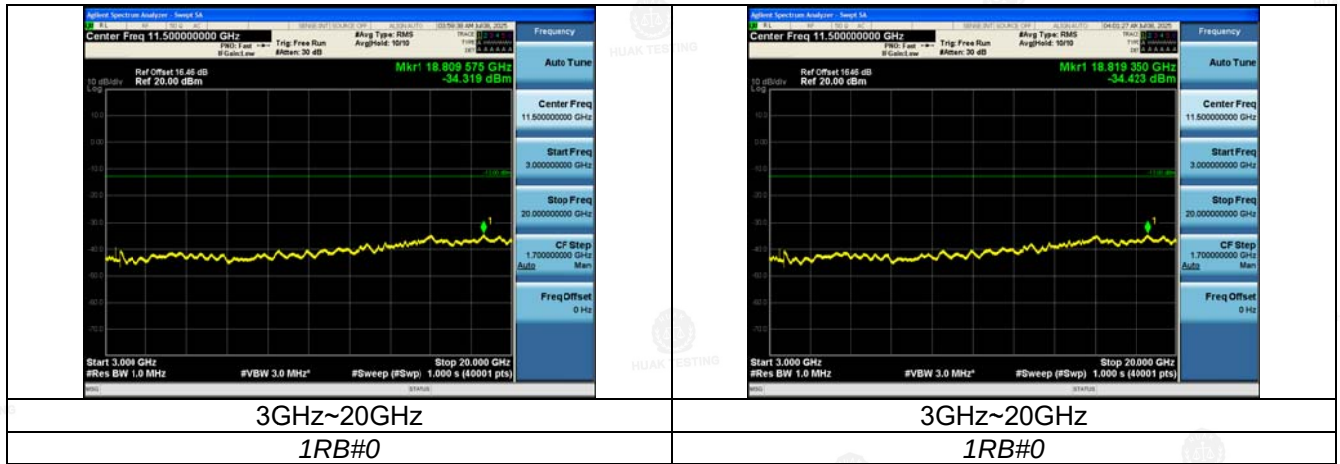


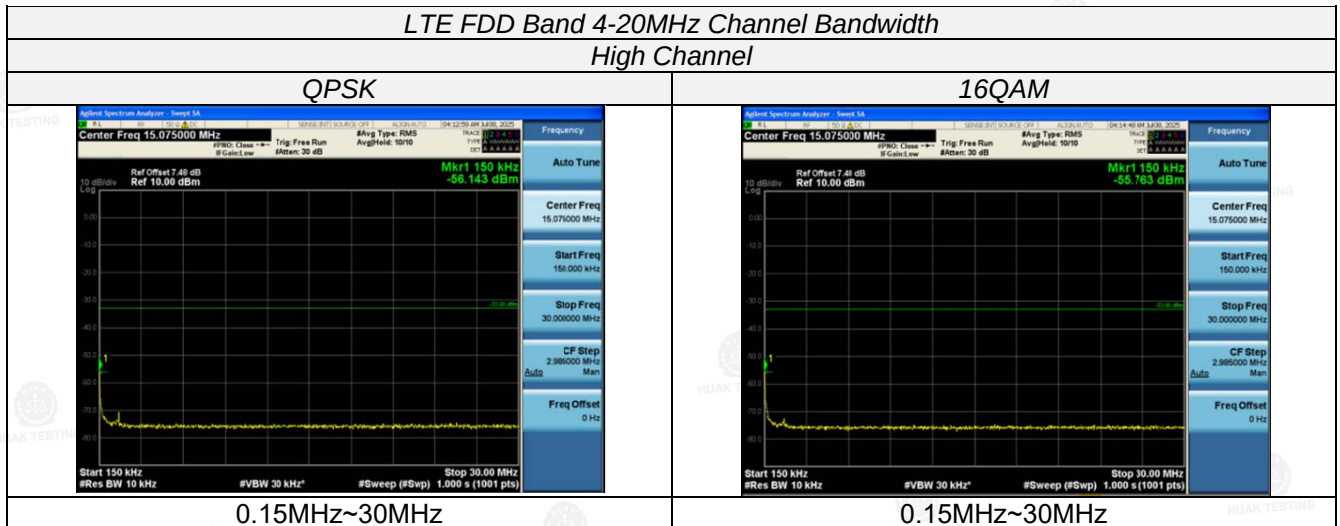
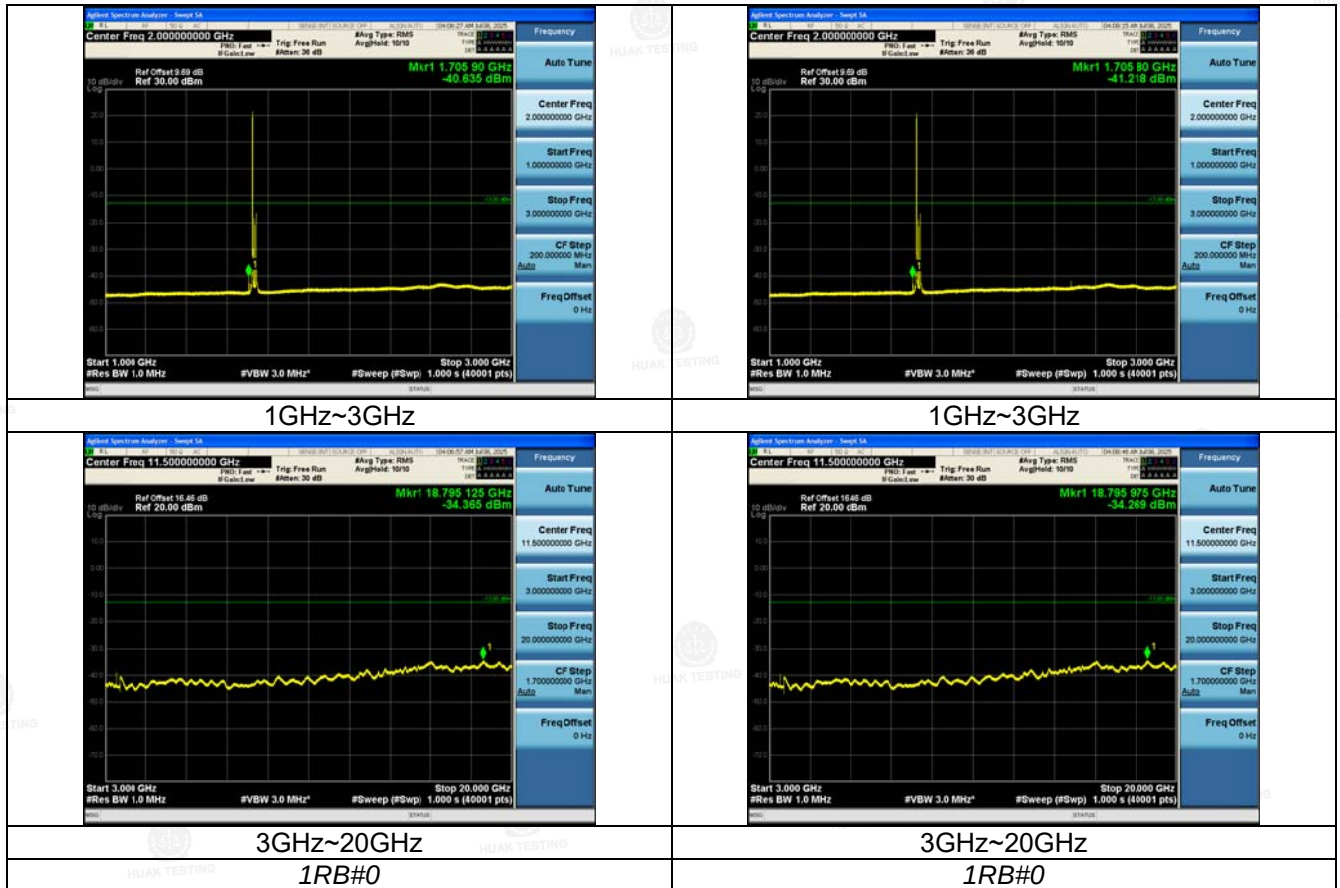


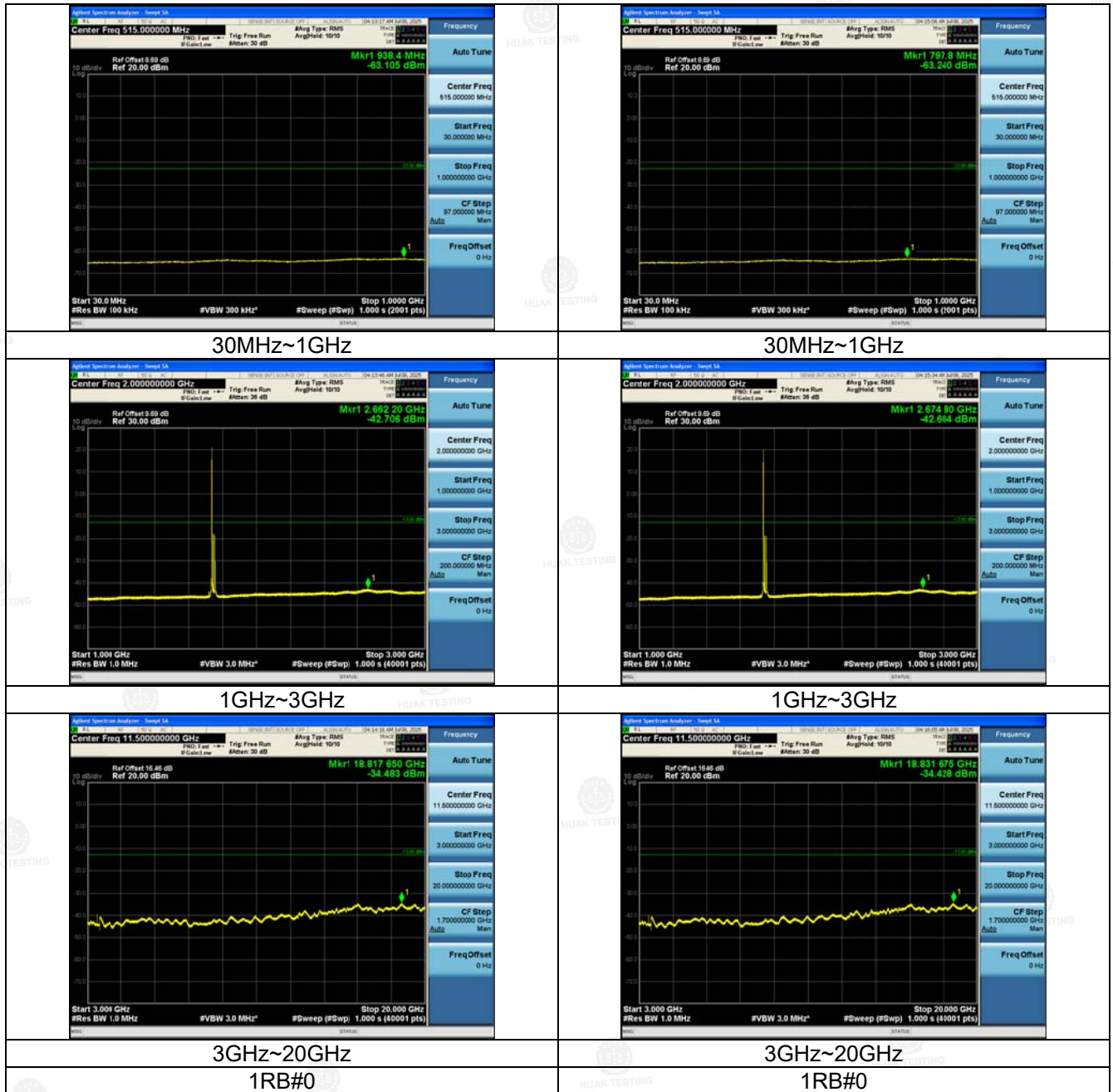
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Radiated Measurement:

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	-44.62	4.02	3.00	12.50	-36.14	-13.00	23.14	H
5132.1	-48.85	5.11	3.00	13.38	-40.58	-13.00	27.58	H
3421.4	-53.66	4.02	3.00	12.50	-45.18	-13.00	32.18	V
5132.1	-51.04	5.11	3.00	13.38	-42.77	-13.00	29.77	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	-44.02	4.02	3.00	12.45	-35.59	-13.00	22.59	H
5197.5	-48.26	5.11	3.00	13.38	-39.99	-13.00	26.99	H
3465.0	-51.91	4.02	3.00	12.45	-43.48	-13.00	30.48	V
5197.5	-49.24	5.11	3.00	13.38	-40.97	-13.00	27.97	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	-44.41	4.02	3.00	12.21	-36.22	-13.00	23.22	H
5262.9	-48.77	5.11	3.00	13.26	-40.62	-13.00	27.62	H
3508.6	-51.54	4.02	3.00	12.21	-43.35	-13.00	30.35	V
5262.9	-48.90	5.11	3.00	13.26	-40.75	-13.00	27.75	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	-43.91	4.02	3.00	12.50	-35.43	-13.00	22.43	H
5134.5	-48.92	5.11	3.00	13.38	-40.65	-13.00	27.65	H
3423.0	-54.22	4.02	3.00	12.50	-45.74	-13.00	32.74	V
5134.5	-51.06	5.11	3.00	13.38	-42.79	-13.00	29.79	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	-44.32	4.02	3.00	12.45	-35.89	-13.00	22.89	H
5197.5	-48.58	5.11	3.00	13.38	-40.31	-13.00	27.31	H
3465.0	-51.98	4.02	3.00	12.45	-43.55	-13.00	30.55	V
5197.5	-49.01	5.11	3.00	13.38	-40.74	-13.00	27.74	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	-45.14	4.02	3.00	12.21	-36.95	-13.00	23.95	H
5260.5	-48.90	5.11	3.00	13.26	-40.75	-13.00	27.75	H
3507.0	-52.33	4.02	3.00	12.21	-44.14	-13.00	31.14	V
5260.5	-49.06	5.11	3.00	13.26	-40.91	-13.00	27.91	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	-44.81	4.02	3.00	12.50	-36.33	-13.00	23.33	H
5137.5	-49.66	5.11	3.00	13.38	-41.39	-13.00	28.39	H
3425.0	-53.62	4.02	3.00	12.50	-45.14	-13.00	32.14	V
5137.5	-51.47	5.11	3.00	13.38	-43.20	-13.00	30.20	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	-44.16	4.02	3.00	12.45	-35.73	-13.00	22.73	H
5197.5	-48.69	5.11	3.00	13.38	-40.42	-13.00	27.42	H
3465.0	-51.73	4.02	3.00	12.45	-43.30	-13.00	30.30	V
5197.5	-49.03	5.11	3.00	13.38	-40.76	-13.00	27.76	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	-44.54	4.02	3.00	12.21	-36.35	-13.00	23.35	H
5257.5	-48.37	5.11	3.00	13.26	-40.22	-13.00	27.22	H
3505.0	-51.89	4.02	3.00	12.21	-43.70	-13.00	30.70	V
5257.5	-49.56	5.11	3.00	13.26	-41.41	-13.00	28.41	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	-43.83	4.02	3.00	12.50	-35.35	-13.00	22.35	H
5145.0	-49.04	5.11	3.00	13.38	-40.77	-13.00	27.77	H
3430.0	-54.41	4.02	3.00	12.50	-45.93	-13.00	32.93	V
5145.0	-51.74	5.11	3.00	13.38	-43.47	-13.00	30.47	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	-43.98	4.02	3.00	12.45	-35.55	-13.00	22.55	H
5197.5	-48.25	5.11	3.00	13.38	-39.98	-13.00	26.98	H
3465.0	-51.33	4.02	3.00	12.45	-42.90	-13.00	29.90	V
5197.5	-49.64	5.11	3.00	13.38	-41.37	-13.00	28.37	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	-44.51	4.02	3.00	12.21	-36.32	-13.00	23.32	H
5250.0	-49.14	5.11	3.00	13.26	-40.99	-13.00	27.99	H
3500.0	-52.50	4.02	3.00	12.21	-44.31	-13.00	31.31	V
5250.0	-49.34	5.11	3.00	13.26	-41.19	-13.00	28.19	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	-44.10	4.02	3.00	12.50	-35.62	-13.00	22.62	H
5152.5	-48.92	5.11	3.00	13.38	-40.65	-13.00	27.65	H
3435.0	-53.69	4.02	3.00	12.50	-45.21	-13.00	32.21	V
5152.5	-51.38	5.11	3.00	13.38	-43.11	-13.00	30.11	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	-44.21	4.02	3.00	12.45	-35.78	-13.00	22.78	H
5197.5	-48.88	5.11	3.00	13.38	-40.61	-13.00	27.61	H
3465.0	-51.93	4.02	3.00	12.45	-43.50	-13.00	30.50	V
5197.5	-49.77	5.11	3.00	13.38	-41.50	-13.00	28.50	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	-44.64	4.02	3.00	12.21	-36.45	-13.00	23.45	H
5242.5	-49.21	5.11	3.00	13.26	-41.06	-13.00	28.06	H
3495.0	-52.19	4.02	3.00	12.21	-44.00	-13.00	31.00	V
5242.5	-49.17	5.11	3.00	13.26	-41.02	-13.00	28.02	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	-43.92	4.02	3.00	12.50	-35.44	-13.00	22.44	H
5160.0	-49.25	5.11	3.00	13.38	-40.98	-13.00	27.98	H
3440.0	-54.32	4.02	3.00	12.50	-45.84	-13.00	32.84	V
5160.0	-51.68	5.11	3.00	13.38	-43.41	-13.00	30.41	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	-44.16	4.02	3.00	12.45	-35.73	-13.00	22.73	H
5197.5	-48.83	5.11	3.00	13.38	-40.56	-13.00	27.56	H
3465.0	-51.57	4.02	3.00	12.45	-43.14	-13.00	30.14	V
5197.5	-49.01	5.11	3.00	13.38	-40.74	-13.00	27.74	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	-44.88	4.02	3.00	12.21	-36.69	-13.00	23.69	H
5235.0	-49.14	5.11	3.00	13.26	-40.99	-13.00	27.99	H
3490.0	-51.81	4.02	3.00	12.21	-43.62	-13.00	30.62	V
5235.0	-48.96	5.11	3.00	13.26	-40.81	-13.00	27.81	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	-44.09	4.02	3.00	12.50	-35.61	-13.00	22.61	H
5132.1	-48.92	5.11	3.00	13.38	-40.65	-13.00	27.65	H
3421.4	-54.34	4.02	3.00	12.50	-45.86	-13.00	32.86	V
5132.1	-51.31	5.11	3.00	13.38	-43.04	-13.00	30.04	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	-44.30	4.02	3.00	12.45	-35.87	-13.00	22.87	H
5197.5	-48.26	5.11	3.00	13.38	-39.99	-13.00	26.99	H
3465.0	-52.30	4.02	3.00	12.45	-43.87	-13.00	30.87	V
5197.5	-49.25	5.11	3.00	13.38	-40.98	-13.00	27.98	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	-45.00	4.02	3.00	12.21	-36.81	-13.00	23.81	H
5262.9	-49.34	5.11	3.00	13.26	-41.19	-13.00	28.19	H
3508.6	-51.55	4.02	3.00	12.21	-43.36	-13.00	30.36	V
5262.9	-49.21	5.11	3.00	13.26	-41.06	-13.00	28.06	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	-44.55	4.02	3.00	12.50	-36.07	-13.00	23.07	H
5134.5	-49.53	5.11	3.00	13.38	-41.26	-13.00	28.26	H
3423.0	-53.84	4.02	3.00	12.50	-45.36	-13.00	32.36	V
5134.5	-51.11	5.11	3.00	13.38	-42.84	-13.00	29.84	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	-44.53	4.02	3.00	12.45	-36.10	-13.00	23.10	H
5197.5	-48.62	5.11	3.00	13.38	-40.35	-13.00	27.35	H
3465.0	-52.32	4.02	3.00	12.45	-43.89	-13.00	30.89	V
5197.5	-49.65	5.11	3.00	13.38	-41.38	-13.00	28.38	V

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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	-44.44	4.02	3.00	12.21	-36.25	-13.00	23.25	H
5260.5	-48.67	5.11	3.00	13.26	-40.52	-13.00	27.52	H
3507.0	-52.09	4.02	3.00	12.21	-43.90	-13.00	30.90	V
5260.5	-49.31	5.11	3.00	13.26	-41.16	-13.00	28.16	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	-44.12	4.02	3.00	12.50	-35.64	-13.00	22.64	H
5137.5	-49.12	5.11	3.00	13.38	-40.85	-13.00	27.85	H
3425.0	-53.61	4.02	3.00	12.50	-45.13	-13.00	32.13	V
5137.5	-51.21	5.11	3.00	13.38	-42.94	-13.00	29.94	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	-43.66	4.02	3.00	12.45	-35.23	-13.00	22.23	H
5197.5	-49.08	5.11	3.00	13.38	-40.81	-13.00	27.81	H
3465.0	-51.33	4.02	3.00	12.45	-42.90	-13.00	29.90	V
5197.5	-49.08	5.11	3.00	13.38	-40.81	-13.00	27.81	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	-44.67	4.02	3.00	12.21	-36.48	-13.00	23.48	H
5257.5	-48.70	5.11	3.00	13.26	-40.55	-13.00	27.55	H
3505.0	-51.88	4.02	3.00	12.21	-43.69	-13.00	30.69	V
5257.5	-48.76	5.11	3.00	13.26	-40.61	-13.00	27.61	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	-44.22	4.02	3.00	12.50	-35.74	-13.00	22.74	H
5145.0	-49.70	5.11	3.00	13.38	-41.43	-13.00	28.43	H
3430.0	-54.52	4.02	3.00	12.50	-46.04	-13.00	33.04	V
5145.0	-51.33	5.11	3.00	13.38	-43.06	-13.00	30.06	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	-44.05	4.02	3.00	12.45	-35.62	-13.00	22.62	H
5197.5	-48.39	5.11	3.00	13.38	-40.12	-13.00	27.12	H
3465.0	-51.89	4.02	3.00	12.45	-43.46	-13.00	30.46	V
5197.5	-49.50	5.11	3.00	13.38	-41.23	-13.00	28.23	V

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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	-44.93	4.02	3.00	12.21	-36.74	-13.00	23.74	H
5250.0	-49.33	5.11	3.00	13.26	-41.18	-13.00	28.18	H
3500.0	-52.27	4.02	3.00	12.21	-44.08	-13.00	31.08	V
5250.0	-48.64	5.11	3.00	13.26	-40.49	-13.00	27.49	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	-43.90	4.02	3.00	12.50	-35.42	-13.00	22.42	H
5152.5	-49.56	5.11	3.00	13.38	-41.29	-13.00	28.29	H
3435.0	-53.78	4.02	3.00	12.50	-45.30	-13.00	32.30	V
5152.5	-51.06	5.11	3.00	13.38	-42.79	-13.00	29.79	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	-44.05	4.02	3.00	12.45	-35.62	-13.00	22.62	H
5197.5	-49.11	5.11	3.00	13.38	-40.84	-13.00	27.84	H
3465.0	-52.23	4.02	3.00	12.45	-43.80	-13.00	30.80	V
5197.5	-49.06	5.11	3.00	13.38	-40.79	-13.00	27.79	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	-44.69	4.02	3.00	12.21	-36.50	-13.00	23.50	H
5242.5	-48.97	5.11	3.00	13.26	-40.82	-13.00	27.82	H
3495.0	-51.58	4.02	3.00	12.21	-43.39	-13.00	30.39	V
5242.5	-49.41	5.11	3.00	13.26	-41.26	-13.00	28.26	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	-44.63	4.02	3.00	12.50	-36.15	-13.00	23.15	H
5160.0	-49.33	5.11	3.00	13.38	-41.06	-13.00	28.06	H
3440.0	-53.72	4.02	3.00	12.50	-45.24	-13.00	32.24	V
5160.0	-51.32	5.11	3.00	13.38	-43.05	-13.00	30.05	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	-43.70	4.02	3.00	12.45	-35.27	-13.00	22.27	H
5197.5	-48.80	5.11	3.00	13.38	-40.53	-13.00	27.53	H
3465.0	-51.42	4.02	3.00	12.45	-42.99	-13.00	29.99	V
5197.5	-49.04	5.11	3.00	13.38	-40.77	-13.00	27.77	V

LTE FDD Band 4 Channel Bandwidth 20MHz 16QAM High Channel

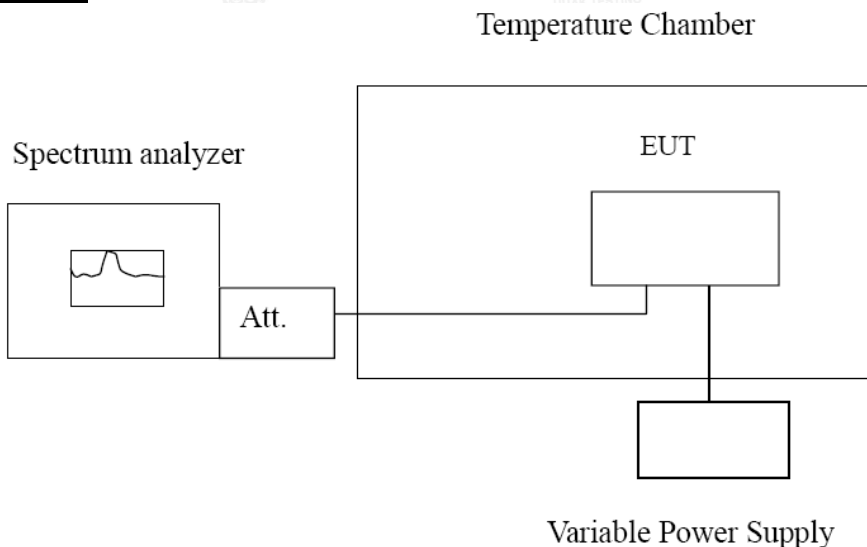
Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.0	-44.49	4.02	3.00	12.21	-36.30	-13.00	23.30	H
5235.0	-48.75	5.11	3.00	13.26	-40.60	-13.00	27.60	H
3490.0	-52.39	4.02	3.00	12.21	-44.20	-13.00	31.20	V
5235.0	-49.43	5.11	3.00	13.26	-41.28	-13.00	28.28	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.

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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).

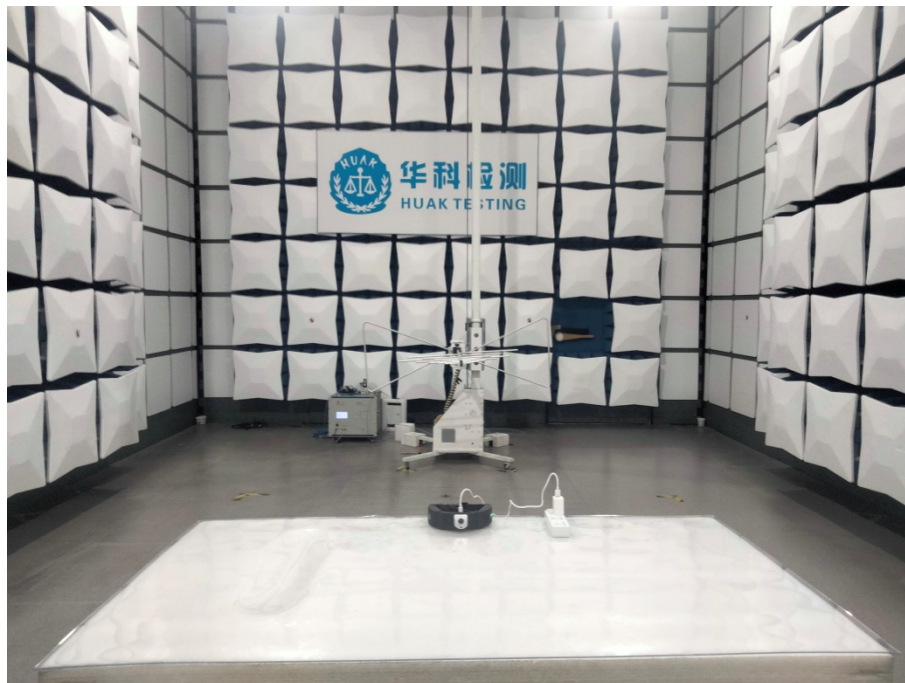
LTE FDD Band 4				
DC Power(V)	Temperature (°C)	Frequency error(Hz)	Frequency error(ppm)	Verdict
4.25	20	7.88	0.004606	PASS
5.0	20	8.38	0.004899	PASS
5.75	20	2.95	0.001724	PASS
5.0	-30	6.57	0.003841	PASS
5.0	-20	3.18	0.001859	PASS
5.0	-10	-4.26	-0.002490	PASS
5.0	0	8.35	0.004881	PASS
5.0	10	5.05	0.002952	PASS
5.0	20	-3.78	-0.002210	PASS
5.0	30	3.05	0.001783	PASS
5.0	40	-5.61	-0.003279	PASS
5.0	50	-4.88	-0.002853	PASS

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

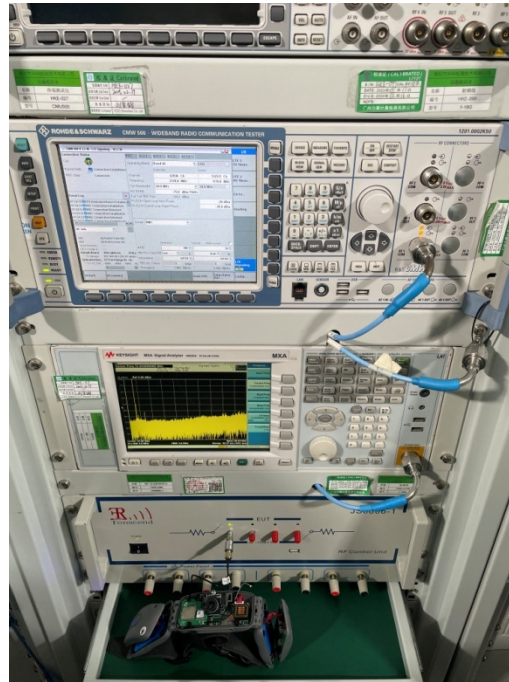
LTE FDD Band 4				
DC Power(V)	Temperature (°C)	Frequency error(Hz)	Frequency error(ppm)	Verdict
4.25	20	-3.91	-0.002286	PASS
5.0	20	2.73	0.001596	PASS
5.75	20	3.16	0.001847	PASS
5.0	-30	-3.53	-0.002063	PASS
5.0	-20	-6.75	-0.003946	PASS
5.0	-10	-5.02	-0.002934	PASS
5.0	0	5.59	0.003227	PASS
5.0	10	5.26	0.003036	PASS
5.0	20	9.67	0.005582	PASS
5.0	30	5.91	0.003411	PASS
5.0	40	6.98	0.004029	PASS
5.0	50	8.35	0.004820	PASS

4 Test Setup Photos of the EUT

Radiated Emission



RF Conducted Emission



5 Photos of the EUT

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

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