

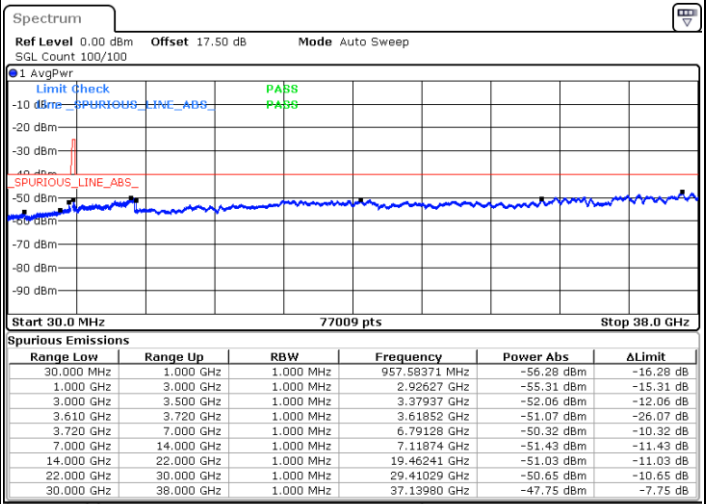
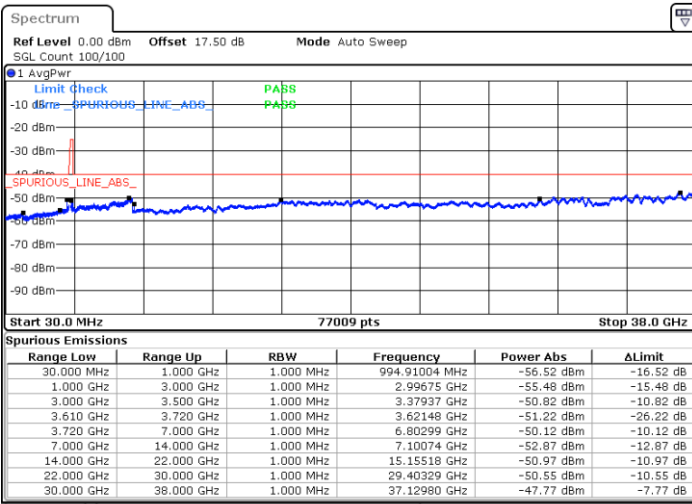


LTE Band 48 / 10MHz

16QAM

Lowest Channel / 1RB0

Lowest Channel / 1RBmax

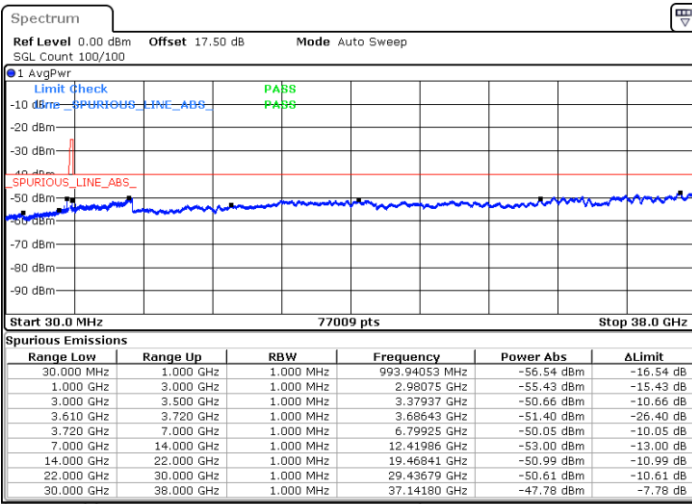


Date: 19.OCT.2019 00:12:43

Date: 19.OCT.2019 00:31:23

Lowest Channel / FullRB

N/A



Date: 19.OCT.2019 00:22:03

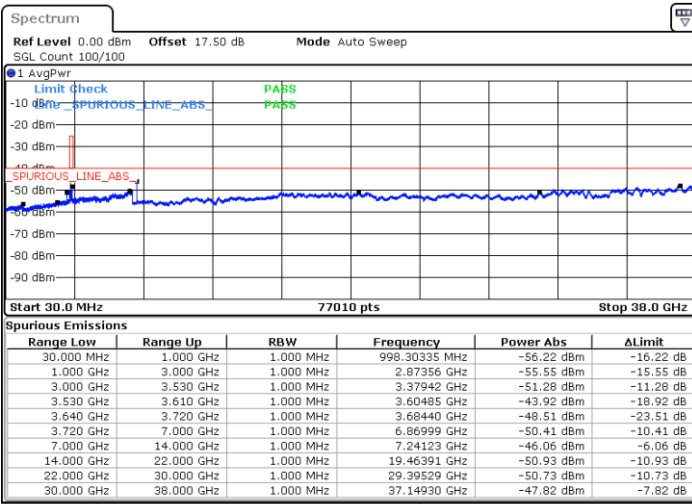


LTE Band 48 / 10MHz

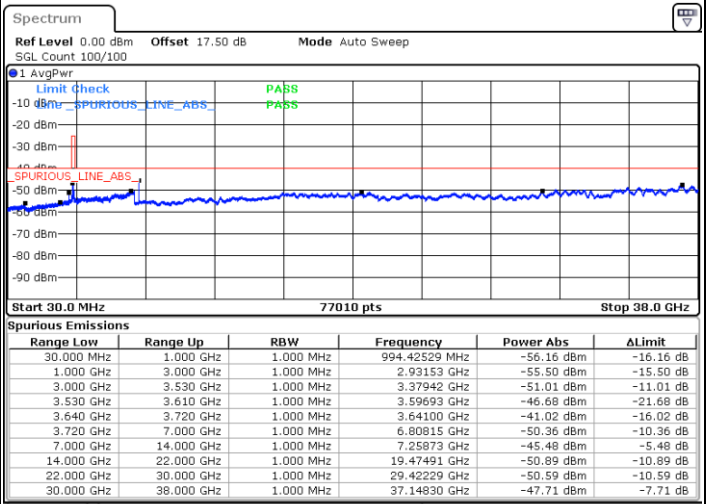
16QAM

MiddleChannel / 1RB0

Middle Channel / 1RBmax



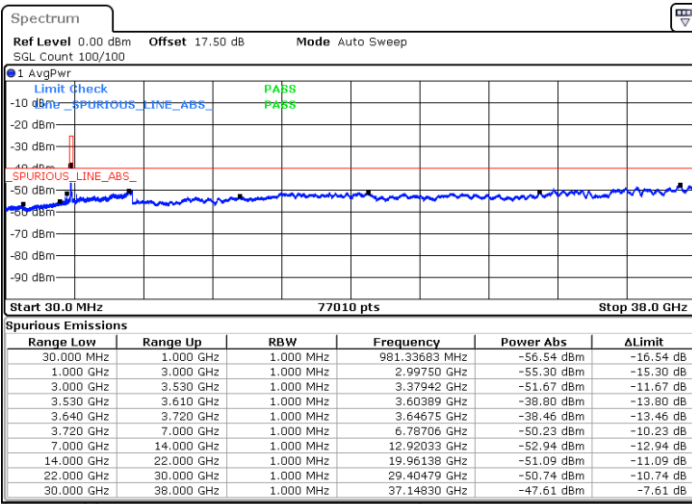
Date: 19.OCT.2019 00:15:49



Date: 19.OCT.2019 00:34:30

Middle Channel / FullIRB

N/A



Date: 19.OCT.2019 00:25:10

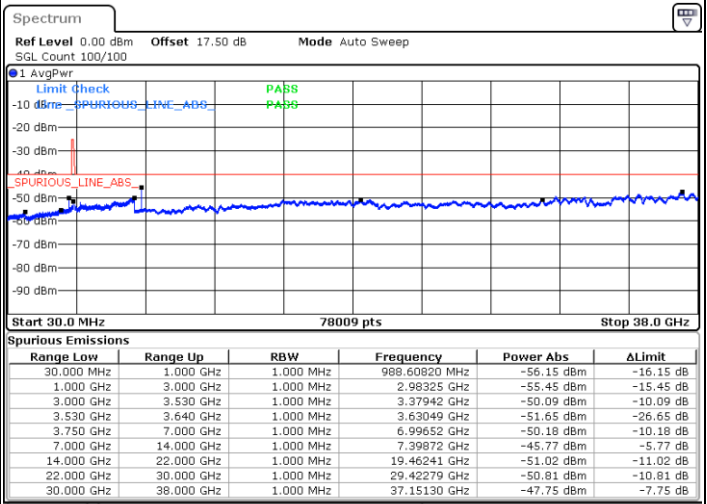
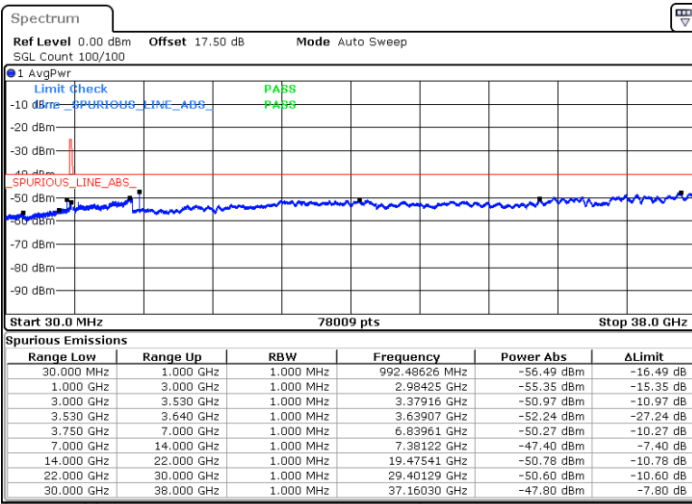


LTE Band 48 / 10MHz

16QAM

Highest Channel / 1RB0

Highest Channel / 1RBmax

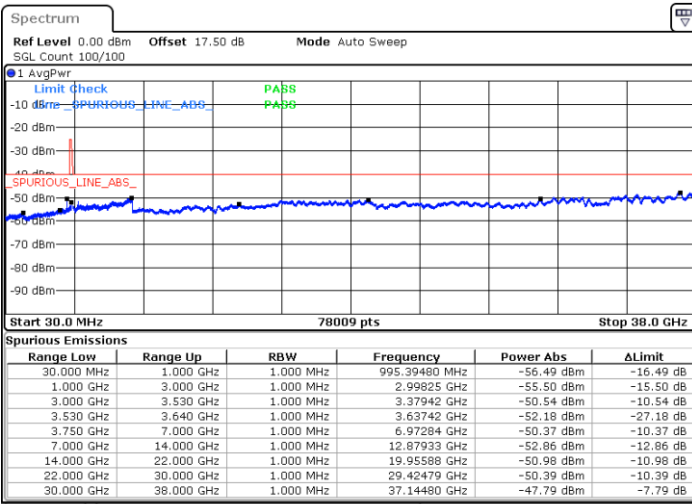


Date: 19.OCT.2019 00:18:56

Date: 19.OCT.2019 00:37:36

Highest Channel / FullIRB

N/A



Date: 19.OCT.2019 00:28:15

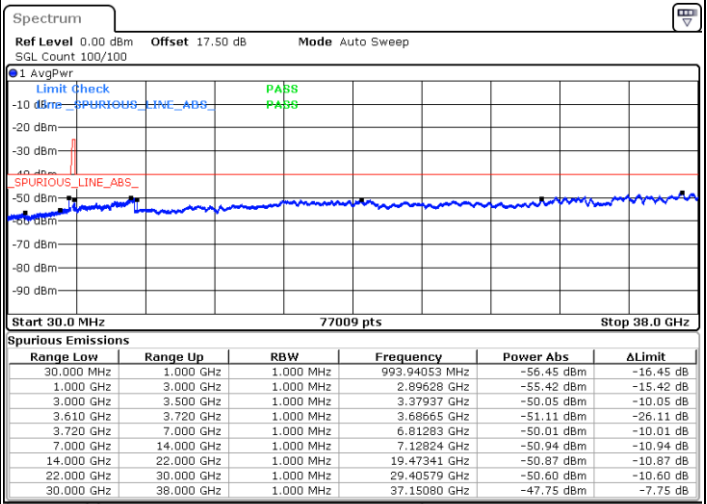
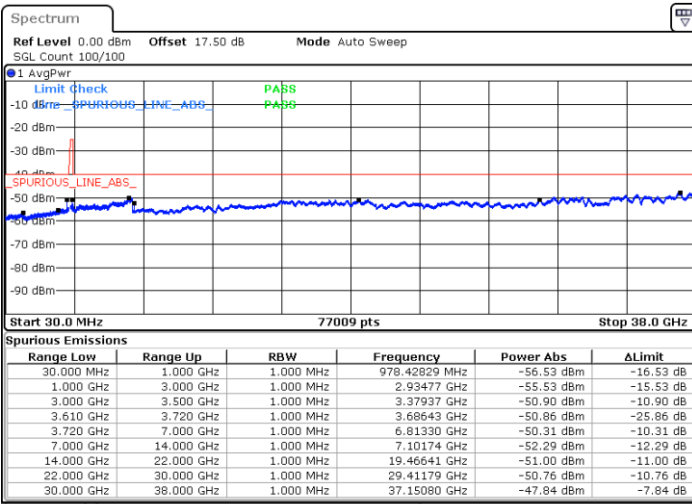


LTE Band 48 / 15MHz

16QAM

Lowest Channel / 1RB0

Lowest Channel / 1RBmax

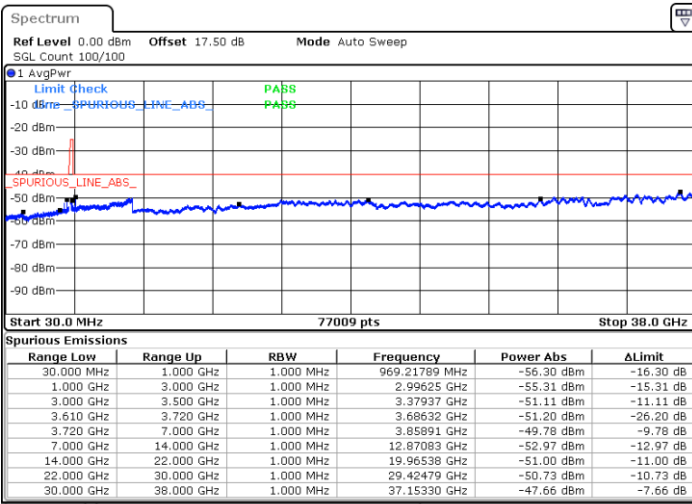


Date: 19.OCT.2019 00:40:45

Date: 19.OCT.2019 00:59:23

Lowest Channel / FullIRB

N/A



Date: 19.OCT.2019 00:50:05

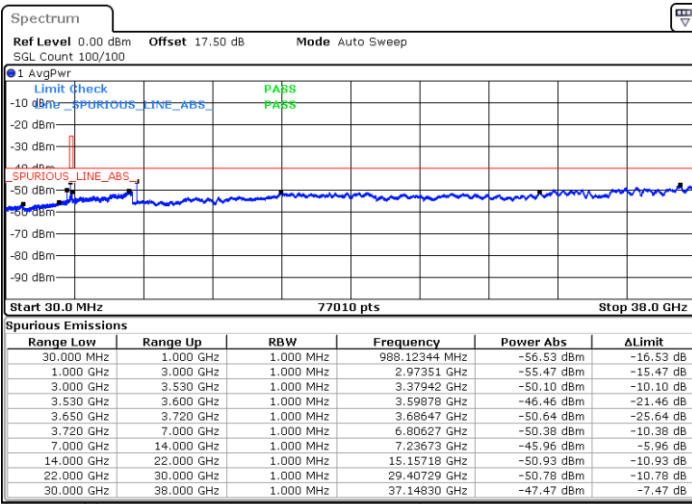


LTE Band 48 / 15MHz

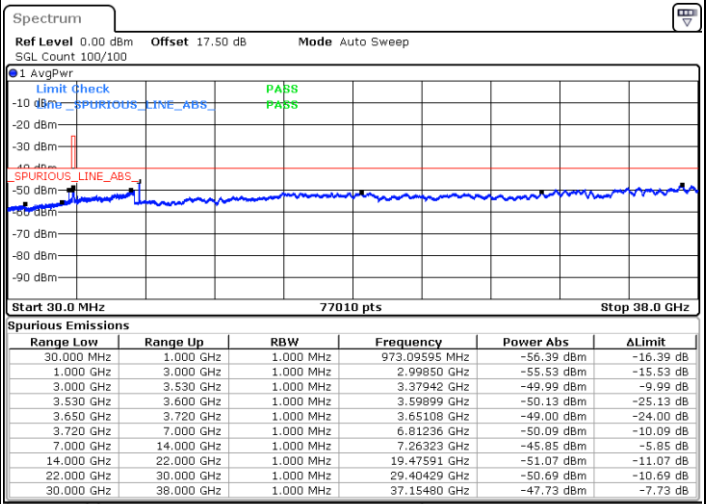
16QAM

Middle Channel / 1RB0

Middle Channel / 1RBmax



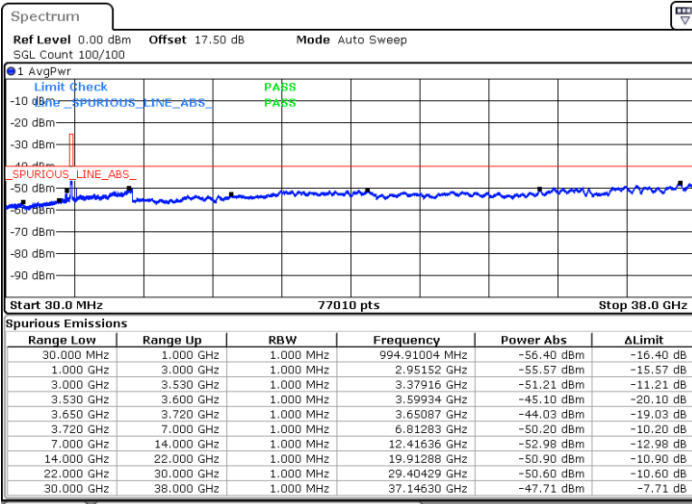
Date: 19.OCT.2019 00:43:52



Date: 19.OCT.2019 01:02:30

Middle Channel / FullIRB

N/A



Date: 19.OCT.2019 00:53:10

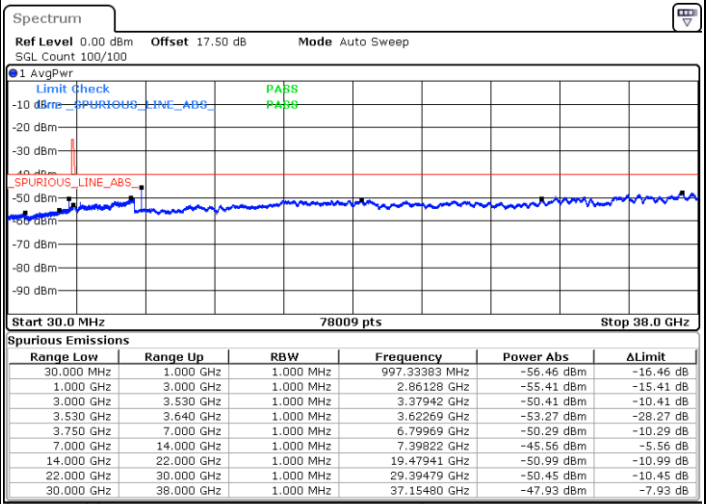
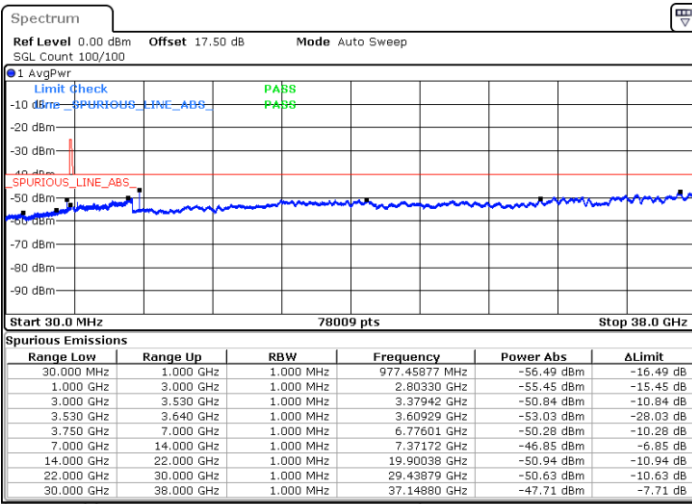


LTE Band 48 / 15MHz

16QAM

Highest Channel / 1RB0

Highest Channel / 1RBmax

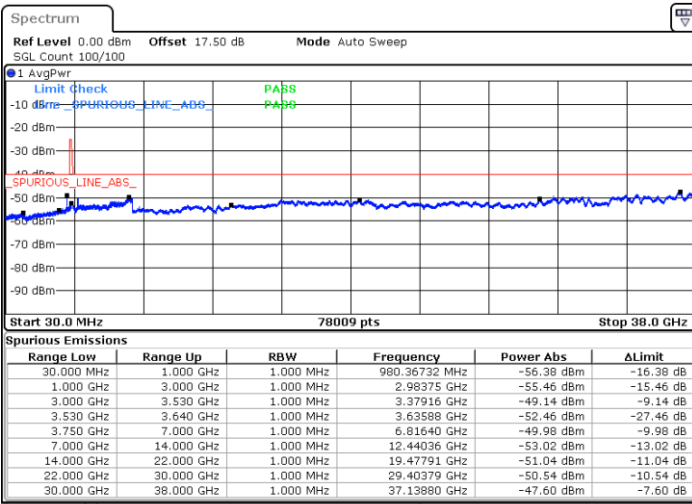


Date: 19.OCT.2019 00:46:58

Date: 19.OCT.2019 01:05:36

Highest Channel / FullIRB

N/A



Date: 19.OCT.2019 00:56:16

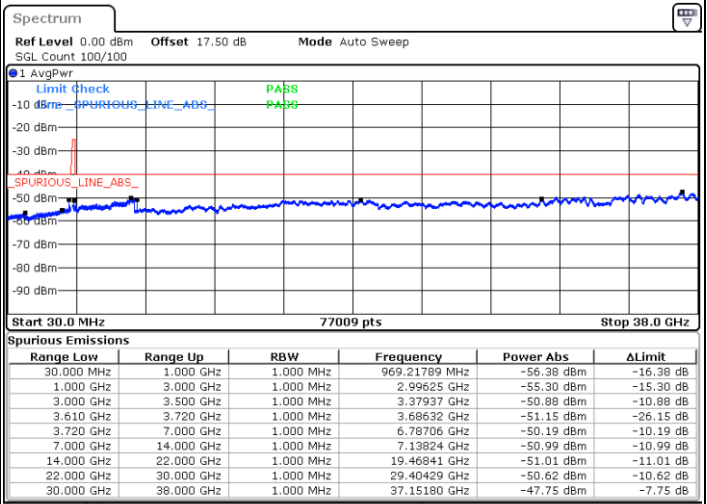
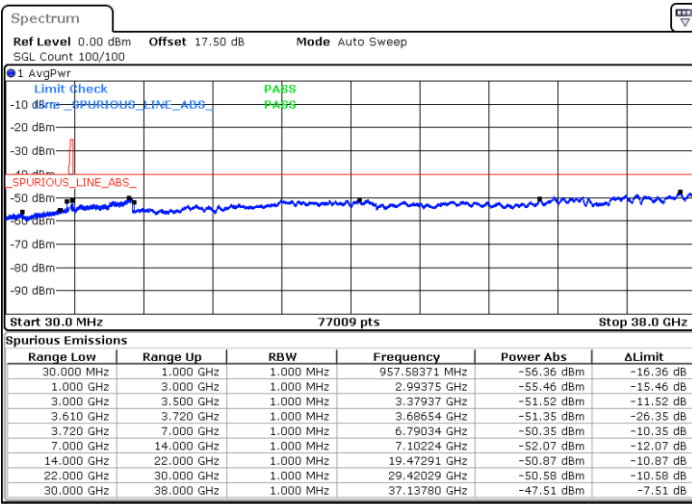


LTE Band 48 / 20MHz

16QAM

Lowest Channel / 1RB0

Lowest Channel / 1RBmax

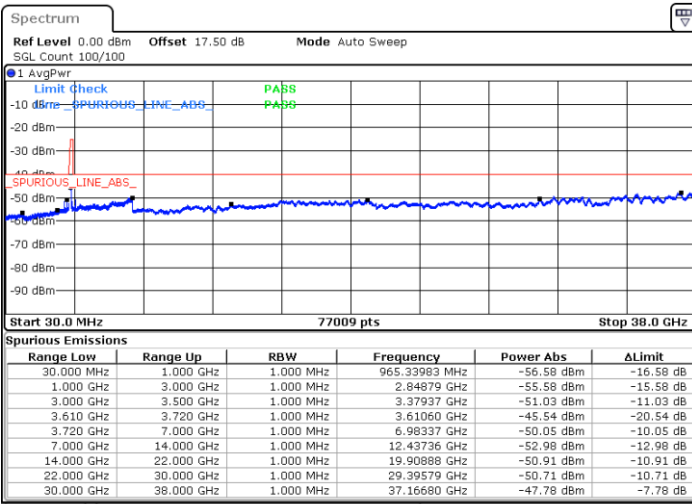


Date: 19.OCT.2019 01:18:05

Date: 19.OCT.2019 01:27:24

Lowest Channel / FullIRB

N/A



Date: 19.OCT.2019 01:08:45

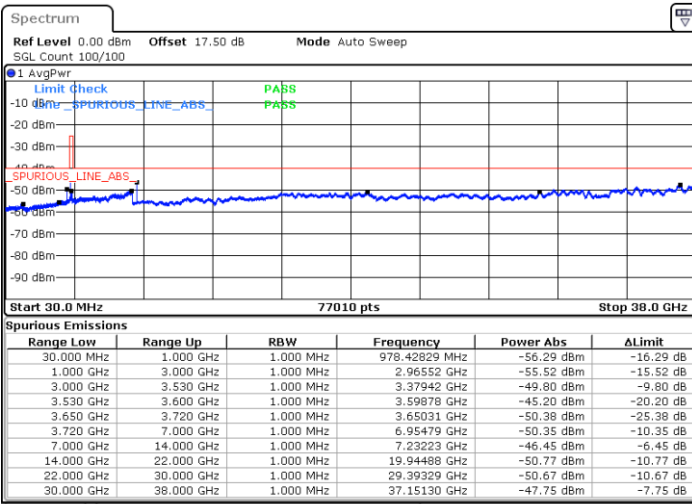


LTE Band 48 / 20MHz

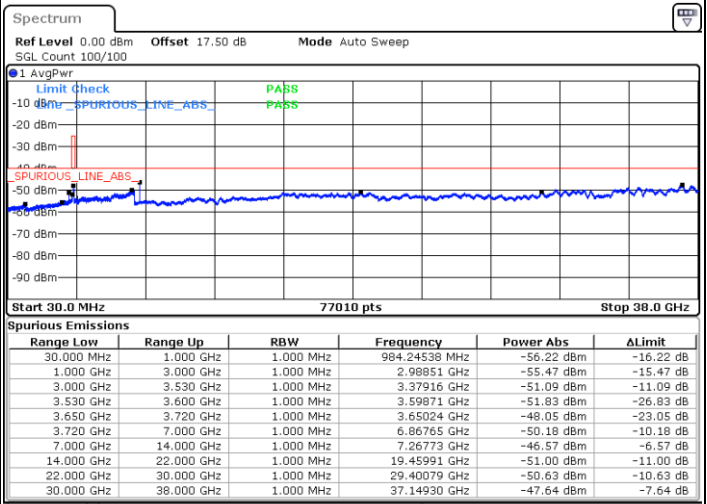
16QAM

Middle Channel / 1RB0

Middle Channel / 1RBmax



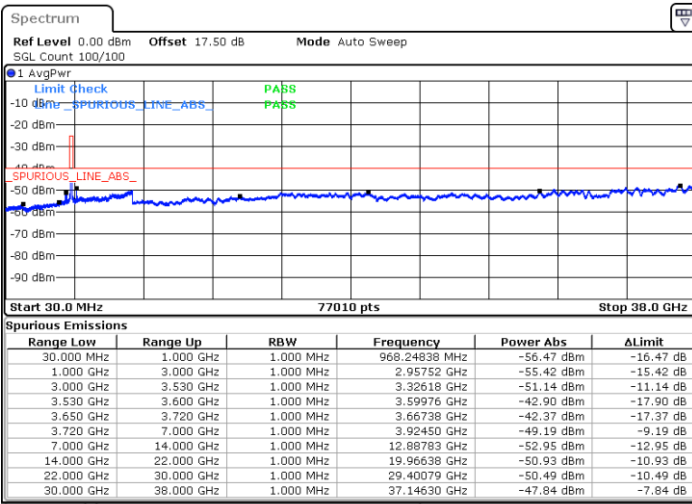
Date: 19.OCT.2019 01:21:11



Date: 19.OCT.2019 01:30:32

Middle Channel / FullIRB

N/A



Date: 19.OCT.2019 01:11:51

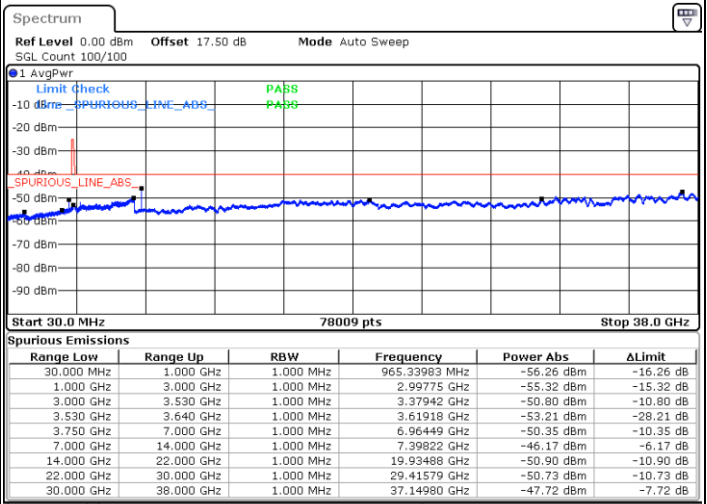
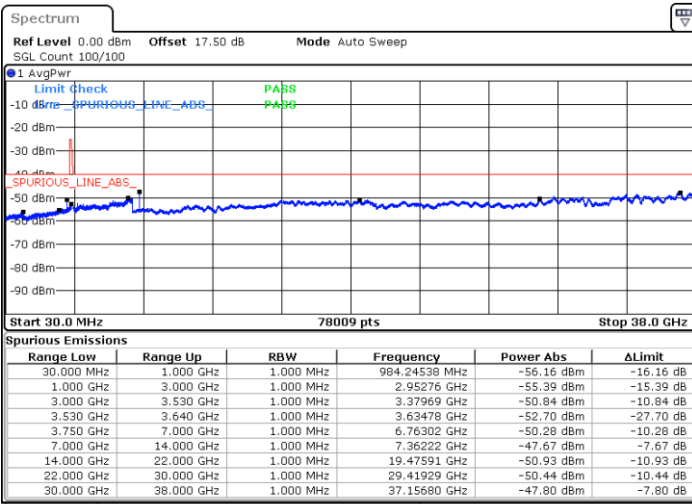


LTE Band 48 / 20MHz

16QAM

Highest Channel / 1RB0

Highest Channel / 1RBmax

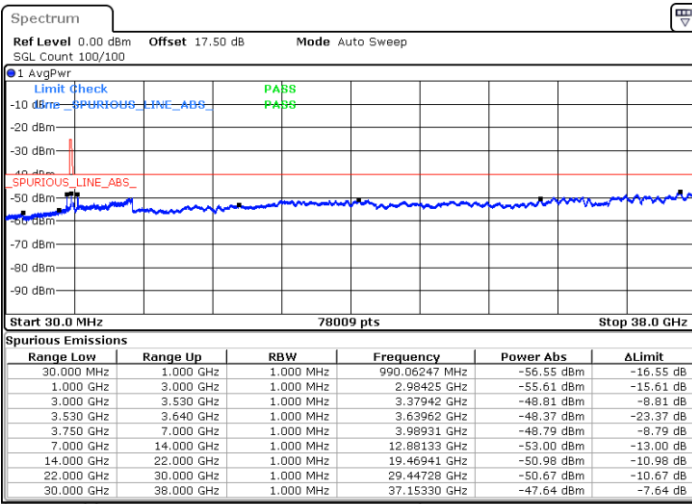


Date: 19.OCT.2019 01:24:18

Date: 19.OCT.2019 01:33:38

Highest Channel / FullIRB

N/A



Date: 19.OCT.2019 01:14:58

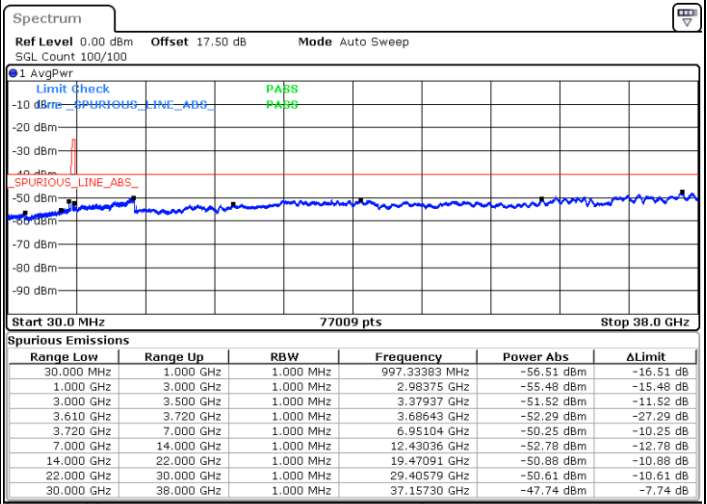
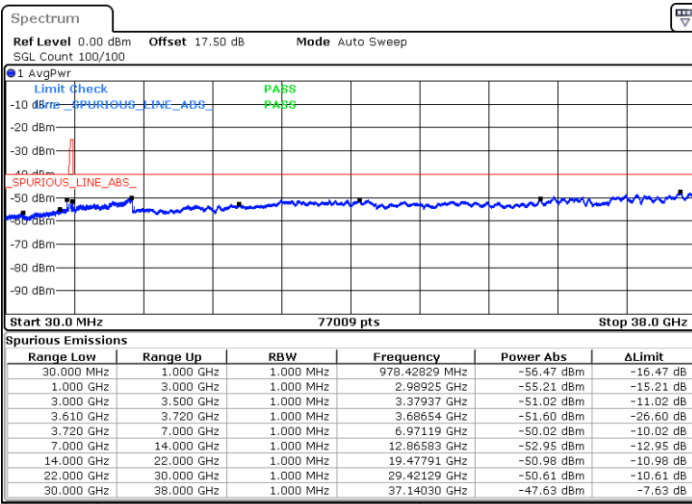


LTE Band 48 / 5MHz

64QAM

Lowest Channel / 1RB0

Lowest Channel / 1RBmax

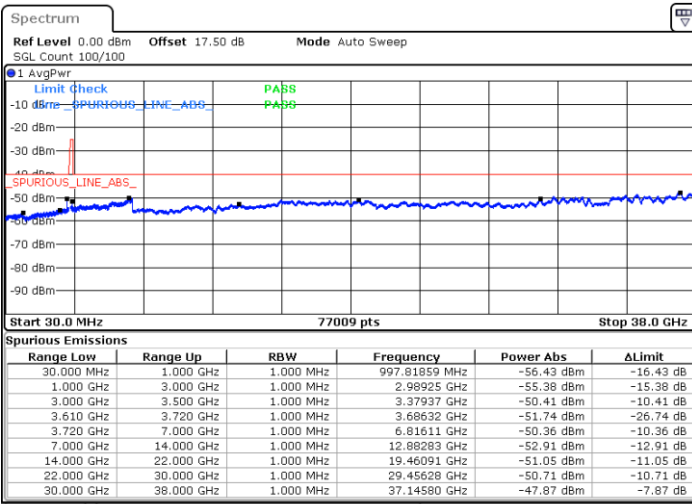


Date: 18.OCT.2019 23:45:46

Date: 19.OCT.2019 00:04:23

Lowest Channel / FullIRB

N/A



Date: 18.OCT.2019 23:55:04

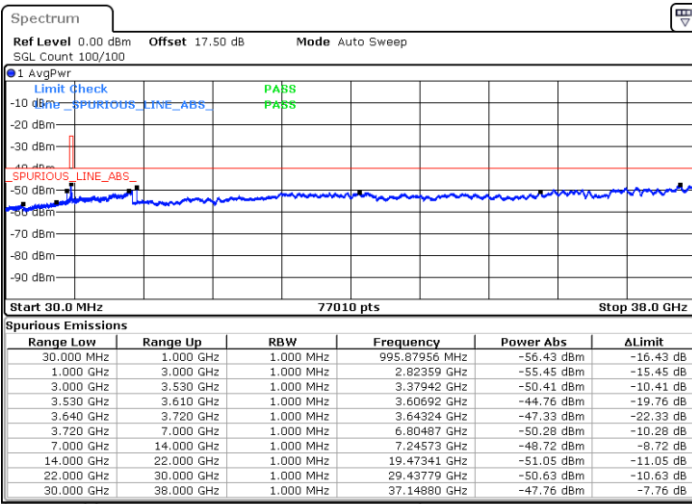


LTE Band 48 / 5MHz

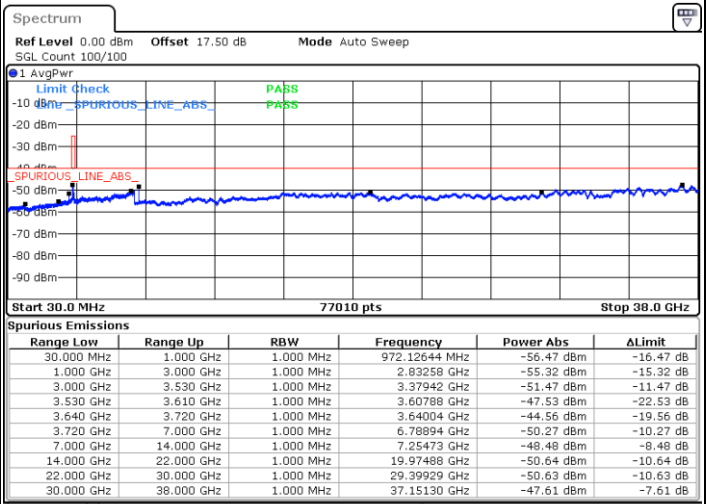
64QAM

Middle Channel / 1RB0

Middle Channel / 1RBmax



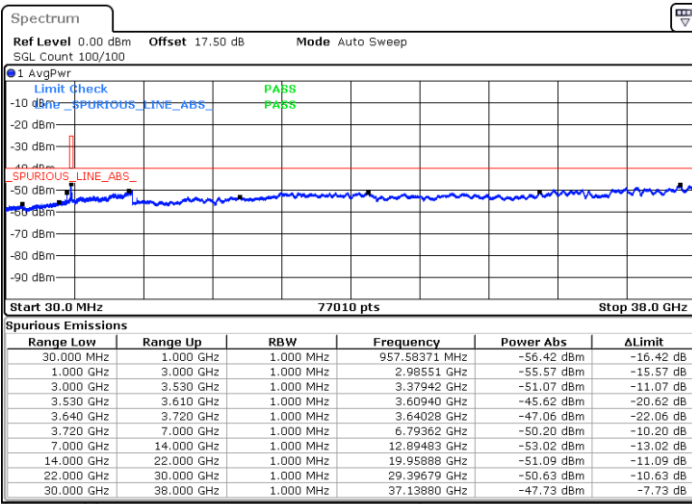
Date: 18.OCT.2019 23:46:48



Date: 19.OCT.2019 00:05:25

Middle Channel / FullIRB

N/A



Date: 18.OCT.2019 23:56:07

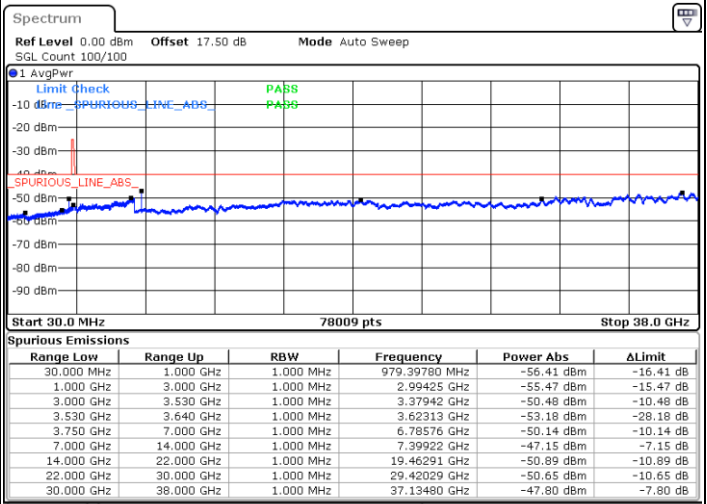
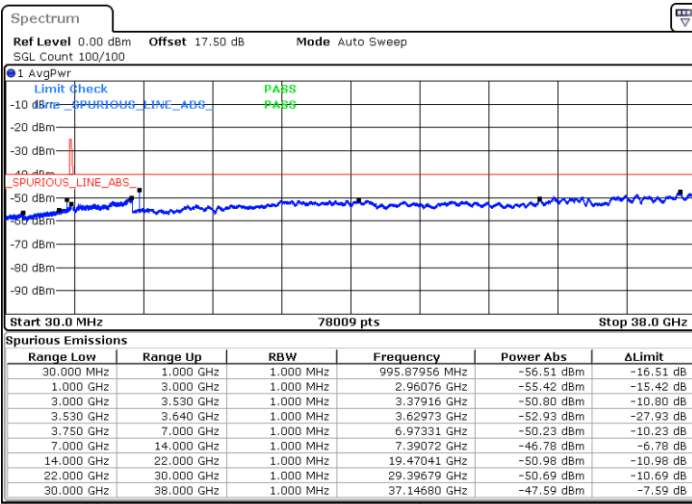


LTE Band 48 / 5MHz

64QAM

Highest Channel / 1RB0

Highest Channel / 1RBmax

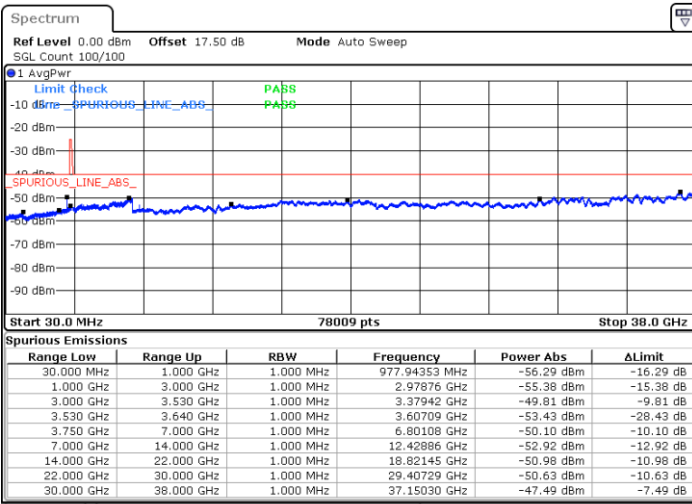


Date: 18.OCT.2019 23:51:58

Date: 19.OCT.2019 00:10:36

Highest Channel / FullIRB

N/A



Date: 19.OCT.2019 00:01:15

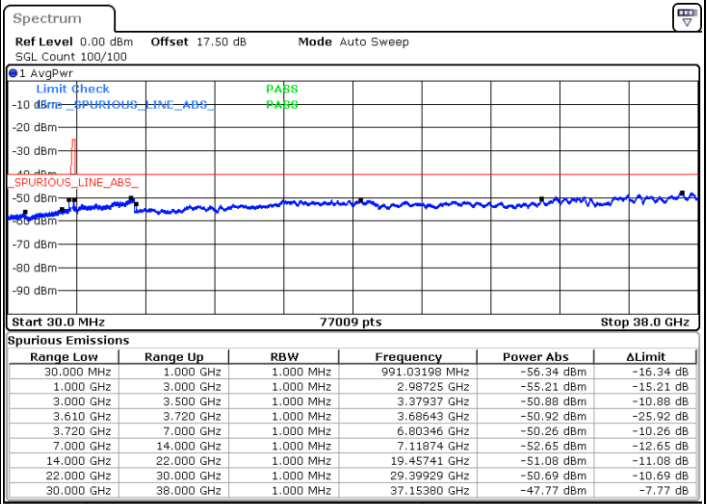
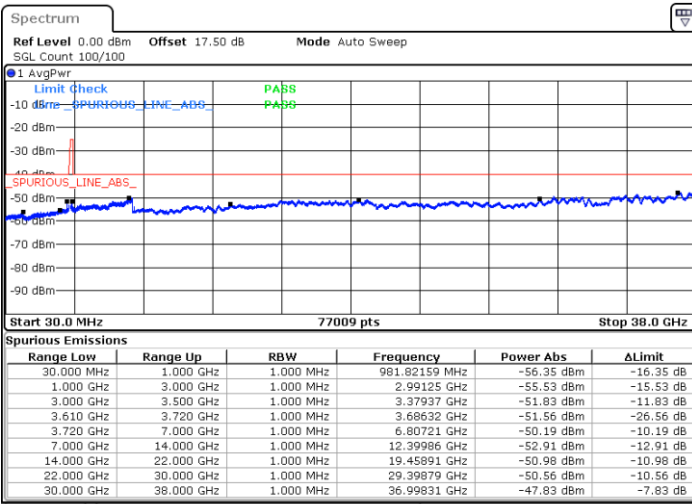


LTE Band 48 / 10MHz

64QAM

Lowest Channel / 1RB0

Lowest Channel / 1RBmax

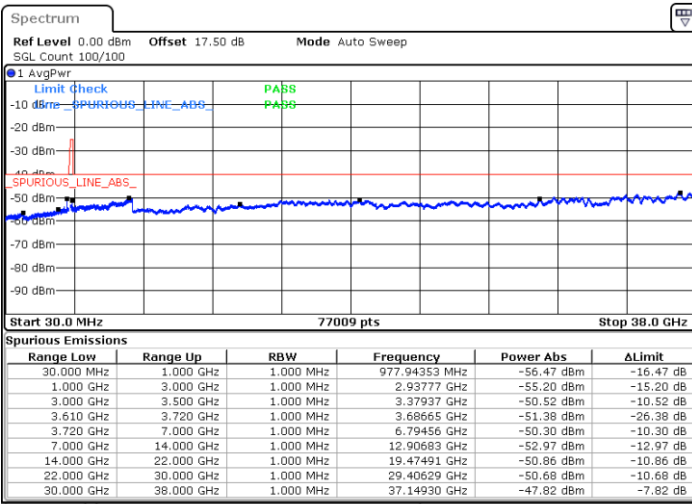


Date: 19.OCT.2019 00:11:40

Date: 19.OCT.2019 00:30:21

Lowest Channel / FullIRB

N/A



Date: 19.OCT.2019 00:21:00

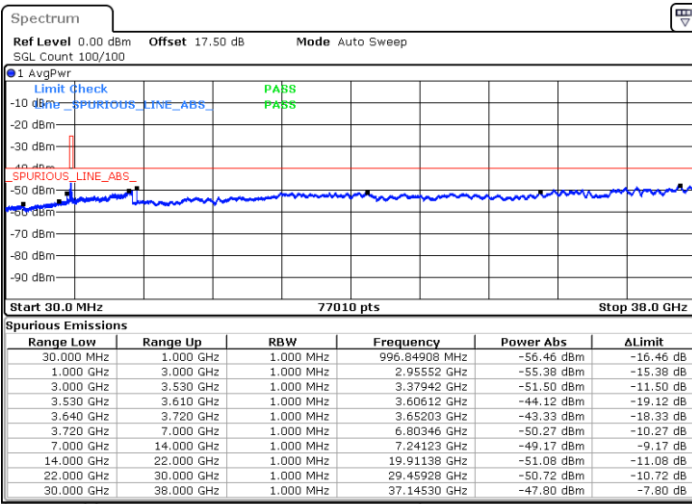


LTE Band 48 / 10MHz

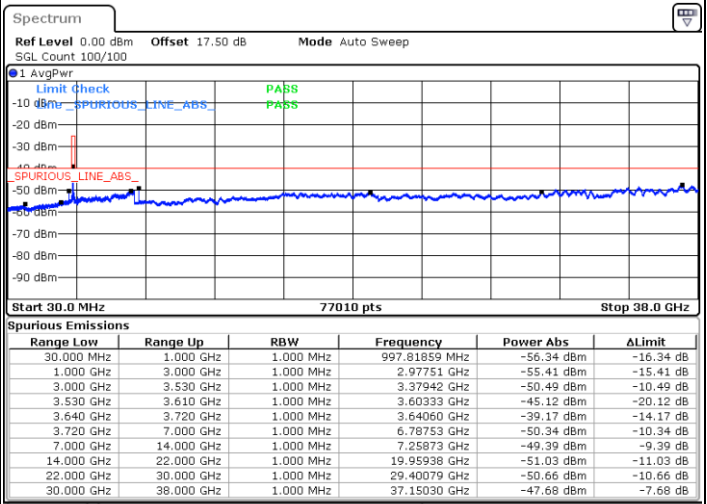
64QAM

MiddleChannel / 1RB0

Middle Channel / 1RBmax



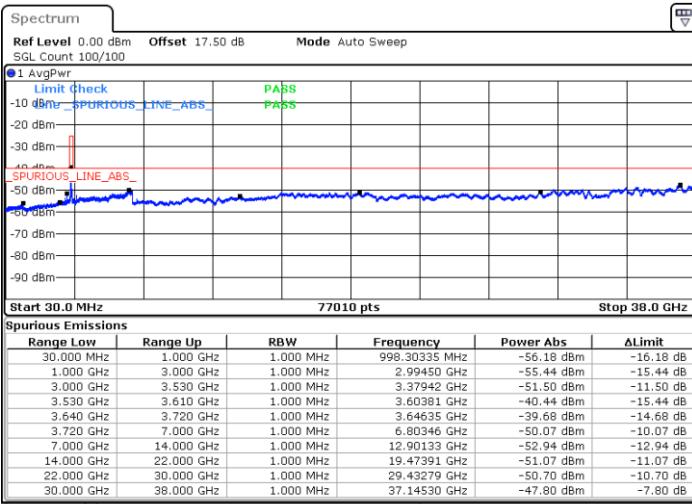
Date: 19.OCT.2019 00:16:51



Date: 19.OCT.2019 00:35:32

Middle Channel / FullIRB

N/A



Date: 19.OCT.2019 00:26:12

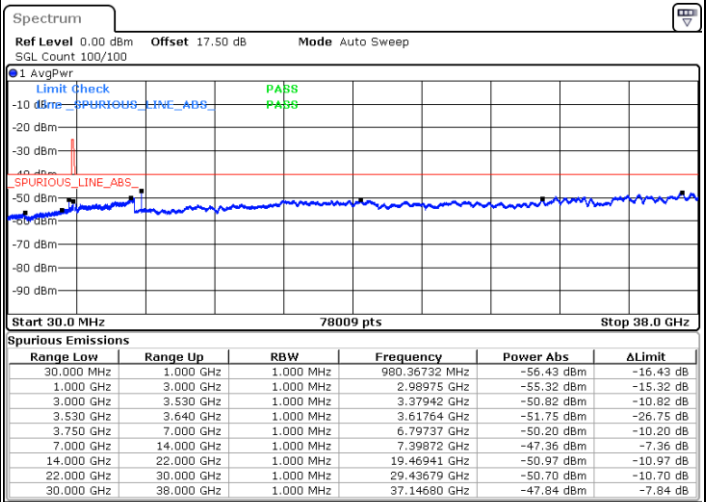
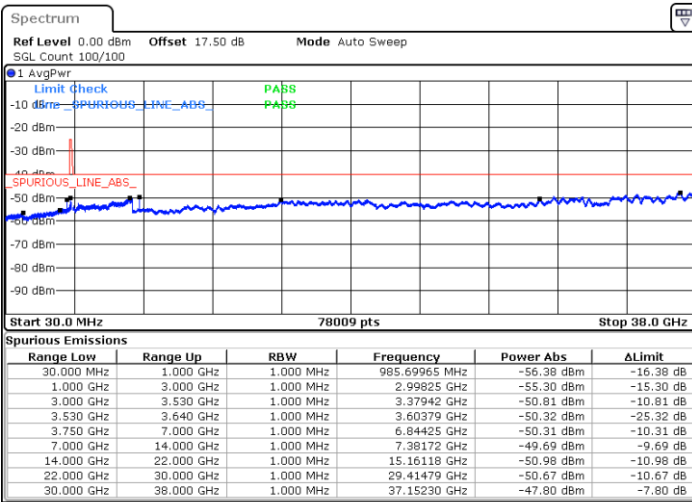


LTE Band 48 / 10MHz

64QAM

Highest Channel / 1RB0

Highest Channel / 1RBmax

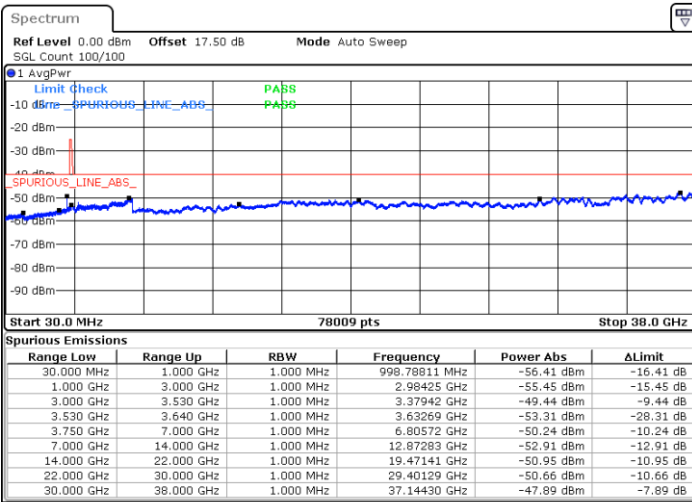


Date: 19.OCT.2019 00:17:53

Date: 19.OCT.2019 00:36:34

Highest Channel / FullIRB

N/A



Date: 19.OCT.2019 00:27:13

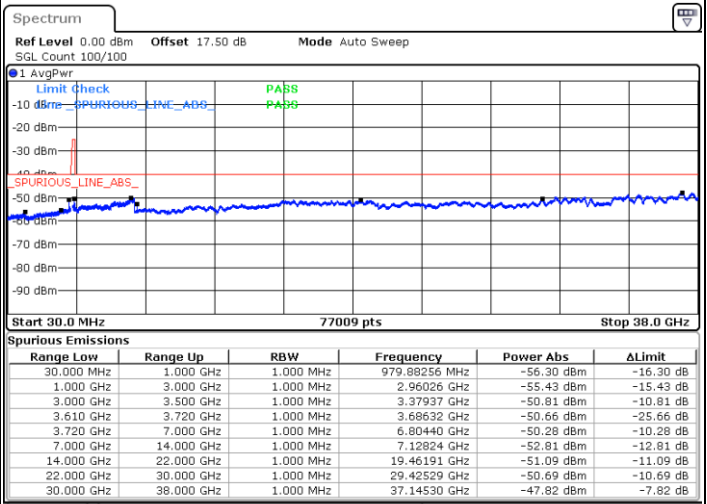
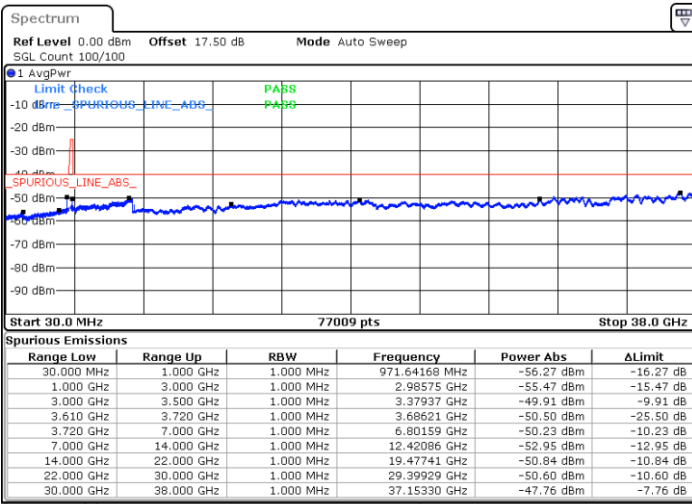


LTE Band 48 / 15MHz

64QAM

Lowest Channel / 1RB0

Lowest Channel / 1RBmax

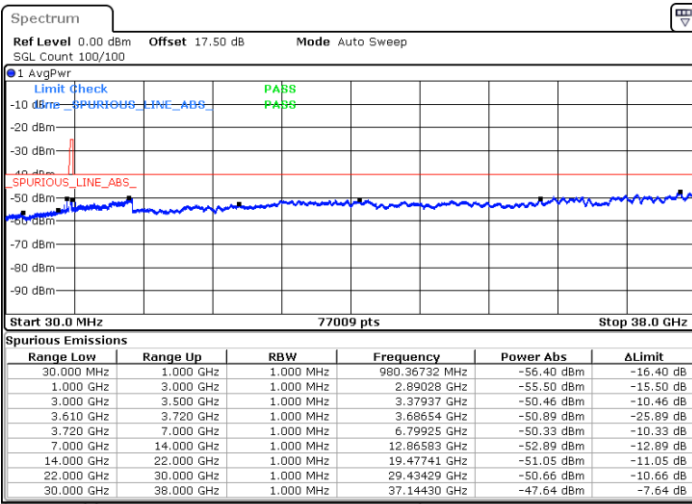


Date: 19.OCT.2019 00:41:48

Date: 19.OCT.2019 01:00:25

Lowest Channel / FullRB

N/A



Date: 19.OCT.2019 00:51:07

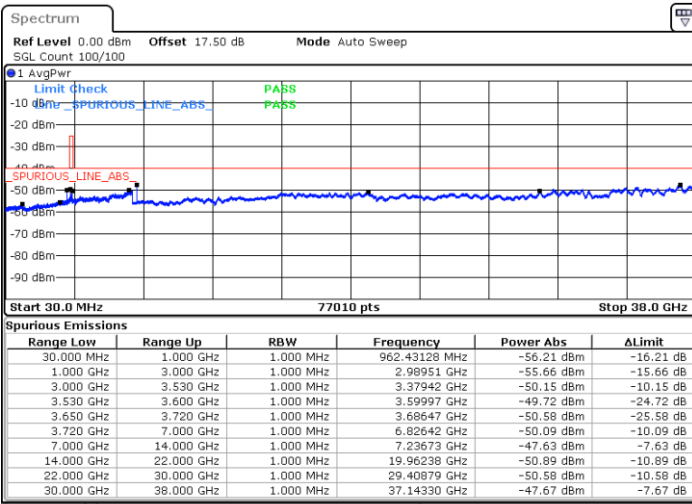


LTE Band 48 / 15MHz

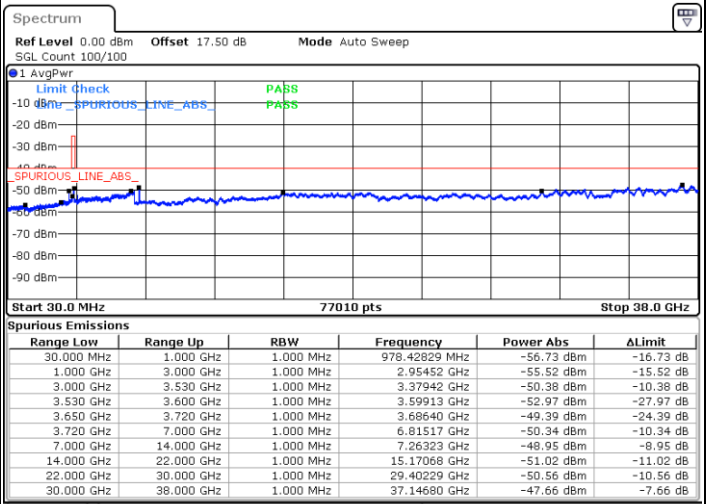
64QAM

Middle Channel / 1RB0

Middle Channel / 1RBmax



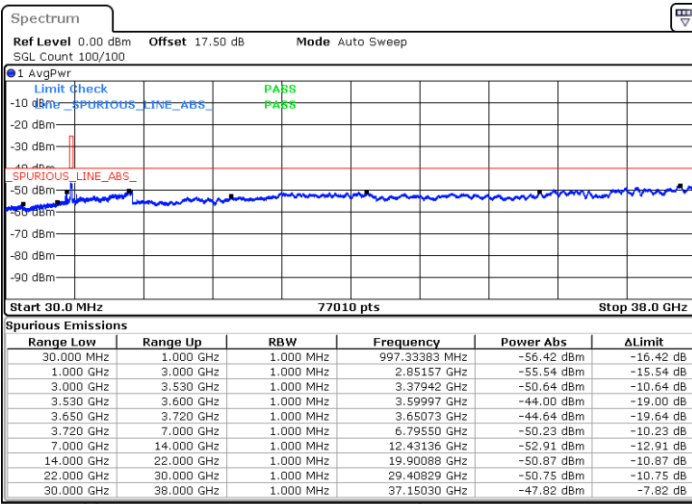
Date: 19.OCT.2019 00:42:50



Date: 19.OCT.2019 01:01:28

Middle Channel / FullIRB

N/A



Date: 19.OCT.2019 00:52:08

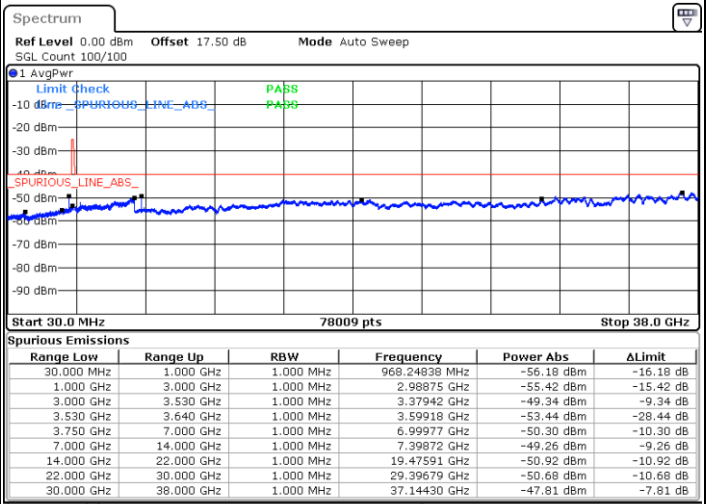
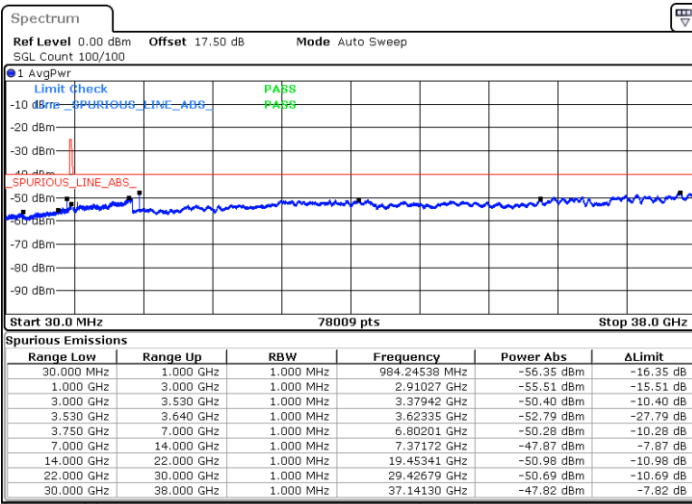


LTE Band 48 / 15MHz

64QAM

Highest Channel / 1RB0

Highest Channel / 1RBmax

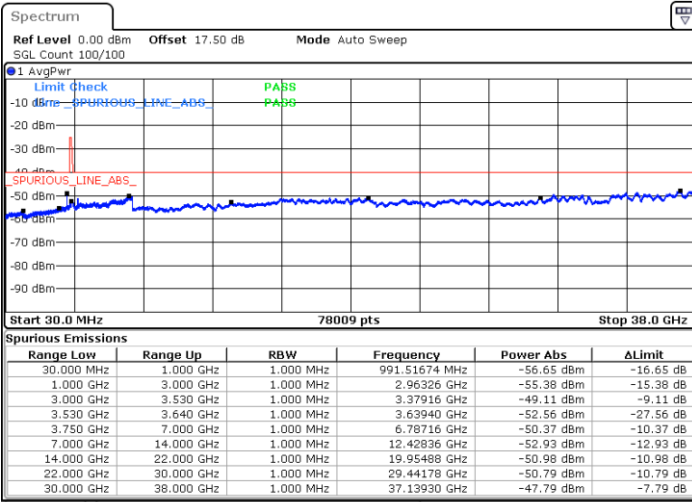


Date: 19.OCT.2019 00:48:00

Date: 19.OCT.2019 01:06:39

Highest Channel / FullIRB

N/A



Date: 19.OCT.2019 00:57:18

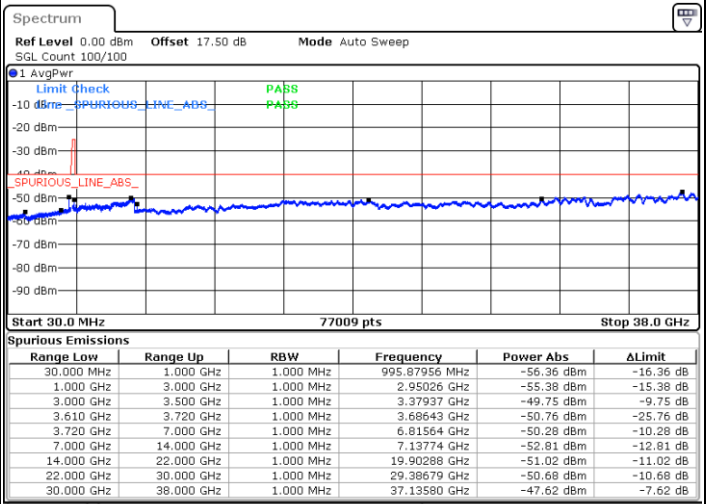
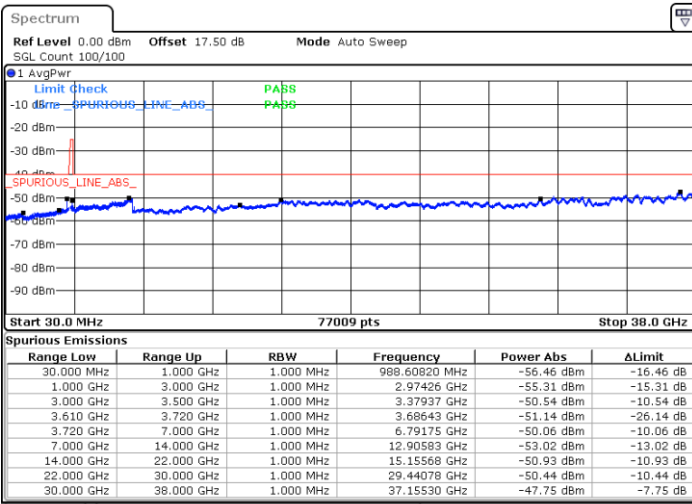


LTE Band 48 / 20MHz

64QAM

Lowest Channel / 1RB0

Lowest Channel / 1RBmax

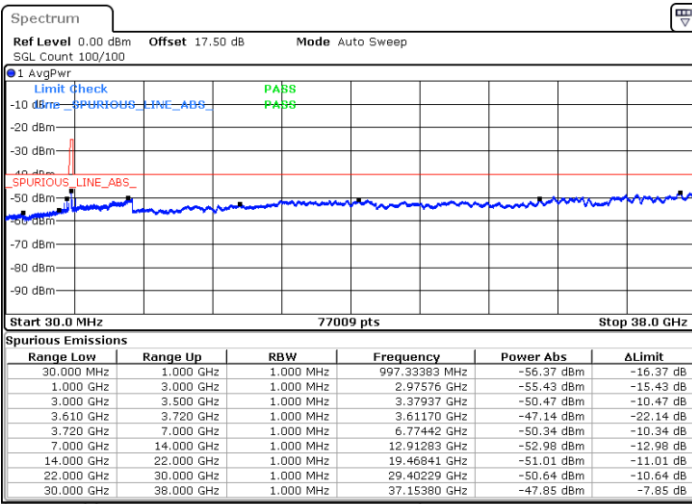


Date: 19.OCT.2019 01:17:02

Date: 19.OCT.2019 01:26:22

Lowest Channel / FullIRB

N/A



Date: 19.OCT.2019 01:07:43

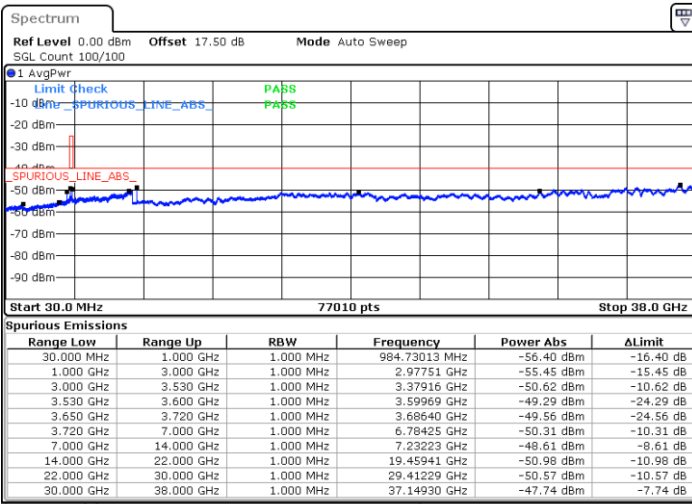


LTE Band 48 / 20MHz

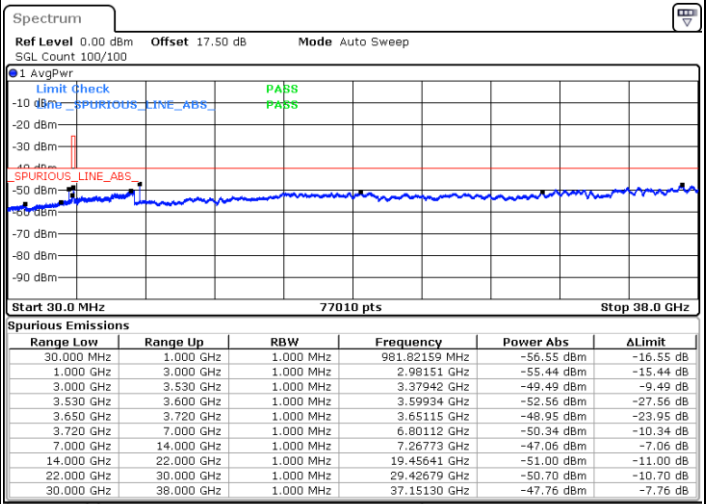
64QAM

Middle Channel / 1RB0

Middle Channel / 1RBmax



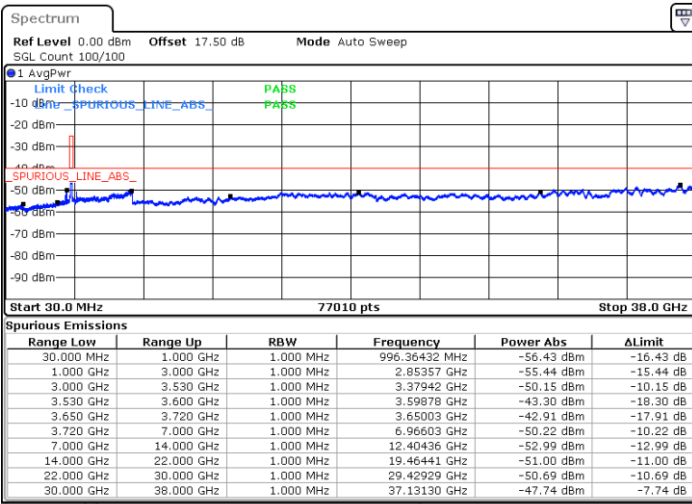
Date: 19.OCT.2019 01:22:13



Date: 19.OCT.2019 01:31:34

Middle Channel / FullIRB

N/A



Date: 19.OCT.2019 01:12:53

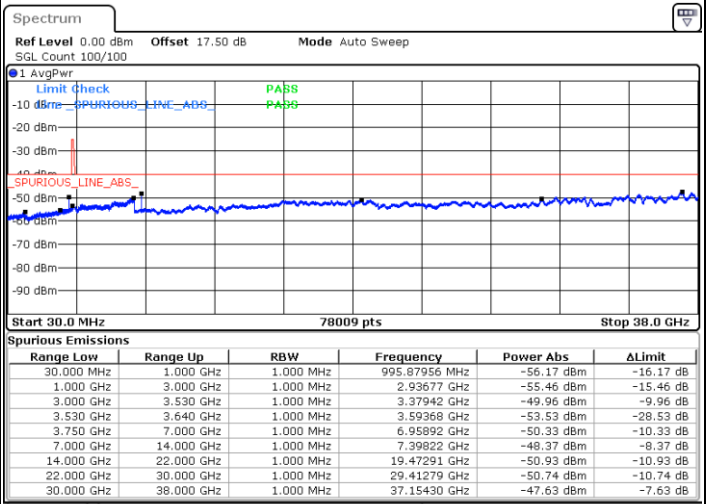
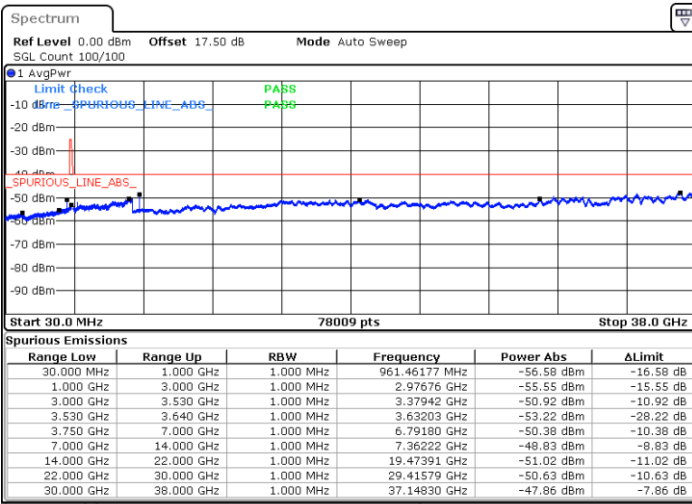


LTE Band 48 / 20MHz

64QAM

Highest Channel / 1RB0

Highest Channel / 1RBmax

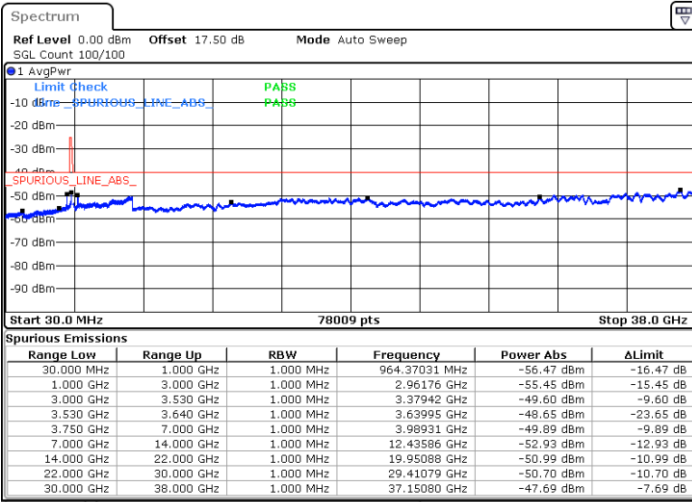


Date: 19.OCT.2019 01:23:15

Date: 19.OCT.2019 01:32:36

Highest Channel / FullIRB

N/A



Date: 19.OCT.2019 01:13:55



Frequency Stability

Test Conditions		LTE Band 48 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0073	PASS
40	Normal Voltage	0.0001	
30	Normal Voltage	0.0002	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0073	
0	Normal Voltage	0.0005	
-10	Normal Voltage	0.0002	
-20	Normal Voltage	0.0002	
-30	Normal Voltage	0.0002	
20	Maximum Voltage	0.0072	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0074	

Note:

1. Normal Voltage =4.0 V. ; Battery End Point (BEP) =3.6 V. ; Maximum Voltage =4.3 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.



Appendix B. Test Results of EIRP and Radiated Test

EIRP

<Reporting Only>

LTE Band 48 / 5MHz (Average) (GT - LC = -2 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.20	0.2089	21.20	0.1318
Middle		1	0	23.32	0.2148	21.32	0.1355
Highest		1	0	23.35	0.2163	21.35	0.1365
Lowest	16QAM	1	24	22.74	0.1879	20.74	0.1186
Middle		1	24	22.75	0.1884	20.75	0.1189
Highest		1	24	22.83	0.1919	20.83	0.1211
Lowest	64QAM	1	24	21.55	0.1429	19.55	0.0902
Middle		1	24	21.56	0.1432	19.56	0.0904
Highest		1	24	21.68	0.1472	19.68	0.0929

LTE Band 48 / 10MHz (Average) (GT - LC = -2 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.25	0.2113	21.25	0.1334
Middle		1	0	23.31	0.2143	21.31	0.1352
Highest		1	0	23.40	0.2188	21.40	0.1380
Lowest	16QAM	1	49	22.68	0.1854	20.68	0.1169
Middle		1	49	22.79	0.1901	20.79	0.1199
Highest		1	49	22.79	0.1901	20.79	0.1199
Lowest	64QAM	1	49	21.52	0.1419	19.52	0.0895
Middle		1	49	21.62	0.1452	19.62	0.0916
Highest		1	49	21.67	0.1469	19.67	0.0927

LTE Band 48 / 15MHz (Average) (GT - LC = -2 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.28	0.2128	21.28	0.1343
Middle		1	0	23.37	0.2173	21.37	0.1371
Highest		1	0	23.49	0.2234	21.49	0.1409
Lowest	16QAM	1	0	22.57	0.1807	20.57	0.1140
Middle		1	0	22.59	0.1816	20.59	0.1146
Highest		1	0	22.69	0.1858	20.69	0.1172
Lowest	64QAM	1	74	21.51	0.1416	19.51	0.0893
Middle		1	74	21.59	0.1442	19.59	0.0910
Highest		1	74	21.65	0.1462	19.65	0.0923



LTE Band 48 / 20MHz (Average) (GT - LC = -2 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	23.46	0.2218	21.46	0.1400
Middle		1	0	23.51	0.2244	21.51	0.1416
Highest		1	0	23.52	0.2249	21.52	0.1419
Lowest	16QAM	1	99	22.89	0.1945	20.89	0.1227
Middle		1	99	22.87	0.1936	20.87	0.1222
Highest		1	99	22.97	0.1982	20.97	0.1250
Lowest	64QAM	1	99	21.64	0.1459	19.64	0.0920
Middle		1	99	21.66	0.1466	19.66	0.0925
Highest		1	99	21.77	0.1503	19.77	0.0948



EIRP Power

LTE Band 48 / Conducted Power									
BW	1.4MHz			3MHz			5MHz		
Mod.	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Lowest CH	-	-	-	-	-	-	23.2	22.74	21.55
Middle CH	-	-	-	-	-	-	23.32	22.75	21.56
Highest CH	-	-	-	-	-	-	23.35	22.83	21.68
LTE Band 48 / Conducted Power									
BW	10MHz			15MHz			20MHz		
Mod.	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Lowest CH	23.25	22.68	21.52	23.28	22.57	21.51	23.46	22.89	21.64
Middle CH	23.31	22.79	21.62	23.37	22.59	21.59	23.51	22.87	21.66
Highest CH	23.4	22.79	21.67	23.49	22.69	21.65	23.52	22.97	21.77

LTE Band 48 / EIRP Power									
BW	1.4MHz			3MHz			5MHz		
Mod.	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Lowest CH	-	-	-	-	-	-	21.2	20.74	19.55
Middle CH	-	-	-	-	-	-	21.32	20.75	19.56
Highest CH	-	-	-	-	-	-	21.35	20.83	19.68
LTE Band 48 / EIRP Power									
BW	10MHz			15MHz			20MHz		
Mod.	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Lowest CH	21.25	20.68	19.52	21.28	20.57	19.51	21.46	20.89	19.64
Middle CH	21.31	20.79	19.62	21.37	20.59	19.59	21.51	20.87	19.66
Highest CH	21.4	20.79	19.67	21.49	20.69	19.65	21.52	20.97	19.77
Antenna Gain	-2 dBi								
Limit	23dBm / 10MHz								
Result	Pass								



Radiated Spurious Emission

LTE Band 48

LTE Band 48 / 20MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	7100	-56.14	-40	-16.14	-56.4	-66.11	1.77	11.74	H
	10655	-58.03	-40	-18.03	-61.43	-66.46	2.47	10.90	H
	14205	-55.78	-40	-15.78	-63.31	-64.62	2.87	11.71	H
	21307	-48.75	-40	-8.75	-74.85	-65.47	1.98	18.70	H
	24859	-49.63	-40	-9.63	-75.82	-65.64	2.07	18.07	H
	28411	-47.38	-40	-7.38	-75.91	-64.63	2.32	19.56	H
	7100	-55.09	-40	-15.09	-54.96	-65.06	1.77	11.74	V
	10655	-58.37	-40	-18.37	-61.51	-66.80	2.47	10.90	V
	14205	-55.96	-40	-15.96	-63.21	-64.80	2.87	11.71	V
	21307	-55.60	-40	-15.60	-74.59	-72.32	1.98	18.70	V
	24859	-53.50	-40	-13.50	-75.99	-69.51	2.07	18.07	V
	28411	-50.60	-40	-10.60	-75.93	-67.85	2.32	19.56	V
Middle	7230	-58.73	-40	-18.73	-59.33	-68.42	1.84	11.53	H
	10850	-57.84	-40	-17.84	-61.28	-66.17	2.57	10.90	H
	14462	-57.53	-40	-17.53	-64.57	-65.77	2.85	11.09	H
	18077	-52.21	-40	-12.21	-71.33	-68.44	1.76	17.98	H
	21696	-49.01	-40	-9.01	-74.89	-65.80	1.99	18.78	H
	25314	-48.24	-40	-8.24	-76.24	-64.84	2.14	18.74	H
	7230	-58.57	-40	-18.57	-58.91	-68.26	1.84	11.53	V
	10850	-58.21	-40	-18.21	-61.44	-66.54	2.57	10.90	V
	14462	-58.01	-40	-18.01	-64.23	-66.25	2.85	11.09	V
	18077	-58.20	-40	-18.20	-71.09	-74.43	1.76	17.98	V
	21696	-55.63	-40	-15.63	-74.76	-72.42	1.99	18.78	V
	25314	-51.81	-40	-11.81	-76.09	-68.41	2.14	18.74	V



Highest	7360	-58.56	-40	-18.56	-59.06	-67.97	1.91	11.32	H
	11045	-57.85	-40	-17.85	-61.44	-66.17	2.63	10.95	H
	14724	-55.30	-40	-15.30	-63.98	-64.10	2.91	11.72	H
	18410	-52.48	-40	-12.48	-72.23	-68.53	1.87	17.92	H
	22084	-49.88	-40	-9.88	-74.7	-66.67	2.08	18.87	H
	25770	-47.49	-40	-7.49	-76.21	-64.51	2.03	19.05	H
	7360	-58.35	-40	-18.35	-58.66	-67.76	1.91	11.32	V
	11045	-57.90	-40	-17.90	-61.32	-66.22	2.63	10.95	V
	14724	-56.89	-40	-16.89	-63.9	-65.69	2.91	11.72	V
	18410	-59.82	-40	-19.82	-72.14	-75.87	1.87	17.92	V
	22084	-56.60	-40	-16.60	-75.15	-73.39	2.08	18.87	V
	25770	-51.00	-40	-11.00	-76.13	-68.02	2.03	19.05	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Appendix C. Setup Photographs

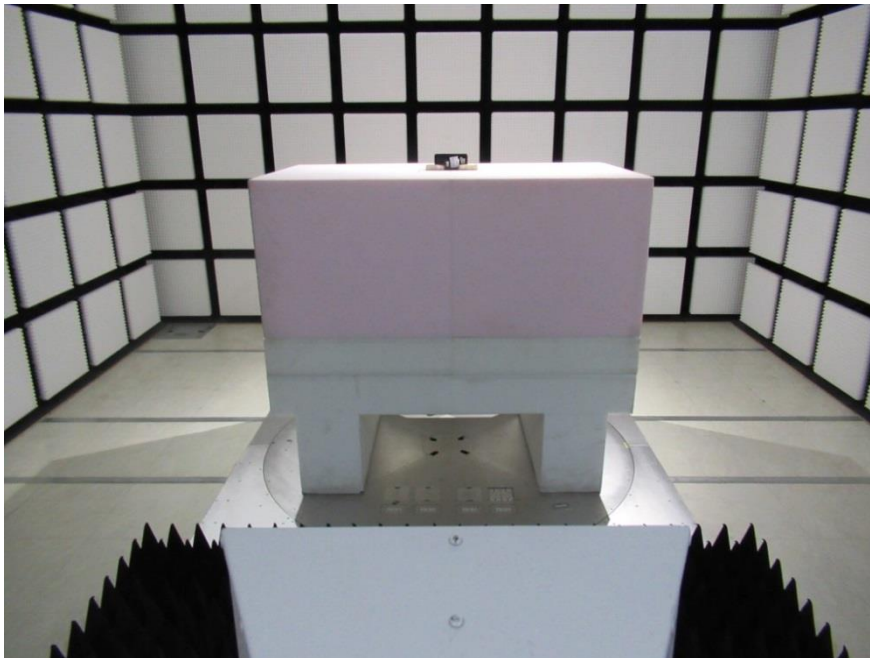
<Radiated Emission>

Z Plane

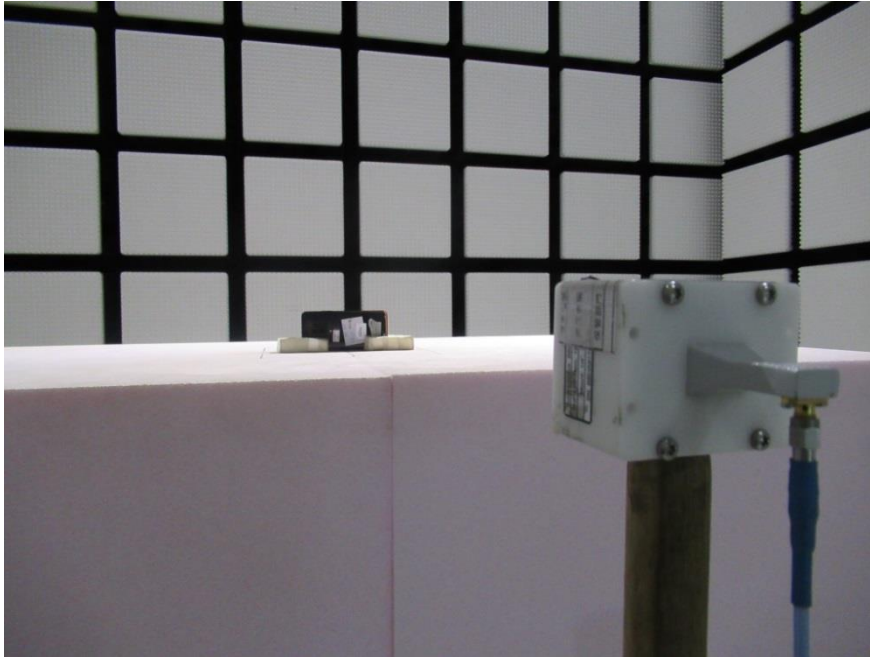
<30MHz ~ 1GHz>



<1GHz to 18GHz>



<Above 18GHz>



————THE END————