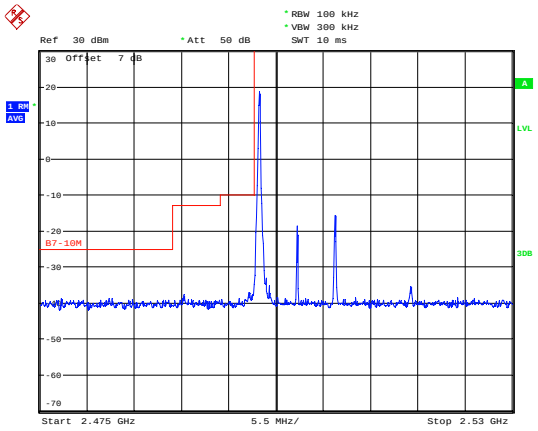
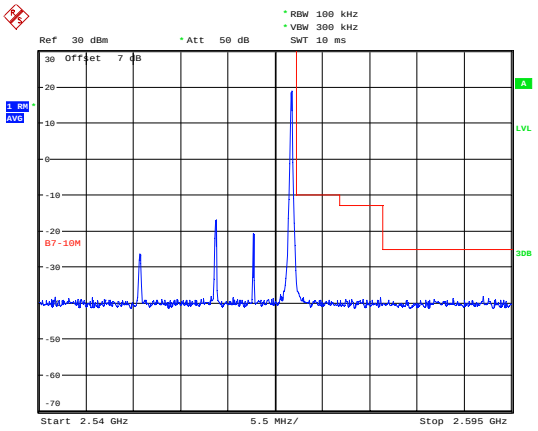
LTE Band 7 QPSK 10MHz CH-Low, 1 RB



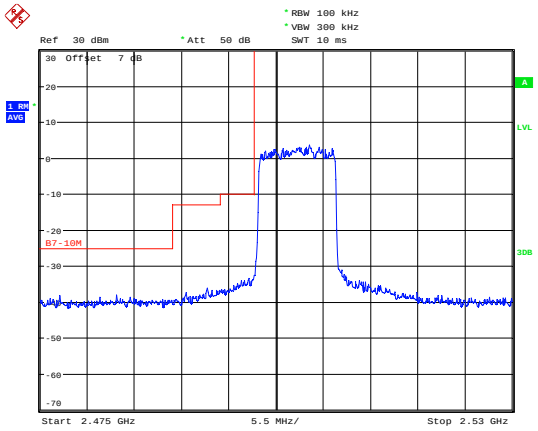
Date: 3.JUL.2019 18:55:36

LTE Band 7 QPSK 10MHz CH-High, 1 RB



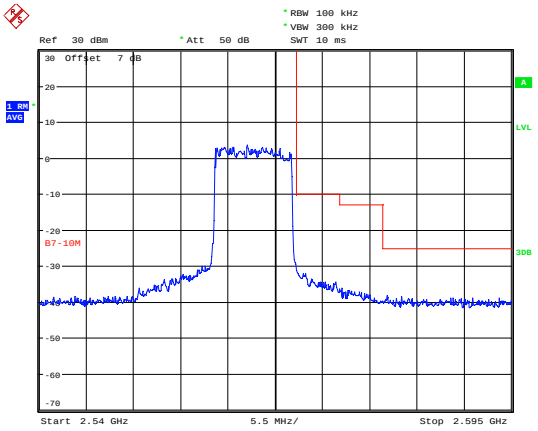
Date: 3.JUL.2019 18:54:17

LTE Band 7 QPSK 10MHz CH-Low, 100%RB



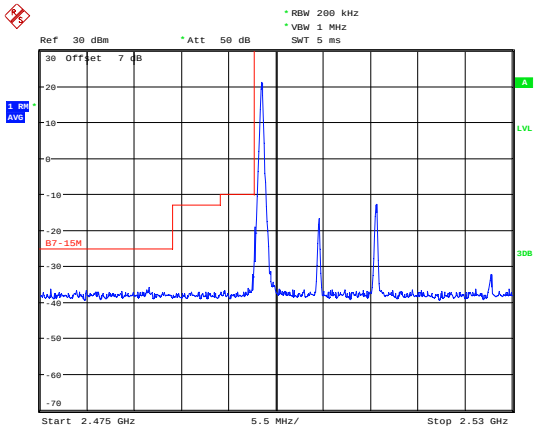
Date: 3.JUL.2019 18:56:03

LTE Band 7 QPSK 10MHz CH-High, 100%RB



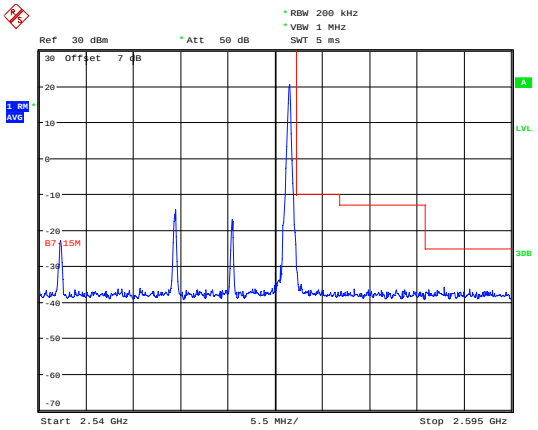
Date: 3.JUL.2019 18:54:43

LTE Band 7 QPSK 15MHz CH-Low, 1 RB



Date: 3.JUL.2019 20:10:05

LTE Band 7 QPSK 15MHz CH-High, 1 RB



Date: 3.JUL.2019 20:14:08

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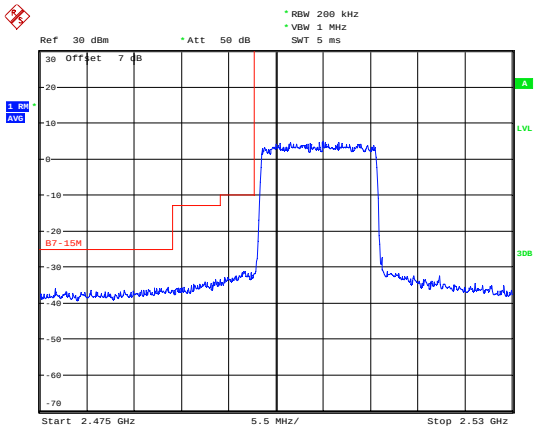
LTE Band 7 QPSK 15MHz CH-Low, 100%RB



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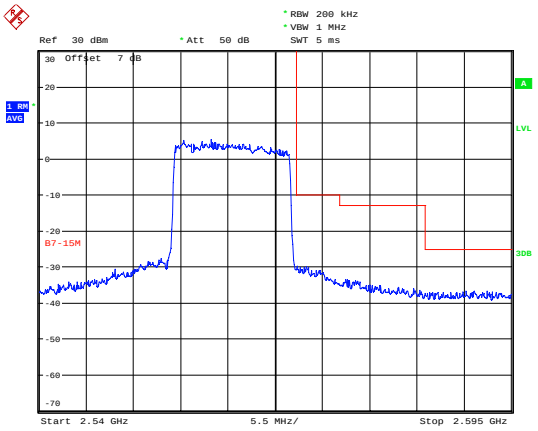
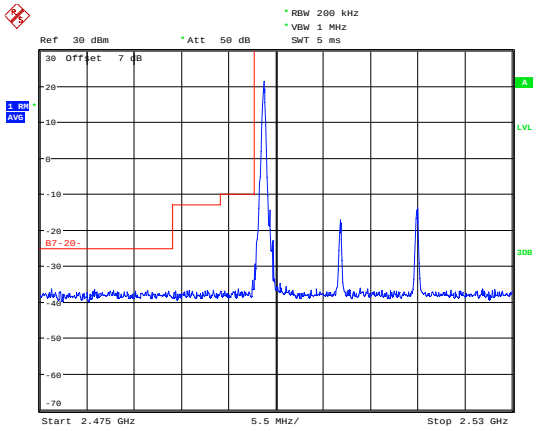
LTE Band 7 QPSK 15MHz CH-High, 100%RB



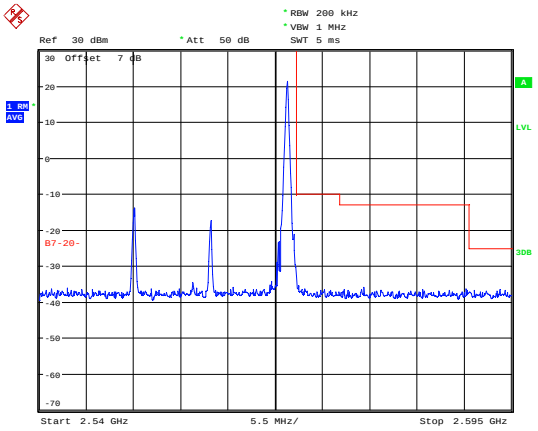
Date: 3.JUL.2019 20:14:33

LTE Band 7 QPSK 20MHz CH-Low, 1 RB



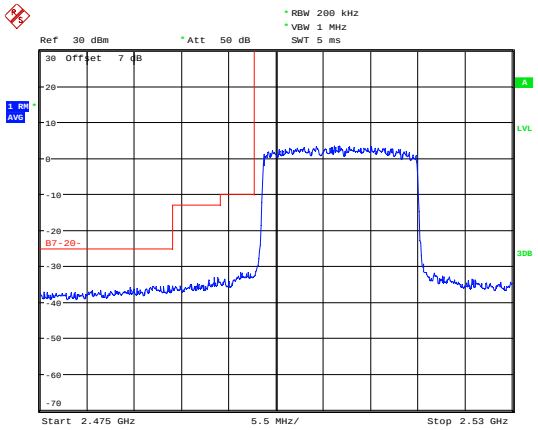
Date: 3.JUL.2019 20:11:21

LTE Band 7 QPSK 20MHz CH-High, 1 RB



Date: 3.JUL.2019 20:12:49

LTE Band 7 QPSK 20MHz CH-Low, 100%RB



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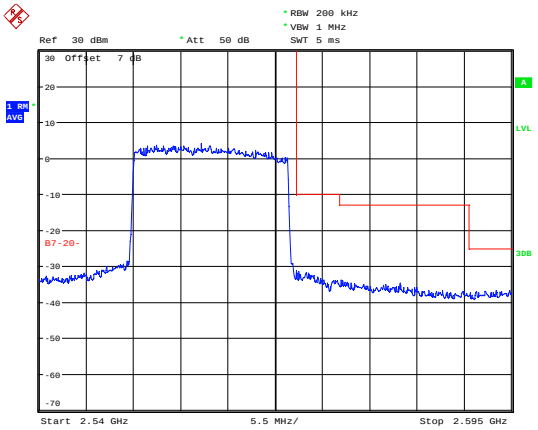
LTE Band 7 QPSK 20MHz CH-High, 100%RB



Date: 3.JUL.2019 20:13:17

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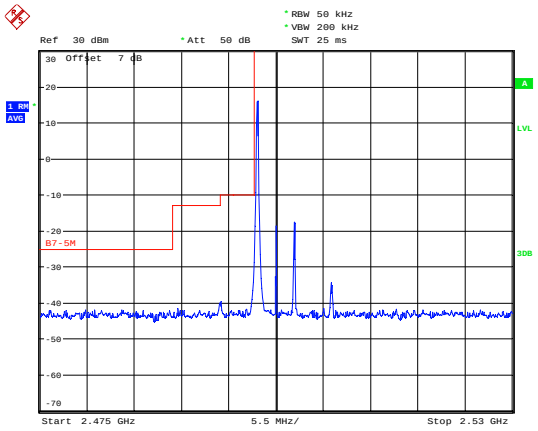
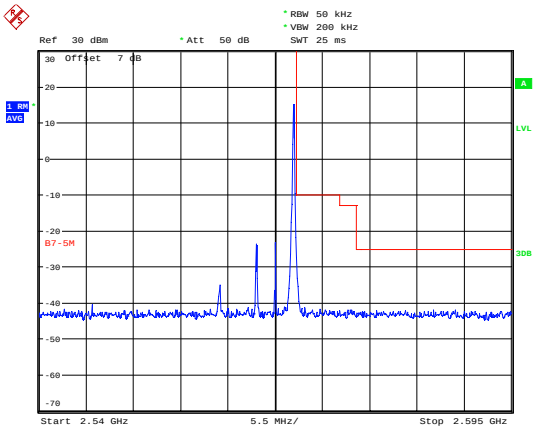
LTE Band 7 16QAM 5MHz CH-Low, 1 RB



Date: 3.JUL.2019 18:49:18

LTE Band 7 16QAM 5MHz CH-High, 1 RB



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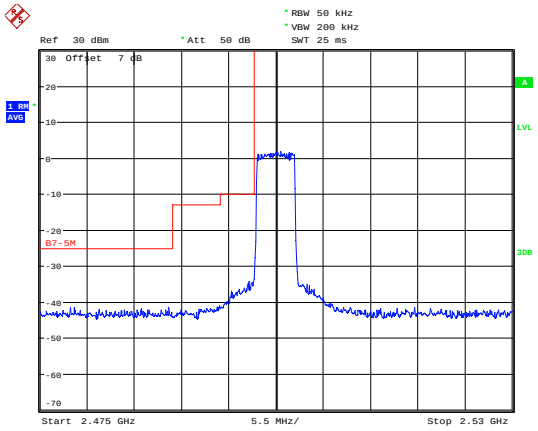
LTE Band 7 16QAM 5MHz CH-Low, 100%RB



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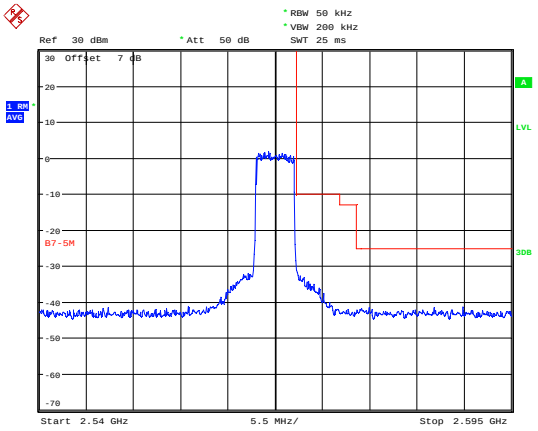
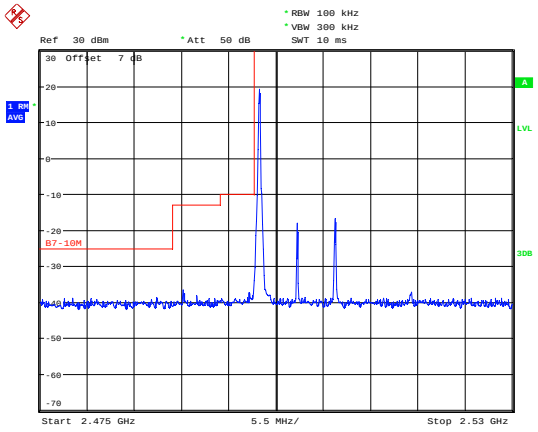
LTE Band 7 16QAM 5MHz CH-High, 100%RB



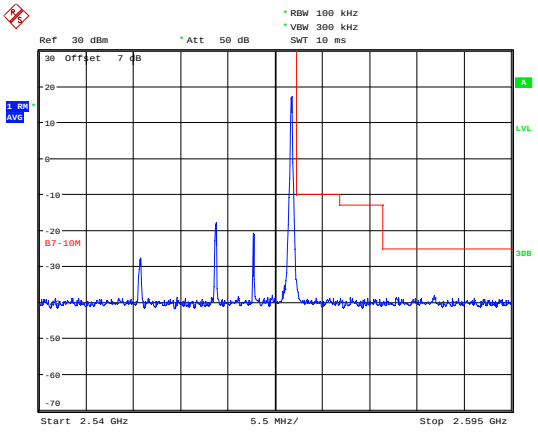
Date: 3.JUL.2019 18:51:15

LTE Band 7 16QAM 10MHz CH-Low, 1 RB



Date: 3.JUL.2019 18:55:51

LTE Band 7 16QAM 10MHz CH-High, 1 RB



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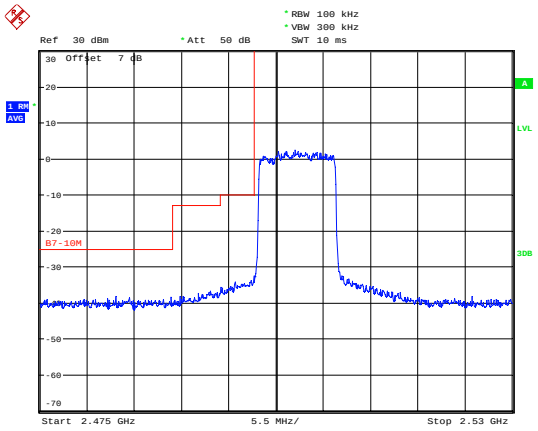
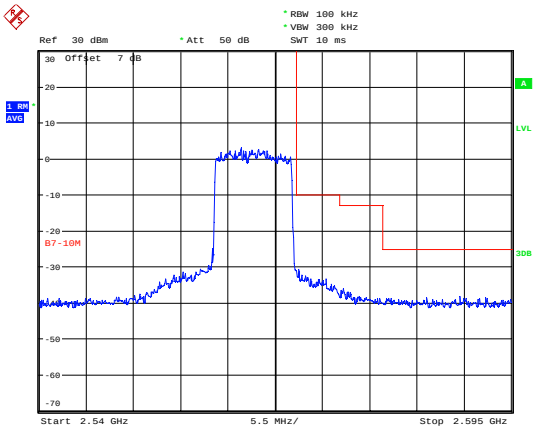
LTE Band 7 16QAM 10MHz CH-Low, 100%RB



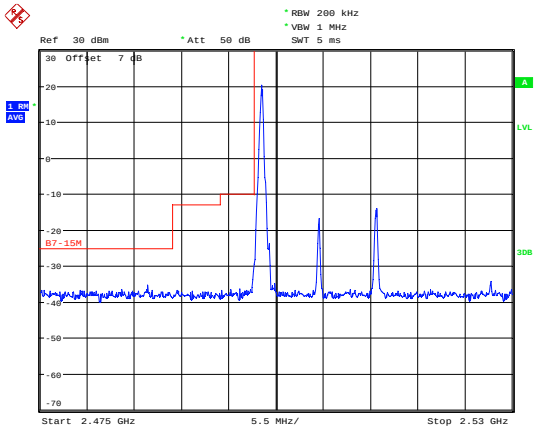
Date: 3.JUL.2019 18:56:23

LTE Band 7 16QAM 10MHz CH-High, 100%RB



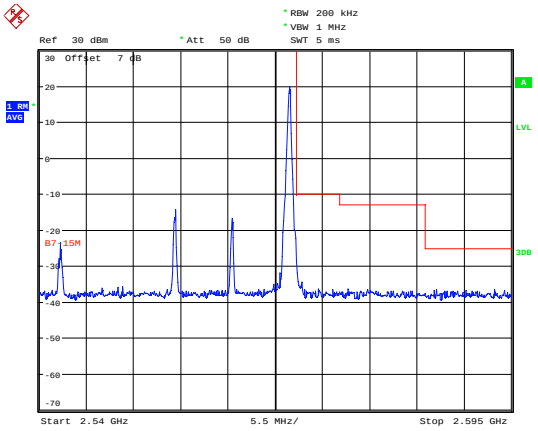
Date: 3.JUL.2019 18:54:58

LTE Band 7 16QAM 15MHz CH-Low, 1 RB



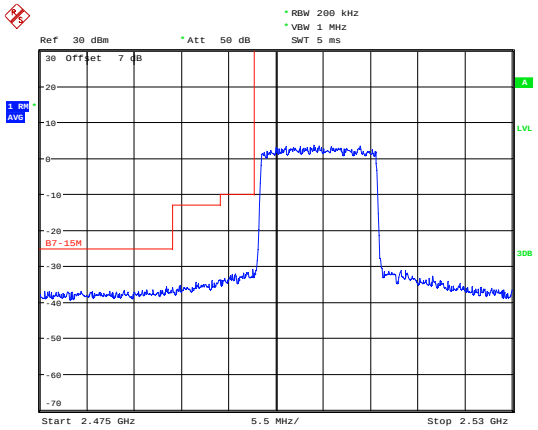
Date: 3.JUL.2019 20:10:18

LTE Band 7 16QAM 15MHz CH-High, 1 RB



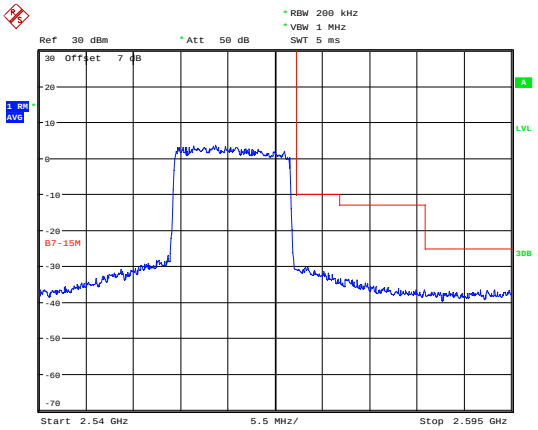
Date: 3.JUL.2019 20:14:21

LTE Band 7 16QAM 15MHz CH-Low, 100%RB



Date: 3.JUL.2019 20:10:43

LTE Band 7 16QAM 15MHz CH-High, 100%RB



Date: 3.JUL.2019 20:14:43

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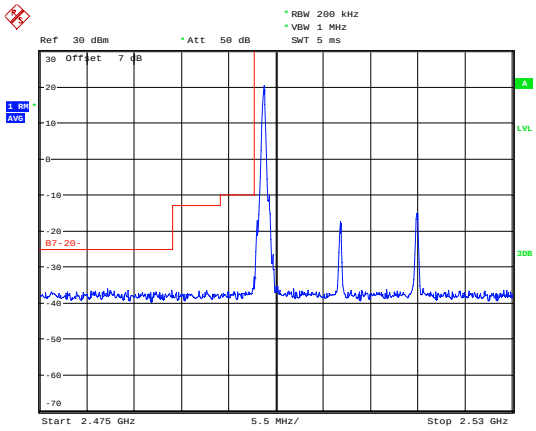
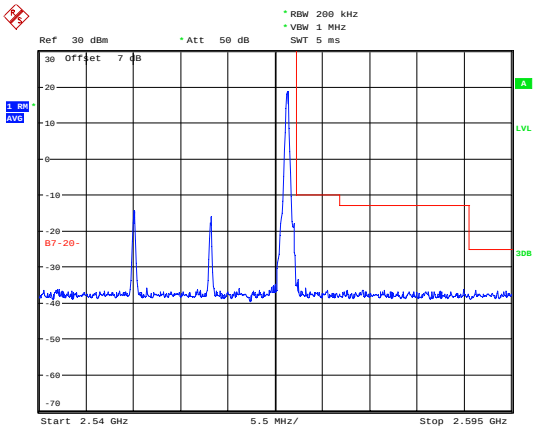
LTE Band 7 16QAM 20MHz CH-Low, 1 RB



Date: 3.JUL.2019 20:11:31

LTE Band 7 16QAM 20MHz CH-High, 1 RB



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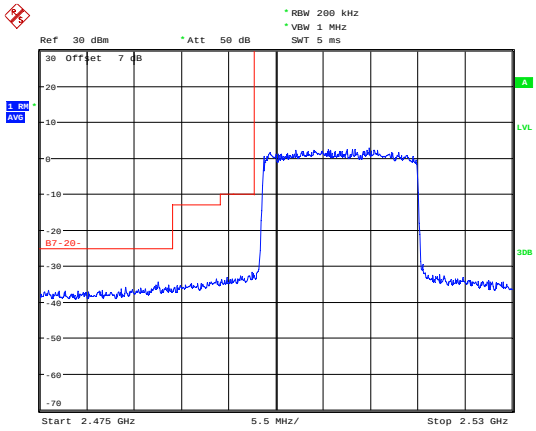
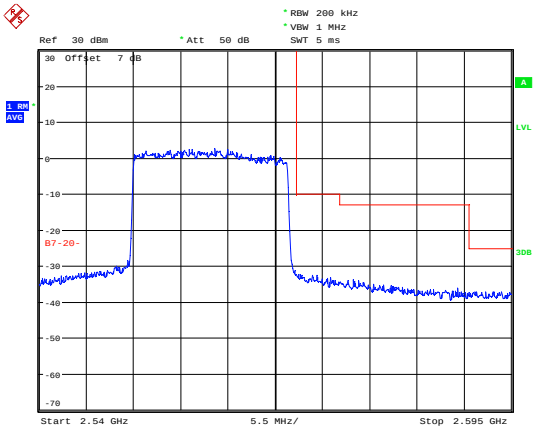
LTE Band 7 16QAM 20MHz CH-Low, 100%RB



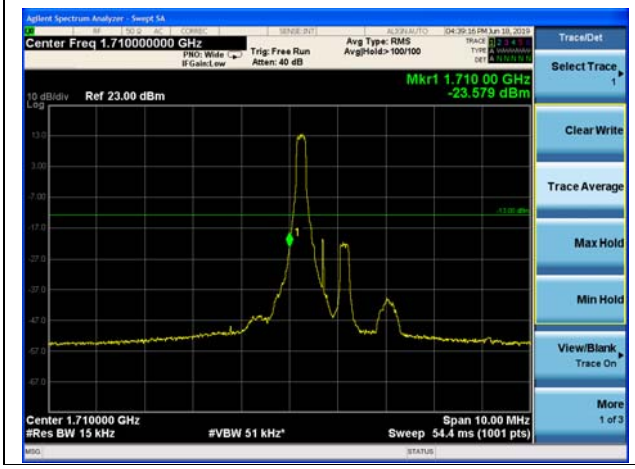
Date: 3.JUL.2019 20:11:51

LTE Band 7 16QAM 20MHz CH-High, 100%RB



Date: 3.JUL.2019 20:13:32

LTE Band 66 QPSK 1.4MHz CH-Low, 1 RB



LTE Band 66 QPSK 1.4MHz CH-High, 1 RB

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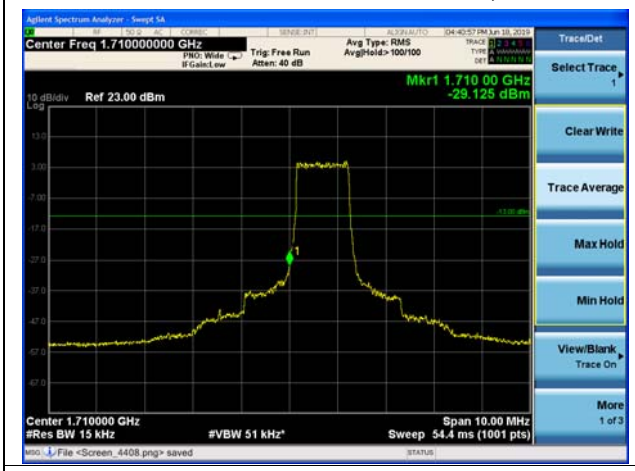
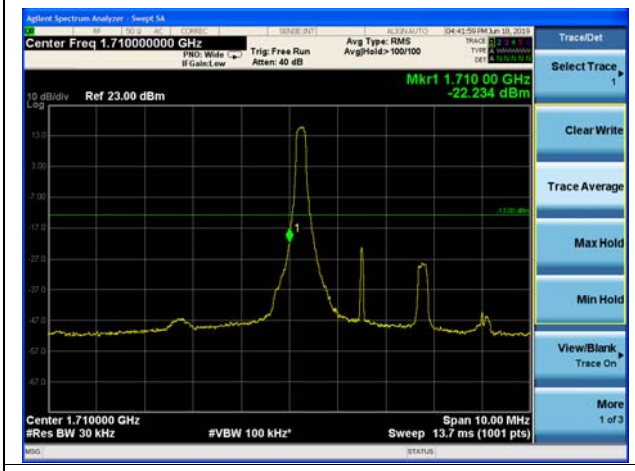
LTE Band 66 QPSK 1.4MHz CH-Low, 100%RB

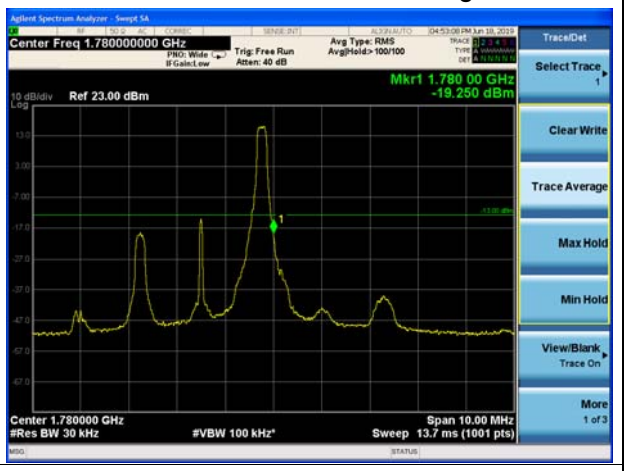


LTE Band 66 QPSK 1.4MHz CH-High, 100%RB

LTE Band 66 QPSK 3MHz CH-Low, 1 RB



LTE Band 66 QPSK 3MHz CH-High, 1 RB



LTE Band 66 QPSK 3MHz CH-Low, 100%RB

LTE Band 66 QPSK 3MHz CH-High, 100%RB

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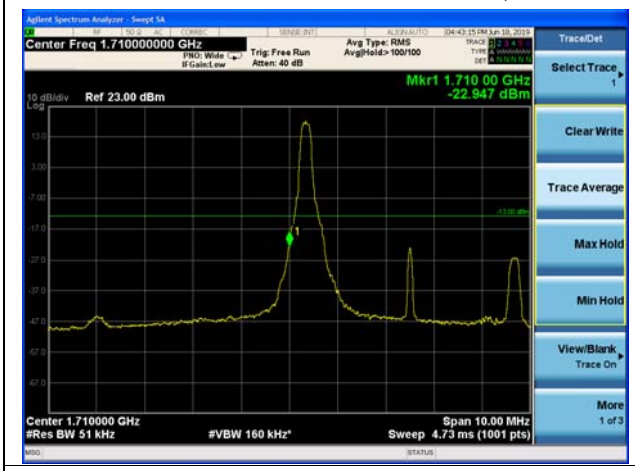
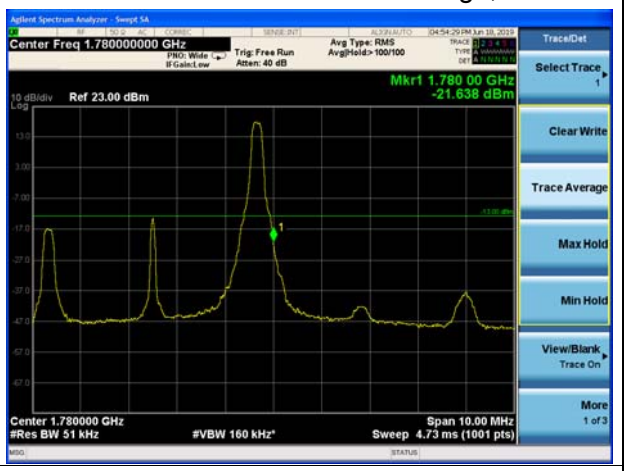
LTE Band 66 QPSK 5MHz CH-Low, 1 RB



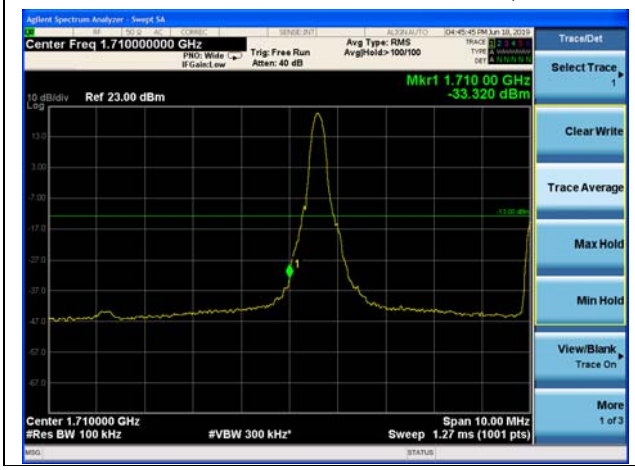
LTE Band 66 QPSK 5MHz CH-High, 1 RB



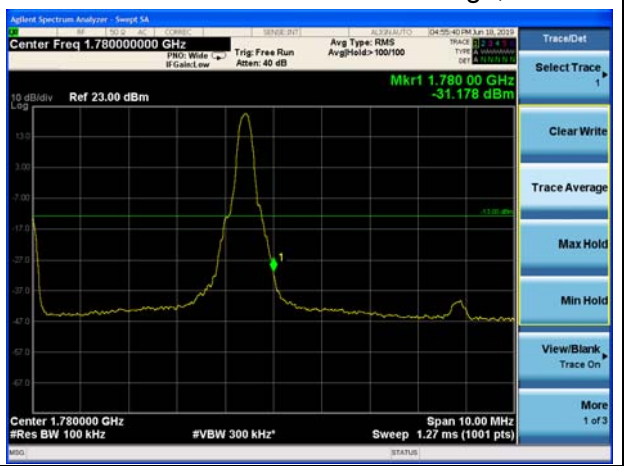
LTE Band 66 QPSK 5MHz CH-Low, 100%RB

LTE Band 66 QPSK 5MHz CH-High, 100%RB

LTE Band 66 QPSK 10MHz CH-Low, 1 RB



LTE Band 66 QPSK 10MHz CH-High, 1 RB



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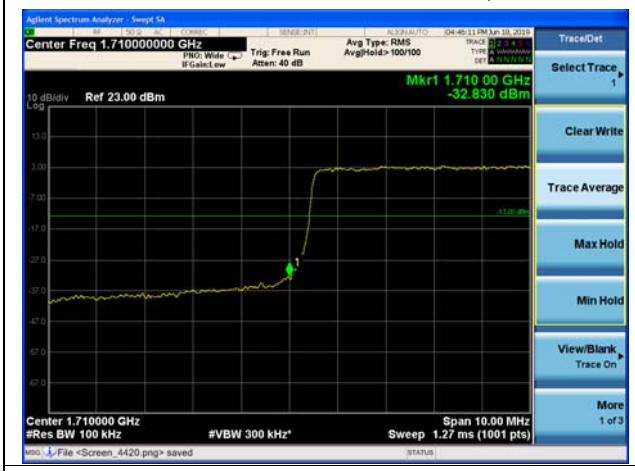
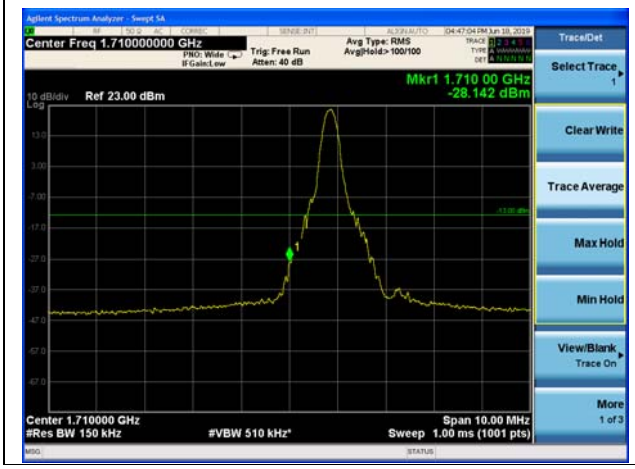
LTE Band 66 QPSK 10MHz CH-Low, 100%RB



LTE Band 66 QPSK 10MHz CH-High, 100%RB

LTE Band 66 QPSK 15MHz CH-Low, 1 RB



LTE Band 66 QPSK 15MHz CH-High, 1 RB

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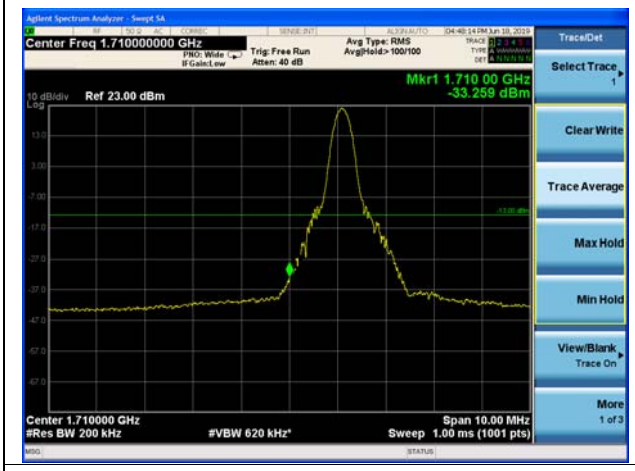
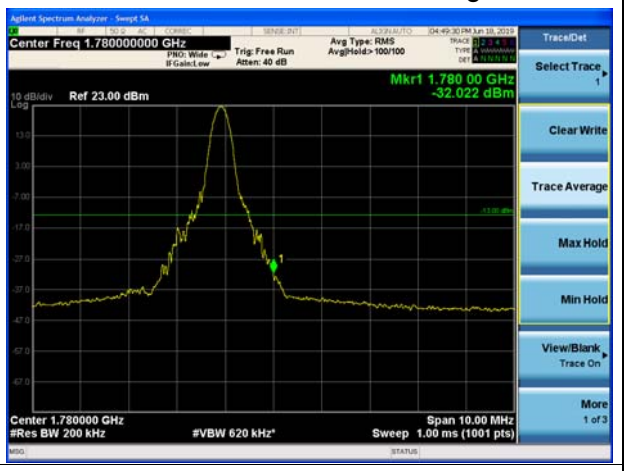
LTE Band 66 QPSK 15MHz CH-Low, 100%RB

LTE Band 66 QPSK 15MHz CH-High, 100%RB

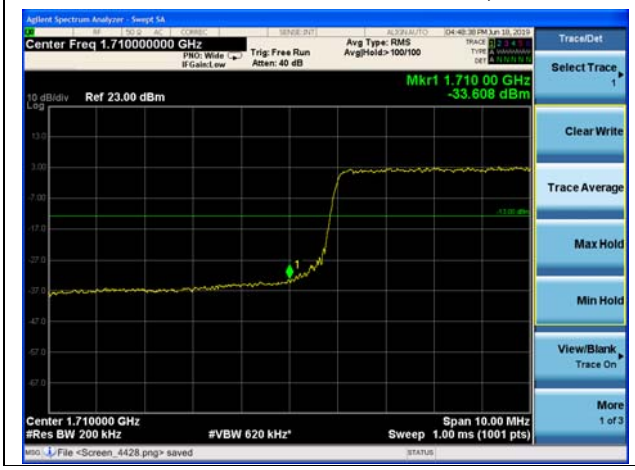
LTE Band 66 QPSK 20MHz CH-Low, 1 RB



LTE Band 66 QPSK 20MHz CH-High, 1 RB



LTE Band 66 QPSK 20MHz CH-Low, 100%RB



LTE Band 66 QPSK 20MHz CH-High, 100%RB

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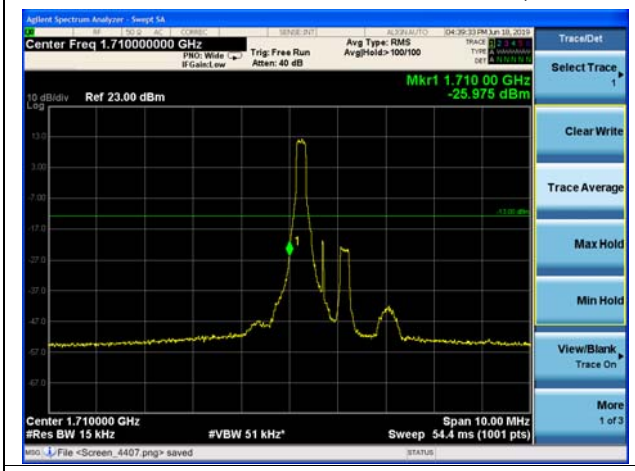
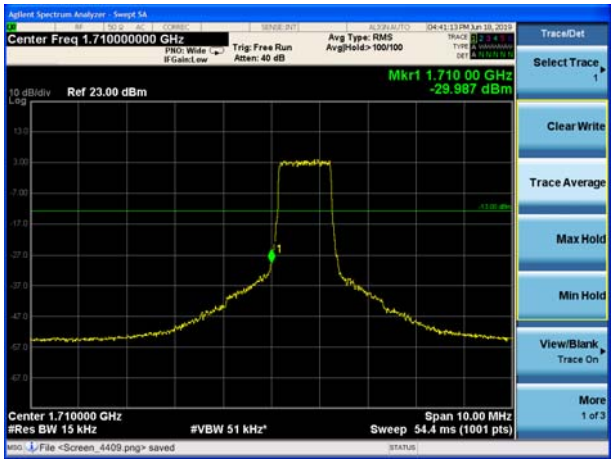
LTE Band 66 16QAM 1.4MHz CH-Low, 1 RB

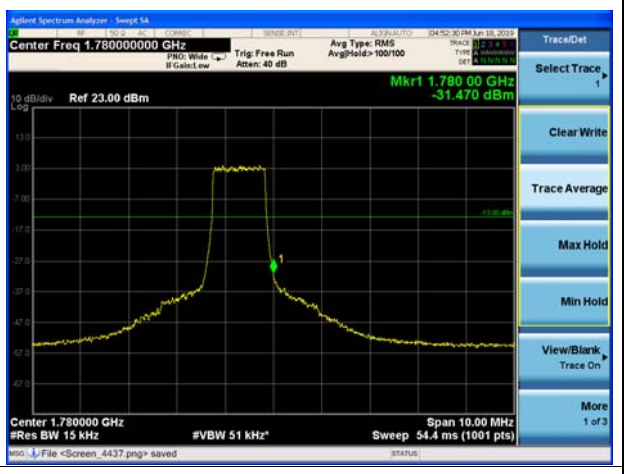


LTE Band 66 16QAM 1.4MHz CH-High, 1 RB

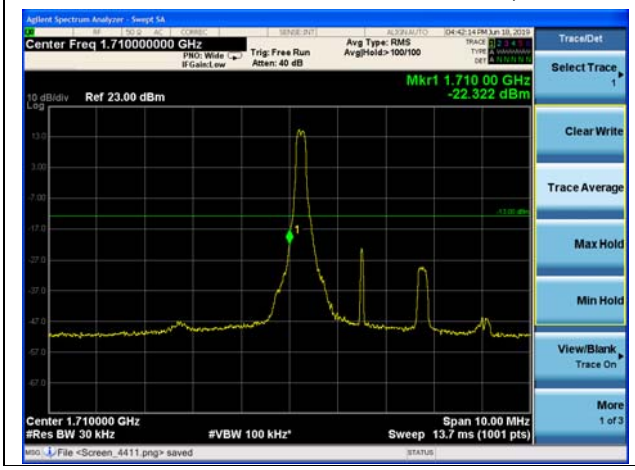
LTE Band 66 16QAM 1.4MHz CH-Low, 100%RB



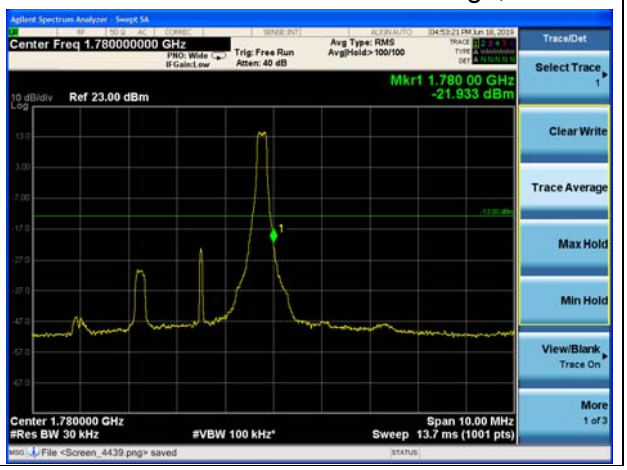
LTE Band 66 16QAM 1.4MHz CH-High, 100%RB



LTE Band 66 16QAM 3MHz CH-Low, 1 RB



LTE Band 66 16QAM 3MHz CH-High, 1 RB



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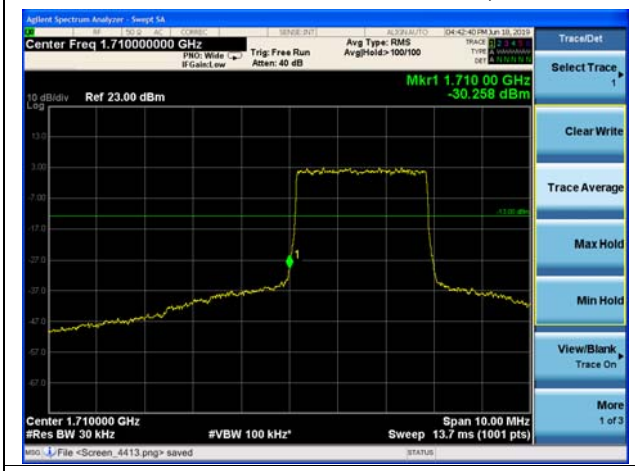
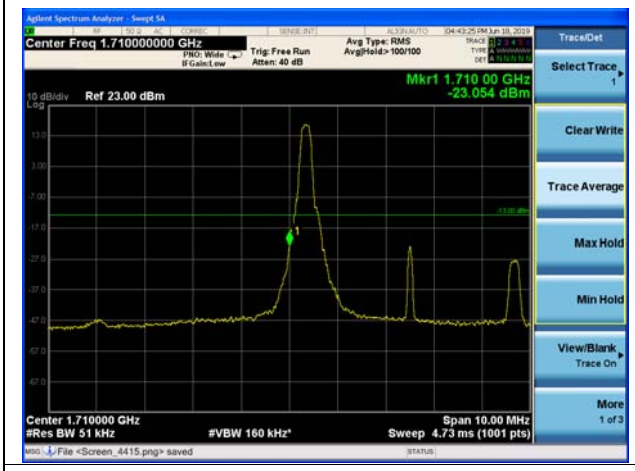
LTE Band 66 16QAM 3MHz CH-Low, 100%RB

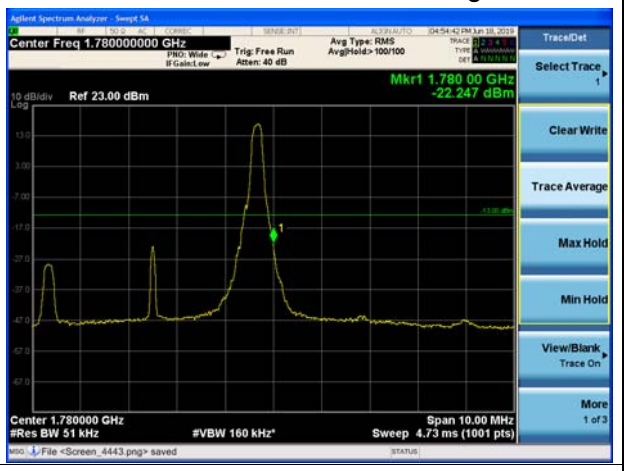


LTE Band 66 16QAM 3MHz CH-High, 100%RB

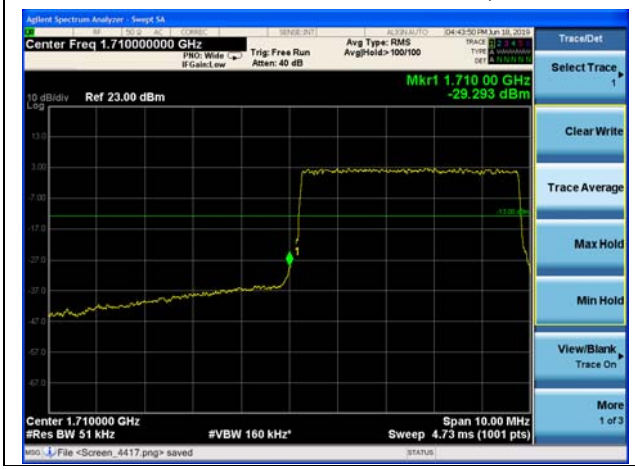
LTE Band 66 16QAM 5MHz CH-Low, 1 RB



LTE Band 66 16QAM 5MHz CH-High, 1 RB



LTE Band 66 16QAM 5MHz CH-Low, 100%RB



LTE Band 66 16QAM 5MHz CH-High, 100%RB

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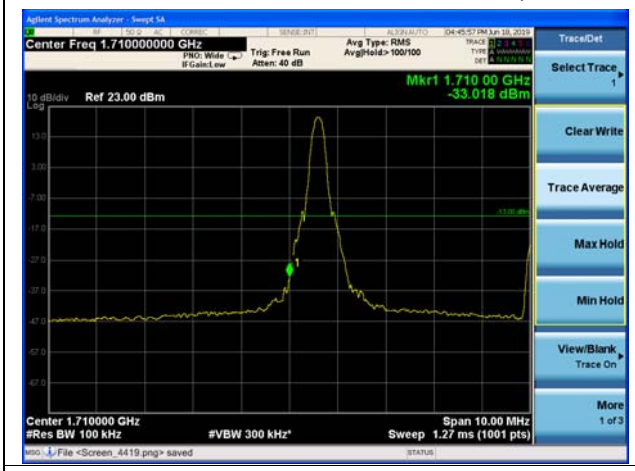
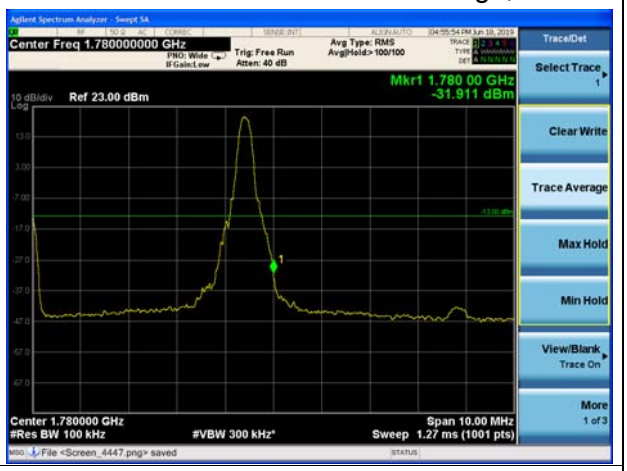
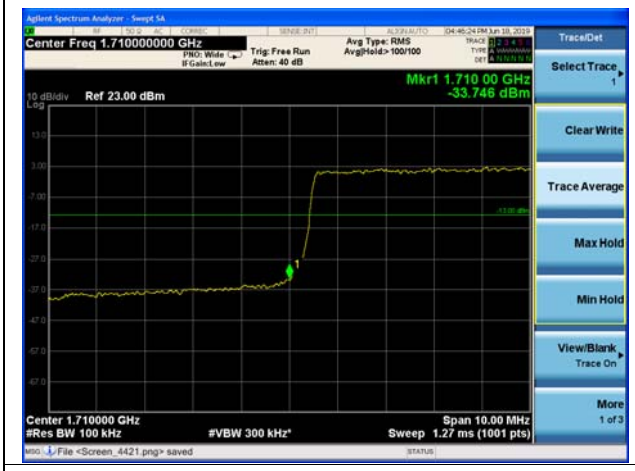
LTE Band 66 16QAM 10MHz CH-Low, 1 RB



LTE Band 66 16QAM 10MHz CH-High, 1 RB

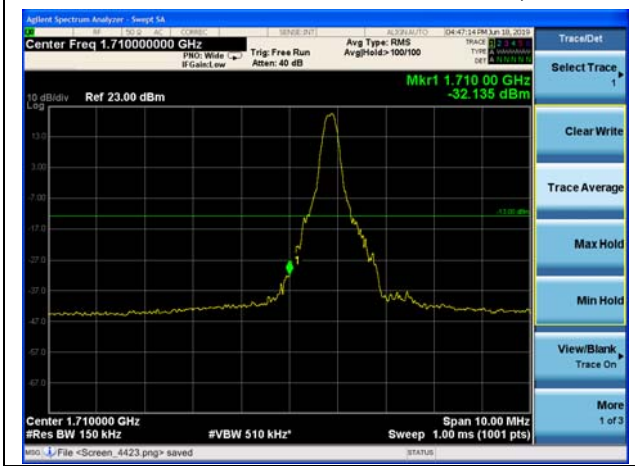


LTE Band 66 16QAM 10MHz CH-Low, 100%RB

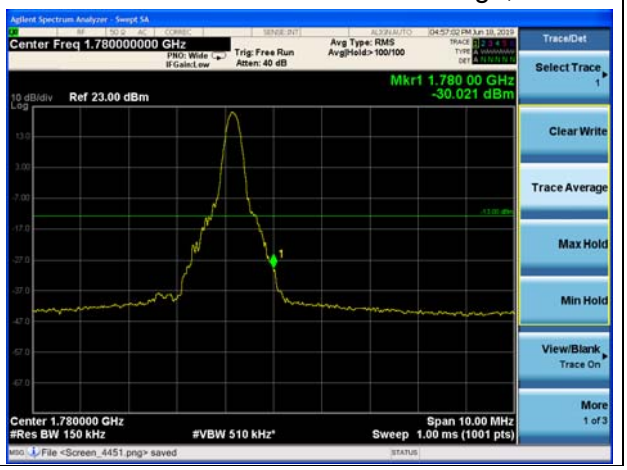


LTE Band 66 16QAM 10MHz CH-High, 100%RB

LTE Band 66 16QAM 15MHz CH-Low, 1 RB



LTE Band 66 16QAM 15MHz CH-High, 1 RB



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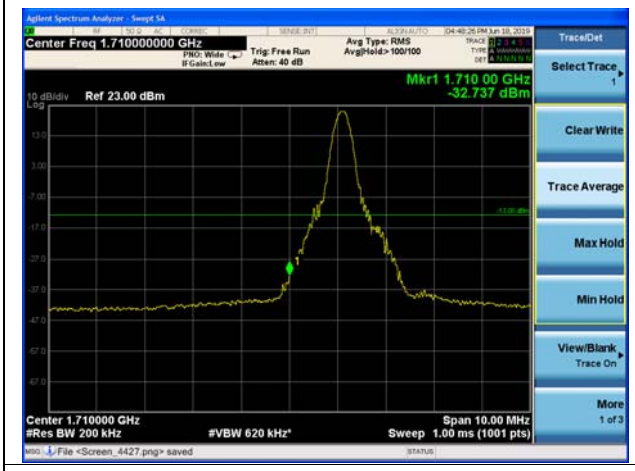
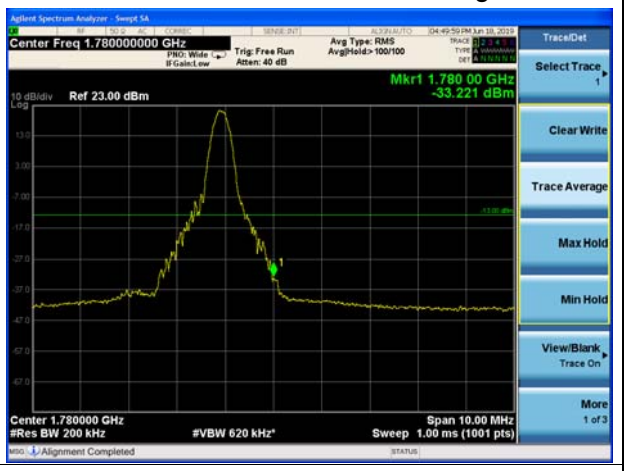
LTE Band 66 16QAM 15MHz CH-Low, 100%RB

LTE Band 66 16QAM 15MHz CH-High, 100%RB

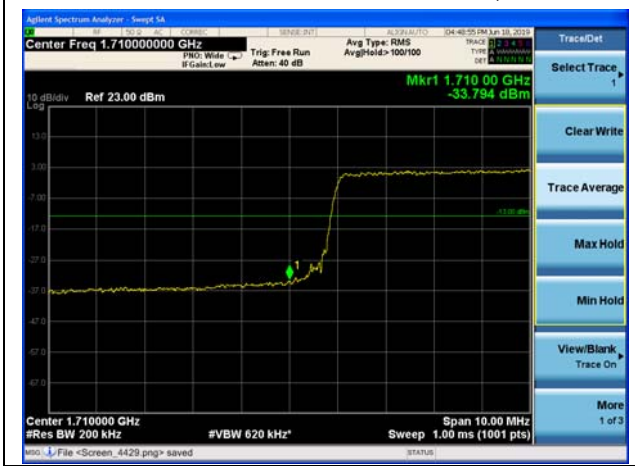
LTE Band 66 16QAM 20MHz CH-Low, 1 RB



LTE Band 66 16QAM 20MHz CH-High, 1 RB



LTE Band 66 16QAM 20MHz CH-Low, 100%RB



LTE Band 66 16QAM 20MHz CH-High, 100%RB

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5.5 Peak-to-Average Power Ratio (PAPR)

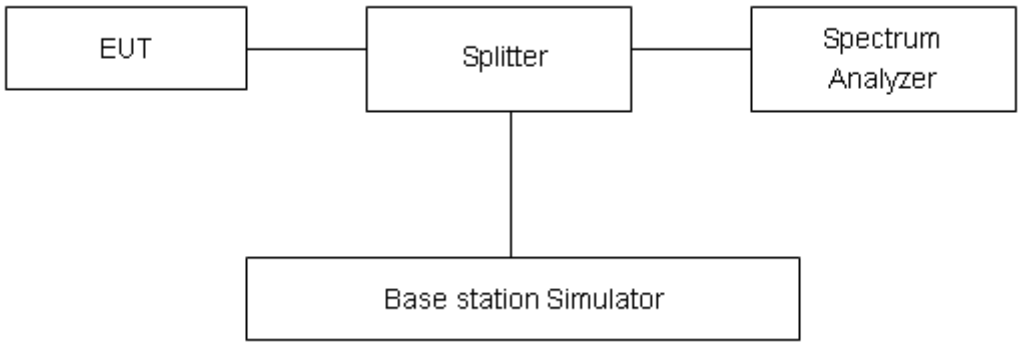
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Measure the total peak power and record as PPk. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (*e.g.*, dBm). Determine the PAPR from:
PAPR (dB) = PPk (dBm) - PAvg (dBm).

Test Setup



Limits

Rule Part 27.50(d)(5) Equipment employed must be authorized in accordance with the provisions of 24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for thenormal distribution is with the coverage factor k = 2, U= 0.4 dB.

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Test Results

WCDMA Band IV	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
RMC	1312	1712.4	27.40	24.29	3.11	≤13	PASS
	1413	1732.6	27.50	24.34	3.16	≤13	PASS
	1513	1752.6	27.56	24.43	3.13	≤13	PASS

LTE Band 4								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	19957	1710.7	26.74	21.50	5.24	≤13	PASS
		20175	1732.5	26.75	21.41	5.34	≤13	PASS
		20393	1754.3	26.91	21.66	5.25	≤13	PASS
	3	19965	1711.5	26.83	21.50	5.33	≤13	PASS
		20175	1732.5	26.72	21.36	5.36	≤13	PASS
		20385	1753.5	27.01	21.71	5.30	≤13	PASS
	5	19975	1712.5	26.85	21.52	5.33	≤13	PASS
		20175	1732.5	26.81	21.42	5.39	≤13	PASS
		20375	1752.5	26.90	21.60	5.30	≤13	PASS
	10	20000	1715	26.92	21.64	5.28	≤13	PASS
		20175	1732.5	26.74	21.39	5.35	≤13	PASS
		20350	1750	26.79	21.52	5.27	≤13	PASS
	15	20025	1717.5	27.10	21.62	5.48	≤13	PASS
		20175	1732.5	26.96	21.44	5.52	≤13	PASS
		20325	1747.5	26.94	21.47	5.47	≤13	PASS
	20	20050	1720	26.88	21.62	5.26	≤13	PASS
		20175	1732.5	26.84	21.52	5.32	≤13	PASS
		20300	1745	26.78	21.51	5.27	≤13	PASS
16QAM	1.4	19957	1710.7	26.47	20.37	6.10	≤13	PASS
		20175	1732.5	26.81	20.63	6.18	≤13	PASS
		20393	1754.3	26.95	20.84	6.11	≤13	PASS
	3	19965	1711.5	26.72	20.55	6.17	≤13	PASS
		20175	1732.5	26.63	20.40	6.23	≤13	PASS
		20385	1753.5	26.74	20.57	6.17	≤13	PASS
	5	19975	1712.5	26.86	20.72	6.14	≤13	PASS
		20175	1732.5	26.66	20.45	6.21	≤13	PASS
		20375	1752.5	26.73	20.60	6.13	≤13	PASS
	10	20000	1715	26.77	20.64	6.13	≤13	PASS
		20175	1732.5	26.71	20.54	6.17	≤13	PASS
		20350	1750	26.68	20.55	6.13	≤13	PASS

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	15	20025	1717.5	26.86	20.63	6.23	≤13	PASS
		20175	1732.5	26.82	20.56	6.26	≤13	PASS
		20325	1747.5	26.72	20.51	6.21	≤13	PASS
	20	20050	1720	26.66	20.53	6.13	≤13	PASS
		20175	1732.5	26.70	20.54	6.16	≤13	PASS
		20300	1745	26.77	20.65	6.12	≤13	PASS

LTE Band 7								
Modulation	**Bandwidth (MHz)**	**Channel**	**Frequency (MHz)**	**Peak (dBm)**	**Avg (dBm)**	**PAPR (dB)**	**Limit (dB)**	**Conclusion**
QPSK	5	20775	2502.5	27.05	21.85	5.20	≤13	PASS
		21100	2535	27.23	21.72	5.51	≤13	PASS
		21425	2567.5	27.04	21.54	5.50	≤13	PASS
	10	20800	2505	26.72	21.50	5.22	≤13	PASS
		21100	2535	26.94	21.47	5.47	≤13	PASS
		21400	2565	26.98	21.55	5.43	≤13	PASS
	15	20825	2507.5	27.11	21.77	5.34	≤13	PASS
		21100	2535	27.24	21.53	5.71	≤13	PASS
		21375	2562.5	27.09	21.41	5.68	≤13	PASS
	20	20850	2510	26.74	21.50	5.24	≤13	PASS
		21100	2535	26.73	21.28	5.45	≤13	PASS
		21350	2560	26.77	21.38	5.39	≤13	PASS
16QAM	5	20775	2502.5	26.88	20.80	6.08	≤13	PASS
		21100	2535	27.04	20.67	6.37	≤13	PASS
		21425	2567.5	27.05	20.67	6.38	≤13	PASS
	10	20800	2505	26.49	20.38	6.11	≤13	PASS
		21100	2535	26.71	20.35	6.36	≤13	PASS
		21400	2565	26.75	20.39	6.36	≤13	PASS
	15	20825	2507.5	26.87	20.73	6.14	≤13	PASS
		21100	2535	27.00	20.50	6.50	≤13	PASS
		21375	2562.5	26.91	20.43	6.48	≤13	PASS
	20	20850	2510	26.51	20.36	6.15	≤13	PASS
		21100	2535	26.61	20.27	6.34	≤13	PASS
		21350	2560	26.58	20.27	6.31	≤13	PASS

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LTE Band 66								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	131979	1710.7	27.12	21.95	5.17	≤13	PASS
		132322	1745	27.08	21.80	5.28	≤13	PASS
		132665	1779.3	27.10	22.27	4.83	≤13	PASS
	3	131987	1711.5	27.23	21.97	5.26	≤13	PASS
		132322	1745	27.21	21.91	5.30	≤13	PASS
		132657	1778.5	27.11	22.12	4.99	≤13	PASS
	5	131997	1712.5	27.42	22.18	5.24	≤13	PASS
		132322	1745	27.33	21.99	5.34	≤13	PASS
		132647	1777.5	27.18	22.24	4.94	≤13	PASS
	10	132022	1715	27.42	22.19	5.23	≤13	PASS
		132322	1745	27.37	22.12	5.25	≤13	PASS
		132622	1775	27.21	22.33	4.88	≤13	PASS
	15	132047	1717.5	27.50	22.05	5.45	≤13	PASS
		132322	1745	27.35	21.92	5.43	≤13	PASS
		132597	1772.5	27.31	22.33	4.98	≤13	PASS
	20	132072	1720	27.29	22.06	5.23	≤13	PASS
		132322	1745	27.12	21.88	5.24	≤13	PASS
		132572	1770	27.10	22.14	4.96	≤13	PASS
16QAM	1.4	131979	1710.7	26.99	20.96	6.03	≤13	PASS
		132322	1745	26.94	20.80	6.14	≤13	PASS
		132665	1779.3	27.12	21.52	5.60	≤13	PASS
	3	131987	1711.5	27.04	20.92	6.12	≤13	PASS
		132322	1745	27.10	20.94	6.16	≤13	PASS
		132657	1778.5	27.05	21.24	5.81	≤13	PASS
	5	131997	1712.5	27.35	21.30	6.05	≤13	PASS
		132322	1745	27.11	20.95	6.16	≤13	PASS
		132647	1777.5	27.15	21.43	5.72	≤13	PASS
	10	132022	1715	27.18	21.10	6.08	≤13	PASS
		132322	1745	27.27	21.17	6.10	≤13	PASS
		132622	1775	27.05	21.29	5.76	≤13	PASS
	15	132047	1717.5	27.35	21.16	6.19	≤13	PASS
		132322	1745	27.14	20.96	6.18	≤13	PASS
		132597	1772.5	27.21	21.48	5.73	≤13	PASS
	20	132072	1720	27.26	21.16	6.10	≤13	PASS
		132322	1745	27.09	21.01	6.08	≤13	PASS
		132572	1770	27.10	21.30	5.80	≤13	PASS

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5.6 Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -40°C to +85°C in 10°C step size.

(1)With all power removed, the temperature was decreased to -10°C and permitted to stabilize for three hours.

(2)Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -40°C to +85°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

Frequency Stability (Voltage Variation)

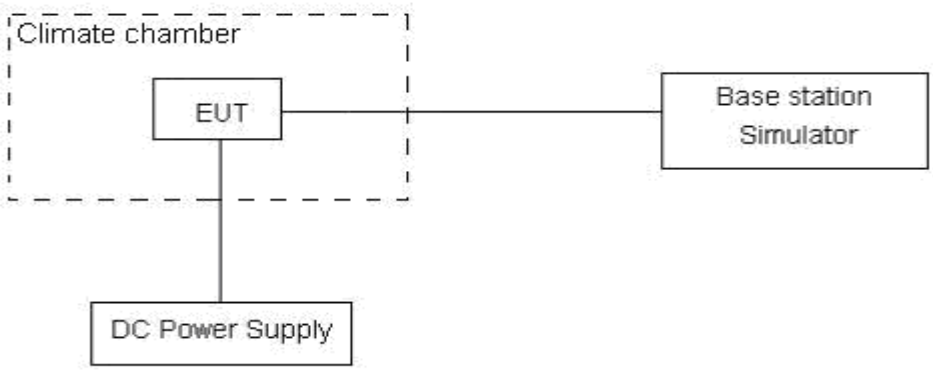
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.3 V and 4.3 V, with a nominal voltage of 3.8V.

Test setup



Limits

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor k = 3,U=0.01ppm.

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Test Result

WCDMA Band IV

WCDMA Band 4						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
Temperature	Voltage	QPSK	BPSK	QPSK	BPSK	
Normal（25℃）	Normal	8.99	14.86	0.00478	0.00791	PASS
Normal（85℃）		2.42	10.75	0.00129	0.00572	PASS
Normal（80℃）		14.67	1.02	0.00780	0.00054	PASS
Normal（70℃）		2.65	16.54	0.00141	0.00880	PASS
Extreme（60℃）		11.98	9.50	0.00637	0.00505	PASS
Extreme（50℃）		8.44	7.84	0.00449	0.00417	PASS
Extreme（40℃）		3.50	7.39	0.00186	0.00393	PASS
Extreme（30℃）		10.29	6.88	0.00548	0.00366	PASS
Extreme（20℃）		15.41	13.50	0.00819	0.00718	PASS
Extreme（10℃）		3.72	5.43	0.00198	0.00289	PASS
Extreme（0℃）		2.22	2.97	0.00118	0.00158	PASS
Extreme（-10℃）		14.10	15.56	0.00750	0.00828	PASS
Extreme（-20℃）		3.72	15.73	0.00198	0.00837	PASS
Extreme（-30℃）		14.05	14.78	0.00747	0.00786	PASS
Extreme（-40℃）		17.79	10.51	0.00946	0.00559	PASS
25℃	LV	13.50	1.17	0.00718	0.00062	PASS
	HV	8.60	14.72	0.00457	0.00783	PASS

LTE Band 4						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	1.4MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	8.29	15.42	0.00441	0.00820	PASS
Extreme（85℃）		16.45	8.79	0.00875	0.00467	PASS
Extreme（80℃）		3.94	4.06	0.00210	0.00216	PASS
Extreme（70℃）		9.02	10.45	0.00480	0.00556	PASS
Extreme（60℃）		5.03	2.67	0.00267	0.00142	PASS
Extreme（50℃）		4.64	8.66	0.00247	0.00461	PASS
Extreme（40℃）		15.33	9.25	0.00816	0.00492	PASS
Extreme（30℃）		4.57	10.93	0.00243	0.00581	PASS
Extreme（20℃）		12.06	8.60	0.00642	0.00458	PASS
Extreme（10℃）		8.09	11.24	0.00430	0.00598	PASS

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Extreme（0℃）		17.06	8.75	0.00907	0.00465	PASS
Extreme（-10℃）		9.08	9.80	0.00483	0.00521	PASS
Extreme（-20℃）		14.34	11.13	0.00763	0.00592	PASS
Extreme（-30℃）		13.33	4.18	0.00709	0.00223	PASS
Extreme（-40℃）		9.45	9.29	0.00503	0.00494	PASS
25℃	LV	11.23	1.32	0.00598	0.00070	PASS
	HV	10.60	7.61	0.00564	0.00405	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	3MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	7.64	17.17	0.00406	0.00913	PASS
Extreme（85℃）		3.86	1.51	0.00205	0.00080	PASS
Extreme（80℃）		13.87	12.90	0.00738	0.00686	PASS
Extreme（70℃）		16.41	8.17	0.00873	0.00435	PASS
Extreme（60℃）		17.06	10.20	0.00908	0.00543	PASS
Extreme（50℃）		10.20	16.98	0.00543	0.00903	PASS
Extreme（40℃）		15.13	8.61	0.00805	0.00458	PASS
Extreme（30℃）		8.82	15.39	0.00469	0.00818	PASS
Extreme（20℃）		8.16	5.43	0.00434	0.00289	PASS
Extreme（10℃）		7.19	1.63	0.00383	0.00087	PASS
Extreme（0℃）		17.81	13.10	0.00948	0.00697	PASS
Extreme（-10℃）		4.51	11.90	0.00240	0.00633	PASS
Extreme（-20℃）		17.81	11.31	0.00948	0.00601	PASS
Extreme（-30℃）		15.96	10.99	0.00849	0.00584	PASS
Extreme（-40℃）		16.02	10.27	0.00852	0.00546	PASS
25℃	LV	15.39	16.52	0.00818	0.00879	PASS
	HV	16.37	11.08	0.00871	0.00590	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	17.06	14.78	0.00907	0.00786	PASS
Extreme（85℃）		13.98	3.36	0.00744	0.00179	PASS
Extreme（80℃）		1.62	12.56	0.00086	0.00668	PASS
Extreme（70℃）		14.22	11.13	0.00756	0.00592	PASS
Extreme（60℃）		11.77	6.69	0.00626	0.00356	PASS
Extreme（50℃）		11.29	6.86	0.00600	0.00365	PASS
Extreme（40℃）		14.25	12.62	0.00758	0.00671	PASS
Extreme（30℃）		1.50	17.47	0.00080	0.00929	PASS
Extreme（20℃）		2.56	11.75	0.00136	0.00625	PASS
Extreme（10℃）		5.62	5.79	0.00299	0.00308	PASS

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Extreme（0℃）		2.82	17.53	0.00150	0.00933	PASS
Extreme（-10℃）		17.16	13.72	0.00913	0.00730	PASS
Extreme（-20℃）		15.61	5.88	0.00830	0.00313	PASS
Extreme（-30℃）		11.90	8.54	0.00633	0.00454	PASS
Extreme（-40℃）		13.02	12.98	0.00692	0.00690	PASS
25℃	LV	9.04	13.21	0.00481	0.00703	PASS
	HV	5.15	15.47	0.00274	0.00823	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	12.45	7.30	0.00662	0.00388	PASS
Extreme（85℃）		2.13	16.62	0.00113	0.00884	PASS
Extreme（80℃）		12.81	12.74	0.00682	0.00678	PASS
Extreme（70℃）		16.32	2.51	0.00868	0.00133	PASS
Extreme（60℃）		14.78	1.15	0.00786	0.00061	PASS
Extreme（50℃）		4.23	3.10	0.00225	0.00165	PASS
Extreme（40℃）		13.53	5.83	0.00720	0.00310	PASS
Extreme（30℃）		12.14	16.76	0.00646	0.00891	PASS
Extreme（20℃）		3.95	1.61	0.00210	0.00086	PASS
Extreme（10℃）		4.85	9.64	0.00258	0.00513	PASS
Extreme（0℃）		2.88	9.92	0.00153	0.00528	PASS
Extreme（-10℃）		15.99	9.97	0.00851	0.00531	PASS
Extreme（-20℃）		16.66	10.38	0.00886	0.00552	PASS
Extreme（-30℃）		5.27	8.19	0.00280	0.00435	PASS
Extreme（-40℃）		12.87	5.81	0.00685	0.00309	PASS
25℃	LV	9.65	14.66	0.00513	0.00780	PASS
	HV	9.68	11.89	0.00515	0.00632	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	8.09	13.64	0.00431	0.00726	PASS
Extreme（85℃）		13.70	16.11	0.00729	0.00857	PASS
Extreme（80℃）		6.37	5.45	0.00339	0.00290	PASS
Extreme（70℃）		6.38	11.90	0.00339	0.00633	PASS
Extreme（60℃）		16.02	13.19	0.00852	0.00701	PASS
Extreme（50℃）		4.88	14.86	0.00259	0.00790	PASS
Extreme（40℃）		2.01	10.52	0.00107	0.00560	PASS
Extreme（30℃）		4.42	13.08	0.00235	0.00696	PASS
Extreme（20℃）		12.82	14.71	0.00682	0.00782	PASS
Extreme（10℃）		16.15	16.93	0.00859	0.00901	PASS

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Extreme（0℃）		5.63	1.86	0.00299	0.00099	PASS
Extreme（-10℃）		17.99	5.32	0.00957	0.00283	PASS
Extreme（-20℃）		6.32	4.63	0.00336	0.00246	PASS
Extreme（-30℃）		9.41	11.70	0.00500	0.00622	PASS
Extreme（-40℃）		1.51	16.24	0.00080	0.00864	PASS
25℃	LV	1.24	7.36	0.00066	0.00392	PASS
	HV	17.54	8.76	0.00933	0.00466	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	13.77	14.80	0.00732	0.00787	PASS
Extreme（85℃）		10.53	10.13	0.00560	0.00539	PASS
Extreme（80℃）		1.70	17.70	0.00090	0.00941	PASS
Extreme（70℃）		4.62	2.00	0.00246	0.00106	PASS
Extreme（60℃）		1.28	17.20	0.00068	0.00915	PASS
Extreme（50℃）		7.62	1.45	0.00406	0.00077	PASS
Extreme（40℃）		16.18	15.66	0.00860	0.00833	PASS
Extreme（30℃）		17.70	4.75	0.00941	0.00253	PASS
Extreme（20℃）		7.82	10.50	0.00416	0.00558	PASS
Extreme（10℃）		4.66	15.79	0.00248	0.00840	PASS
Extreme（0℃）		17.57	5.39	0.00935	0.00287	PASS
Extreme（-10℃）		17.98	6.63	0.00957	0.00353	PASS
Extreme（-20℃）		14.52	1.56	0.00773	0.00083	PASS
Extreme（-30℃）		9.84	12.67	0.00523	0.00674	PASS
Extreme（-40℃）		5.68	2.46	0.00302	0.00131	PASS
25℃	LV	11.17	8.74	0.00594	0.00465	PASS
	HV	14.19	12.93	0.00755	0.00688	PASS

LTE Band 7						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	17.12	11.92	0.00911	0.00634	PASS
Extreme（85℃）		17.94	6.67	0.00954	0.00355	PASS
Extreme（80℃）		5.13	16.62	0.00273	0.00884	PASS
Extreme（70℃）		1.17	8.15	0.00062	0.00434	PASS
Extreme（60℃）		6.73	6.71	0.00358	0.00357	PASS
Extreme（50℃）		3.59	14.44	0.00191	0.00768	PASS
Extreme（40℃）		8.03	2.80	0.00427	0.00149	PASS

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Extreme（30℃）		11.31	11.48	0.00601	0.00611	PASS
Extreme（20℃）		10.57	15.03	0.00562	0.00799	PASS
Extreme（10℃）		16.22	5.79	0.00863	0.00308	PASS
Extreme（0℃）		13.80	17.99	0.00734	0.00957	PASS
Extreme（-10℃）		16.29	4.01	0.00866	0.00213	PASS
Extreme（-20℃）		5.47	16.74	0.00291	0.00890	PASS
Extreme（-30℃）		17.61	11.08	0.00937	0.00589	PASS
Extreme（-40℃）		5.82	2.13	0.00310	0.00113	PASS
25℃	LV	8.76	5.89	0.00466	0.00313	PASS
	HV	3.04	12.02	0.00162	0.00639	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）		9.20	6.92	0.00489	0.00368	PASS
Extreme（85℃）		11.37	2.18	0.00605	0.00116	PASS
Extreme（80℃）		14.19	11.41	0.00755	0.00607	PASS
Extreme（70℃）		15.78	7.98	0.00839	0.00424	PASS
Extreme（60℃）		6.49	3.56	0.00345	0.00189	PASS
Extreme（50℃）		1.77	1.19	0.00094	0.00063	PASS
Extreme（40℃）		10.27	7.72	0.00546	0.00411	PASS
Extreme（30℃）	Normal	6.79	9.92	0.00361	0.00527	PASS
Extreme（20℃）		7.37	6.02	0.00392	0.00320	PASS
Extreme（10℃）		1.64	17.94	0.00087	0.00954	PASS
Extreme（0℃）		1.14	14.25	0.00061	0.00758	PASS
Extreme（-10℃）		3.01	3.64	0.00160	0.00194	PASS
Extreme（-20℃）		10.99	9.58	0.00585	0.00510	PASS
Extreme（-30℃）		13.36	16.96	0.00711	0.00902	PASS
Extreme（-40℃）		5.49	13.45	0.00292	0.00715	PASS
25℃	LV	8.37	7.94	0.00445	0.00422	PASS
	HV	12.64	17.88	0.00672	0.00951	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）		17.12	12.35	0.00910	0.00657	PASS
Extreme（85℃）		17.97	4.41	0.00956	0.00235	PASS
Extreme（80℃）		12.19	2.91	0.00649	0.00155	PASS
Extreme（70℃）	Normal	7.50	1.71	0.00399	0.00091	PASS
Extreme（60℃）		9.86	12.96	0.00525	0.00689	PASS
Extreme（50℃）		9.17	14.52	0.00488	0.00772	PASS
Extreme（40℃）		17.73	7.44	0.00943	0.00396	PASS

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Extreme（30℃）		10.12	4.40	0.00538	0.00234	PASS
Extreme（20℃）		7.28	9.76	0.00387	0.00519	PASS
Extreme（10℃）		10.46	16.25	0.00556	0.00865	PASS
Extreme（0℃）		4.38	5.41	0.00233	0.00288	PASS
Extreme（-10℃）		12.87	11.42	0.00684	0.00607	PASS
Extreme（-20℃）		3.21	5.14	0.00171	0.00273	PASS
Extreme（-30℃）		17.43	1.10	0.00927	0.00058	PASS
Extreme（-40℃）		16.14	5.35	0.00859	0.00285	PASS
25℃	LV	15.03	17.72	0.00799	0.00943	PASS
	HV	4.37	3.90	0.00233	0.00207	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	16.42	2.11	0.00873	0.00112	PASS
Extreme（85℃）		9.07	10.73	0.00482	0.00571	PASS
Extreme（80℃）		17.69	4.97	0.00941	0.00264	PASS
Extreme（70℃）		17.04	15.15	0.00906	0.00806	PASS
Extreme（60℃）		12.54	10.85	0.00667	0.00577	PASS
Extreme（50℃）		5.64	3.98	0.00300	0.00211	PASS
Extreme（40℃）		7.60	3.01	0.00404	0.00160	PASS
Extreme（30℃）		15.25	14.97	0.00811	0.00796	PASS
Extreme（20℃）		10.76	9.84	0.00572	0.00523	PASS
Extreme（10℃）		9.85	10.65	0.00524	0.00567	PASS
Extreme（0℃）		7.80	5.41	0.00415	0.00288	PASS
Extreme（-10℃）		2.20	17.20	0.00117	0.00915	PASS
Extreme（-20℃）		8.59	17.97	0.00457	0.00956	PASS
Extreme（-30℃）		3.54	3.18	0.00188	0.00169	PASS
Extreme（-40℃）		8.00	12.91	0.00425	0.00686	PASS
25℃	LV	14.14	17.31	0.00752	0.00921	PASS
	HV	6.45	7.81	0.00343	0.00415	PASS

LTE Band 66						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	1.4MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	12.41	4.66	0.00660	0.00248	PASS
Extreme（85℃）		11.05	16.66	0.00588	0.00886	PASS
Extreme（80℃）		1.76	17.98	0.00094	0.00957	PASS
Extreme（70℃）		10.56	4.17	0.00562	0.00222	PASS

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Extreme（60℃）		5.88	17.98	0.00313	0.00956	PASS
Extreme（50℃）		13.48	5.81	0.00717	0.00309	PASS
Extreme（40℃）		14.57	17.13	0.00775	0.00911	PASS
Extreme（30℃）		9.65	16.09	0.00514	0.00856	PASS
Extreme（20℃）		16.45	6.91	0.00875	0.00368	PASS
Extreme（10℃）		15.66	3.78	0.00833	0.00201	PASS
Extreme（0℃）		17.79	15.45	0.00946	0.00822	PASS
Extreme（-10℃）		4.36	8.23	0.00232	0.00438	PASS
Extreme（-20℃）		2.86	13.37	0.00152	0.00711	PASS
Extreme（-30℃）		11.29	5.11	0.00601	0.00272	PASS
Extreme（-40℃）		9.09	16.67	0.00483	0.00887	PASS
25℃	LV	17.55	1.37	0.00933	0.00073	PASS
	HV	13.73	12.67	0.00730	0.00674	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	3MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	11.43	9.49	0.00608	0.00505	PASS
Extreme（85℃）		5.50	12.21	0.00293	0.00650	PASS
Extreme（80℃）		12.69	6.95	0.00675	0.00370	PASS
Extreme（70℃）		11.77	11.49	0.00626	0.00611	PASS
Extreme（60℃）		11.54	1.24	0.00614	0.00066	PASS
Extreme（50℃）		10.60	5.66	0.00564	0.00301	PASS
Extreme（40℃）		12.02	7.82	0.00639	0.00416	PASS
Extreme（30℃）		8.49	6.45	0.00452	0.00343	PASS
Extreme（20℃）		16.06	3.63	0.00854	0.00193	PASS
Extreme（10℃）		17.17	14.84	0.00913	0.00790	PASS
Extreme（0℃）		7.75	6.11	0.00412	0.00325	PASS
Extreme（-10℃）		4.90	15.48	0.00261	0.00824	PASS
Extreme（-20℃）		7.82	10.33	0.00416	0.00550	PASS
Extreme（-30℃）		1.40	16.51	0.00074	0.00878	PASS
Extreme（-40℃）		5.25	6.35	0.00280	0.00338	PASS
25℃	LV	3.76	13.83	0.00200	0.00736	PASS
	HV	14.26	14.57	0.00759	0.00775	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	2.36	13.45	0.00126	0.00715	PASS
Extreme（85℃）		11.58	17.13	0.00616	0.00911	PASS
Extreme（80℃）		12.33	2.11	0.00656	0.00112	PASS
Extreme（70℃）		16.81	2.11	0.00894	0.00112	PASS

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Extreme（60℃）		6.73	2.07	0.00358	0.00110	PASS
Extreme（50℃）		4.55	17.96	0.00242	0.00955	PASS
Extreme（40℃）		10.85	10.97	0.00577	0.00583	PASS
Extreme（30℃）		14.02	11.84	0.00746	0.00630	PASS
Extreme（20℃）		6.39	7.95	0.00340	0.00423	PASS
Extreme（10℃）		9.58	14.61	0.00510	0.00777	PASS
Extreme（0℃）		14.46	5.51	0.00769	0.00293	PASS
Extreme（-10℃）		3.28	10.62	0.00175	0.00565	PASS
Extreme（-20℃）		17.03	10.18	0.00906	0.00541	PASS
Extreme（-30℃）		11.91	7.75	0.00634	0.00412	PASS
Extreme（-40℃）		1.54	17.42	0.00082	0.00926	PASS
25℃	LV	11.96	15.05	0.00636	0.00800	PASS
	HV	15.00	11.73	0.00798	0.00624	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）		8.83	3.37	0.00470	0.00179	PASS
Extreme（85℃）		17.57	6.91	0.00934	0.00368	PASS
Extreme（80℃）		4.62	14.72	0.00246	0.00783	PASS
Extreme（70℃）		4.60	6.92	0.00245	0.00368	PASS
Extreme（60℃）		8.44	12.26	0.00449	0.00652	PASS
Extreme（50℃）		7.39	13.07	0.00393	0.00695	PASS
Extreme（40℃）		2.17	10.01	0.00115	0.00533	PASS
Extreme（30℃）	Normal	5.75	12.30	0.00306	0.00654	PASS
Extreme（20℃）		16.98	3.55	0.00903	0.00189	PASS
Extreme（10℃）		2.69	3.86	0.00143	0.00205	PASS
Extreme（0℃）		2.39	7.26	0.00127	0.00386	PASS
Extreme（-10℃）		5.04	5.89	0.00268	0.00313	PASS
Extreme（-20℃）		7.73	8.70	0.00411	0.00463	PASS
Extreme（-30℃）		2.80	4.04	0.00149	0.00215	PASS
Extreme（-40℃）		4.58	13.10	0.00244	0.00697	PASS
25℃	LV	7.61	7.07	0.00405	0.00376	PASS
	HV	14.51	7.74	0.00772	0.00412	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）		17.74	13.57	0.00944	0.00722	PASS
Extreme（85℃）	Normal	7.92	14.37	0.00421	0.00765	PASS
Extreme（80℃）		6.03	11.95	0.00321	0.00635	PASS
Extreme（70℃）		10.15	13.06	0.00540	0.00695	PASS

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Extreme（60℃）		9.39	15.59	0.00500	0.00829	PASS
Extreme（50℃）		9.04	15.92	0.00481	0.00847	PASS
Extreme（40℃）		17.34	13.35	0.00922	0.00710	PASS
Extreme（30℃）		3.81	17.00	0.00203	0.00904	PASS
Extreme（20℃）		8.54	12.67	0.00454	0.00674	PASS
Extreme（10℃）		11.05	16.13	0.00588	0.00858	PASS
Extreme（0℃）		8.11	14.43	0.00432	0.00768	PASS
Extreme（-10℃）		15.99	7.35	0.00850	0.00391	PASS
Extreme（-20℃）		3.33	12.16	0.00177	0.00647	PASS
Extreme（-30℃）		1.53	4.08	0.00081	0.00217	PASS
Extreme（-40℃）		14.08	8.38	0.00749	0.00446	PASS
25℃	LV	16.65	1.92	0.00886	0.00102	PASS
	HV	8.75	17.21	0.00466	0.00916	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）		10.10	8.07	0.00537	0.00429	PASS
Extreme（85℃）		3.40	17.22	0.00181	0.00916	PASS
Extreme（80℃）		7.97	11.99	0.00424	0.00638	PASS
Extreme（70℃）		3.15	6.65	0.00168	0.00354	PASS
Extreme（60℃）		16.80	8.37	0.00893	0.00445	PASS
Extreme（50℃）		12.08	11.88	0.00643	0.00632	PASS
Extreme（40℃）		5.36	14.01	0.00285	0.00745	PASS
Extreme（30℃）	Normal	11.40	5.55	0.00606	0.00295	PASS
Extreme（20℃）		16.42	4.31	0.00874	0.00229	PASS
Extreme（10℃）		5.56	11.08	0.00296	0.00589	PASS
Extreme（0℃）		16.40	6.94	0.00872	0.00369	PASS
Extreme（-10℃）		15.30	13.03	0.00814	0.00693	PASS
Extreme（-20℃）		12.18	7.58	0.00648	0.00403	PASS
Extreme（-30℃）		5.96	8.21	0.00317	0.00437	PASS
Extreme（-40℃）		3.40	8.89	0.00181	0.00473	PASS
25℃	LV	14.55	4.73	0.00774	0.00252	PASS
	HV	2.83	3.73	0.00150	0.00199	PASS

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5.7 Spurious Emissions at Antenna Terminals

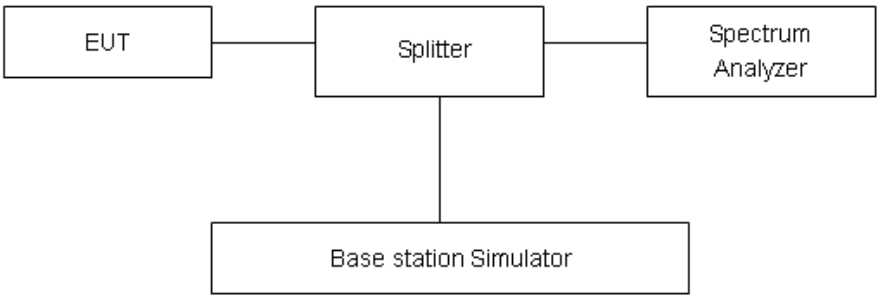
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.
RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz
RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.
Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB..”

Rule Part 27.53(m) 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section.

Part 27.53 (h) Limit	-13 dBm
Part 27.53(m) Limit	-25 dBm

Measurement Uncertainty

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The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor *k* = 1.96.

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-27GHz	1.407 dB

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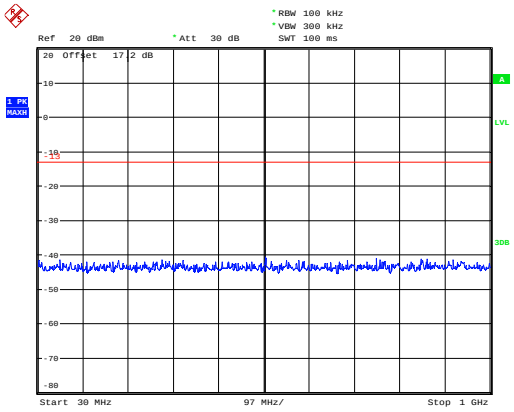
Test Result

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

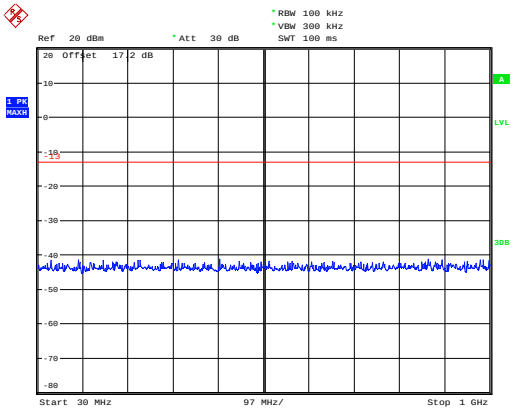
The signal beyond the limit is carrier.

WCDMA Band IV CH-Low 30MHz~1GHz



Date: 17.JUN.2019 19:06:08

WCDMA Band IV CH- Middle 30MHz~1GHz



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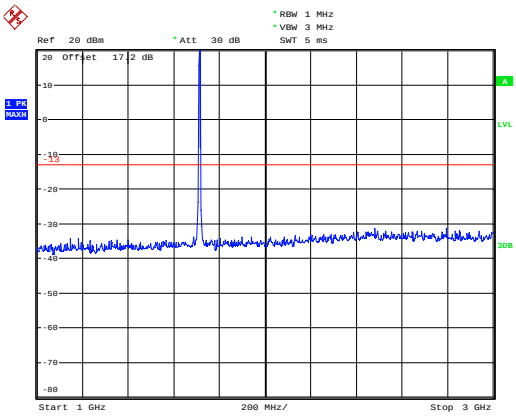
WCDMA Band IV CH-Low 1GHz ~3GHz



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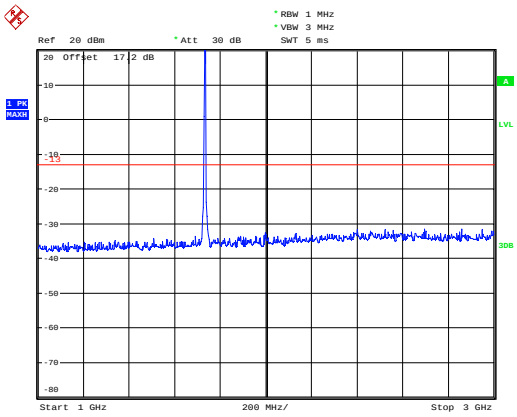
WCDMA Band IV CH-Middle 1GHz ~3GHz



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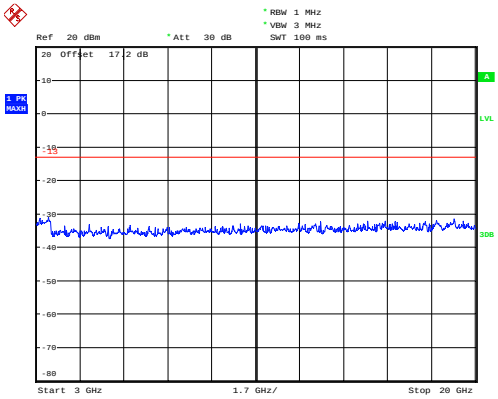
WCDMA Band IV CH- Low 3GHz ~20GHz



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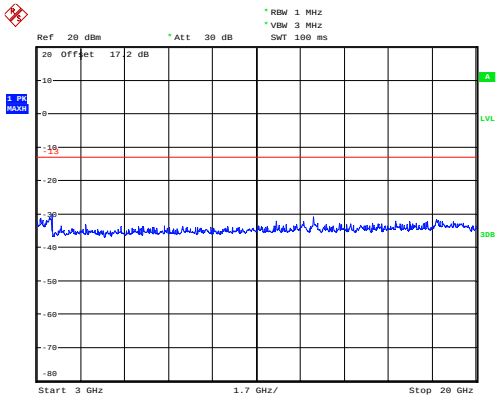
WCDMA Band IV CH- Middle 3GHz ~20GHz



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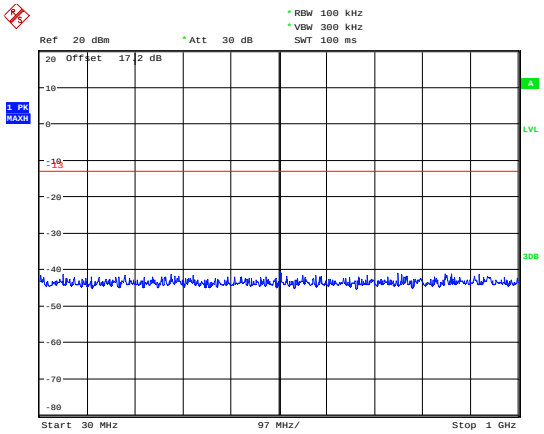
WCDMA Band IV CH- High 3GHz ~20GHz



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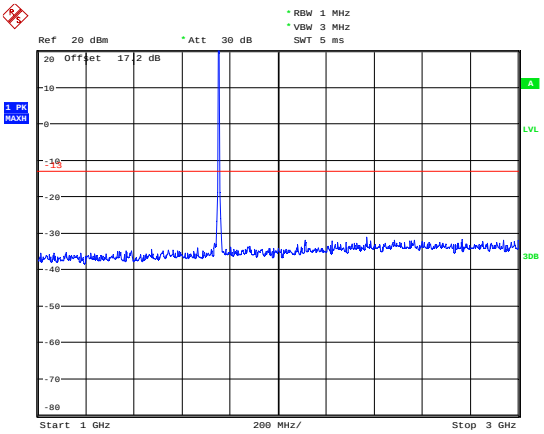
WCDMA Band IV CH- High 3GHz ~20GHz



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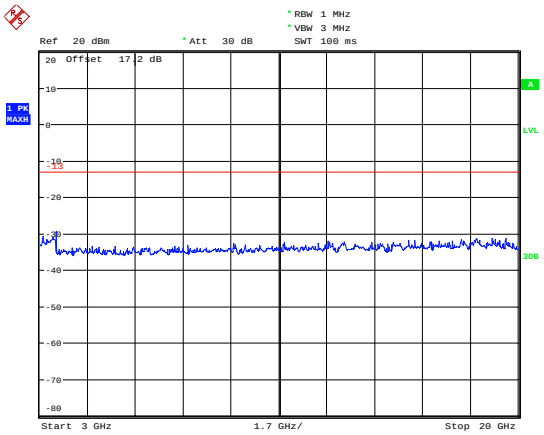
WCDMA Band IV CH-High 3GHz ~20GHz



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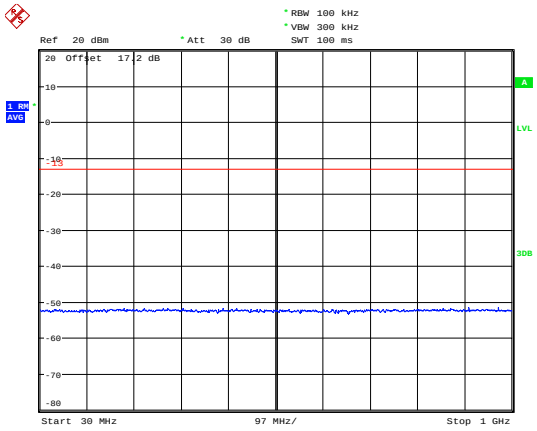
LTE Band 4 1.4MHz CH-Low 30MHz~1GHz



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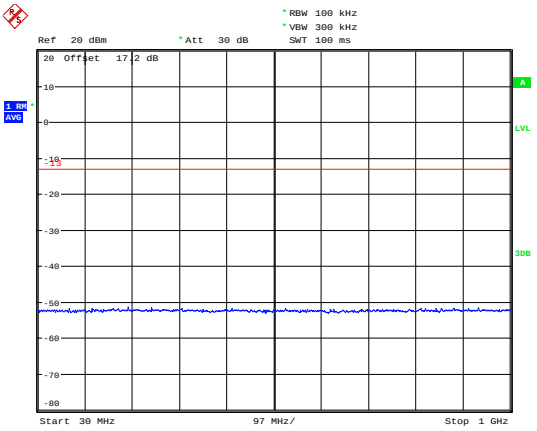
LTE Band 4 1.4MHz CH-Middle 30MHz~1GHz



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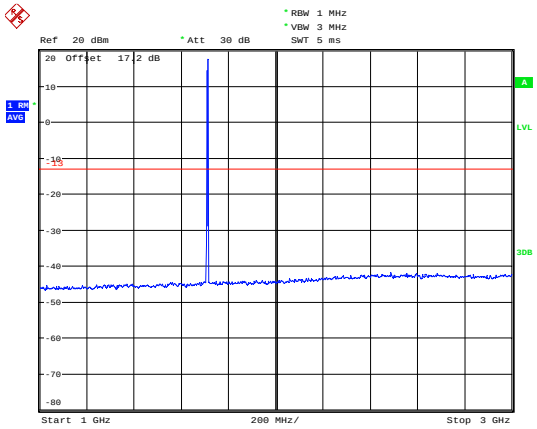
LTE Band 4 1.4MHz CH-Low 1GHz~3GHz



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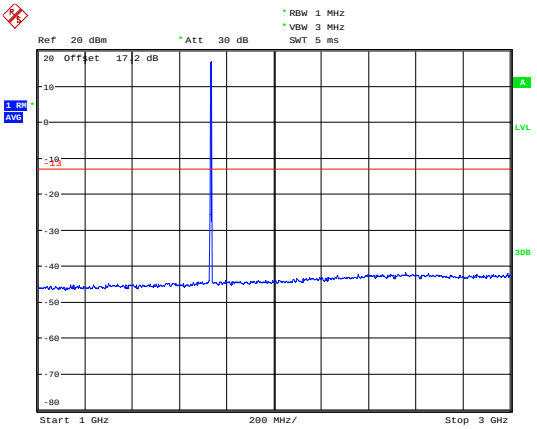
LTE Band 4 1.4MHz CH-Middle 1GHz~3GHz



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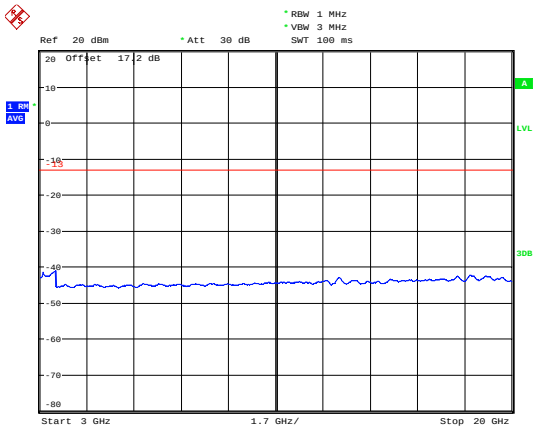
LTE Band 4 1.4MHz CH-Low 3GHz~20GHz



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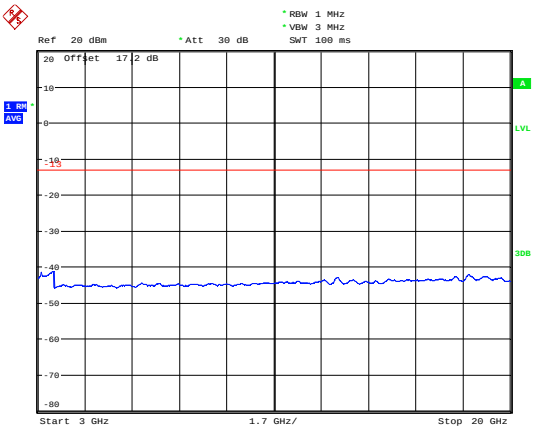
LTE Band 4 1.4MHz CH-Middle 3GHz~20GHz



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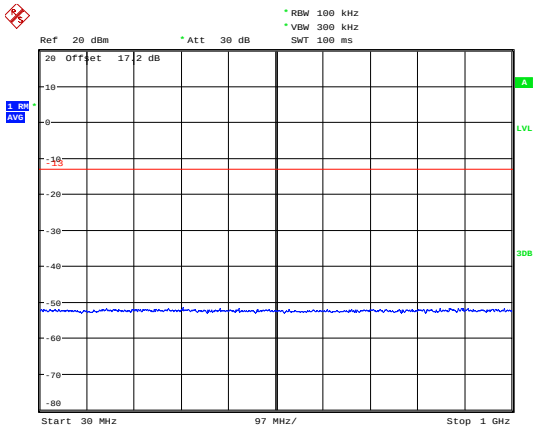
LTE Band 4 1.4MHz CH-High 30MHz~1GHz



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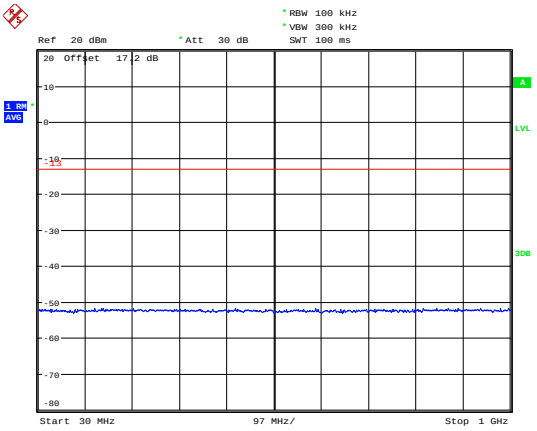
LTE Band 4 3MHz CH-Low 30MHz~1GHz



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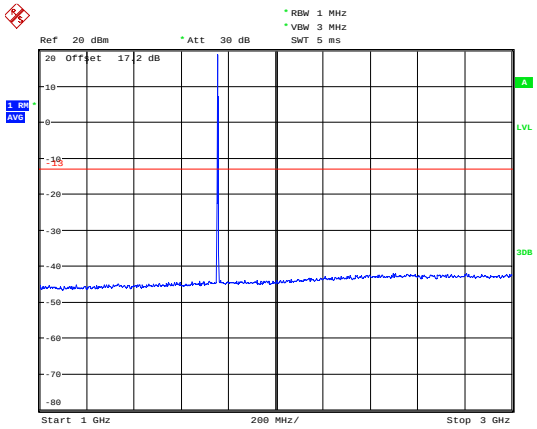
LTE Band 4 1.4MHz CH-High 1GHz~3GHz



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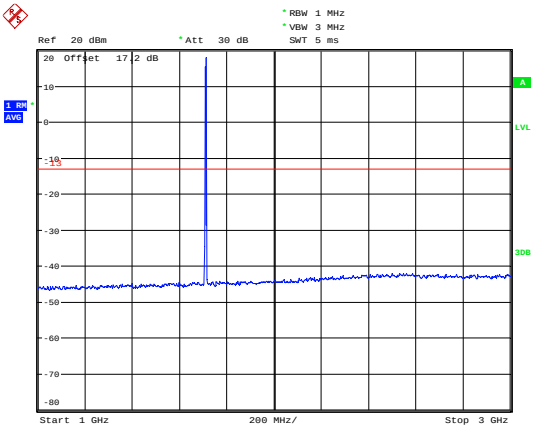
LTE Band 4 3MHz CH-Low 1GHz~3GHz



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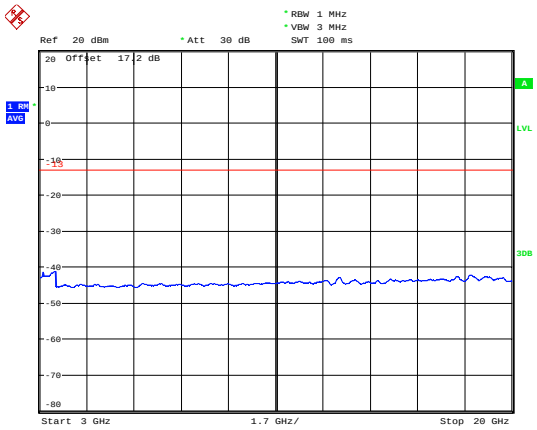
LTE Band 4 1.4MHz CH-High 3GHz~20GHz



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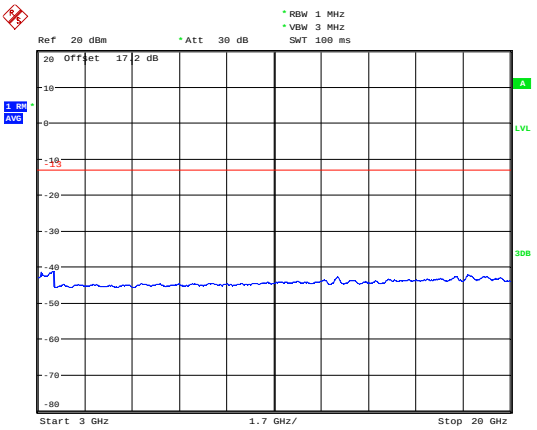
LTE Band 4 3MHz CH-Low 3GHz~20GHz



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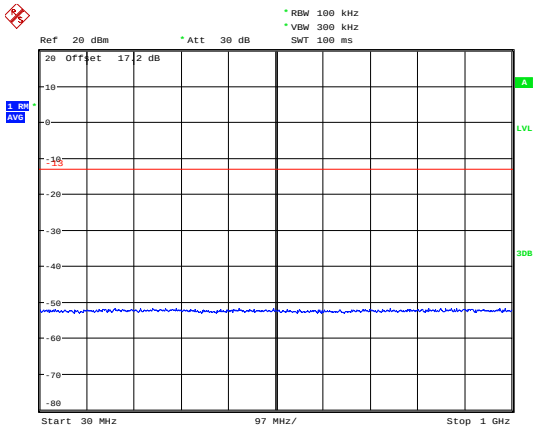
LTE Band 4 3MHz CH-Middle 30MHz~1GHz



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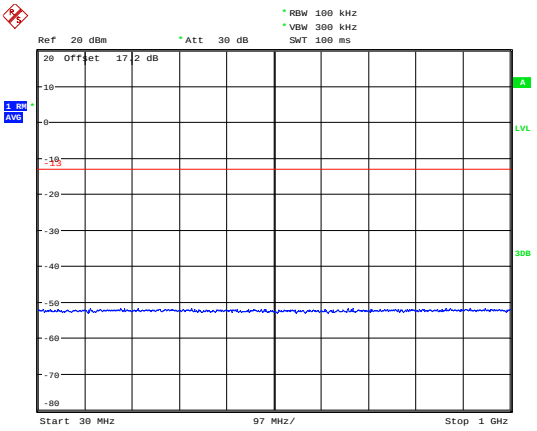
LTE Band 4 3MHz CH-High 30MHz~1GHz



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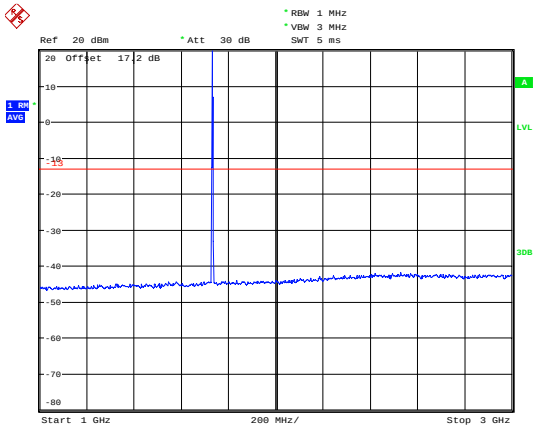
LTE Band 4 3MHz CH-Middle 1GHz~3GHz



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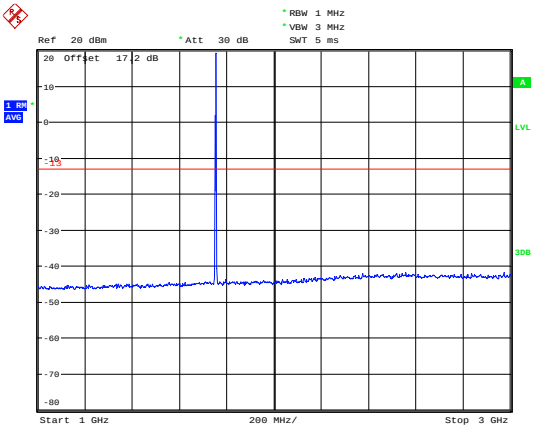
LTE Band 4 3MHz CH-High 1GHz~3GHz



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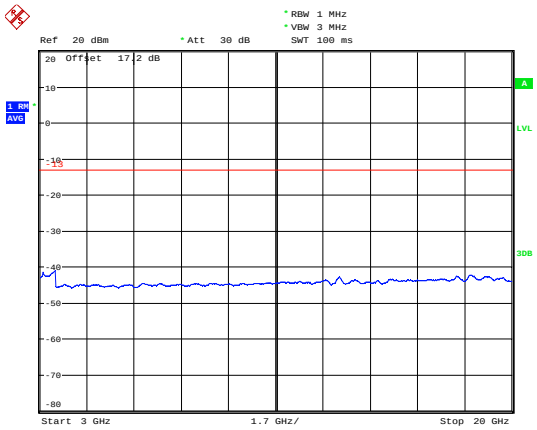
LTE Band 4 3MHz CH-Middle 3GHz~20GHz



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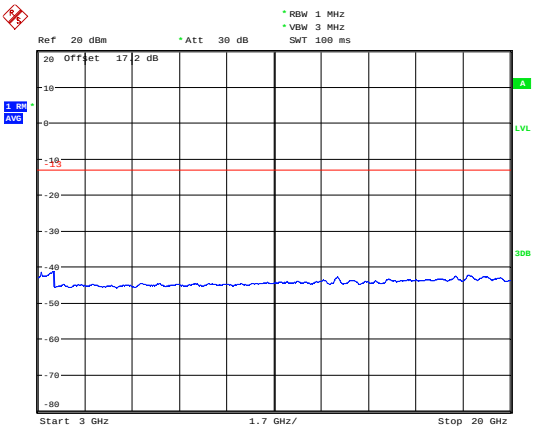
LTE Band 4 3MHz CH-High 3GHz~20GHz



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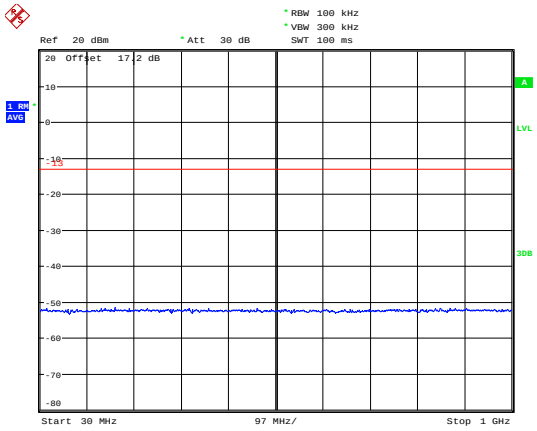
LTE Band 4 5MHz CH-Low 30MHz~1GHz



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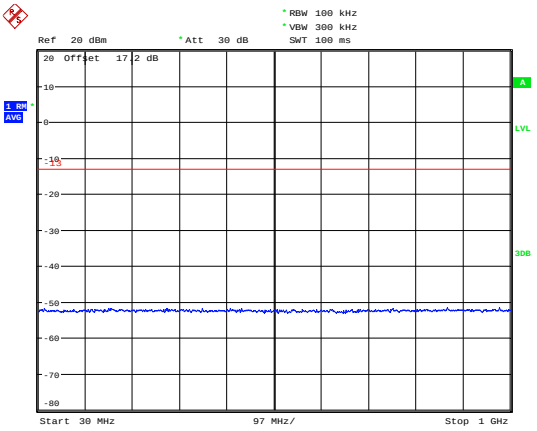
LTE Band 4 5MHz CH-Middle 30MHz~1GHz



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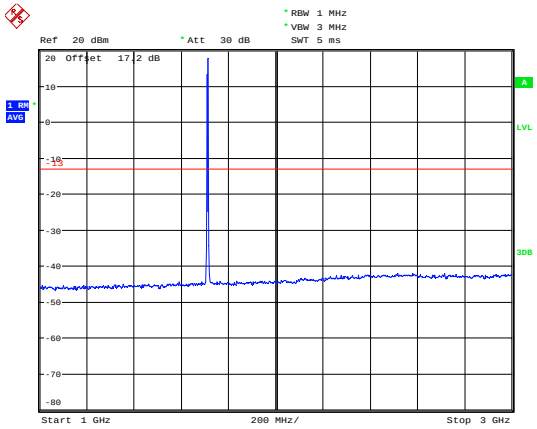
LTE Band 4 5MHz CH-Low 1GHz~3GHz



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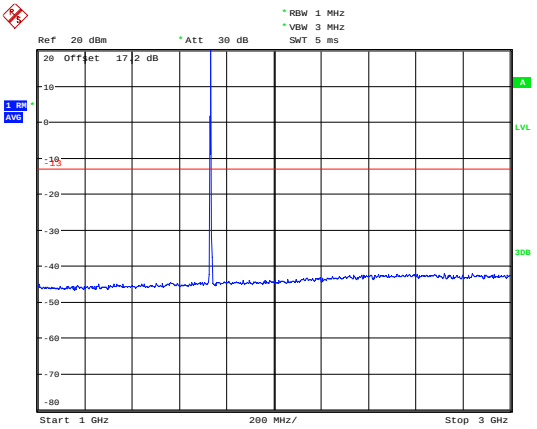
LTE Band 4 5MHz CH-Middle 1GHz~3GHz



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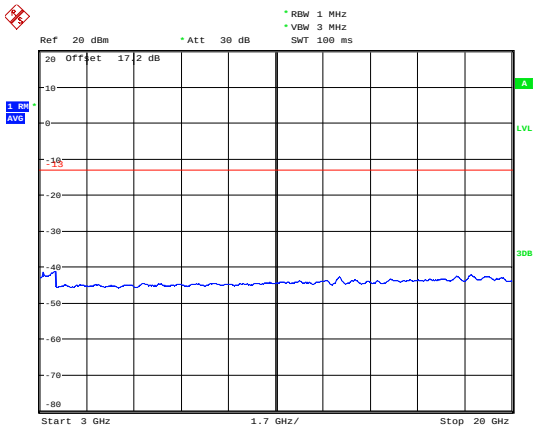
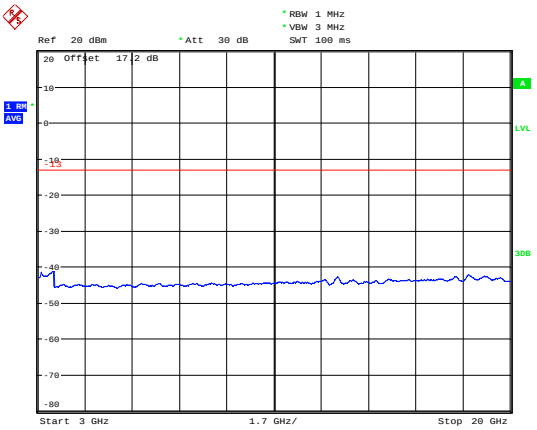
LTE Band 4 5MHz CH-Low 3GHz~20GHz



Date: 3.JUL.2019 12:41:32

LTE Band 4 5MHz CH-Middle 3GHz~20GHz



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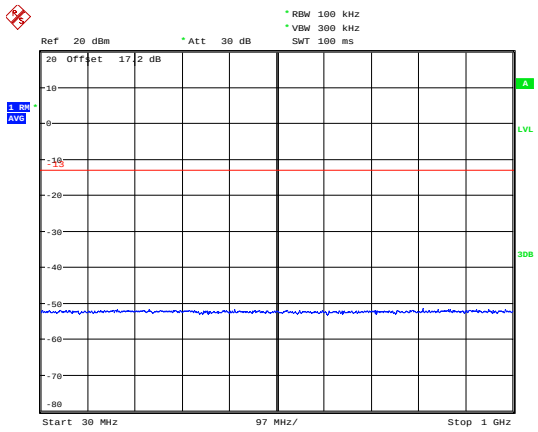
LTE Band 4 5MHz CH-High 30MHz~1GHz



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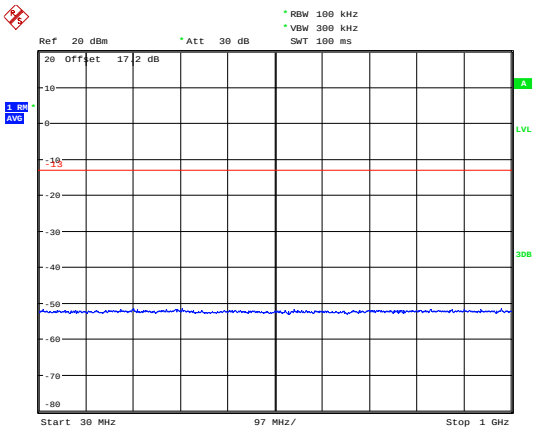
LTE Band 4 10MHz CH-Low 30MHz~1GHz



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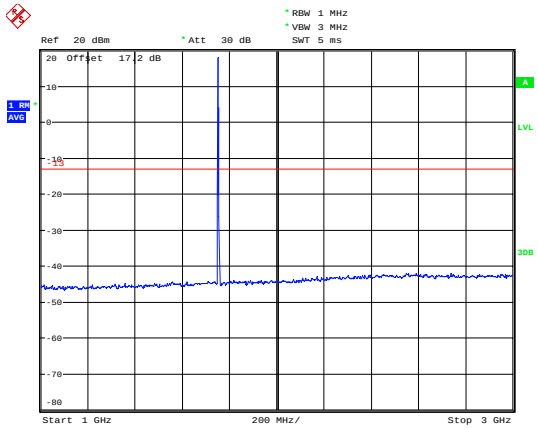
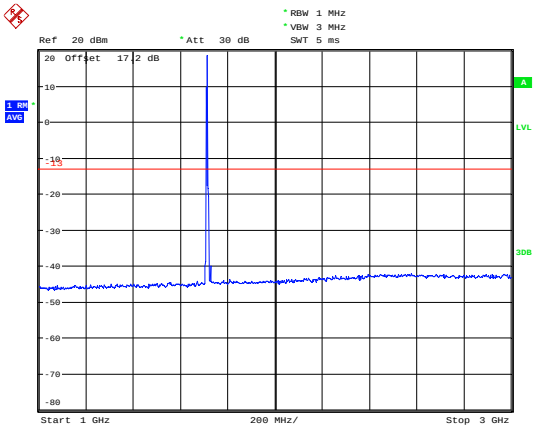
LTE Band 4 5MHz CH-High 1GHz~3GHz



Date: 3.JUL.2019 12:30:04

LTE Band 4 10MHz CH-Low 1GHz~3GHz



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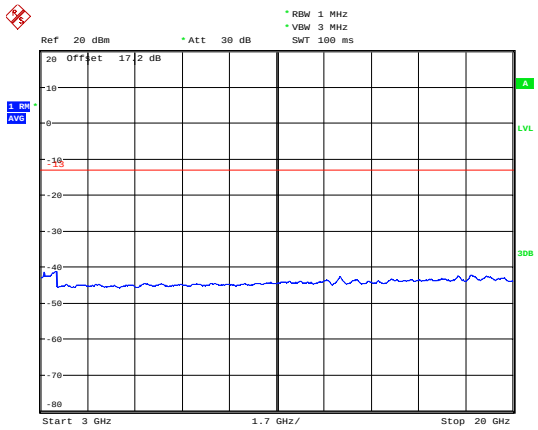
LTE Band 4 5MHz CH-High 3GHz~20GHz



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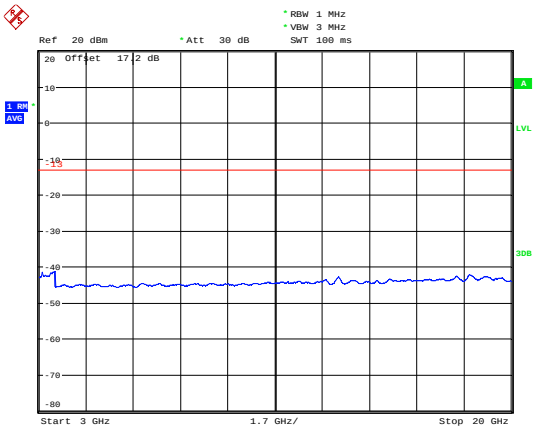
LTE Band 4 10MHz CH-Low 3GHz~20GHz



Date: 3.JUL.2019 12:42:21

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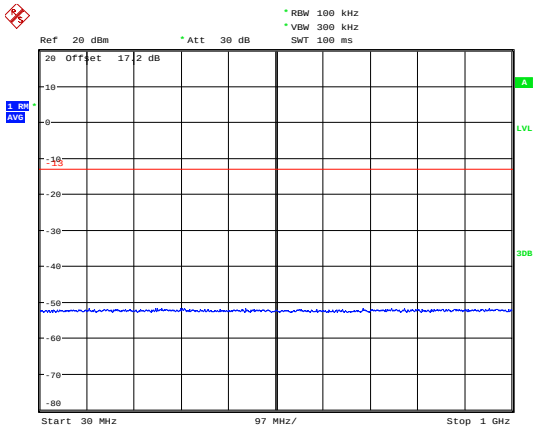
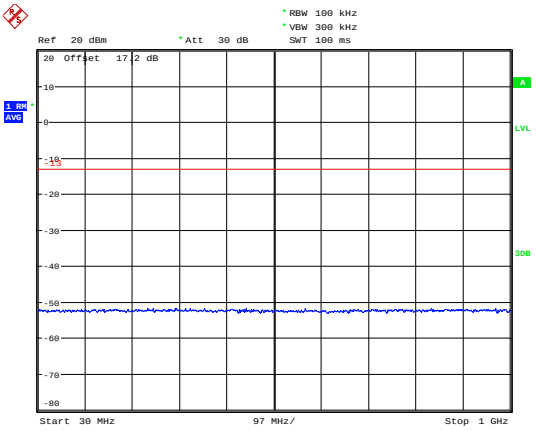
LTE Band 4 10MHz CH-Middle 30MHz~1GHz



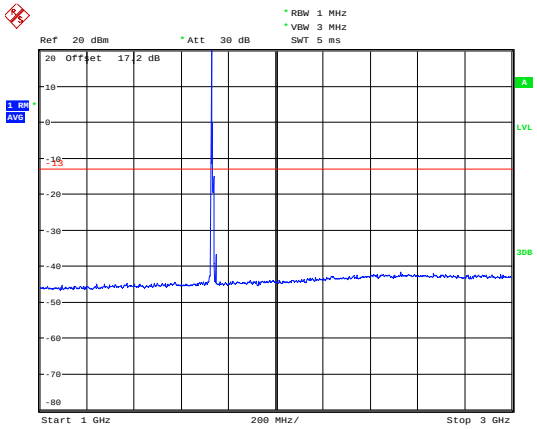
Date: 3.JUL.2019 12:21:44

LTE Band 4 10MHz CH-High 30MHz~1GHz



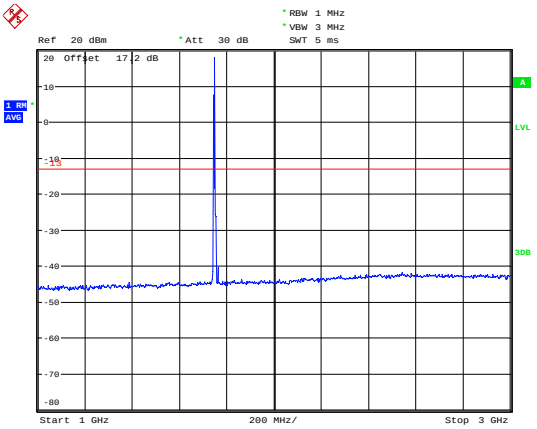
Date: 3.JUL.2019 12:21:56

LTE Band 4 10MHz CH-Middle 1GHz~3GHz



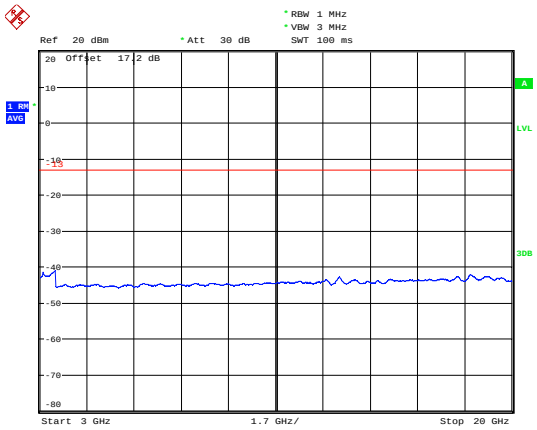
Date: 3.JUL.2019 12:30:47

LTE Band 4 10MHz CH-High 1GHz~3GHz



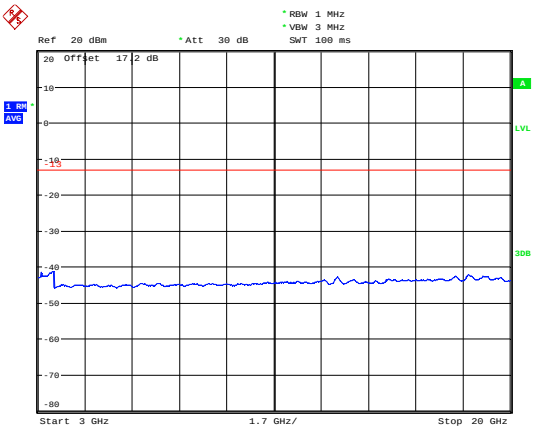
Date: 3.JUL.2019 12:31:05

LTE Band 4 10MHz CH-Middle 3GHz~20GHz



Date: 3.JUL.2019 12:42:44

LTE Band 4 10MHz CH-High 3GHz~20GHz



Date: 3.JUL.2019 12:42:58

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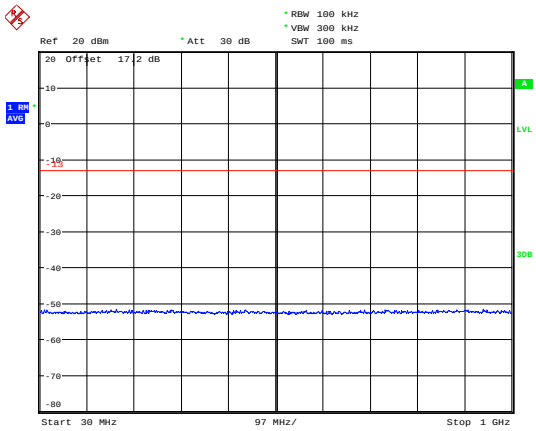
LTE Band 4 15MHz CH-Low 30MHz~1GHz



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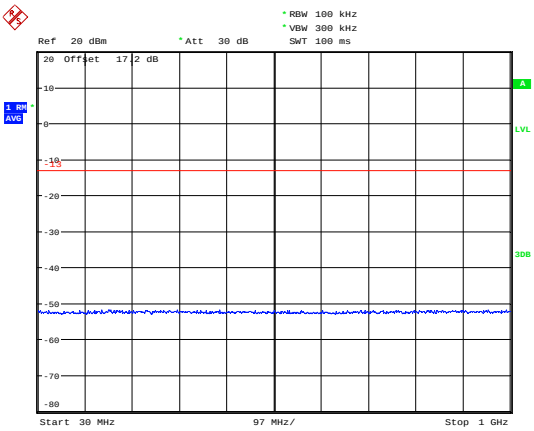
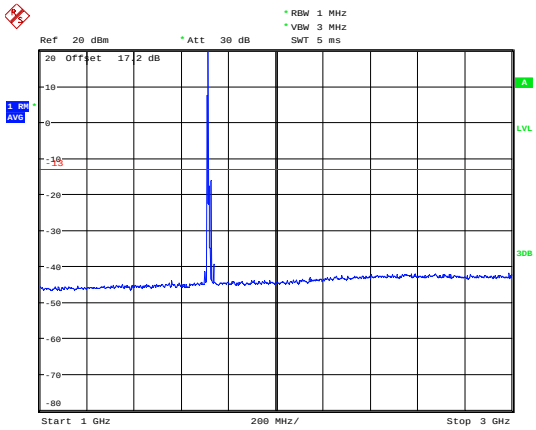
LTE Band 4 15MHz CH-Middle 30MHz~1GHz



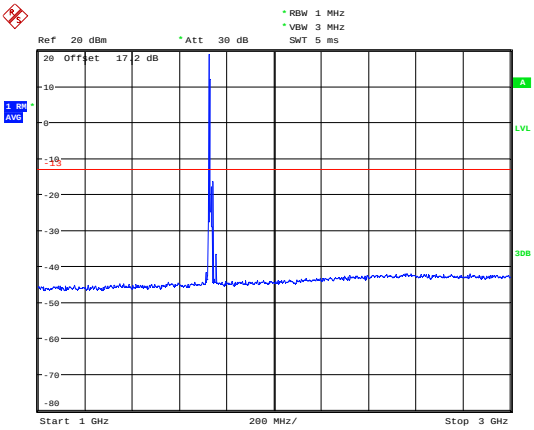
Date: 3.JUL.2019 12:22:29

LTE Band 4 15MHz CH-Low 1GHz~3GHz



Date: 3.JUL.2019 12:31:34

LTE Band 4 15MHz CH-Middle 1GHz~3GHz



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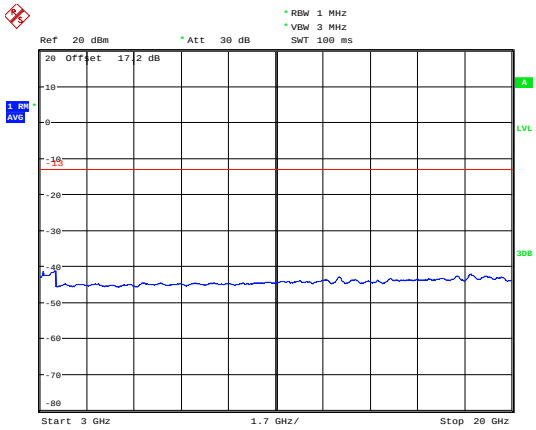
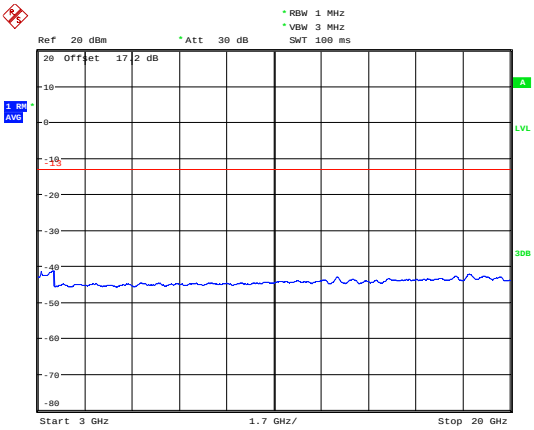
LTE Band 4 15MHz CH-Low 3GHz~20GHz



Date: 3.JUL.2019 12:34:54

LTE Band 4 15MHz CH-Middle 3GHz~20GHz



Date: 3.JUL.2019 12:34:36

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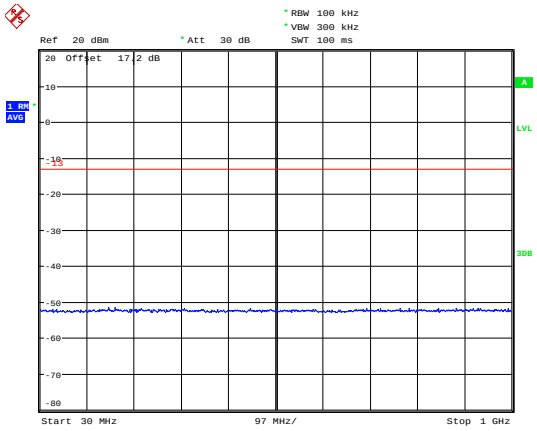
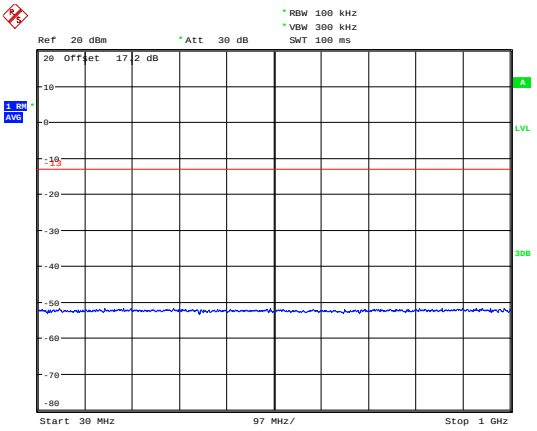
LTE Band 4 15MHz CH-High 30MHz~1GHz



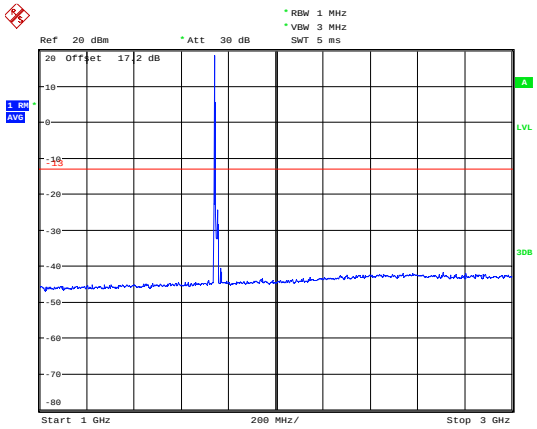
Date: 3.JUL.2019 12:22:43

LTE Band 4 20MHz CH-Low 30MHz~1GHz



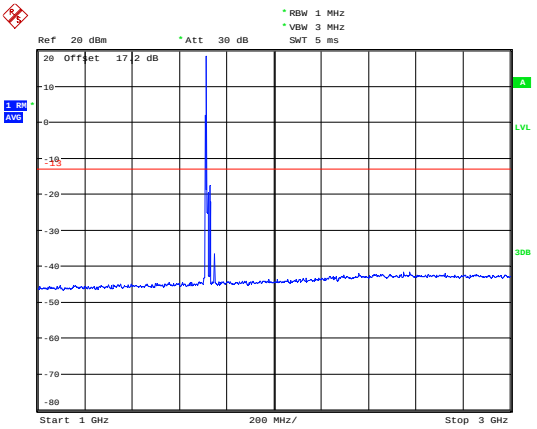
Date: 3.JUL.2019 12:23:05

LTE Band 4 15MHz CH-High 1GHz~3GHz



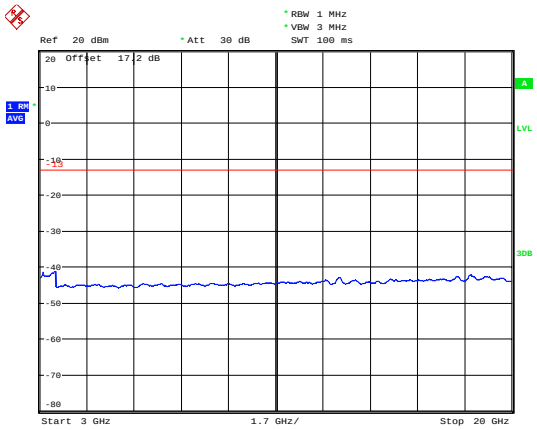
Date: 3.JUL.2019 12:32:05

LTE Band 4 20MHz CH-Low 1GHz~3GHz



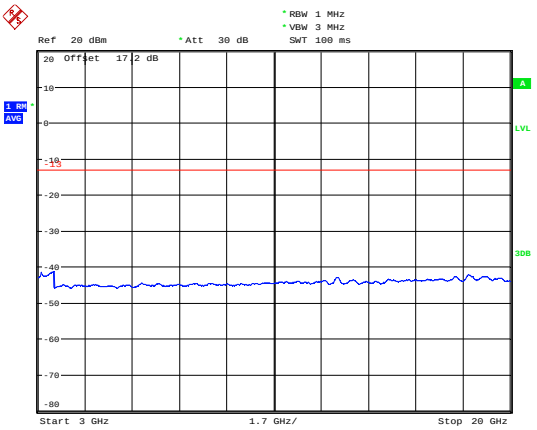
Date: 3.JUL.2019 12:26:46

LTE Band 4 15MHz CH-High 3GHz~20GHz



Date: 3.JUL.2019 12:34:22

LTE Band 4 20MHz CH-Low 3GHz~20GHz



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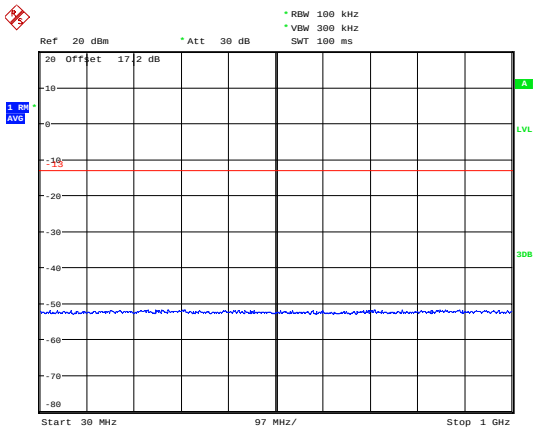
LTE Band 4 20MHz CH-Middle 30MHz~1GHz



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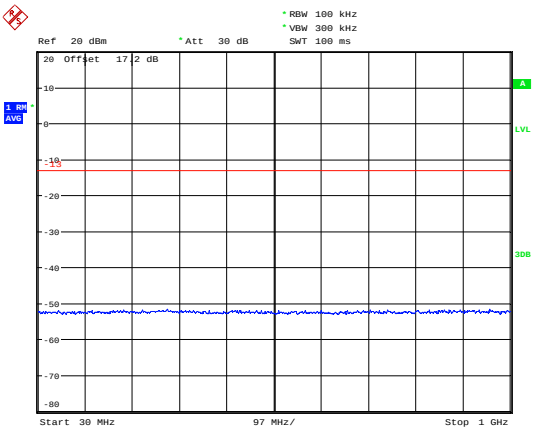
LTE Band 4 20MHz CH-High 30MHz~1GHz



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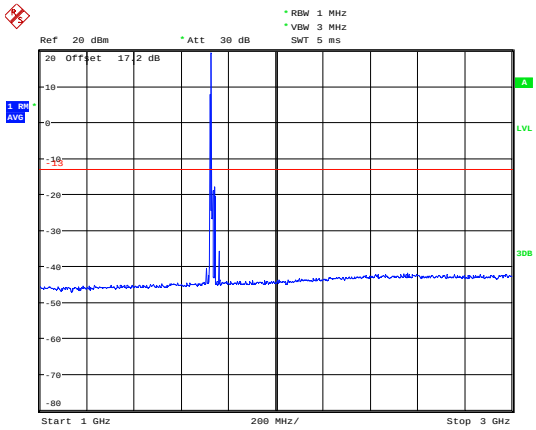
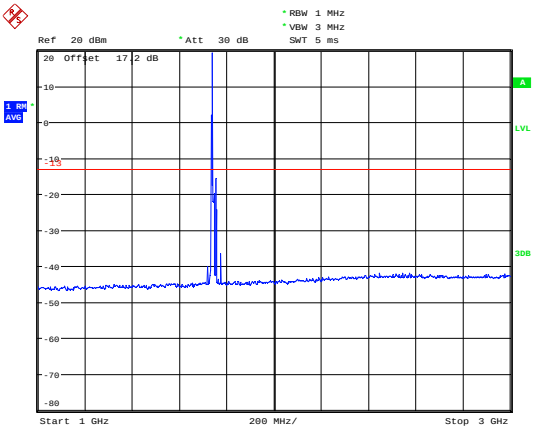
LTE Band 4 20MHz CH-Middle 1GHz~3GHz



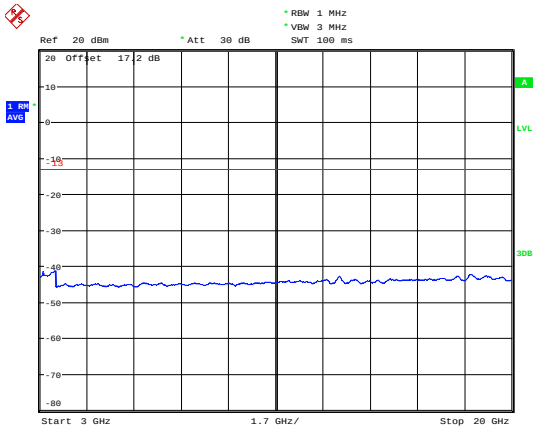
Date: 3.JUL.2019 12:26:20

LTE Band 4 20MHz CH-High 1GHz~3GHz



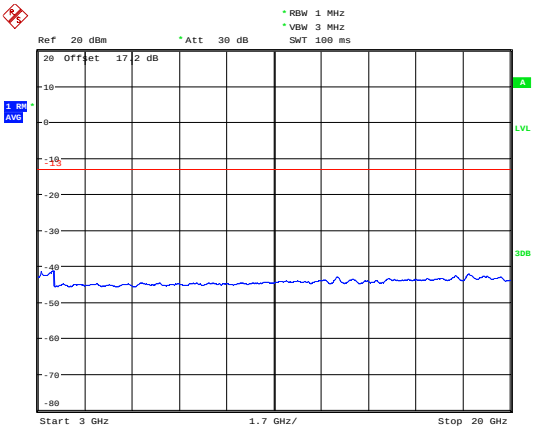
Date: 3.JUL.2019 12:25:47

LTE Band 4 20MHz CH-Middle 3GHz~20GHz



Date: 3.JUL.2019 12:35:29

LTE Band 4 20MHz CH-High 3GHz~20GHz



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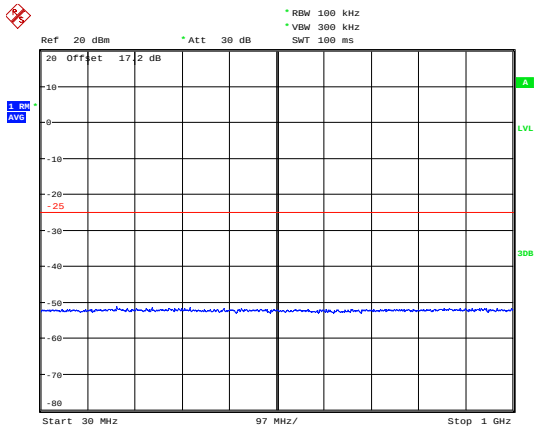
LTE Band 7 5MHz CH-Low 30MHz~1GHz



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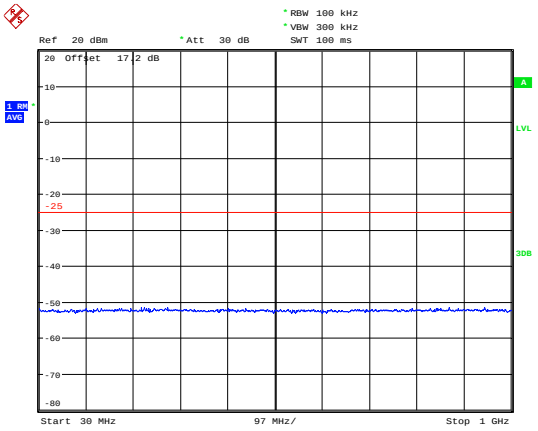
LTE Band 7 5MHz CH-Middle 30MHz~1GHz



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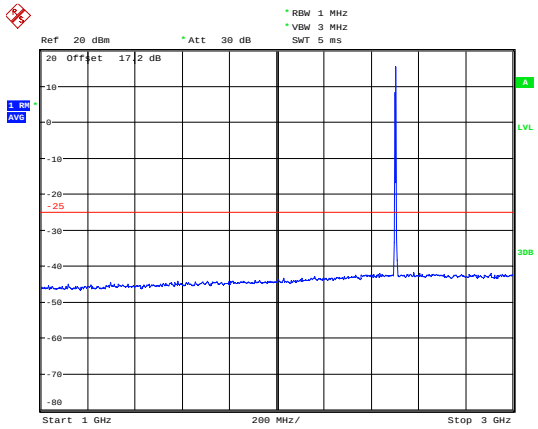
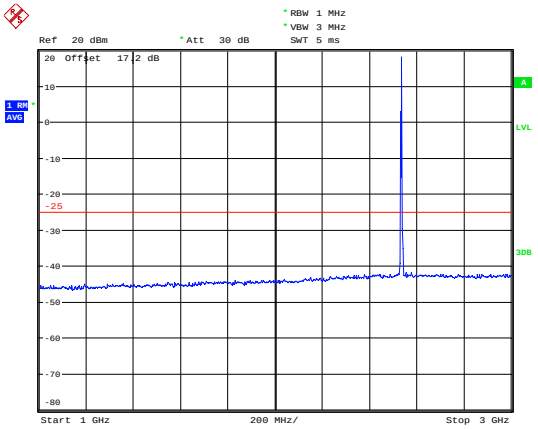
LTE Band 7 5MHz CH-Low 1GHz~3GHz



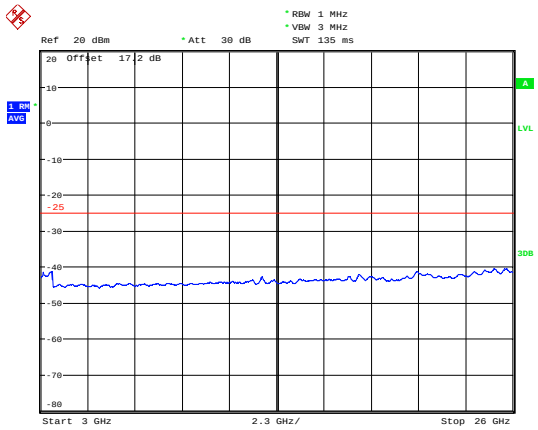
Date: 3.JUL.2019 16:10:58

LTE Band 7 5MHz CH-Middle 1GHz~3GHz



Date: 3.JUL.2019 16:11:17

LTE Band 7 5MHz CH-Low 3GHz~26GHz



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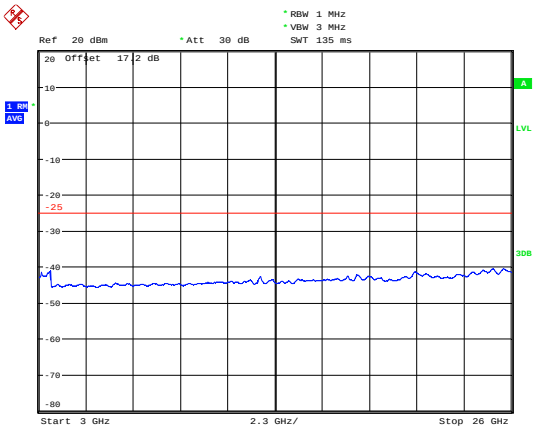
LTE Band 7 5MHz CH-Middle 3GHz~26GHz



Date: 3.JUL.2019 16:26:48

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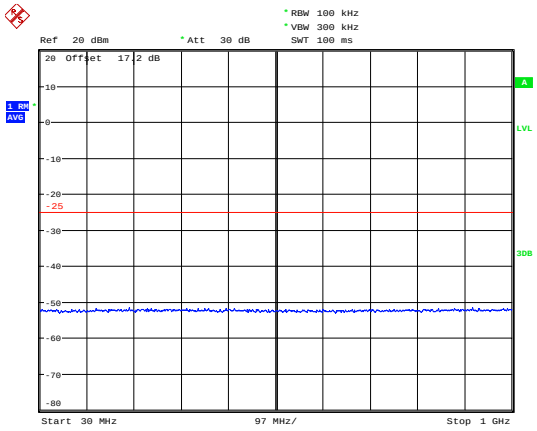
LTE Band 7 5MHz CH-High 30MHz~1GHz



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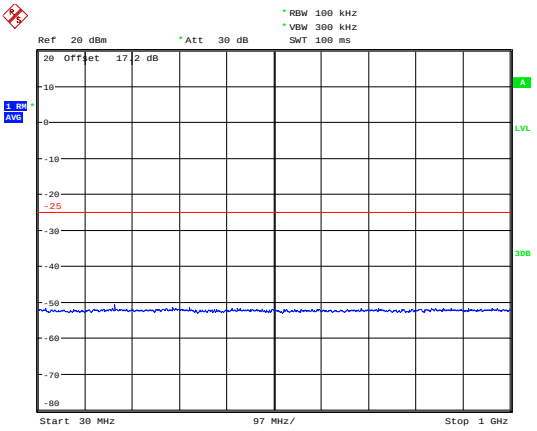
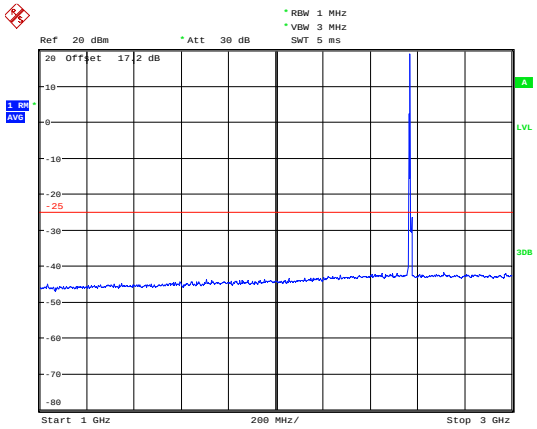
LTE Band 7 10MHz CH-Low 30MHz~1GHz



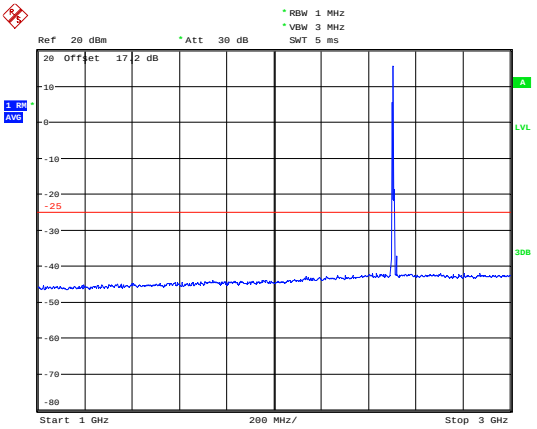
Date: 3.JUL.2019 16:06:26

LTE Band 7 5MHz CH-High 1GHz~3GHz



Date: 3.JUL.2019 16:11:34

LTE Band 7 10MHz CH-Low 1GHz~3GHz



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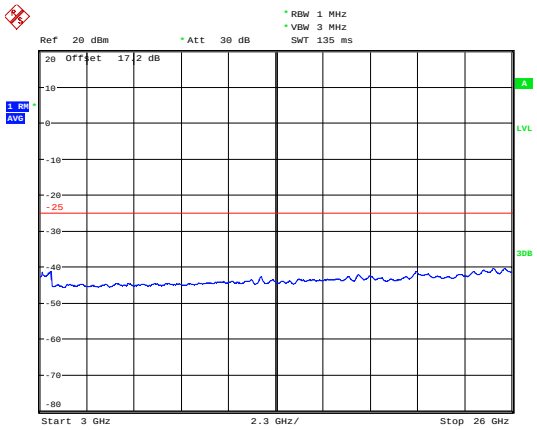
LTE Band 7 5MHz CH-High 3GHz~26GHz



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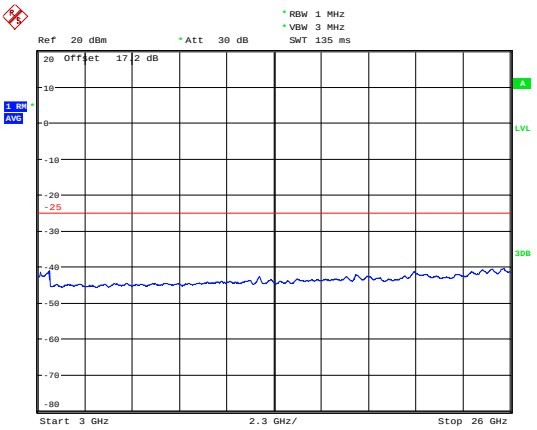
LTE Band 7 10MHz CH-Low 3GHz~26GHz



Date: 3.JUL.2019 16:27:34

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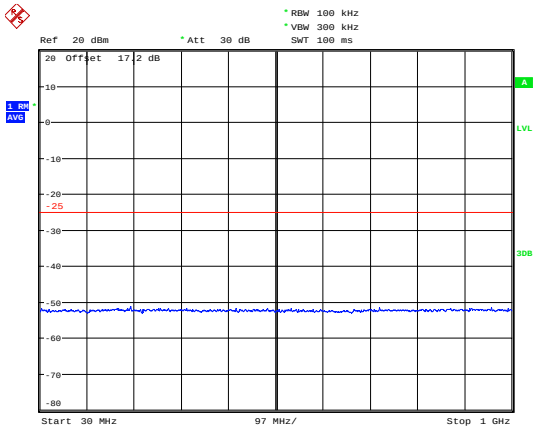
LTE Band 7 10MHz CH-Middle 30MHz~1GHz



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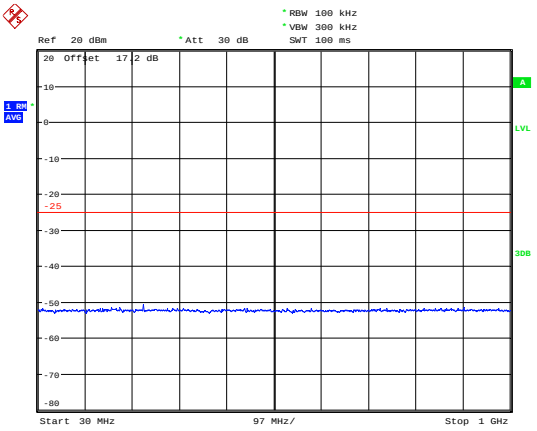
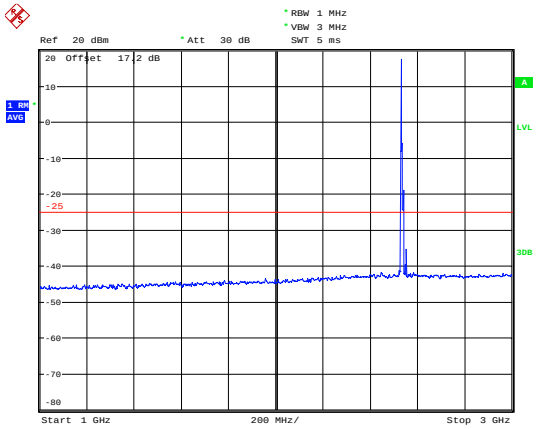
LTE Band 7 10MHz CH-High 30MHz~1GHz



Date: 3.JUL.2019 16:07:01

LTE Band 7 10MHz CH-Middle 1GHz~3GHz



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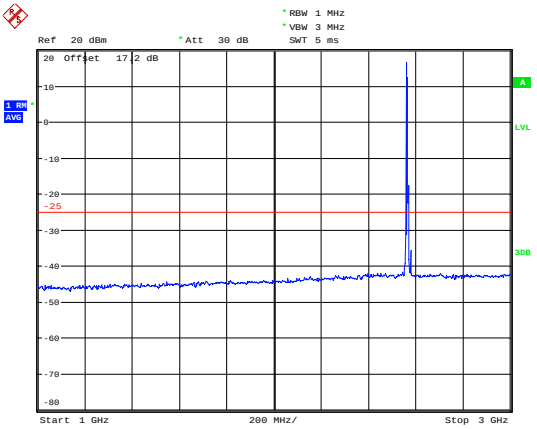
LTE Band 7 10MHz CH-High 1GHz~3GHz



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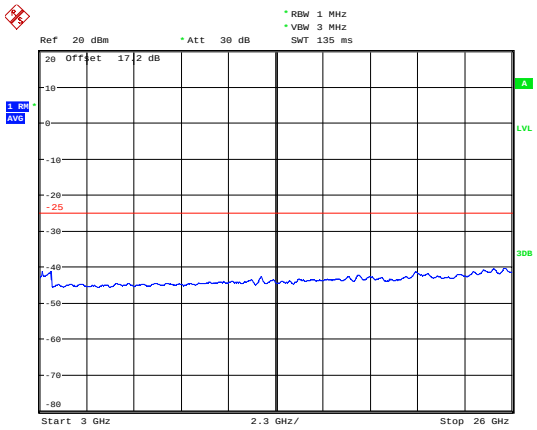
LTE Band 7 10MHz CH-Middle 3GHz~26GHz



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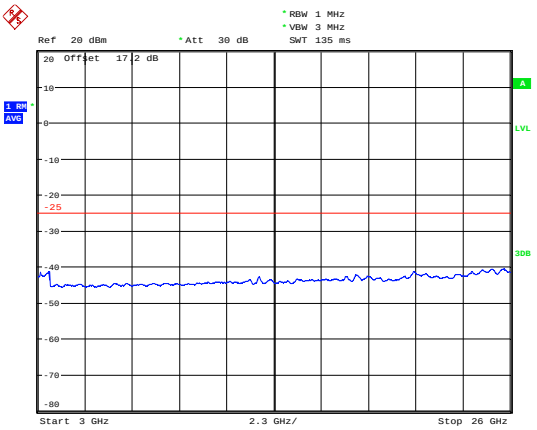
LTE Band 7 10MHz CH-High 3GHz~26GHz



Date: 3.JUL.2019 16:28:21

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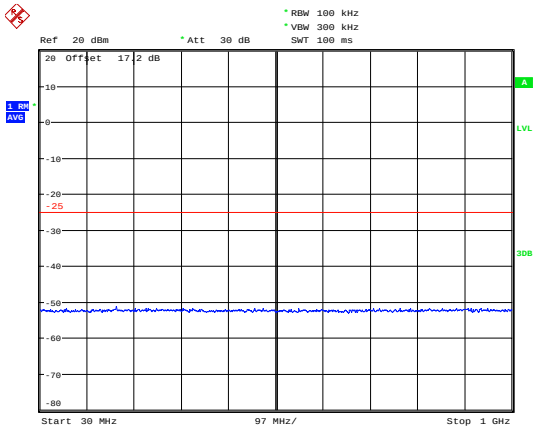
LTE Band 7 15MHz CH-Low 30MHz~1GHz



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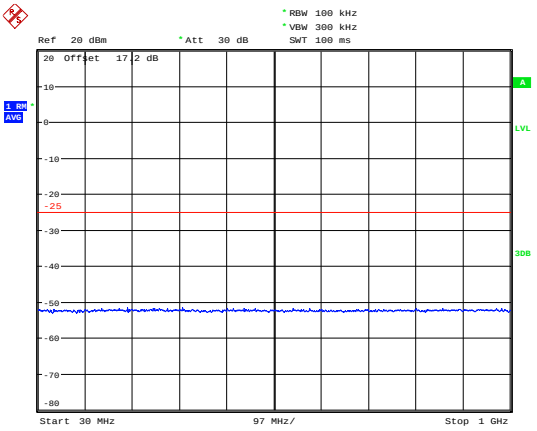
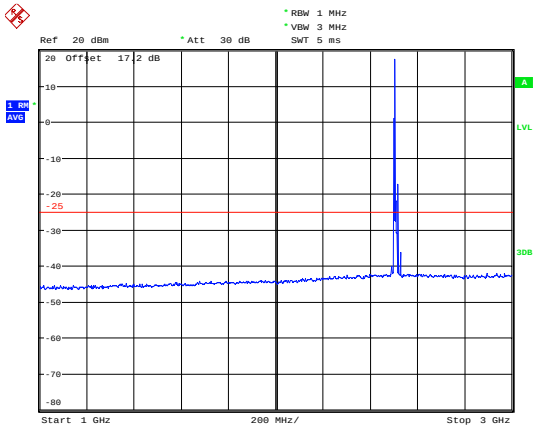
LTE Band 7 15MHz CH-Middle 30MHz~1GHz



Date: 3.JUL.2019 16:07:43

LTE Band 7 15MHz CH-Low 1GHz~3GHz



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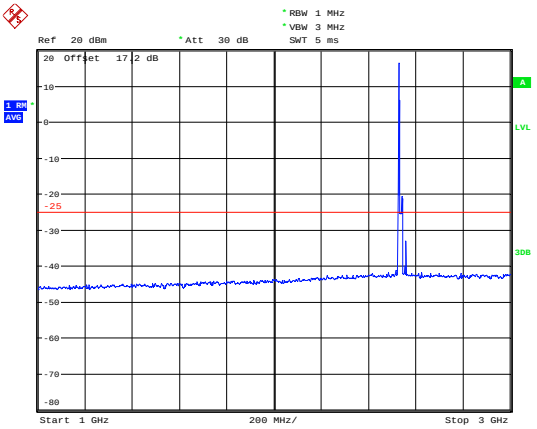
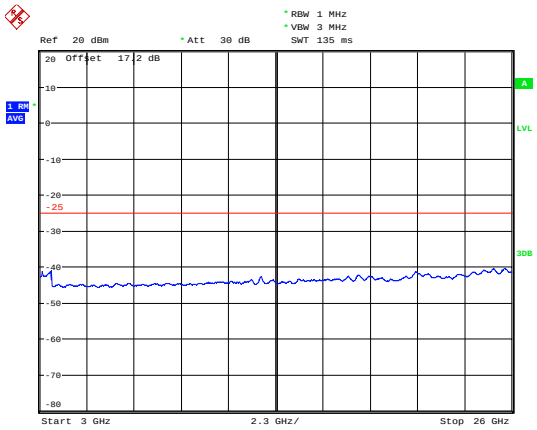
LTE Band 7 15MHz CH-Middle 1GHz~3GHz



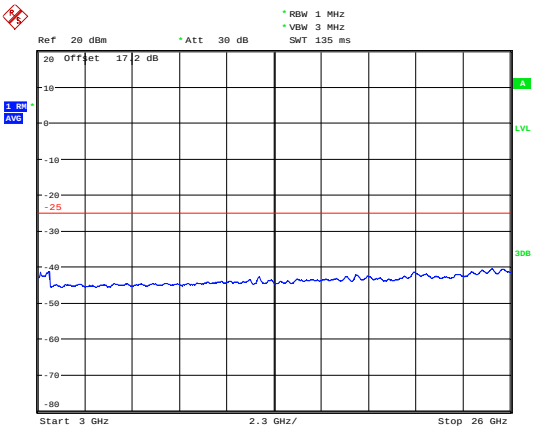
Date: 3.JUL.2019 16:13:29

LTE Band 7 15MHz CH-Low 3GHz~26GHz



Date: 3.JUL.2019 16:17:12

LTE Band 7 15MHz CH-Middle 3GHz~26GHz



Date: 3.JUL.2019 16:16:46

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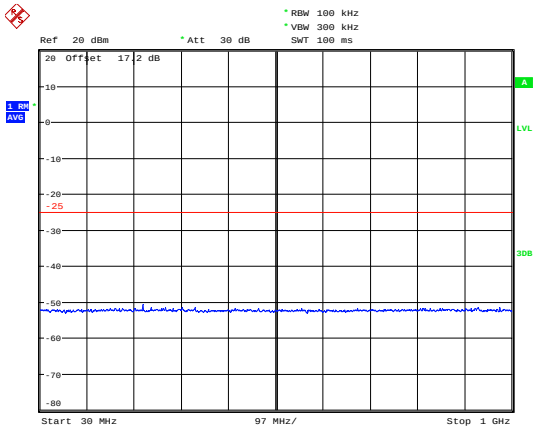
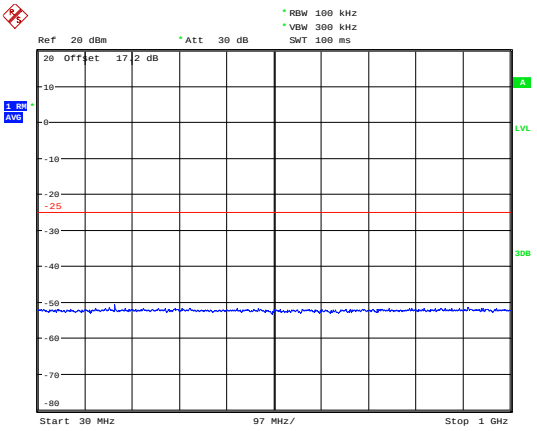
LTE Band 7 15MHz CH-High 30MHz~1GHz



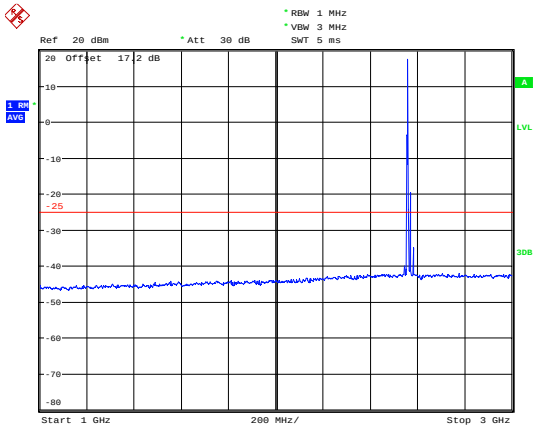
Date: 3.JUL.2019 16:08:02

LTE Band 7 20MHz CH-Low 30MHz~1GHz



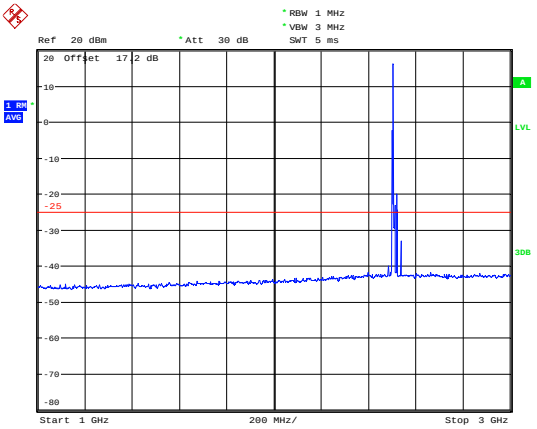
Date: 3.JUL.2019 16:08:27

LTE Band 7 15MHz CH-High 1GHz~3GHz



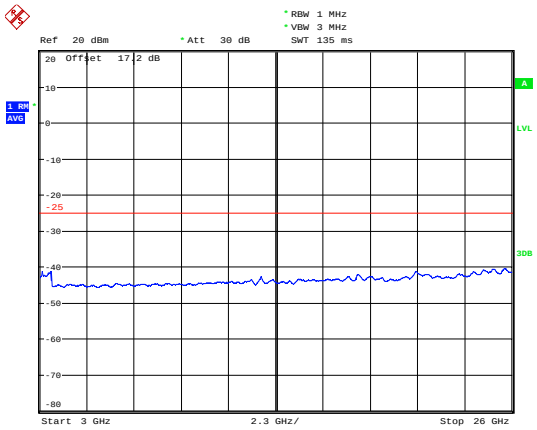
Date: 3.JUL.2019 16:13:49

LTE Band 7 20MHz CH-Low 1GHz~3GHz



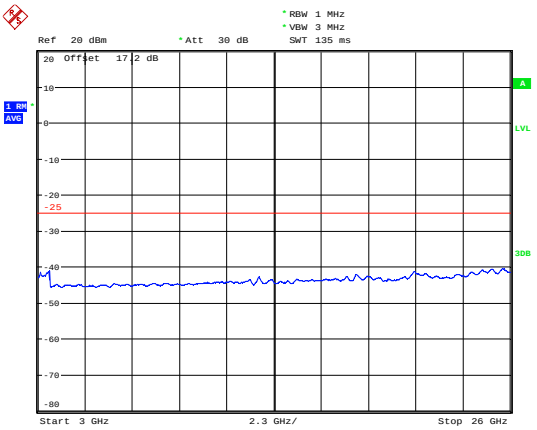
Date: 3.JUL.2019 16:10:35

LTE Band 7 15MHz CH-High 3GHz~26GHz



Date: 3.JUL.2019 16:16:29

LTE Band 7 20MHz CH-Low 3GHz~26GHz



Date: 3.JUL.2019 16:18:08

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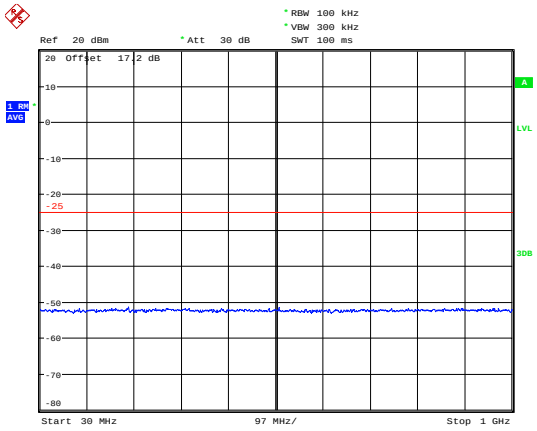
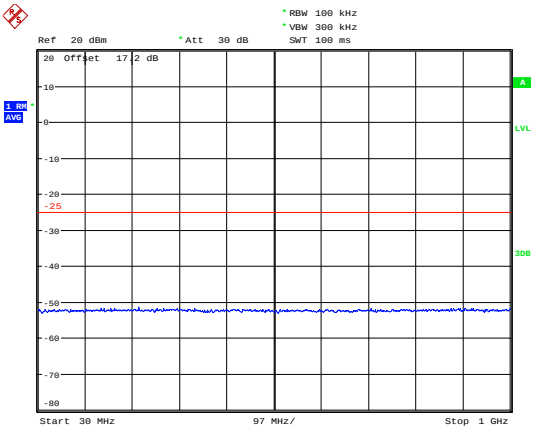
LTE Band 7 20MHz CH-Middle 30MHz~1GHz



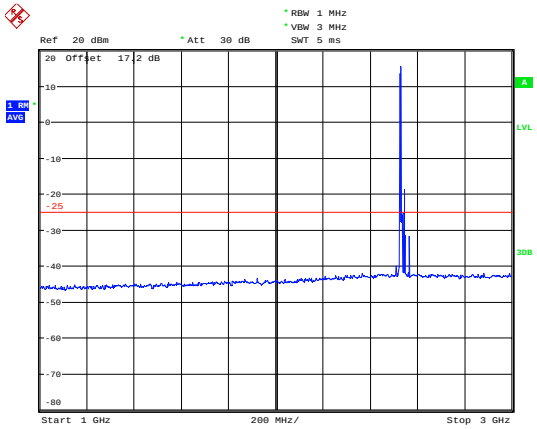
Date: 3.JUL.2019 16:08:52

LTE Band 7 20MHz CH-High 30MHz~1GHz



Date: 3.JUL.2019 16:09:14

LTE Band 7 20MHz CH-Middle 1GHz~3GHz



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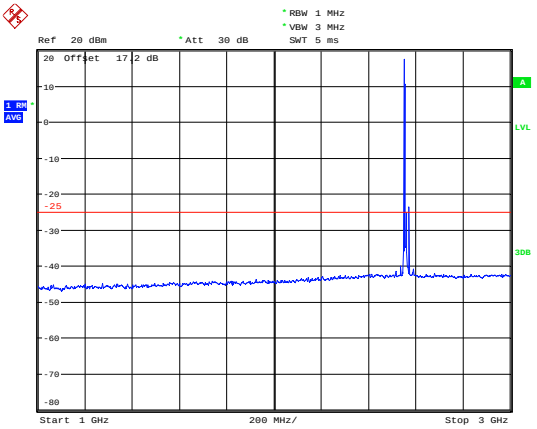
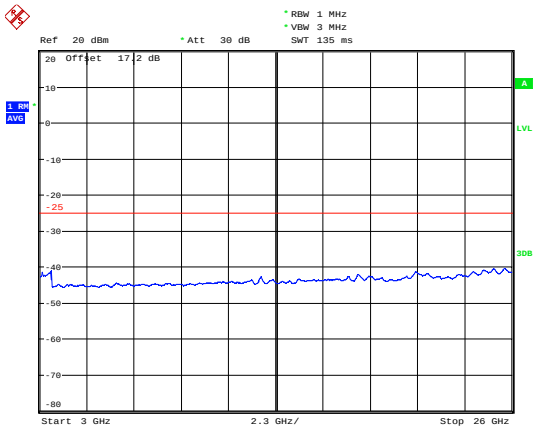
LTE Band 7 20MHz CH-High 1GHz~3GHz



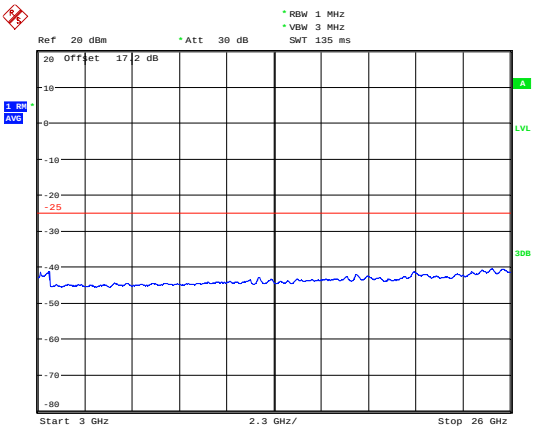
Date: 3.JUL.2019 16:09:52

LTE Band 7 20MHz CH-Middle 3GHz~26GHz



Date: 3.JUL.2019 16:18:31

LTE Band 7 20MHz CH-High 3GHz~26GHz



Date: 3.JUL.2019 16:19:07

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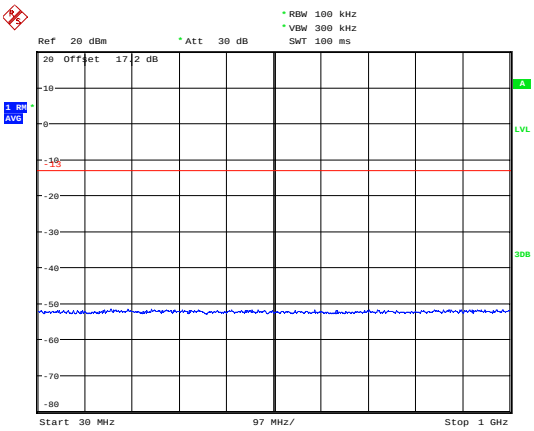
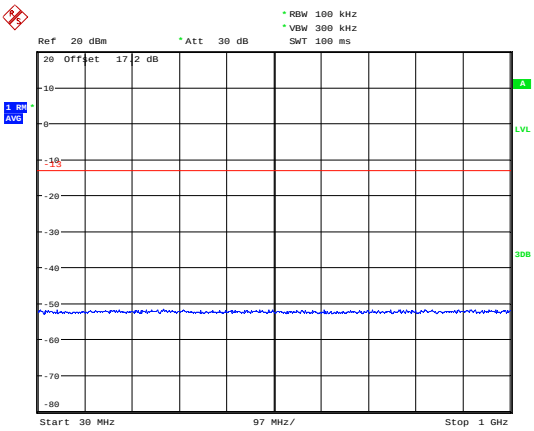
LTE Band 66 1.4MHz CH-Low 30MHz~1GHz



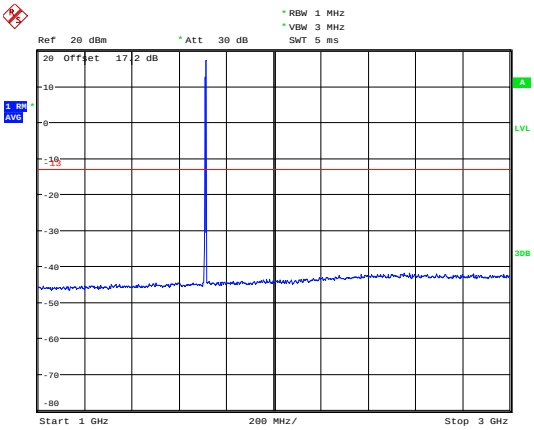
Date: 3.JUL.2019 16:37:03

LTE Band 66 1.4MHz CH-Middle 30MHz~1GHz



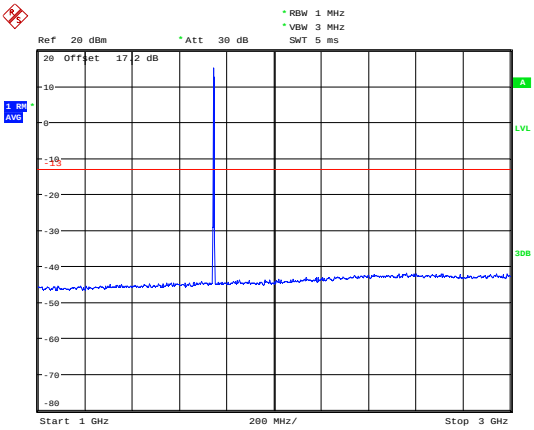
Date: 3.JUL.2019 16:37:22

LTE Band 66 1.4MHz CH-Low 1GHz~3GHz



Date: 3.JUL.2019 17:39:13

LTE Band 66 1.4MHz CH-Middle 1GHz~3GHz



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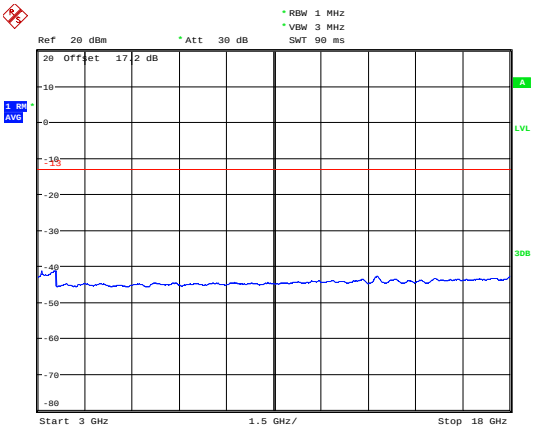
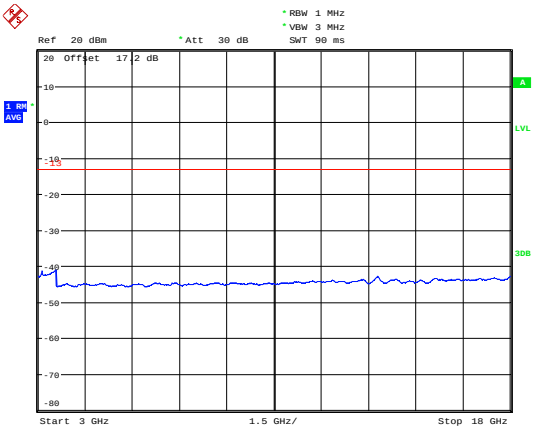
LTE Band 66 1.4MHz CH-Low 3GHz~18GHz



Date: 3.JUL.2019 17:45:44

LTE Band 66 1.4MHz CH-Middle 3GHz~18GHz



Date: 3.JUL.2019 17:46:02

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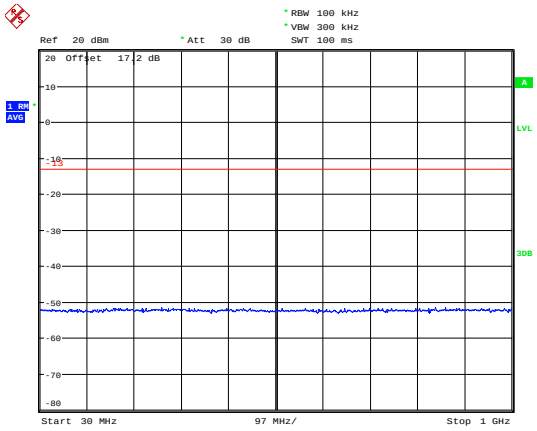
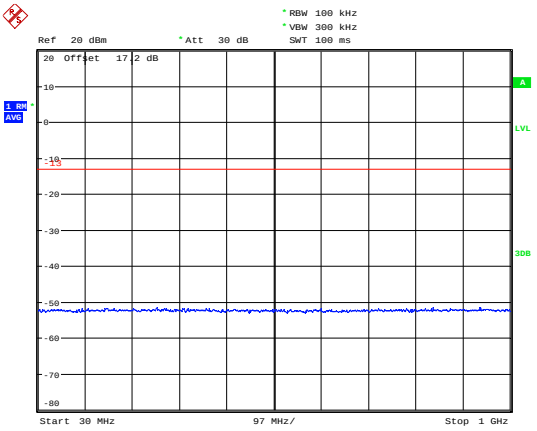
LTE Band 66 1.4MHz CH-High 30MHz~1GHz



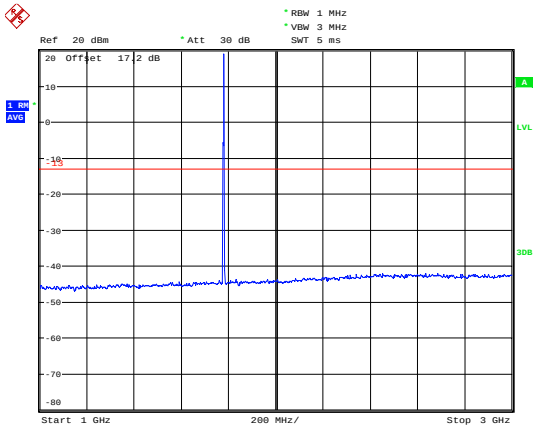
Date: 3.JUL.2019 16:37:43

LTE Band 66 3MHz CH-Low 30MHz~1GHz



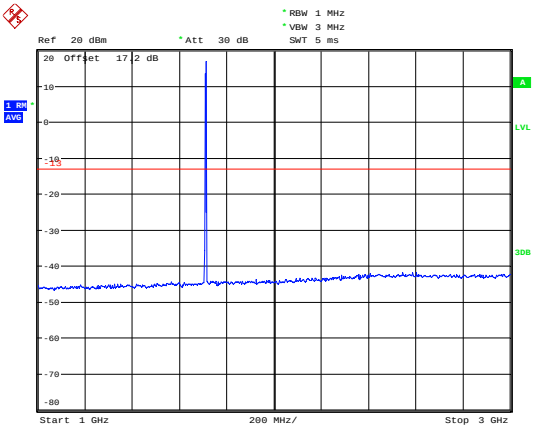
Date: 3.JUL.2019 16:57:06

LTE Band 66 1.4MHz CH-High 1GHz~3GHz



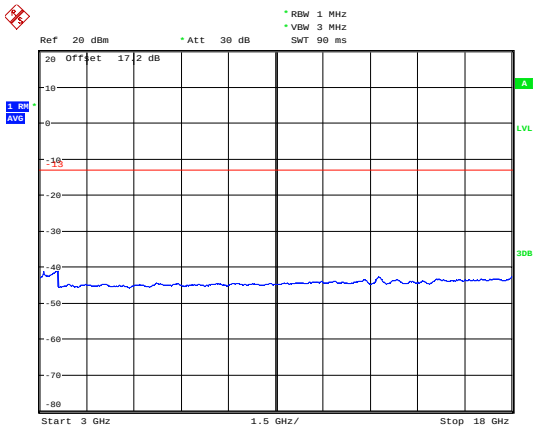
Date: 3.JUL.2019 17:39:59

LTE Band 66 3MHz CH-Low 1GHz~3GHz



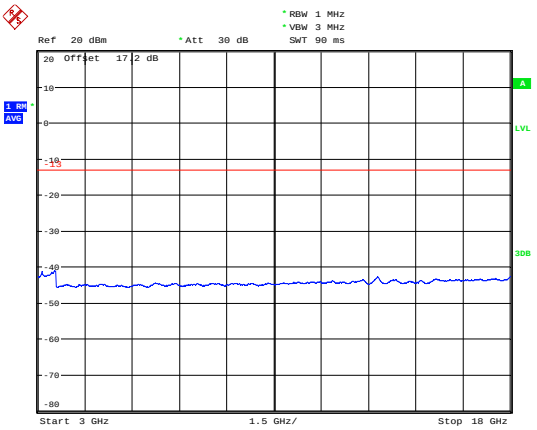
Date: 3.JUL.2019 17:40:25

LTE Band 66 1.4MHz CH-High 3GHz~18GHz



Date: 3.JUL.2019 17:46:22

LTE Band 66 3MHz CH-Low 3GHz~18GHz



Date: 3.JUL.2019 18:23:35

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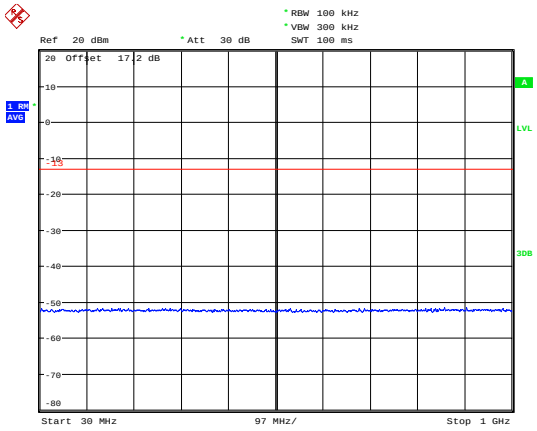
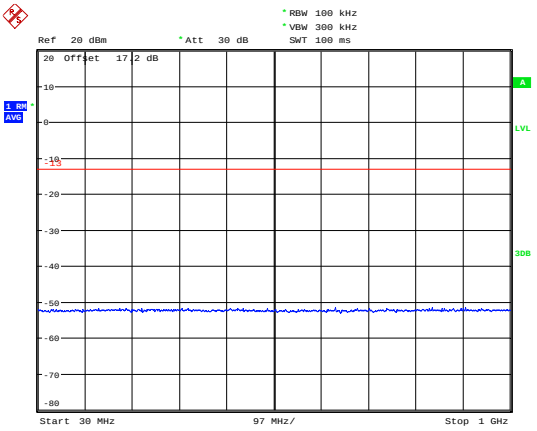
LTE Band 66 3MHz CH-Middle 30MHz~1GHz



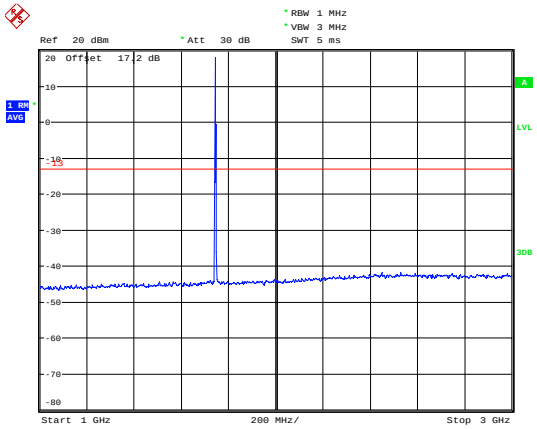
Date: 3.JUL.2019 16:57:23

LTE Band 66 3MHz CH-High 30MHz~1GHz



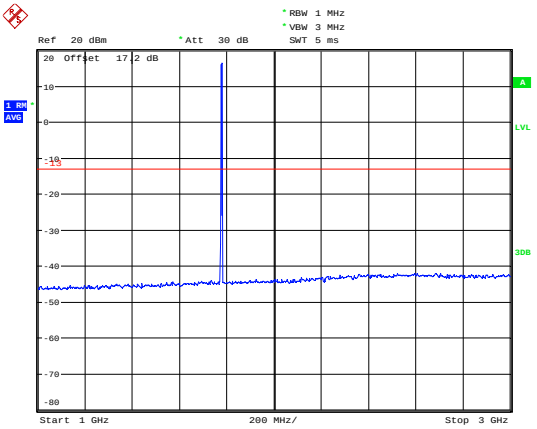
Date: 3.JUL.2019 16:57:43

LTE Band 66 3MHz CH-Middle 1GHz~3GHz



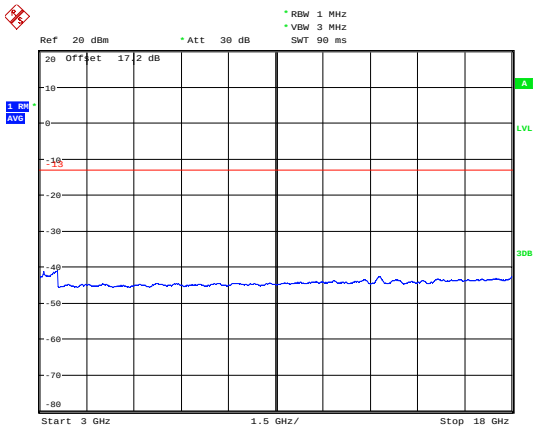
Date: 3.JUL.2019 17:40:44

LTE Band 66 3MHz CH-High 1GHz~3GHz



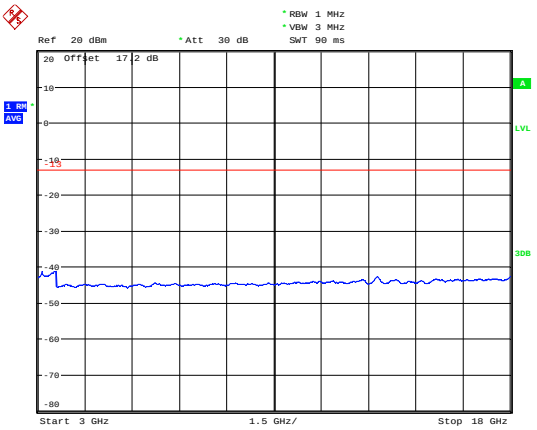
Date: 3.JUL.2019 17:41:06

LTE Band 66 3MHz CH-Middle 3GHz~18GHz



Date: 3.JUL.2019 18:23:53

LTE Band 66 3MHz CH-High 3GHz~18GHz



Date: 3.JUL.2019 18:24:33

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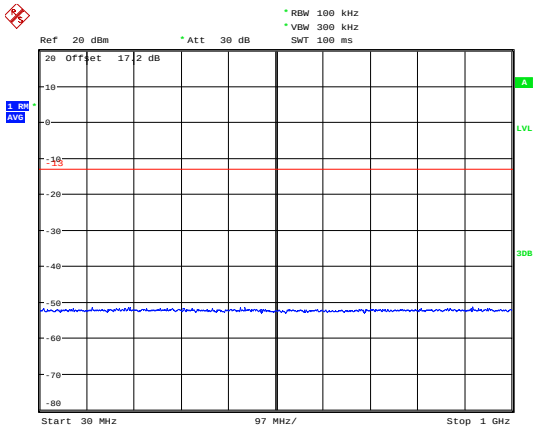
LTE Band 66 5MHz CH-Low 30MHz~1GHz



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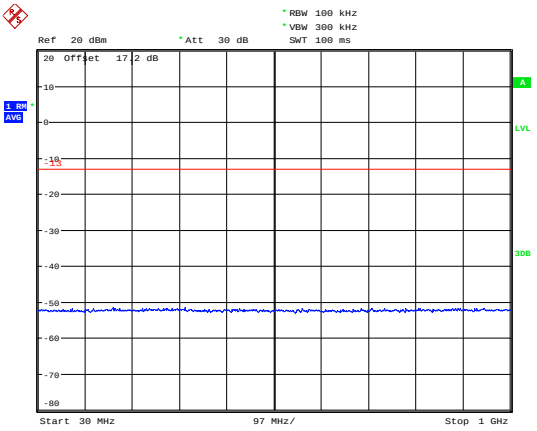
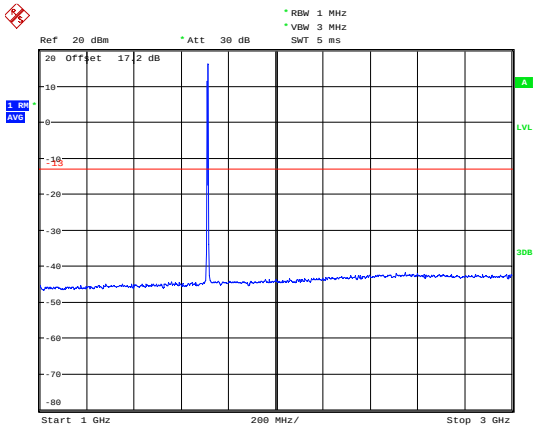
LTE Band 66 5MHz CH-Middle 30MHz~1GHz



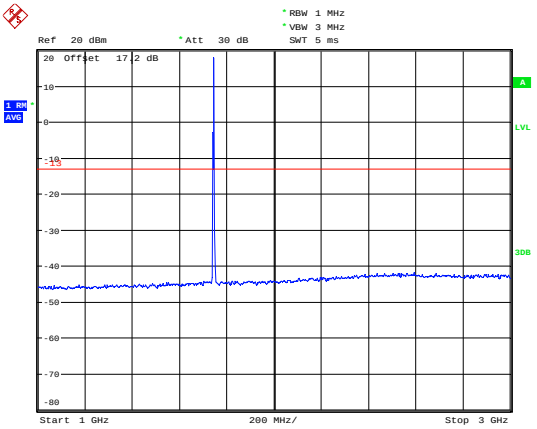
Date: 3.JUL.2019 16:59:52

LTE Band 66 5MHz CH-Low 1GHz~3GHz



Date: 3.JUL.2019 17:41:39

LTE Band 66 5MHz CH-Middle 1GHz~3GHz



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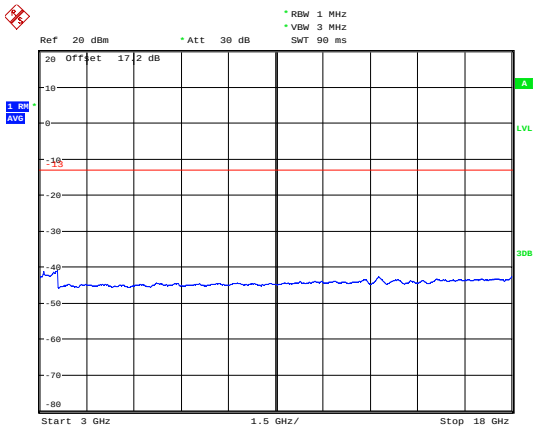
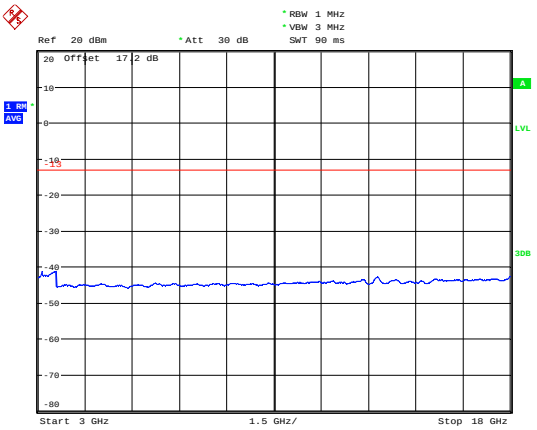
LTE Band 66 5MHz CH-Low 3GHz~18GHz



Date: 3.JUL.2019 18:25:40

LTE Band 66 5MHz CH-Middle 3GHz~18GHz



Date: 3.JUL.2019 18:26:02

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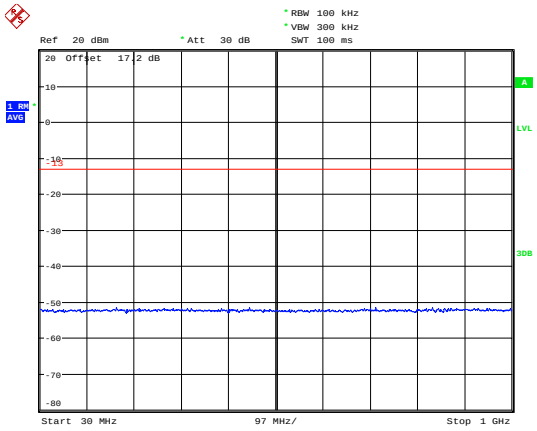
LTE Band 66 5MHz CH-High 30MHz~1GHz



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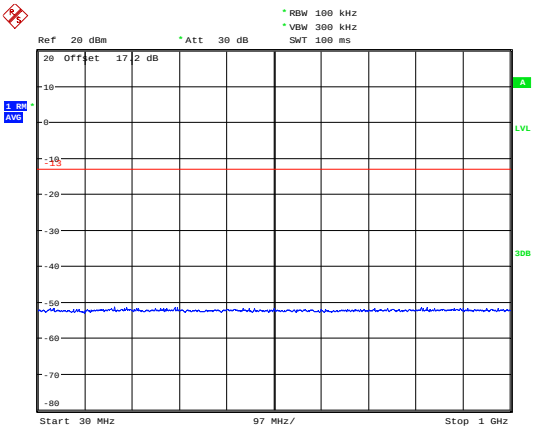
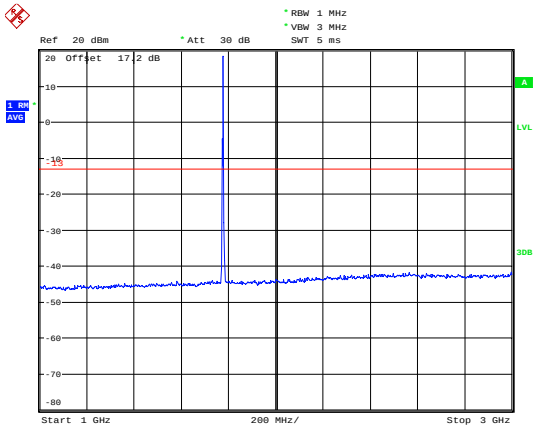
LTE Band 66 10MHz CH-Low 30MHz~1GHz



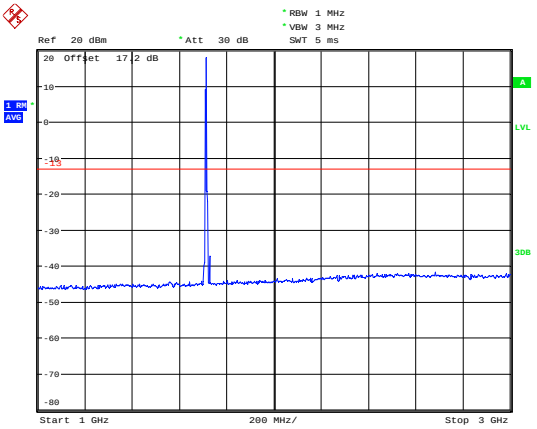
Date: 3.JUL.2019 17:03:17

LTE Band 66 5MHz CH-High 1GHz~3GHz



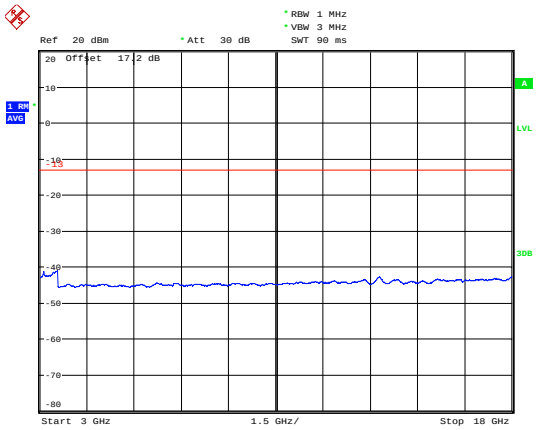
Date: 3.JUL.2019 17:42:17

LTE Band 66 10MHz CH-Low 1GHz~3GHz



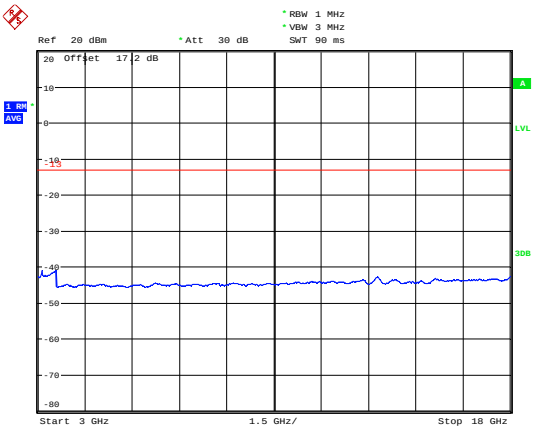
Date: 3.JUL.2019 17:42:42

LTE Band 66 5MHz CH-High 3GHz~18GHz



Date: 3.JUL.2019 18:26:18

LTE Band 66 10MHz CH-Low 3GHz~18GHz



Date: 3.JUL.2019 18:37:40

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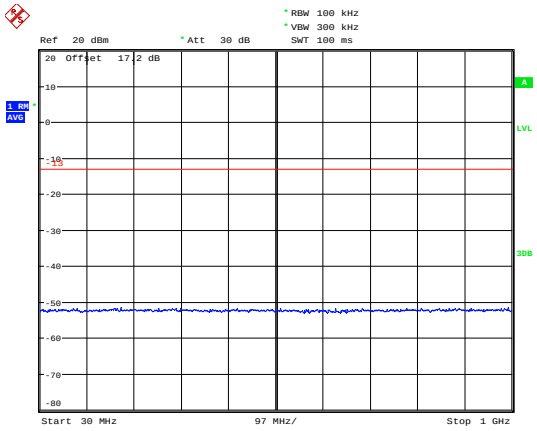
LTE Band 66 10MHz CH-Middle 30MHz~1GHz



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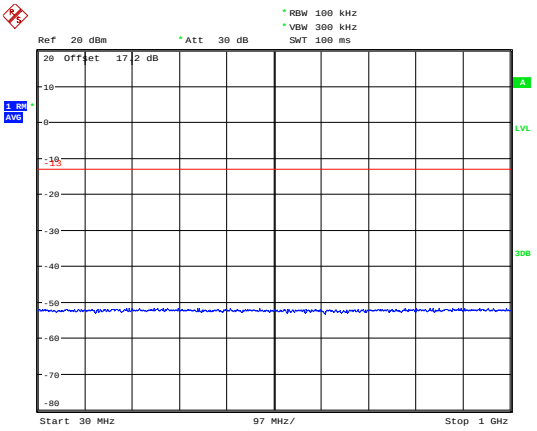
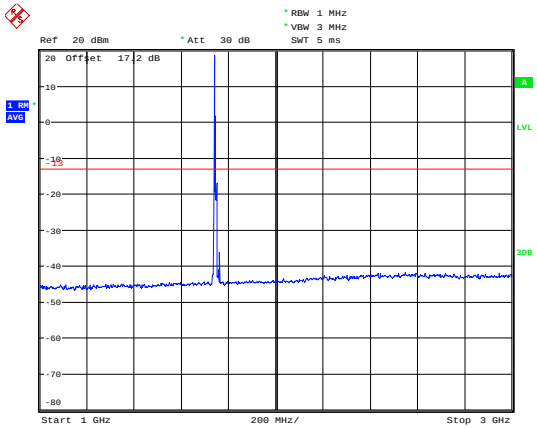
LTE Band 66 10MHz CH-High 30MHz~1GHz



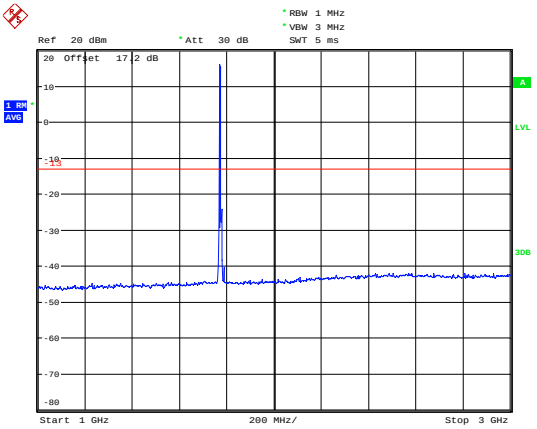
Date: 3.JUL.2019 17:04:02

LTE Band 66 10MHz CH-Middle 1GHz~3GHz



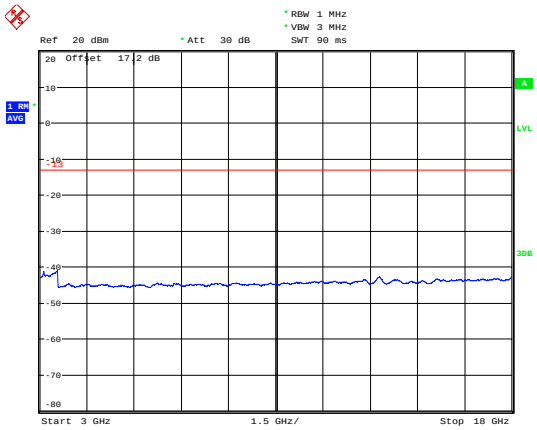
Date: 3.JUL.2019 17:43:05

LTE Band 66 10MHz CH-High 1GHz~3GHz



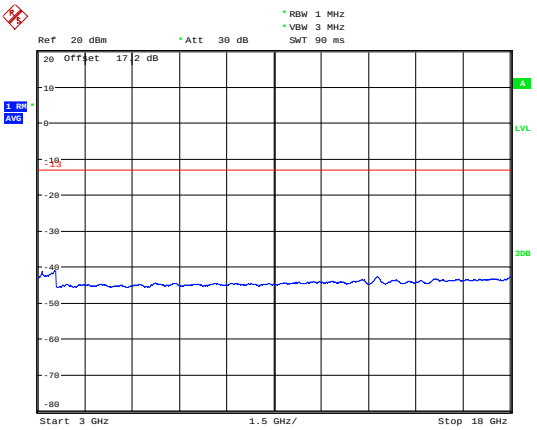
Date: 3.JUL.2019 17:43:23

LTE Band 66 10MHz CH-Middle 3GHz~18GHz



Date: 3.JUL.2019 18:38:06

LTE Band 66 10MHz CH-High 3GHz~18GHz



Date: 3.JUL.2019 18:38:36

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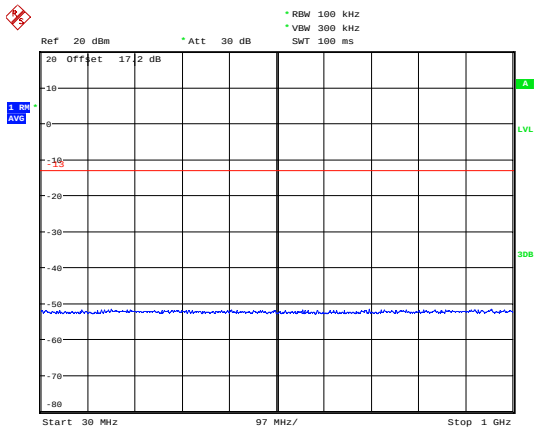
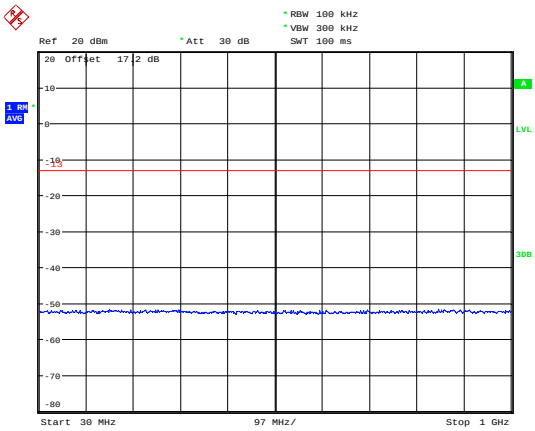
LTE Band 66 15MHz CH-Low 30MHz~1GHz



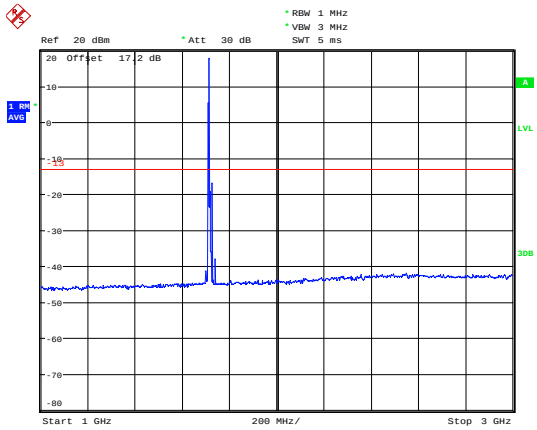
Date: 3.JUL.2019 17:06:40

LTE Band 66 15MHz CH-Middle 30MHz~1GHz



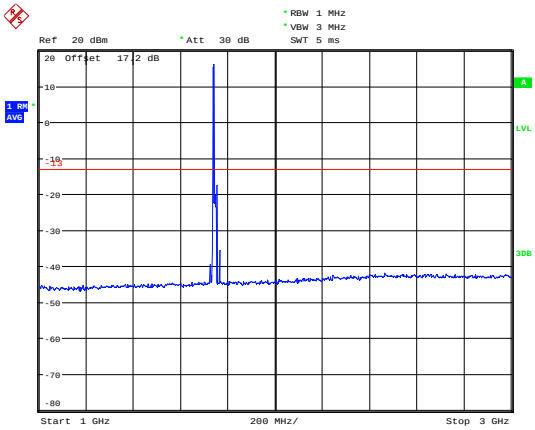
Date: 3.JUL.2019 17:06:54

LTE Band 66 15MHz CH-Low 1GHz~3GHz



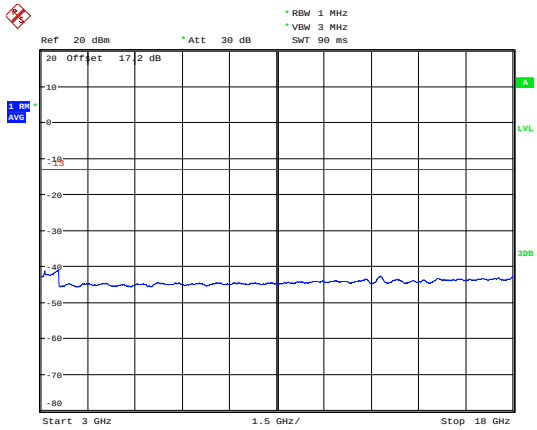
Date: 3.JUL.2019 17:43:51

LTE Band 66 15MHz CH-Middle 1GHz~3GHz



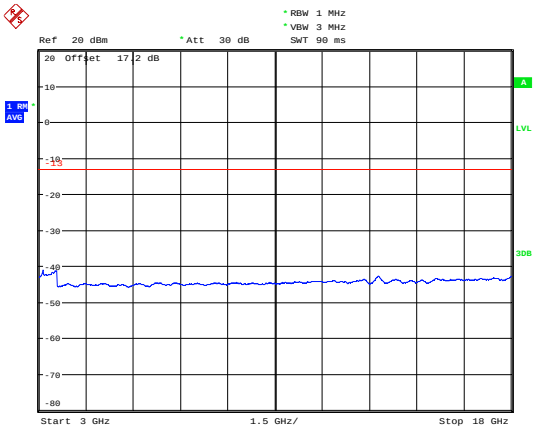
Date: 3.JUL.2019 17:44:07

LTE Band 66 15MHz CH-Low 3GHz~18GHz



Date: 3.JUL.2019 18:39:13

LTE Band 66 15MHz CH-Middle 3GHz~18GHz



Date: 3.JUL.2019 18:39:32

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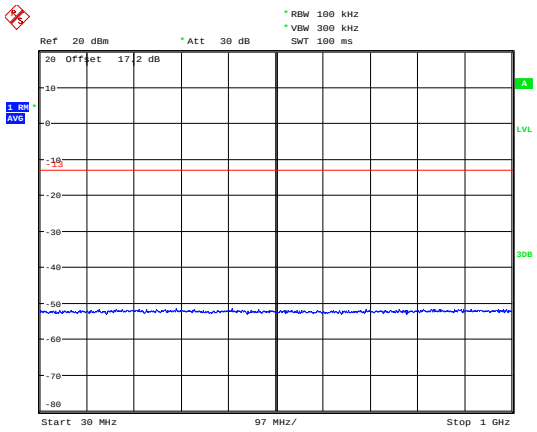
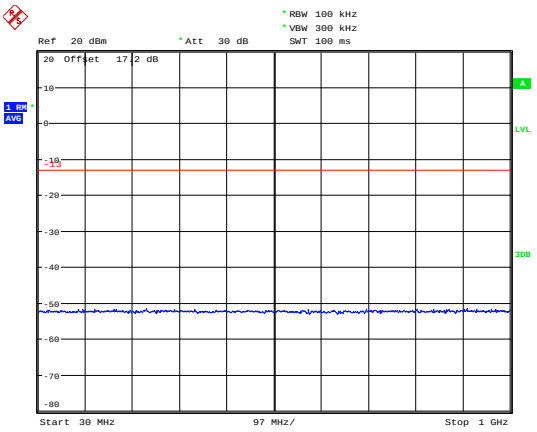
LTE Band 66 15MHz CH-High 30MHz~1GHz



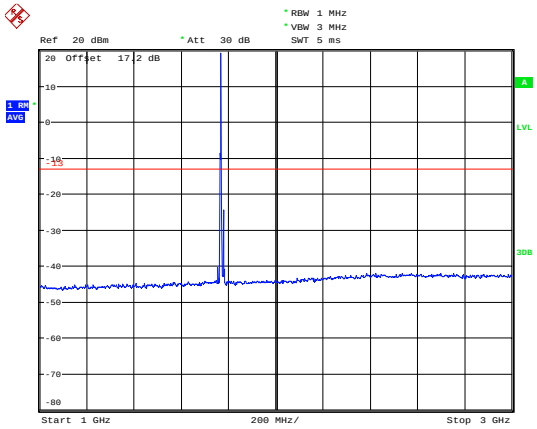
Date: 3.JUL.2019 17:07:16

LTE Band 66 20MHz CH-Low 30MHz~1GHz



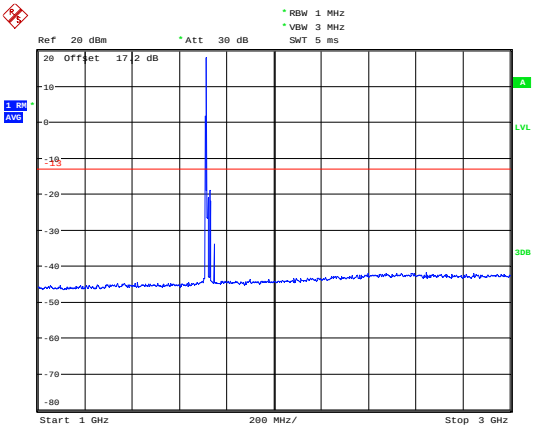
Date: 3.JUL.2019 17:08:02

LTE Band 66 15MHz CH-High 1GHz~3GHz



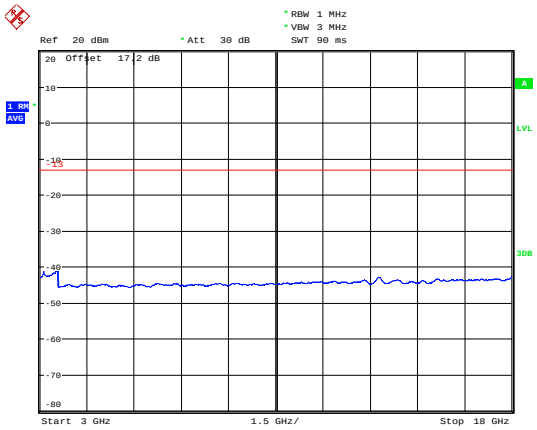
Date: 3.JUL.2019 17:44:27

LTE Band 66 20MHz CH-Low 1GHz~3GHz



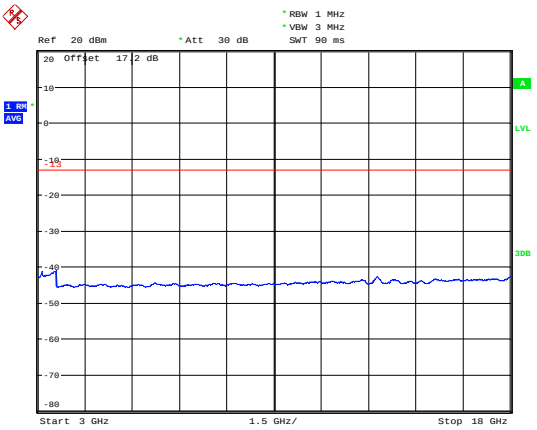
Date: 3.JUL.2019 17:10:22

LTE Band 66 15MHz CH-High 3GHz~18GHz



Date: 3.JUL.2019 18:40:01

LTE Band 66 20MHz CH-Low 3GHz~18GHz



Date: 3.JUL.2019 18:40:26

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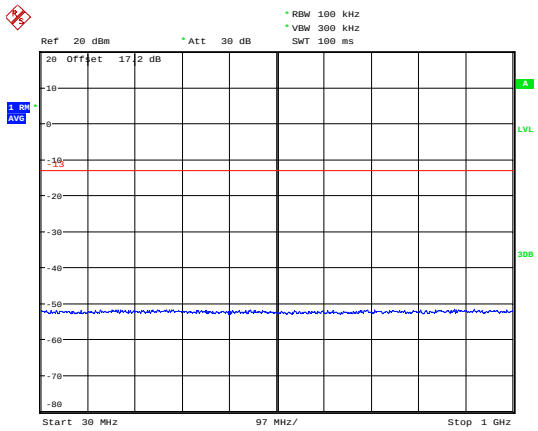
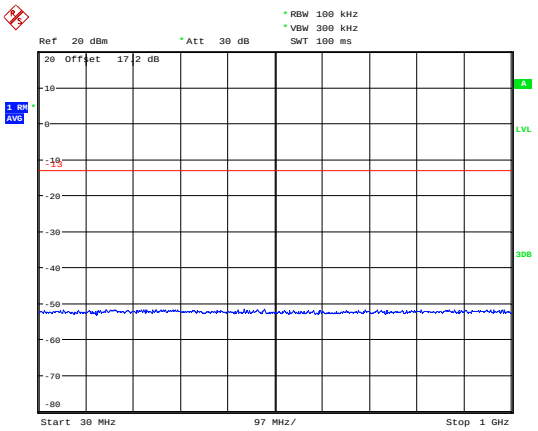
LTE Band 66 20MHz CH-Middle 30MHz~1GHz



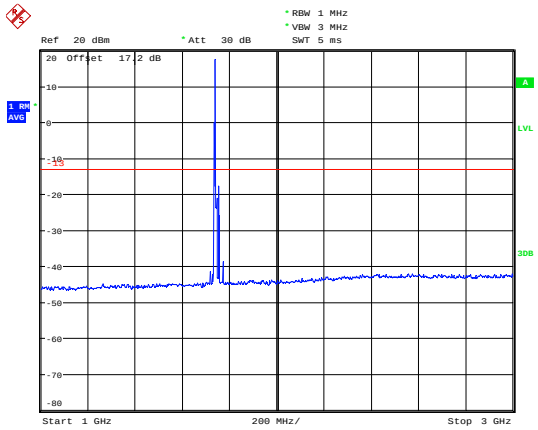
Date: 3.JUL.2019 17:08:19

LTE Band 66 20MHz CH-High 30MHz~1GHz



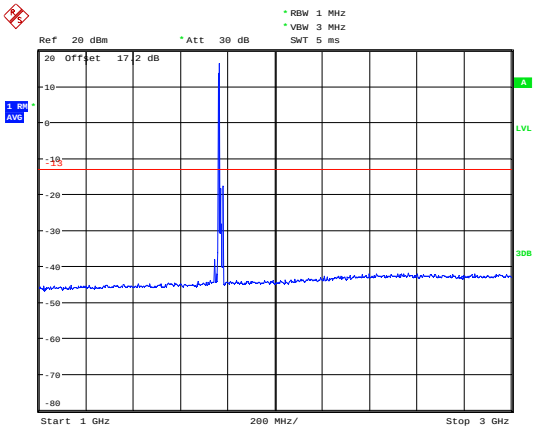
Date: 3.JUL.2019 17:08:41

LTE Band 66 20MHz CH-Middle 1GHz~3GHz



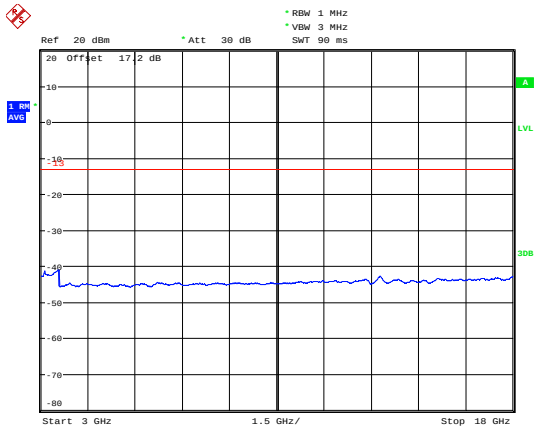
Date: 3.JUL.2019 17:10:00

LTE Band 66 20MHz CH-High 1GHz~3GHz



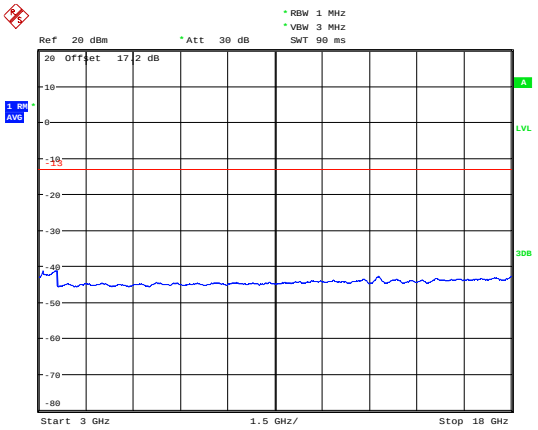
Date: 3.JUL.2019 17:09:40

LTE Band 66 20MHz CH-Middle 3GHz~18GHz



Date: 3.JUL.2019 18:40:55

LTE Band 66 20MHz CH-High 3GHz~18GHz



Date: 3.JUL.2019 18:41:20

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5.8 Radiates Spurious Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=200Hz,VBW=600Hz for 9kHz150kHz , RBW=10kHz, VBW=30kHz 150kHz-30MHz ,RBW=100kHz,VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP

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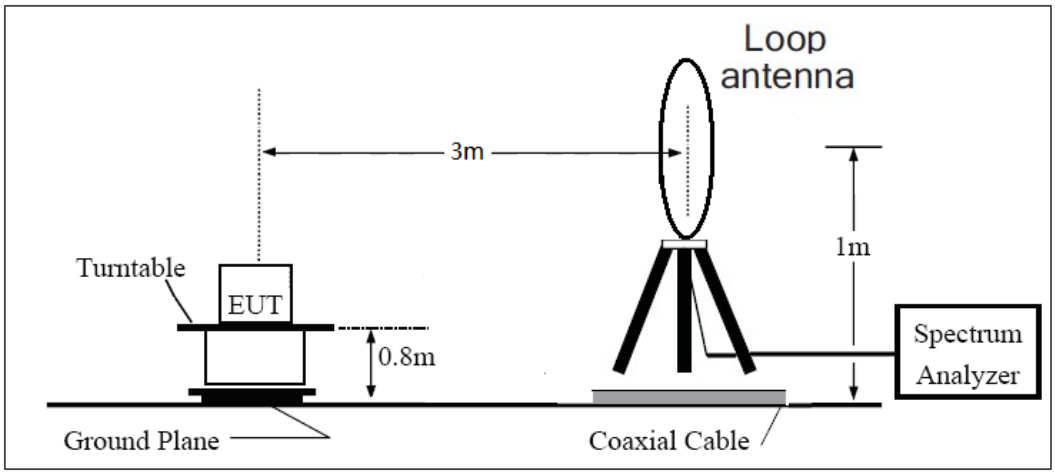
= EIRP-2.15dBi.

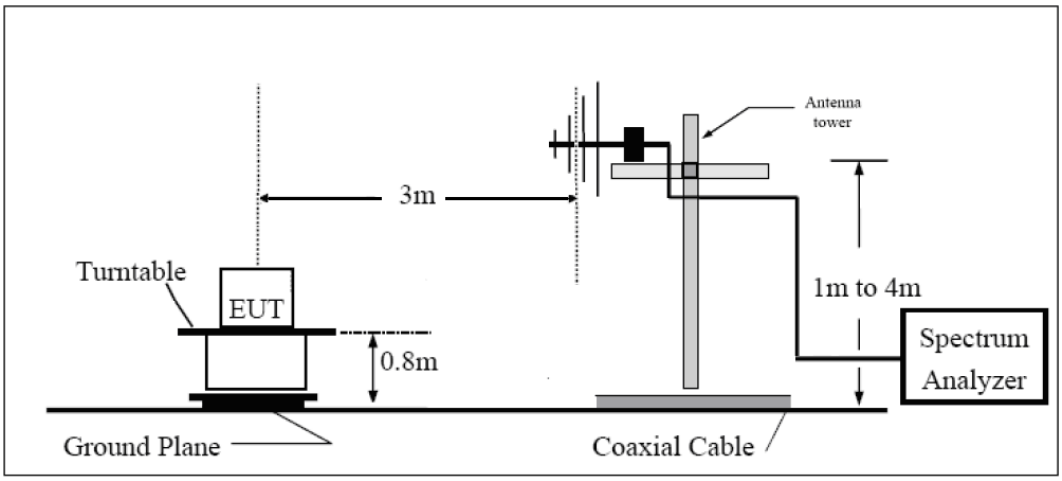
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

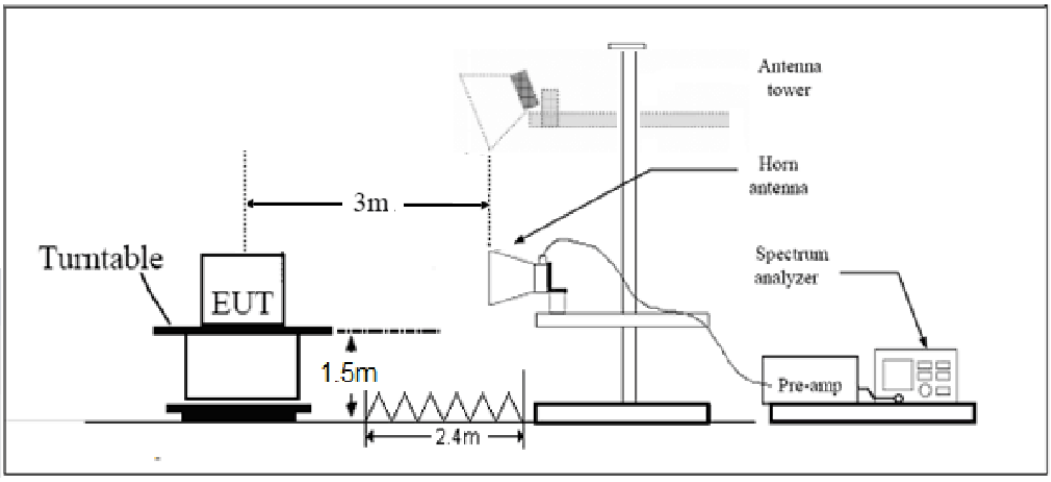
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

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Limits

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.”

Rule Part 27.53(m) 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section.

Part 27.53 (h) Limit	-13 dBm
Part 27.53(m) Limit	-25 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95％ confidence level for the normal distribution is with the coverage factor *k* = ±1.96, *U*= ±3.55 dB.

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Test Result

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

WCDMA Band IV CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3424.8	-60.33	2.6	10.15	Horizontal	-52.78	-13.00	39.78	135
3	5137.2	-57.97	2.4	11.35	Horizontal	-49.02	-13.00	36.02	270
4	6849.6	-59.07	4.5	10.85	Horizontal	-52.72	-13.00	39.72	0
5	8562.0	-56.86	5.1	11.35	Horizontal	-50.61	-13.00	37.61	45
6	10274.4	-54.70	5.3	11.95	Horizontal	-48.05	-13.00	35.05	135
7	11986.8	-53.74	5.5	13.55	Horizontal	-45.69	-13.00	32.69	270
8	13699.2	-51.98	6.3	13.75	Horizontal	-44.53	-13.00	31.53	45
9	15411.6	-53.89	6.7	13.85	Horizontal	-46.74	-13.00	33.74	135
10	17124.0	-50.77	6.8	14.25	Horizontal	-43.32	-13.00	30.32	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

WCDMA Band IV CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.2	-59.42	2.6	10.75	Horizontal	-51.27	-13.00	38.27	315
3	5197.8	-61.15	2.4	11.05	Horizontal	-52.50	-13.00	39.50	135
4	6930.4	-57.68	4.5	11.15	Horizontal	-51.03	-13.00	38.03	270
5	8663.0	-56.07	5.1	11.35	Horizontal	-49.82	-13.00	36.82	45
6	10395.6	-54.15	5.3	11.95	Horizontal	-47.50	-13.00	34.50	135
7	12128.2	-53.88	5.5	13.55	Horizontal	-45.83	-13.00	32.83	270
8	13860.8	-52.57	6.3	13.75	Horizontal	-45.12	-13.00	32.12	315
9	15593.4	-52.89	6.7	13.85	Horizontal	-45.74	-13.00	32.74	135
10	17326.0	-50.64	6.8	14.25	Horizontal	-43.19	-13.00	30.19	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

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WCDMA Band IV CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3505.2	-56.02	2.6	10.15	Horizontal	-48.47	-13.00	35.47	0
3	5254.1	-60.97	2.4	11.05	Horizontal	-52.32	-13.00	39.32	90
4	7010.4	-57.27	4.5	11.15	Horizontal	-50.62	-13.00	37.62	45
5	8763.0	-55.84	5.1	11.35	Horizontal	-49.59	-13.00	36.59	135
6	10515.6	-52.94	5.3	11.95	Horizontal	-46.29	-13.00	33.29	270
7	12268.2	-53.76	5.5	13.55	Horizontal	-45.71	-13.00	32.71	0
8	14020.8	-52.09	6.3	13.75	Horizontal	-44.64	-13.00	31.64	45
9	15773.4	-53.32	6.7	13.85	Horizontal	-46.17	-13.00	33.17	135
10	17526.0	-50.81	6.8	14.25	Horizontal	-43.36	-13.00	30.36	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

LTE Band 4 QPSK 20MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3440.0	-58.98	2.6	10.15	Horizontal	-51.43	-13.00	38.43	90
3	5133.4	-44.32	2.4	11.35	Horizontal	-35.37	-13.00	22.37	45
4	6880.0	-48.46	4.5	10.85	Horizontal	-42.11	-13.00	29.11	315
5	8600.0	-56.35	5.1	11.35	Horizontal	-50.10	-13.00	37.10	270
6	10320.0	-53.65	5.3	11.95	Horizontal	-47.00	-13.00	34.00	315
7	12040.0	-54.59	5.5	13.55	Horizontal	-46.54	-13.00	33.54	135
8	13760.0	-51.76	6.3	13.75	Horizontal	-44.31	-13.00	31.31	90
9	15480.0	-53.77	6.7	13.85	Horizontal	-46.62	-13.00	33.62	315
10	17200.0	-50.56	6.8	14.25	Horizontal	-43.11	-13.00	30.11	135

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

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LTE Band 4 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-55.91	2.6	10.75	Horizontal	-47.76	-13.00	34.76	270
3	5170.9	-46.24	2.4	11.05	Horizontal	-37.59	-13.00	24.59	90
4	6930.0	-55.00	4.5	11.15	Horizontal	-48.35	-13.00	35.35	45
5	8662.5	-56.16	5.1	11.35	Horizontal	-49.91	-13.00	36.91	315
6	10395.0	-54.11	5.3	11.95	Horizontal	-47.46	-13.00	34.46	315
7	12127.5	-54.61	5.5	13.55	Horizontal	-46.56	-13.00	33.56	135
8	13860.0	-51.83	6.3	13.75	Horizontal	-44.38	-13.00	31.38	270
9	15592.5	-53.45	6.7	13.85	Horizontal	-46.30	-13.00	33.30	0
10	17325.0	-49.83	6.8	14.25	Horizontal	-42.38	-13.00	29.38	45

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

LTE Band 4 QPSK 20MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3490.0	-57.32	2.6	10.15	Horizontal	-49.77	-13.00	36.77	135
3	5208.4	-46.43	2.4	11.05	Horizontal	-37.78	-13.00	24.78	270
4	6980.0	-53.48	4.5	11.15	Horizontal	-46.83	-13.00	33.83	90
5	8725.0	-56.67	5.1	11.35	Horizontal	-50.42	-13.00	37.42	45
6	10470.0	-54.97	5.3	11.95	Horizontal	-48.32	-13.00	35.32	0
7	12215.0	-53.91	5.5	13.55	Horizontal	-45.86	-13.00	32.86	45
8	13960.0	-52.83	6.3	13.75	Horizontal	-45.38	-13.00	32.38	225
9	15705.0	-53.67	6.7	13.85	Horizontal	-46.52	-13.00	33.52	315
10	17450.0	-50.88	6.8	14.25	Horizontal	-43.43	-13.00	30.43	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

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LTE Band 7 QPSK 20MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5002.1	-43.49	2.00	10.15	Horizontal	-35.34	-25.00	10.34	90
3	7530.0	-53.21	2.50	11.35	Horizontal	-44.36	-25.00	19.36	45
4	10040.0	-52.80	4.20	12.05	Horizontal	-44.95	-25.00	19.95	270
5	12550.0	-53.16	5.20	14.85	Horizontal	-43.51	-25.00	18.51	0
6	15060.0	-41.99	5.50	13.23	Horizontal	-34.26	-25.00	9.26	45
7	17570.0	-45.94	5.70	12.15	Horizontal	-39.49	-25.00	14.49	270
8	20080.0	--	--	--	--	--	--	--	--
9	22590.0	--	--	--	--	--	--	--	--
10	25100.0	--	--	--	--	--	--	--	--

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

LTE Band 7 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5052.4	-46.17	2.00	10.15	Horizontal	-38.02	-25.00	13.02	45
3	7605.0	-52.78	2.50	11.35	Horizontal	-43.93	-25.00	18.93	225
4	10140.0	-52.40	4.20	12.05	Horizontal	-44.55	-25.00	19.55	315
5	12675.0	-52.63	5.20	14.85	Horizontal	-42.98	-25.00	17.98	0
6	15210.0	-43.64	5.50	13.23	Horizontal	-35.91	-25.00	10.91	45
7	17745.0	-49.65	5.70	12.15	Horizontal	-43.20	-25.00	18.20	135
8	20280.0	--	--	--	--	--	--	--	--
9	22815.0	--	--	--	--	--	--	--	--
10	25350.0	--	--	--	--	--	--	--	--

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

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LTE Band 7 QPSK 20MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5102.3	-45.29	2.00	10.15	Horizontal	-37.14	-25.00	12.14	135
3	7680.0	-51.46	2.50	11.35	Horizontal	-42.61	-25.00	17.61	270
4	10240.0	-51.10	4.20	12.05	Horizontal	-43.25	-25.00	18.25	315
5	12800.0	-50.75	5.20	14.85	Horizontal	-41.10	-25.00	16.10	135
6	15360.0	-46.02	5.50	13.23	Horizontal	-38.29	-25.00	13.29	45
7	17920.0	-49.53	5.70	12.15	Horizontal	-43.08	-25.00	18.08	90
8	20480.0	--	--	--	--	--	--	--	--
9	23040.0	--	--	--	--	--	--	--	--
10	25600.0	--	--	--	--	--	--	--	--

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

LTE Band 66 QPSK 20MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3421.9	-59.57	2.6	10.15	Horizontal	-52.02	-13.00	39.02	45
3	5133	-46.61	2.4	11.35	Horizontal	-37.66	-13.00	24.66	135
4	6880	-48.95	4.5	10.85	Horizontal	-42.60	-13.00	29.60	270
5	8600	-54.64	5.1	11.35	Horizontal	-48.39	-13.00	35.39	90
6	10320	-54.21	5.3	11.95	Horizontal	-47.56	-13.00	34.56	45
7	12040	-54.85	5.5	13.55	Horizontal	-46.80	-13.00	33.80	0
8	13760	-51.57	6.3	13.75	Horizontal	-44.12	-13.00	31.12	45
9	15480	-53.48	6.7	13.85	Horizontal	-46.33	-13.00	33.33	225
10	17200	-50.74	6.8	14.25	Horizontal	-43.29	-13.00	30.29	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

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LTE Band 66 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3472.1	-60.45	2.6	10.75	Horizontal	-52.30	-13.00	39.30	0
3	5208.4	-51.52	2.4	11.05	Horizontal	-42.87	-13.00	29.87	315
4	6980	-56.68	4.5	11.15	Horizontal	-50.03	-13.00	37.03	135
5	8725	-56.50	5.1	11.35	Horizontal	-50.25	-13.00	37.25	90
6	10470	-54.28	5.3	11.95	Horizontal	-47.63	-13.00	34.63	315
7	12215	-55.20	5.5	13.55	Horizontal	-47.15	-13.00	34.15	135
8	13960	-51.92	6.3	13.75	Horizontal	-44.47	-13.00	31.47	270
9	15705	-53.55	6.7	13.85	Horizontal	-46.40	-13.00	33.40	0
10	17450	-50.20	6.8	14.25	Horizontal	-42.75	-13.00	29.75	90
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 66 QPSK 20MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3522	-55.90	2.6	10.15	Horizontal	-48.35	-13.00	35.35	90
3	5283	-49.62	2.4	11.05	Horizontal	-40.97	-13.00	27.97	45
4	7080	-53.86	4.5	11.15	Horizontal	-47.21	-13.00	34.21	315
5	8850	-56.97	5.1	11.35	Horizontal	-50.72	-13.00	37.72	135
6	10620	-53.18	5.3	11.95	Horizontal	-46.53	-13.00	33.53	0
7	12390	-54.35	5.5	13.55	Horizontal	-46.30	-13.00	33.30	315
8	14160	-50.68	6.3	13.75	Horizontal	-43.23	-13.00	30.23	270
9	15930	-53.63	6.7	13.85	Horizontal	-46.48	-13.00	33.48	225
10	17770	-52.22	6.8	14.25	Horizontal	-44.77	-13.00	31.77	0
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

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6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2019-05-19	2020-05-18
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2019-05-19	2020-05-18
Signal Analyzer	R&S	FSV30	100815	2018-12-16	2019-12-15
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2017-09-26	2019-09-25
Trilog Antenna	SCHWARZBECK	VUBL 9163	9163-201	2017-11-18	2019-11-17
Horn Antenna	R&S	HF907	100126	2018-07-07	2020-07-06
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2020-06-19
Signal generator	R&S	SMB 100A	102594	2019-05-19	2020-05-18
Climatic Chamber	ESPEC	SU-242	93000506	2017-12-17	2020-12-16
Preampflier	R&S	SCU18	102327	2019-05-19	2020-05-18
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2019-05-19	2020-05-18
RF Cable	Agilent	SMA 15cm	0001	2019-06-14	2019-09-13
Software	R&S	EMC32	9.26.0	/	/

*******END OF REPORT *******

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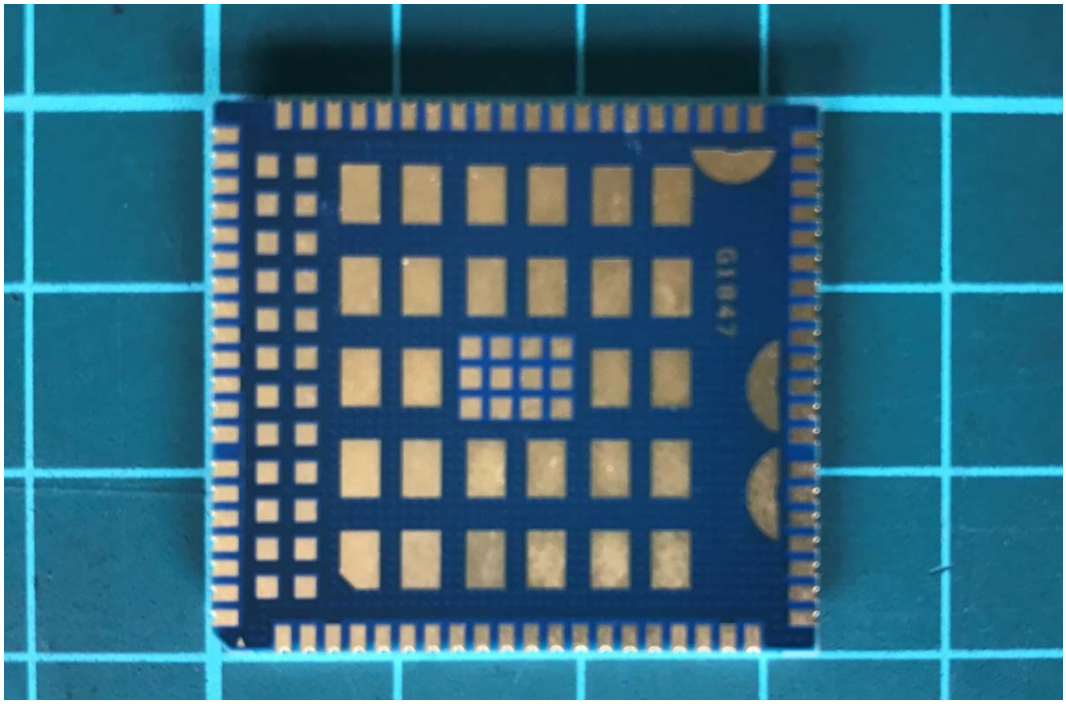
ANNEX A: EUT Appearance and Test Setup

A.1 EUT Appearance



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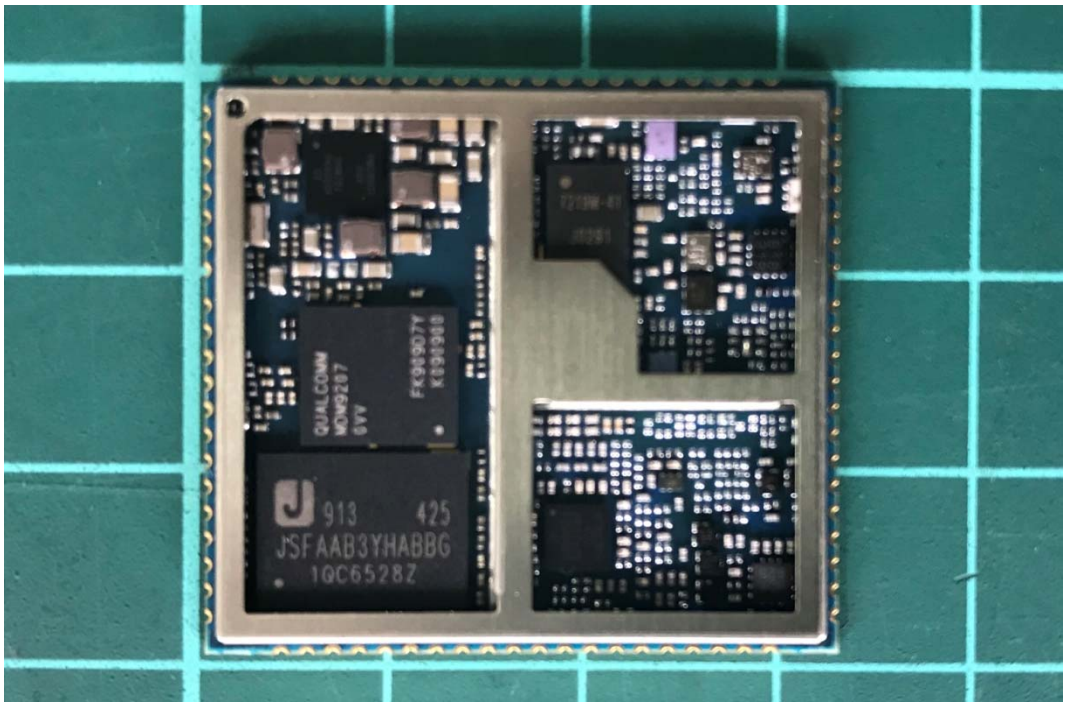

a: EUT

Picture 1 EUT and Accessory

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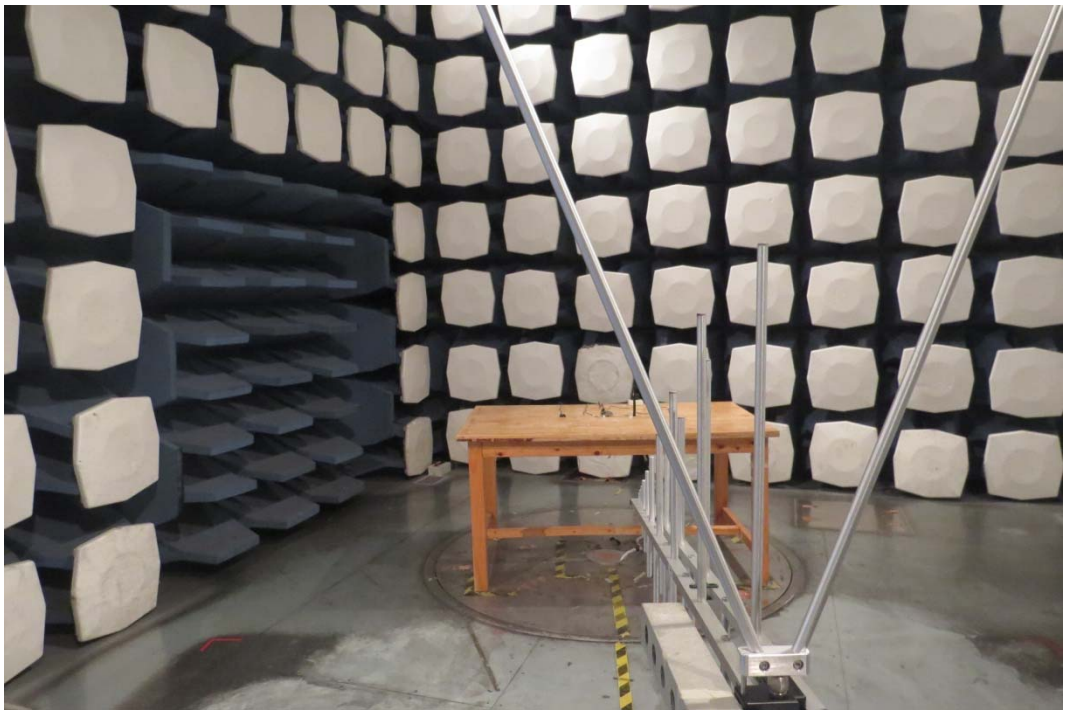
A.2 Test Setup



30MHz ~ 1GHz

Above 1GHz

Picture 2 Radiated Spurious Emissions Test setup

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