



Appendix B

E-UTRA Band 17



CONTENT

	Page
1 EFFECTIVE (ISOTROPIC) RADIATED POWER OUTPUT DATA.....	3
2 PEAK-TO-AVERAGE RATIO	7
2.1 FOR LTE	8
2.1.1 Test Band = LTE band17.....	8
3 MODULATION CHARACTERISTICS	12
3.1 FOR LTE	12
3.1.1 Test Band = LTE band17.....	12
4 BANDWIDTH	14
4.1 FOR LTE	15
4.1.1 Test Band = LTE band17.....	15
5 BAND EDGES COMPLIANCE	22
5.1 FOR LTE	22
5.1.1 Test Band = LTE band17.....	22
6 SPURIOUS EMISSION AT ANTENNA TERMINAL.....	31
6.1 FOR LTE	31
6.1.1 Test Band = LTE band17.....	31
7 FIELD STRENGTH OF SPURIOUS RADIATION	35
7.1 FOR LTE	35
7.1.1 Test Band = LTE band17.....	35
8 FREQUENCY STABILITY	37
8.1 FREQUENCY ERROR VS. VOLTAGE	37
8.2 FREQUENCY ERROR VS. TEMPERATURE	38



1 Effective (Isotropic) Radiated Power Output Data

Effective Radiated Power of Transmitter (ERP) for LTE BAND 17

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND17	LTE/TM1	5M	LCH	RB1#0	20.79	19.79	34.77	PASS
				RB1#13	20.88	19.88	34.77	PASS
				RB1#24	20.88	19.88	34.77	PASS
				RB12#0	19.88	18.88	34.77	PASS
				RB12#6	19.85	18.85	34.77	PASS
				RB12#13	19.92	18.92	34.77	PASS
				RB25#0	19.93	18.93	34.77	PASS
			MCH	RB1#0	20.88	19.88	34.77	PASS
				RB1#13	20.82	19.82	34.77	PASS
				RB1#24	20.85	19.85	34.77	PASS
				RB12#0	19.82	18.82	34.77	PASS
				RB12#6	19.84	18.84	34.77	PASS
				RB12#13	19.90	18.9	34.77	PASS
				RB25#0	19.88	18.88	34.77	PASS
			HCH	RB1#0	20.83	19.83	34.77	PASS
				RB1#13	20.86	19.86	34.77	PASS
				RB1#24	20.87	19.87	34.77	PASS
				RB12#0	19.85	18.85	34.77	PASS
				RB12#6	19.78	18.78	34.77	PASS
				RB12#13	19.89	18.89	34.77	PASS
				RB25#0	19.81	18.81	34.77	PASS



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Report No.: SZEM171001110301

Page: 4 of 39

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND17	LTE/TM2	5M	LCH	RB1#0	19.74	18.74	34.77	PASS
				RB1#13	19.84	18.84	34.77	PASS
				RB1#24	19.80	18.80	34.77	PASS
				RB12#0	18.87	17.87	34.77	PASS
				RB12#6	18.88	17.88	34.77	PASS
				RB12#13	18.88	17.88	34.77	PASS
				RB25#0	18.85	17.85	34.77	PASS
			MCH	RB1#0	19.72	18.72	34.77	PASS
				RB1#13	19.76	18.76	34.77	PASS
				RB1#24	19.72	18.72	34.77	PASS
				RB12#0	18.86	17.86	34.77	PASS
				RB12#6	18.86	17.86	34.77	PASS
				RB12#13	18.85	17.85	34.77	PASS
				RB25#0	18.84	17.84	34.77	PASS
			HCH	RB1#0	19.76	18.76	34.77	PASS
				RB1#13	19.81	18.81	34.77	PASS
				RB1#24	19.83	18.83	34.77	PASS
				RB12#0	18.81	17.81	34.77	PASS
				RB12#6	18.81	17.81	34.77	PASS
				RB12#13	18.87	17.87	34.77	PASS
				RB25#0	18.83	17.83	34.77	PASS



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Report No.: SZEM171001110301

Page: 5 of 39

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND17	LTE/TM1	10M	LCH	RB1#0	20.90	19.90	34.77	PASS
				RB1#25	20.89	19.89	34.77	PASS
				RB1#49	20.85	19.85	34.77	PASS
				RB25#0	19.87	18.87	34.77	PASS
				RB25#13	19.92	18.92	34.77	PASS
				RB25#25	19.83	18.83	34.77	PASS
				RB50#0	19.85	18.85	34.77	PASS
			MCH	RB1#0	20.82	19.82	34.77	PASS
				RB1#25	20.85	19.85	34.77	PASS
				RB1#49	20.90	19.90	34.77	PASS
				RB25#0	19.86	18.86	34.77	PASS
				RB25#13	19.84	18.84	34.77	PASS
				RB25#25	19.89	18.89	34.77	PASS
				RB50#0	19.88	18.88	34.77	PASS
			HCH	RB1#0	20.82	19.82	34.77	PASS
				RB1#25	20.84	19.84	34.77	PASS
				RB1#49	20.94	19.94	34.77	PASS
				RB25#0	19.83	18.83	34.77	PASS
				RB25#13	19.78	18.78	34.77	PASS
				RB25#25	19.88	18.88	34.77	PASS
				RB50#0	19.85	18.85	34.77	PASS



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Report No.: SZEM171001110301

Page: 6 of 39

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND17	LTE/TM2	10M	LCH	RB1#0	19.84	18.84	34.77	PASS
				RB1#25	19.80	18.80	34.77	PASS
				RB1#49	19.79	18.79	34.77	PASS
				RB25#0	18.88	17.88	34.77	PASS
				RB25#13	18.86	17.86	34.77	PASS
				RB25#25	18.87	17.87	34.77	PASS
				RB50#0	18.85	17.85	34.77	PASS
			MCH	RB1#0	19.75	18.75	34.77	PASS
				RB1#25	19.80	18.80	34.77	PASS
				RB1#49	19.92	18.92	34.77	PASS
				RB25#0	18.88	17.88	34.77	PASS
				RB25#13	18.85	17.85	34.77	PASS
				RB25#25	18.84	17.84	34.77	PASS
				RB50#0	18.79	17.79	34.77	PASS
			HCH	RB1#0	19.71	18.71	34.77	PASS
				RB1#25	19.74	18.74	34.77	PASS
				RB1#49	19.86	18.86	34.77	PASS
				RB25#0	18.84	17.84	34.77	PASS
				RB25#13	18.85	17.85	34.77	PASS
				RB25#25	18.83	17.83	34.77	PASS
				RB50#0	18.80	17.80	34.77	PASS

Note:

a: For getting the ERP (Efficient Radiated Power) in substitution method, the following formula should be taken to calculate it,

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.

Detector: RMSNote:



2 Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
Band 17	TM1/10M	LCH	5.28	13	PASS
		MCH	4.93	13	PASS
		HCH	4.84	13	PASS
	TM2/10M	LCH	6.03	13	PASS
		MCH	5.88	13	PASS
		HCH	5.80	13	PASS



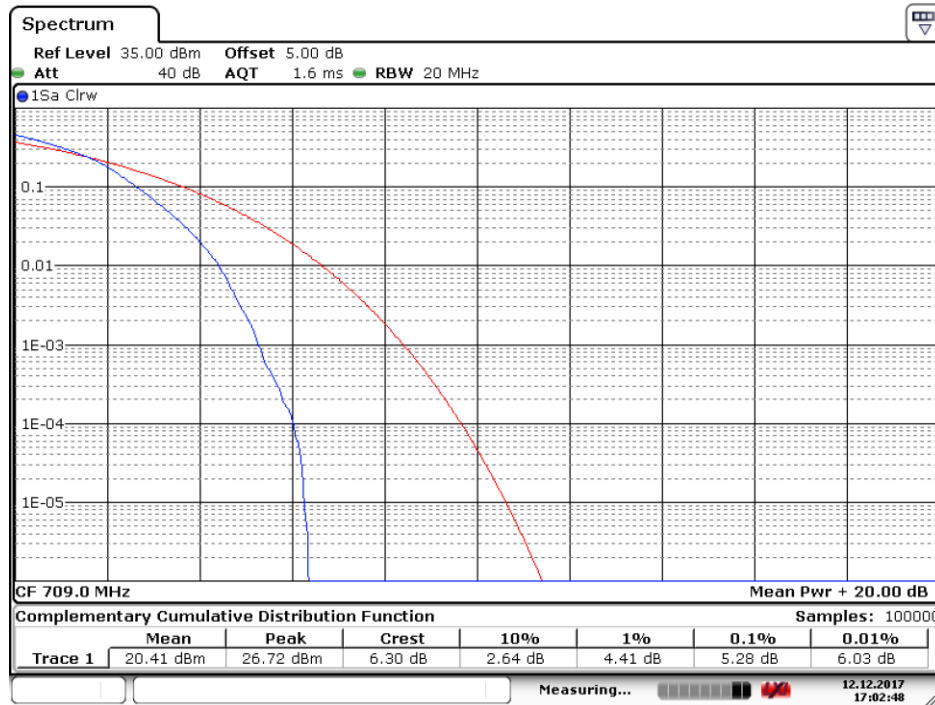
Part II - Test Plots

2.1 For LTE

2.1.1 Test Band = LTE band17

2.1.1.1 Test Mode = LTE/TM1.Bandwidth=10MHz

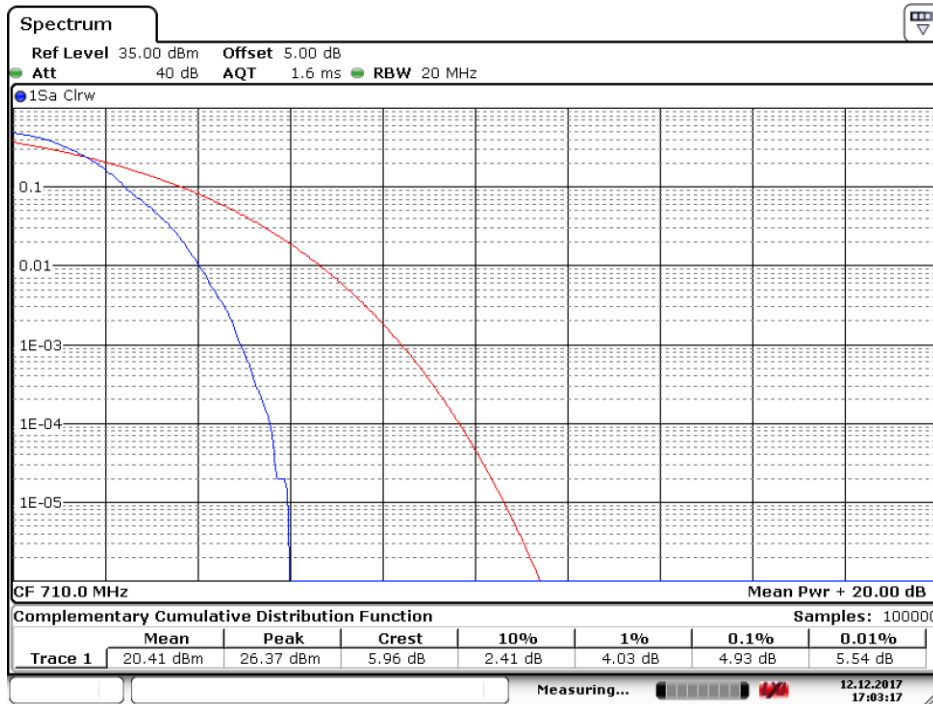
2.1.1.1.1 Test Channel = LCH



Date: 12.DEC.2017 17:02:49

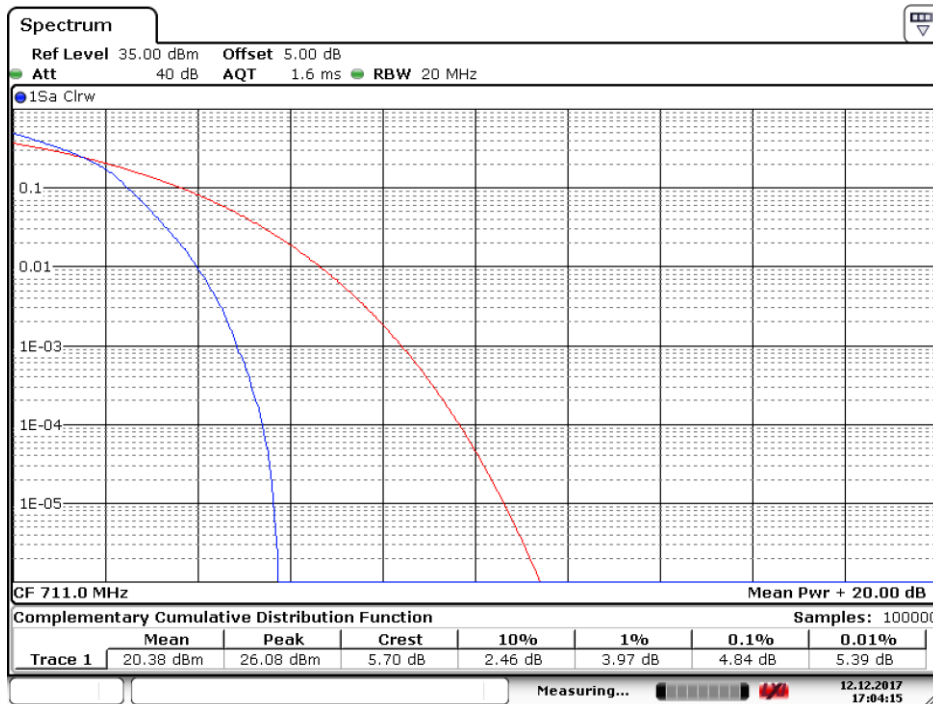


2.1.1.1.2 Test Channel = MCH



Date: 12.DEC.2017 17:03:17

2.1.1.1.3 Test Channel = HCH

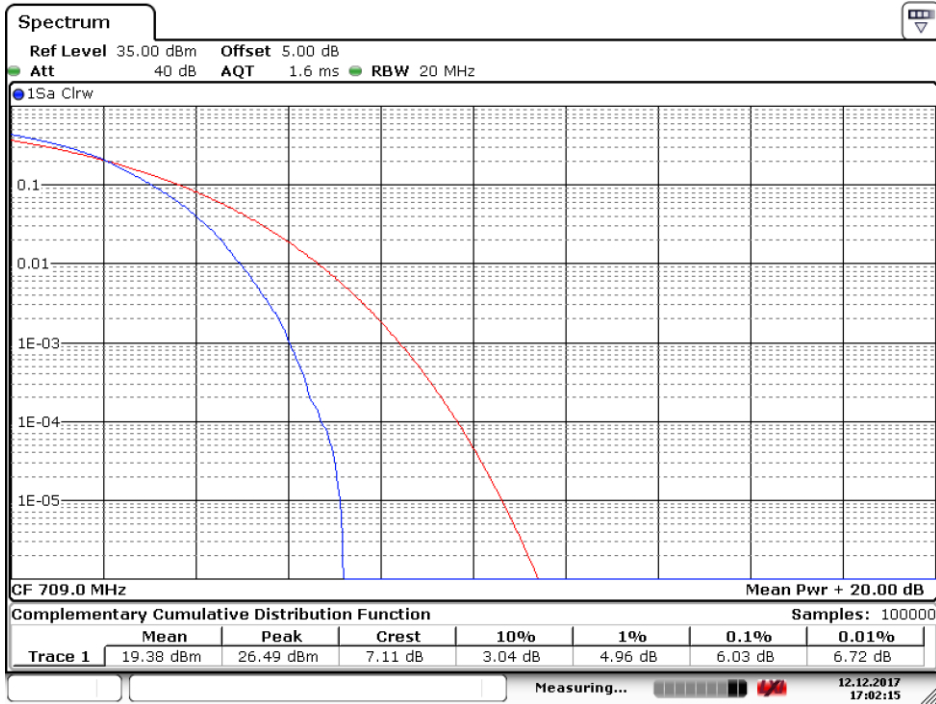


Date: 12.DEC.2017 17:04:15



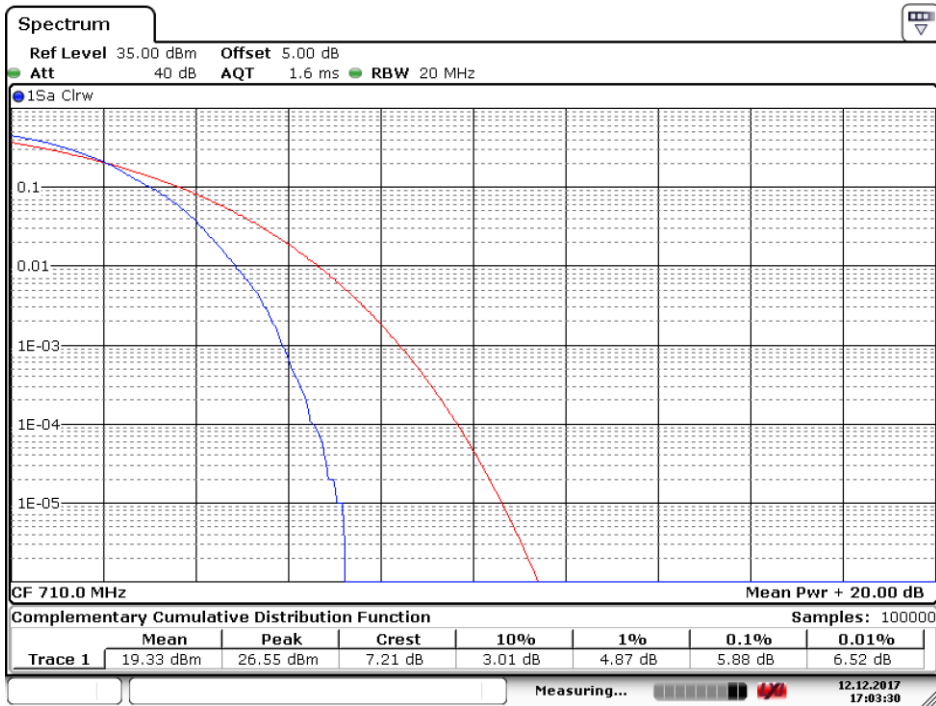
2.1.1.2 Test Mode = LTE/TM2.Bandwidth=10MHz

2.1.1.2.1 Test Channel = LCH



Date: 12.DEC.2017 17:02:15

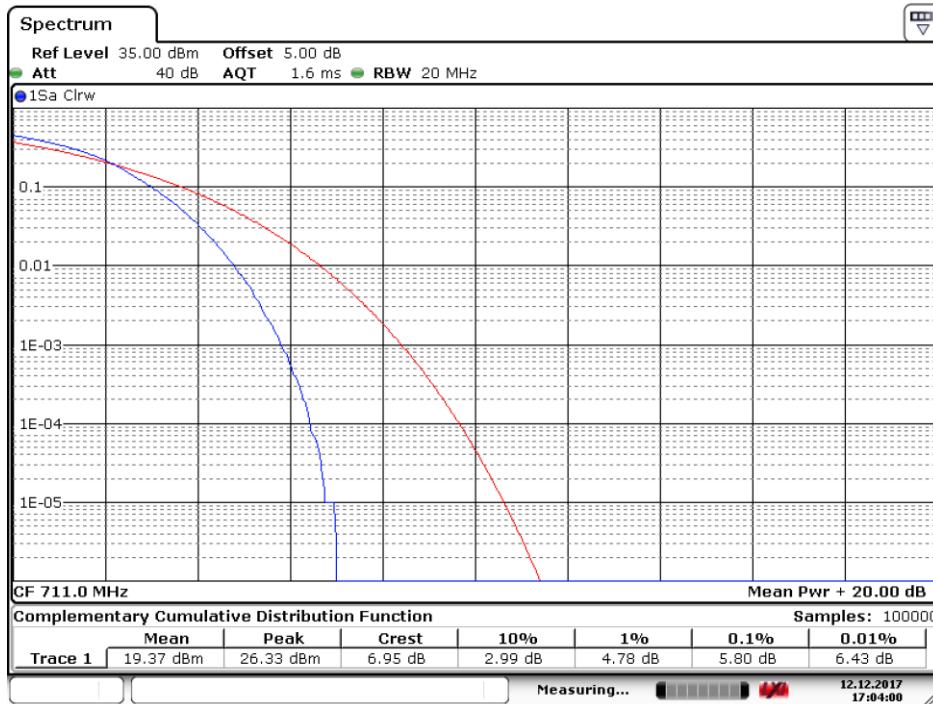
2.1.1.2.2 Test Channel = MCH



Date: 12.DEC.2017 17:03:30



2.1.1.2.3 Test Channel = HCH



Date: 12.DEC.2017 17:04:01

3 Modulation Characteristics

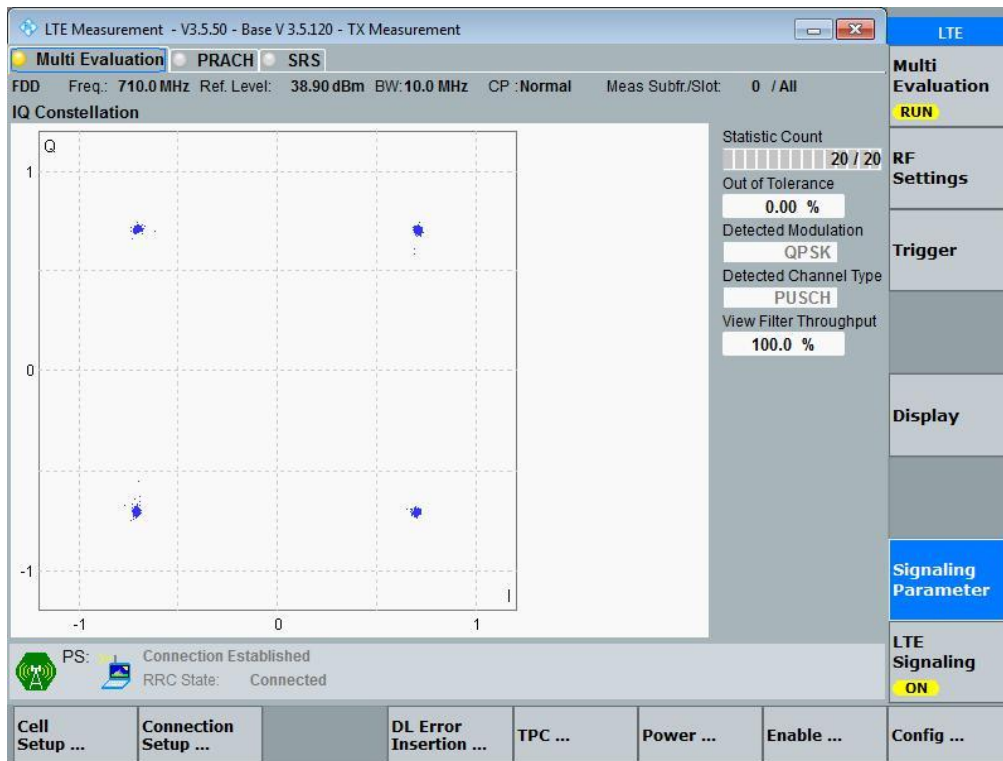
Part I - Test Plots

3.1 For LTE

3.1.1 Test Band = LTE band17

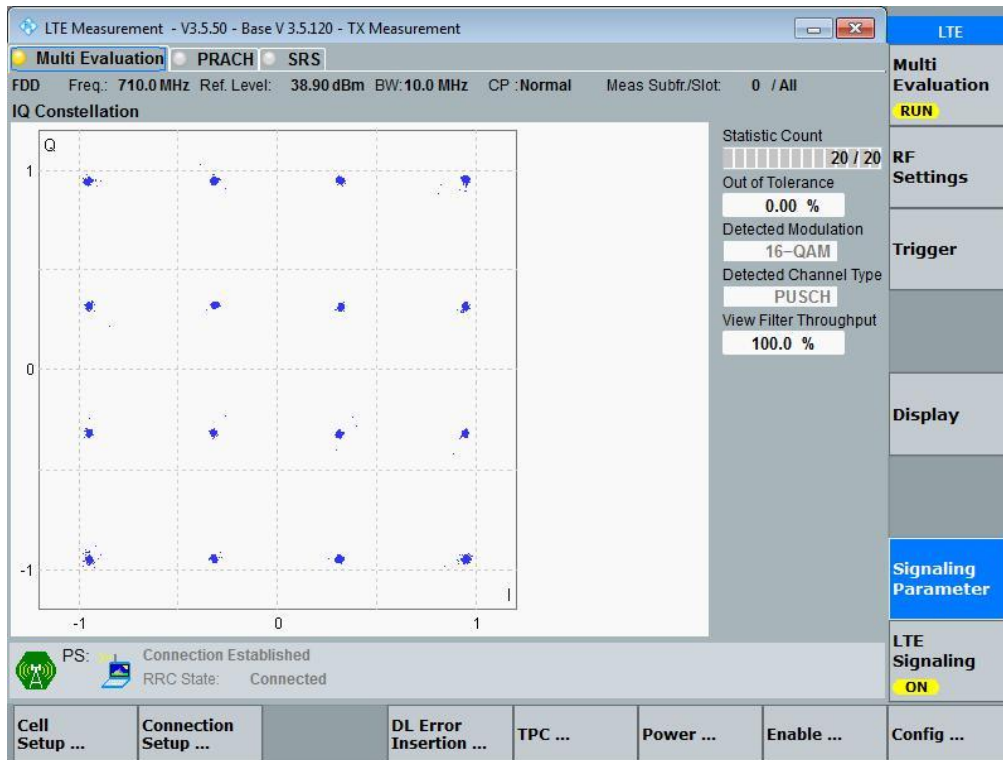
3.1.1.1 Test Mode = LTE /TM1 10MHz

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = LTE /TM2 10MHz

3.1.1.2.1 Test Channel = MCH





4 Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
Band 17	TM1/5MHz	LCH	4.49	4.89	PASS
		MCH	4.48	4.86	PASS
		HCH	4.47	4.87	PASS
	TM2/5MHz	LCH	4.50	4.93	PASS
		MCH	4.46	4.88	PASS
		HCH	4.48	4.88	PASS
	TM1/10MHz	LCH	8.91	9.53	PASS
		MCH	8.87	9.57	PASS
		HCH	8.95	9.47	PASS
	TM2/10MHz	LCH	8.93	9.49	PASS
		MCH	8.89	9.43	PASS
		HCH	8.87	9.57	PASS

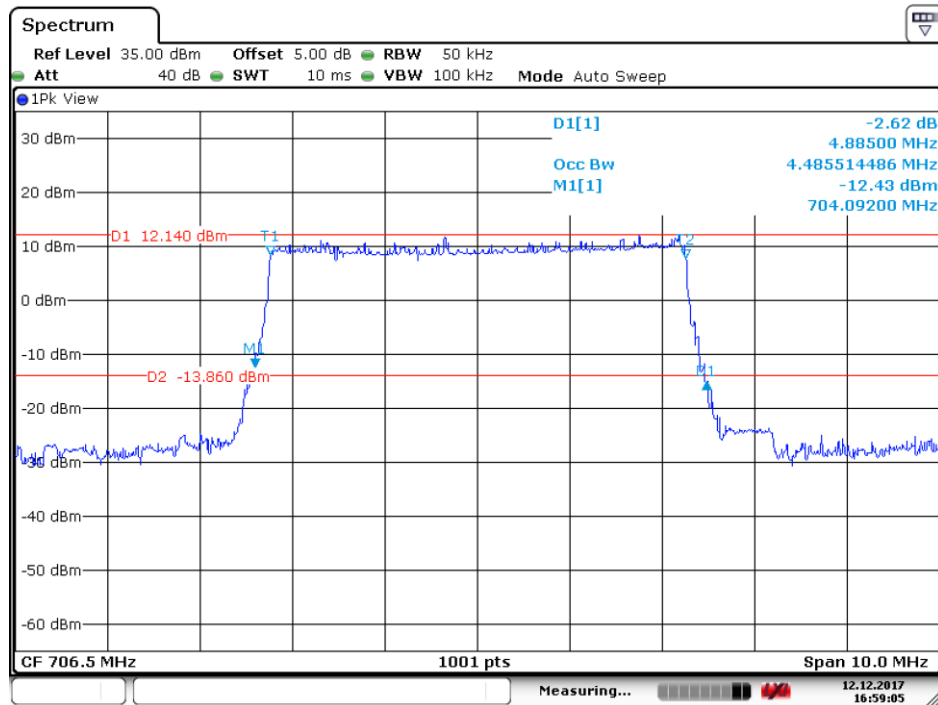


4.1 For LTE

4.1.1 Test Band = LTE band17

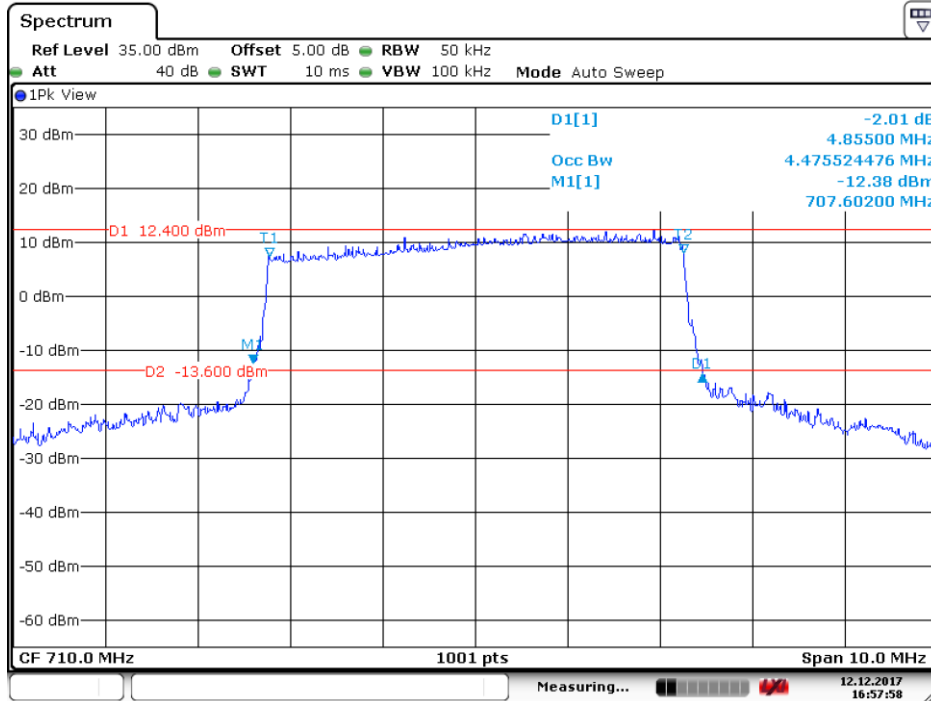
4.1.1.1 Test Mode = LTE/TM1 5MHz

4.1.1.1.1 Test Channel = LCH



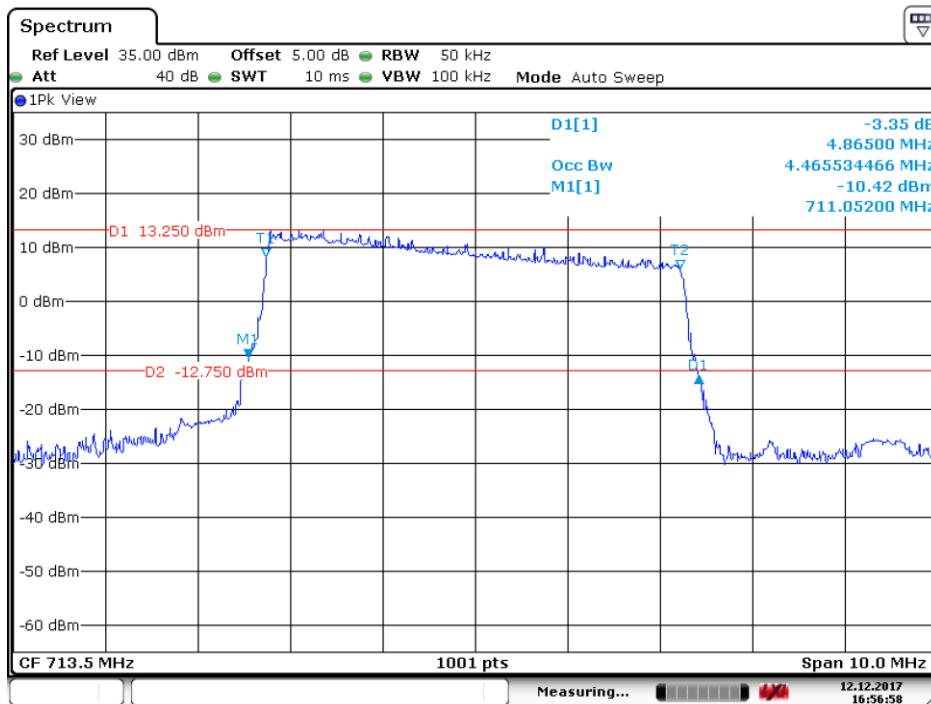
Date: 12.DEC.2017 16:59:06

4.1.1.1.2 Test Channel = MCH



Date: 12.DEC.2017 16:57:58

4.1.1.1.3 Test Channel = HCH

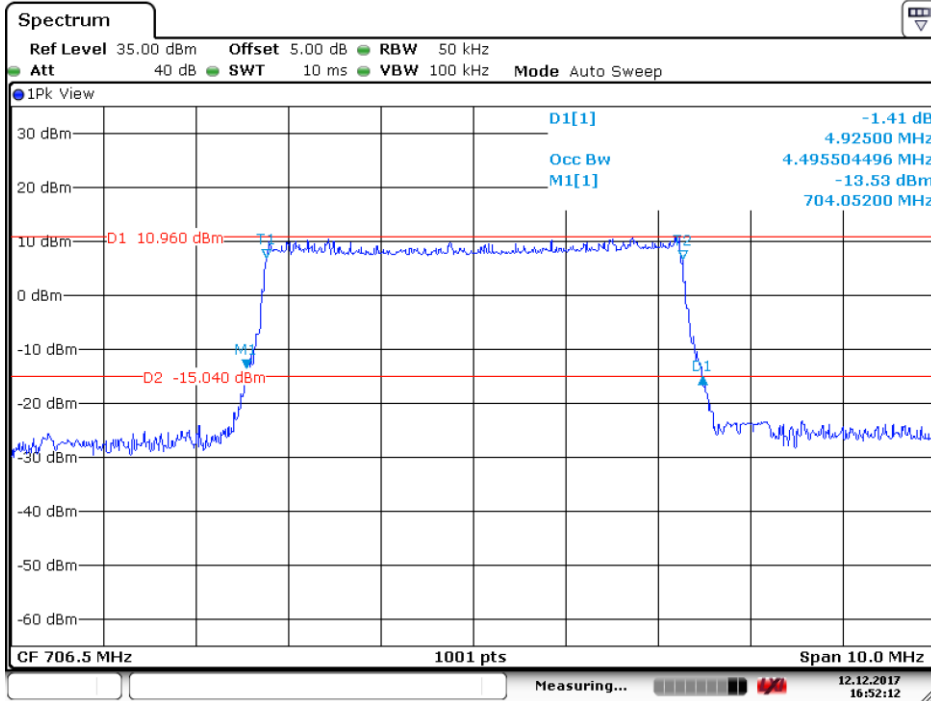


Date: 12.DEC.2017 16:56:58



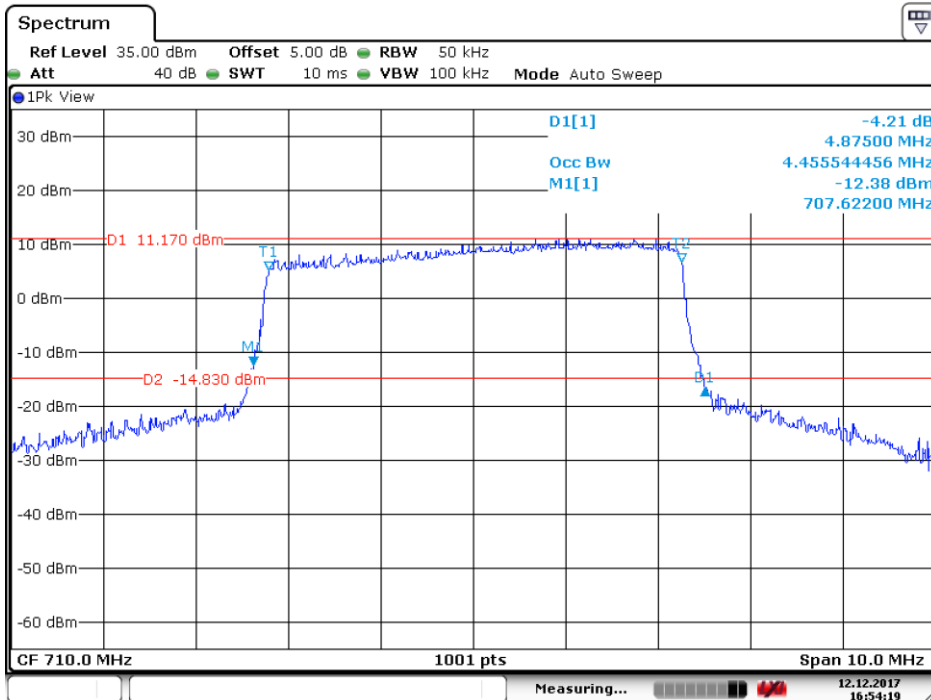
4.1.1.2 Test Mode = LTE/TM2 5MHz

4.1.1.2.1 Test Channel = LCH



Date: 12.DEC.2017 16:52:12

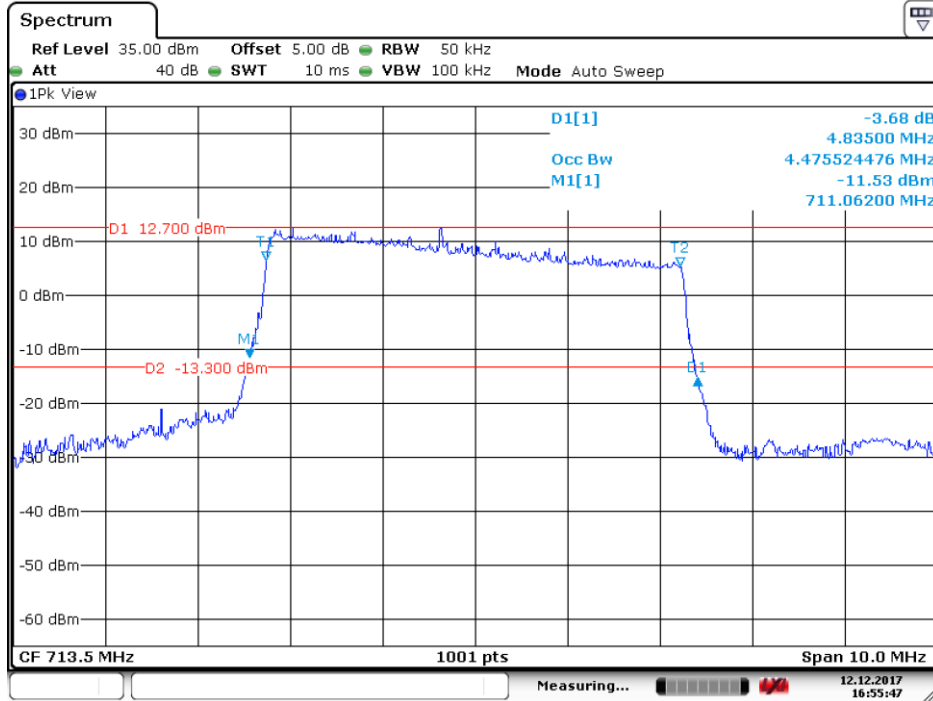
4.1.1.2.2 Test Channel = MCH



Date: 12.DEC.2017 16:54:20



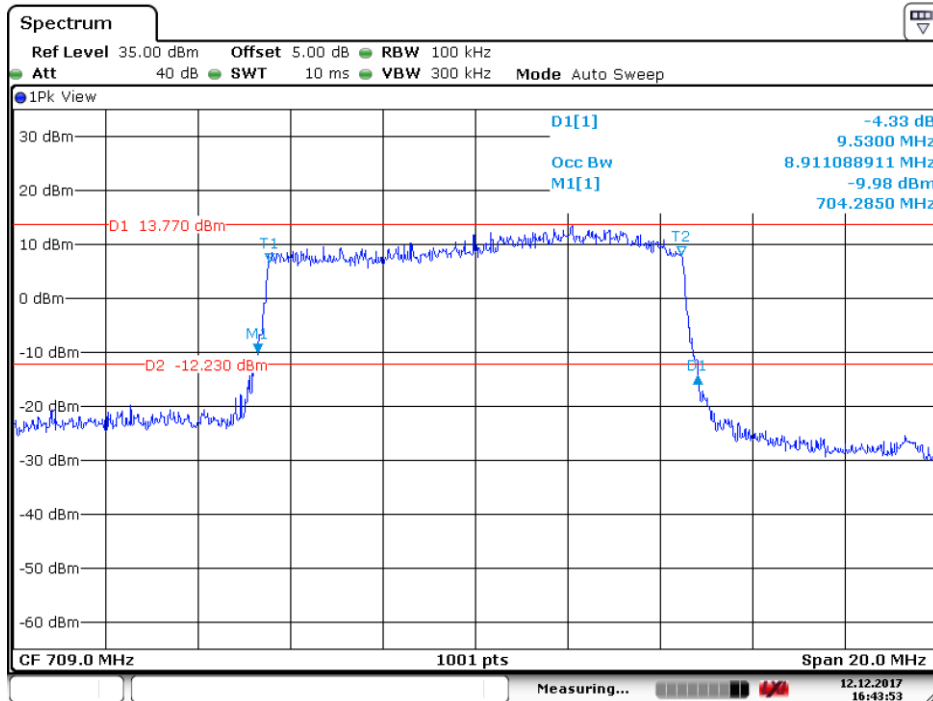
4.1.1.2.3 Test Channel = HCH



Date: 12.DEC.2017 16:55:47

4.1.1.3 Test Mode = LTE/TM1 10MHz

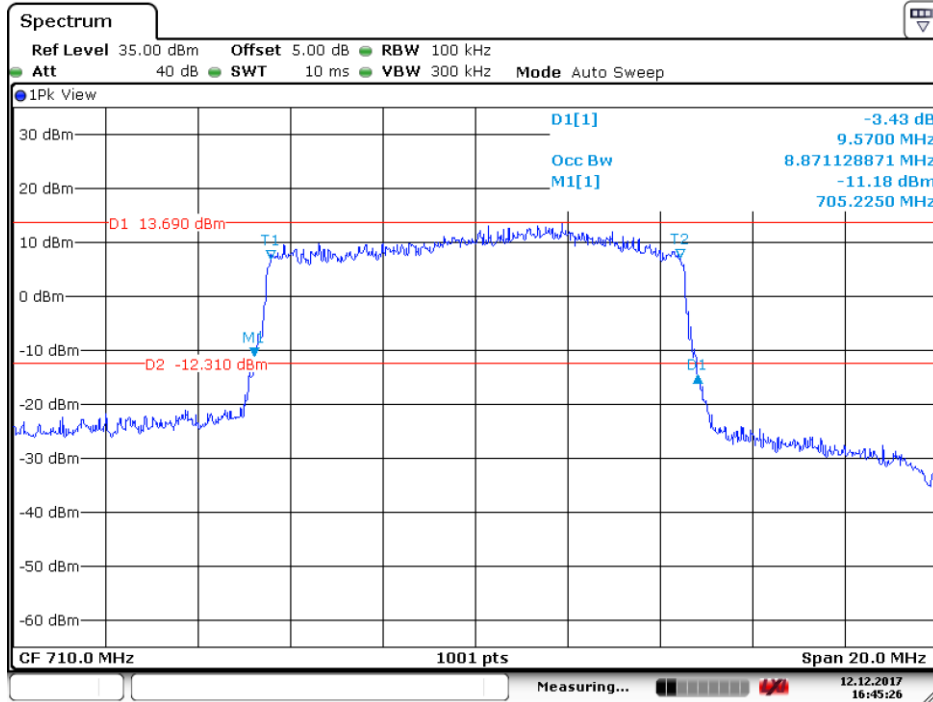
4.1.1.3.1 Test Channel = LCH



Date: 12.DEC.2017 16:43:53

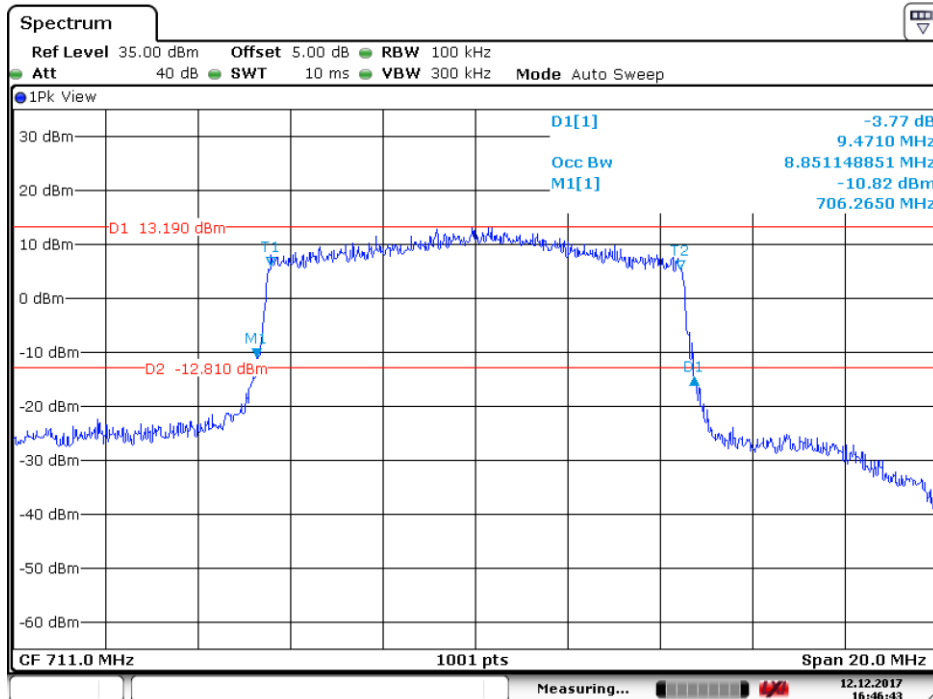


4.1.1.3.2 Test Channel = MCH



Date: 12.DEC.2017 16:45:27

4.1.1.3.3 Test Channel = HCH

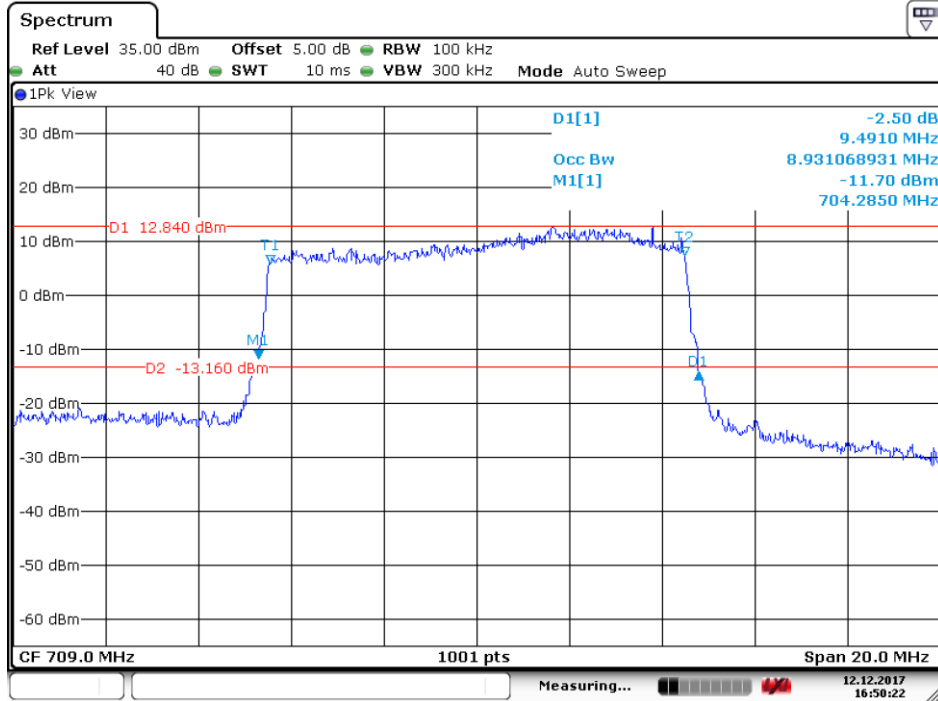


Date: 12.DEC.2017 16:46:43



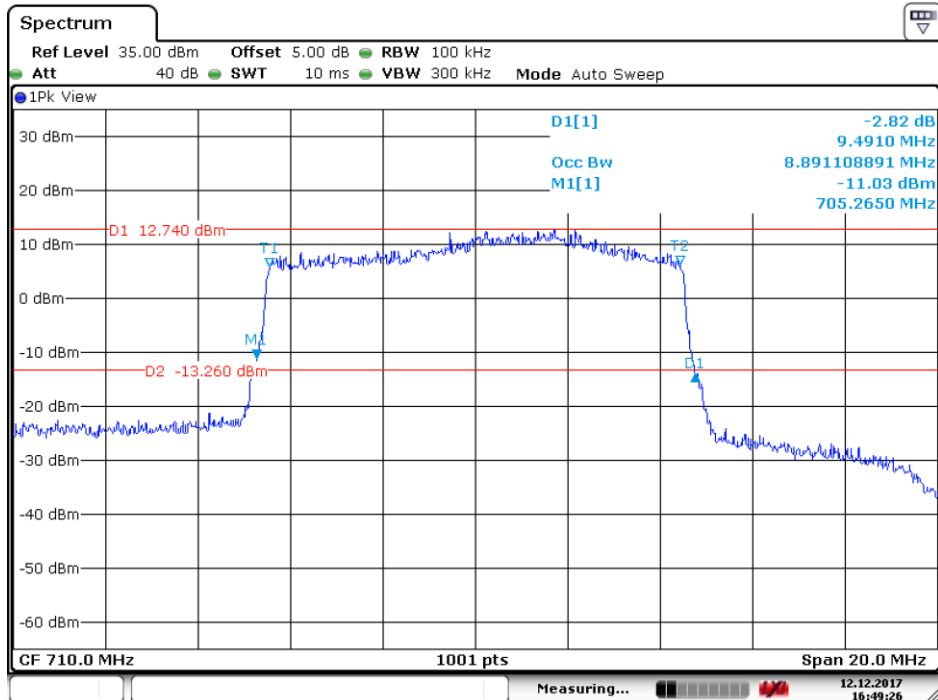
4.1.1.4 Test Mode = LTE/TM2 10MHz

4.1.1.4.1 Test Channel = LCH



Date: 12.DEC.2017 16:50:23

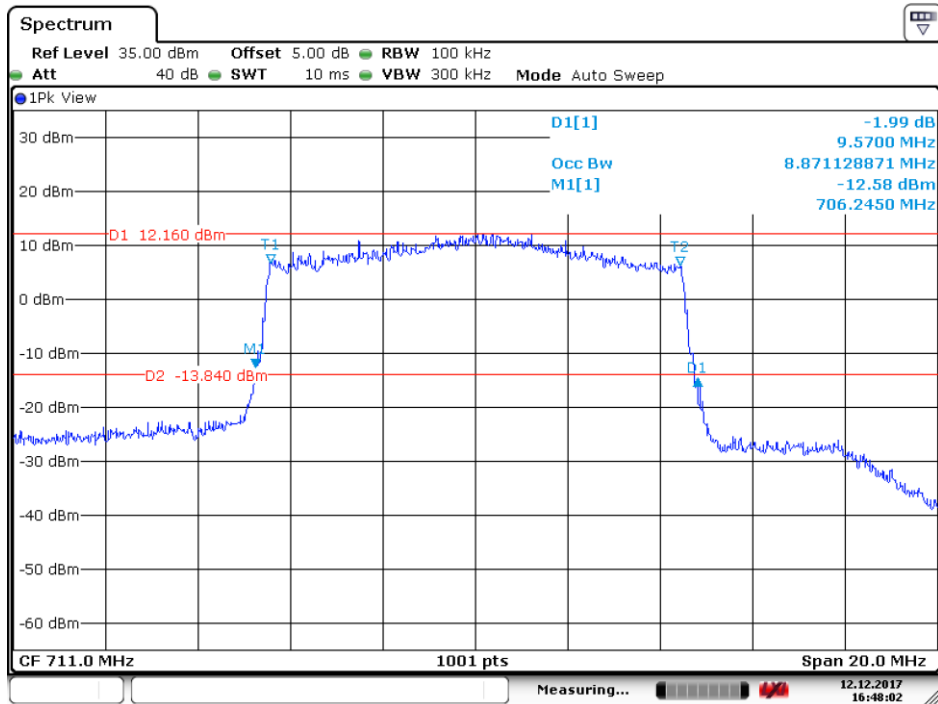
4.1.1.4.2 Test Channel = MCH



Date: 12.DEC.2017 16:49:27



4.1.1.4.3 Test Channel = HCH



Date: 12.DEC.2017 16:48:02

5 Band Edges Compliance

Part I –

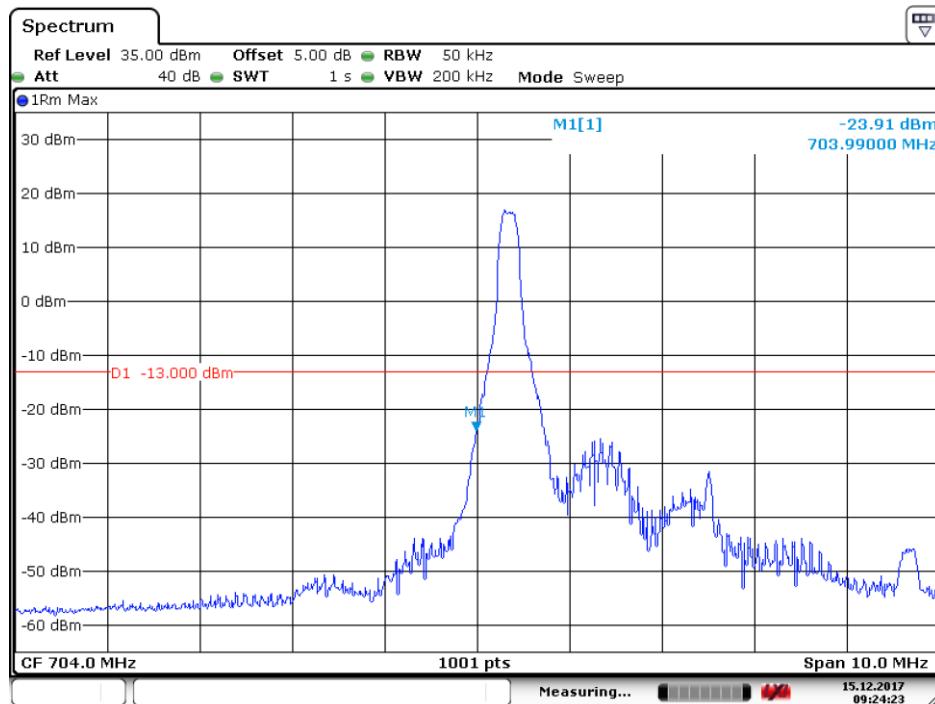
5.1 For LTE

5.1.1 Test Band = LTE band17

5.1.1.1 Test Mode = LTE/TM1 5MHz

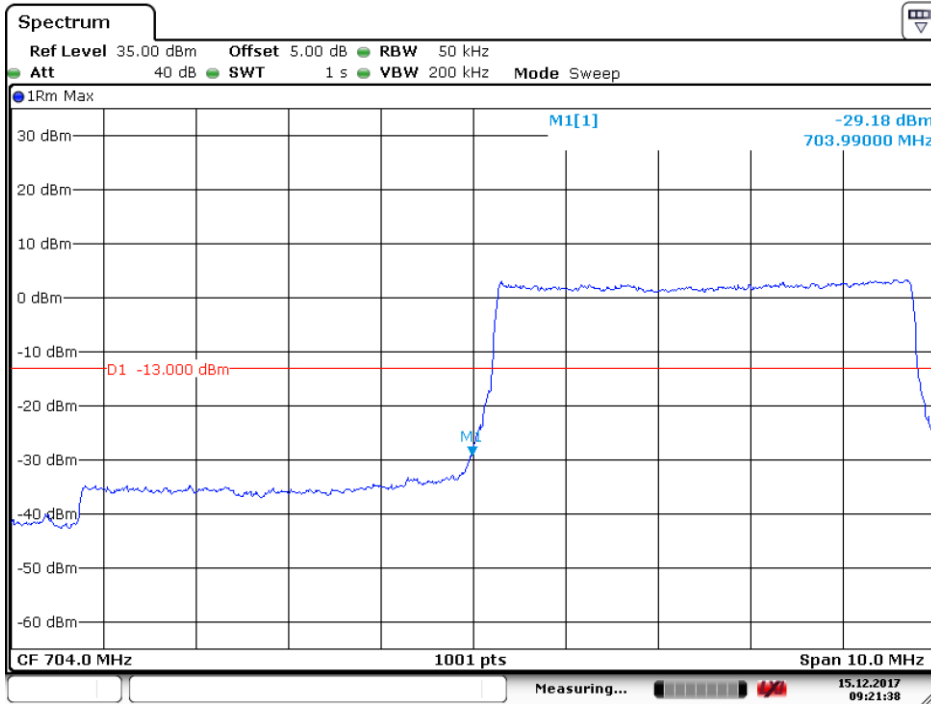
5.1.1.1.1 Test Channel = LCH

5.1.1.1.1.1 Test RB=1RB



Date: 15.DEC.2017 09:24:24

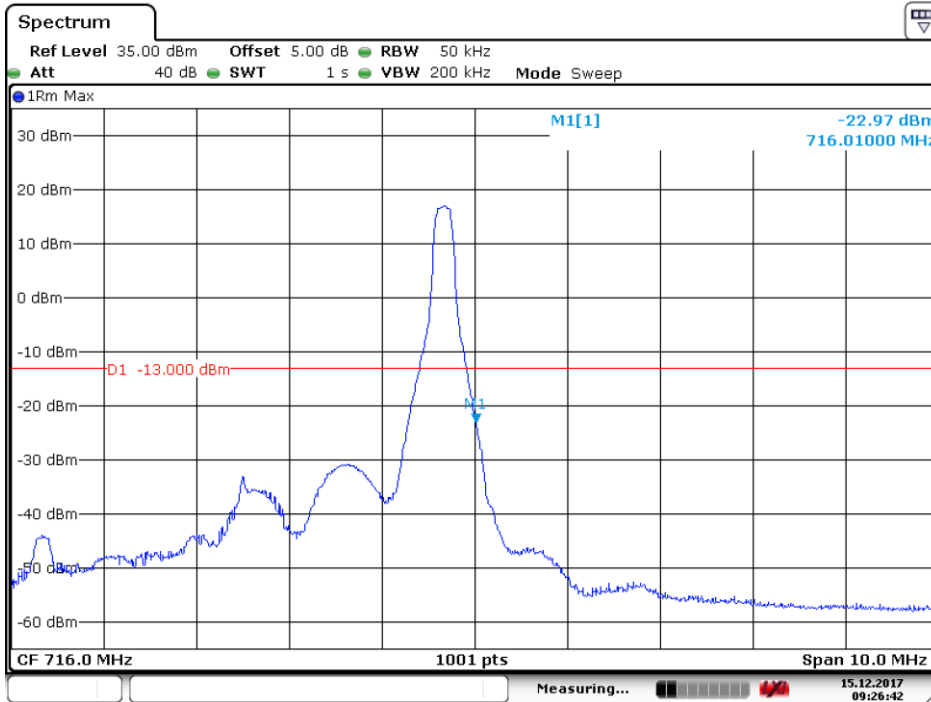
5.1.1.1.2 Test RB=25RB



Date: 15.DEC.2017 09:21:39

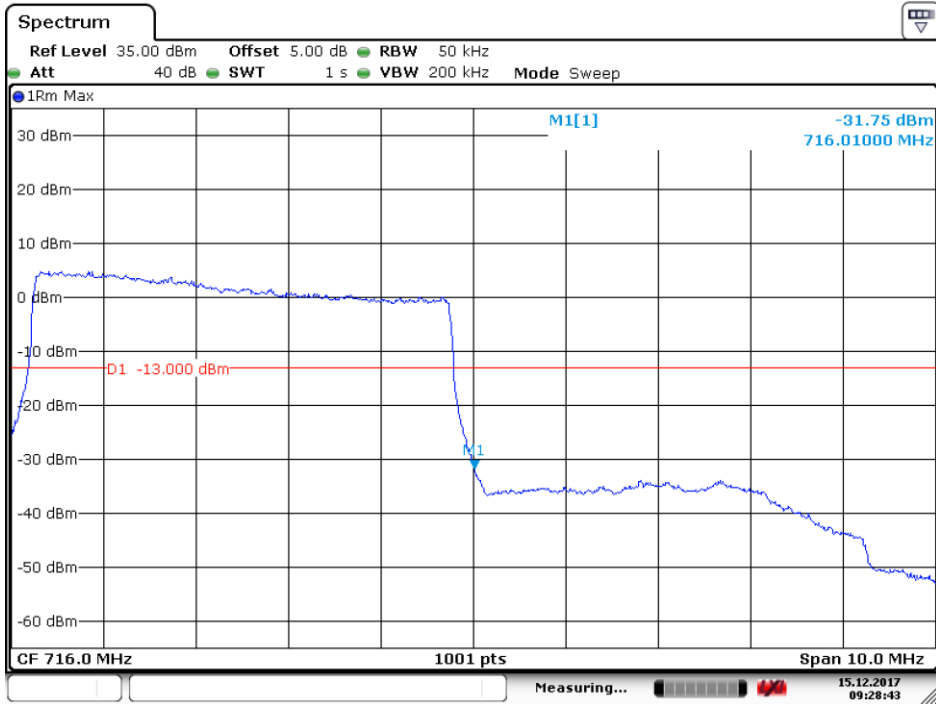
5.1.1.1.2 Test Channel = HCH

5.1.1.1.2.1 Test RB=1RB



Date: 15.DEC.2017 09:26:43

5.1.1.1.2.2 Test RB=25RB

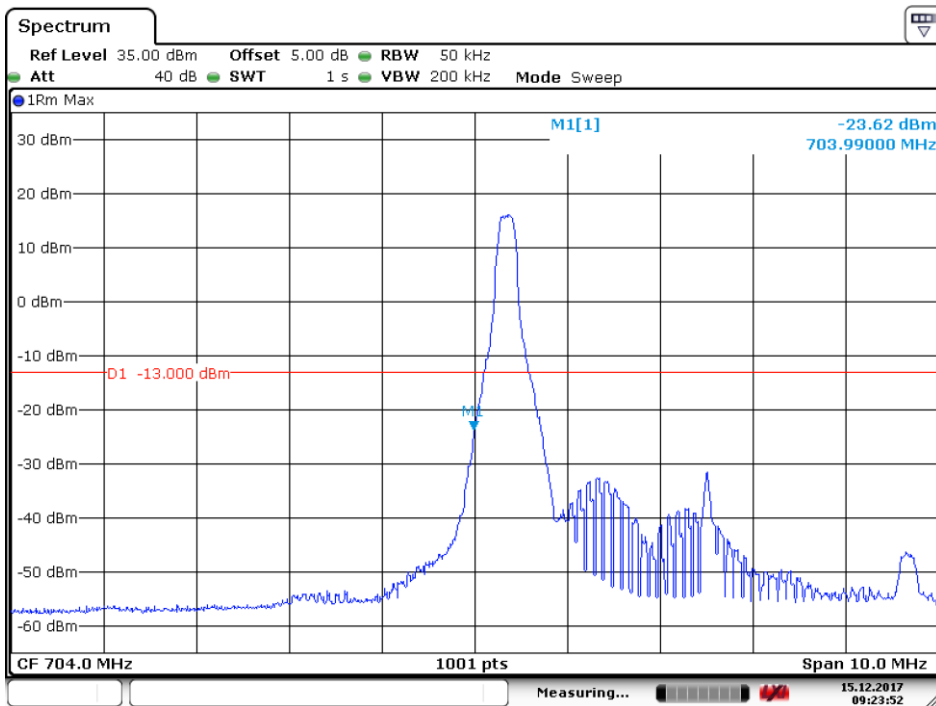


Date: 15.DEC.2017 09:28:43

5.1.1.2 Test Mode = LTE/TM2 5MHz

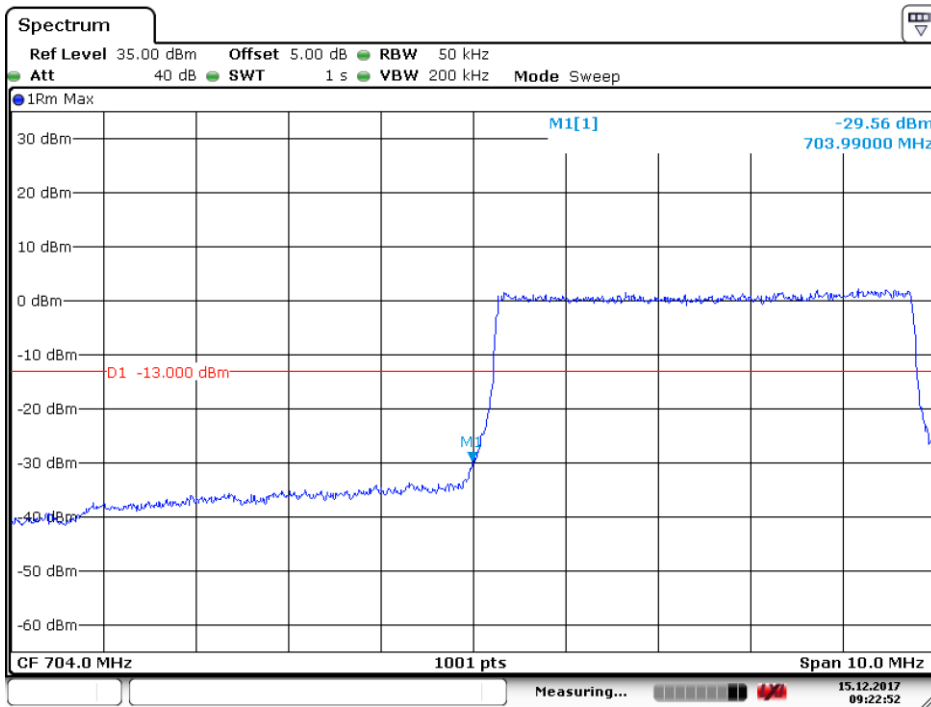
5.1.1.2.1 Test Channel = LCH

5.1.1.2.1.1 Test RB=1RB



Date: 15.DEC.2017 09:23:52

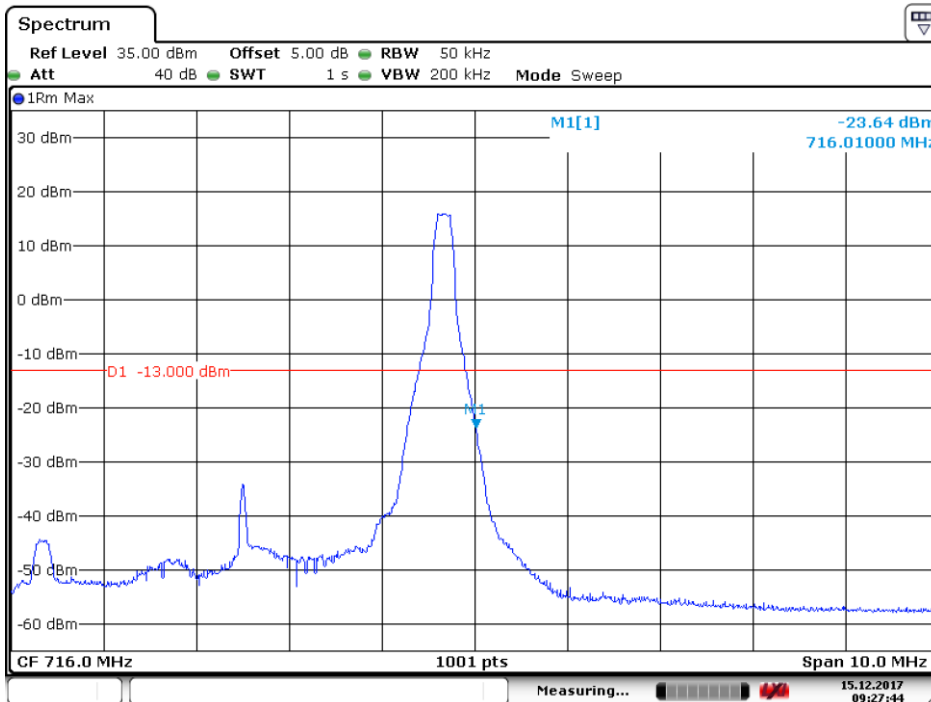
5.1.1.2.1.2 Test RB=25RB



Date: 15.DEC.2017 09:22:52

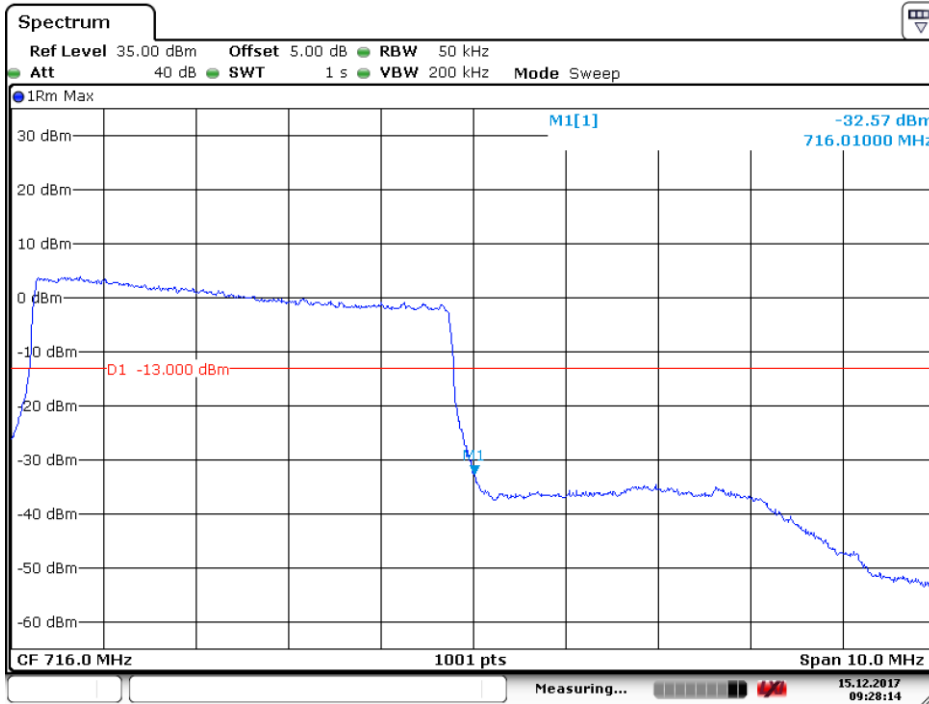
5.1.1.2.2 Test Channel = HCH

5.1.1.2.2.1 Test RB=1RB



Date: 15.DEC.2017 09:27:44

5.1.1.2.2 Test RB=25RB

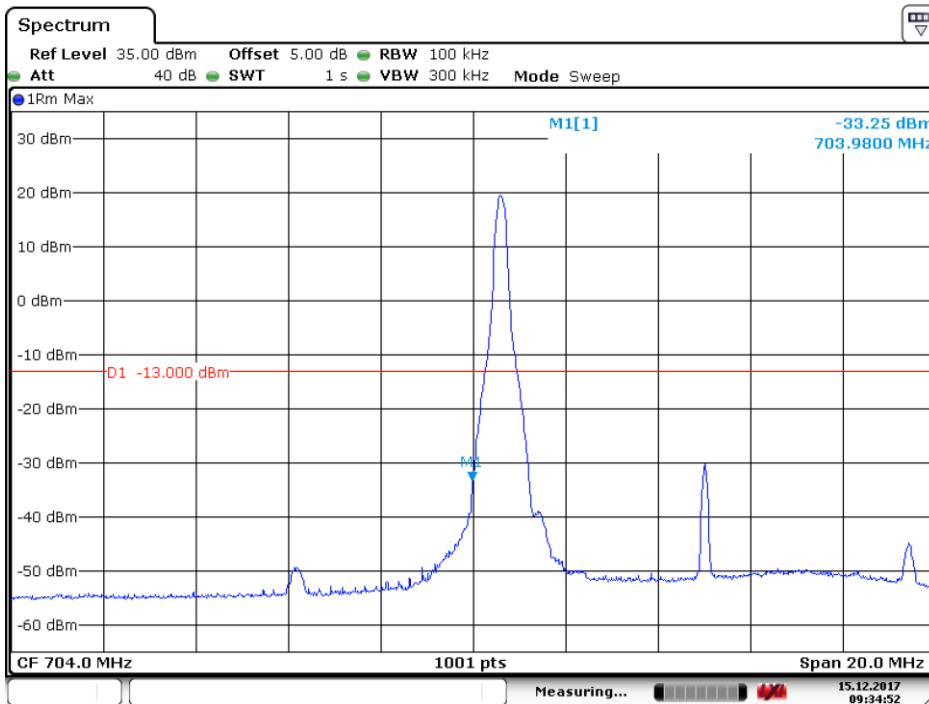


Date: 15.DEC.2017 09:28:14

5.1.1.3 Test Mode = LTE/TM1 10MHz

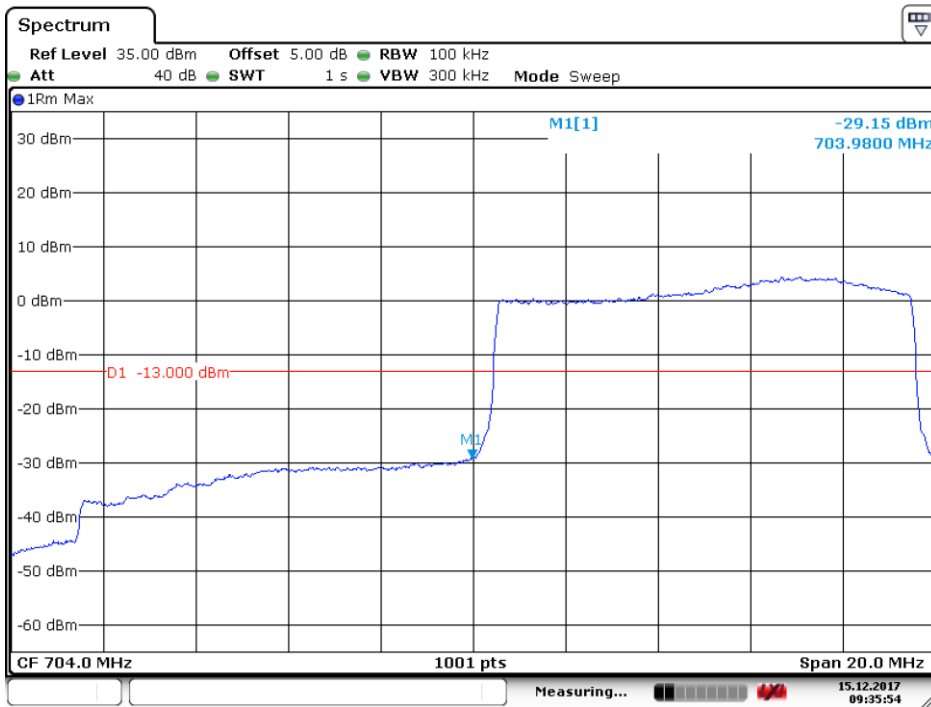
5.1.1.3.1 Test Channel = LCH

5.1.1.3.1.1 Test RB=1RB



Date: 15.DEC.2017 09:34:52

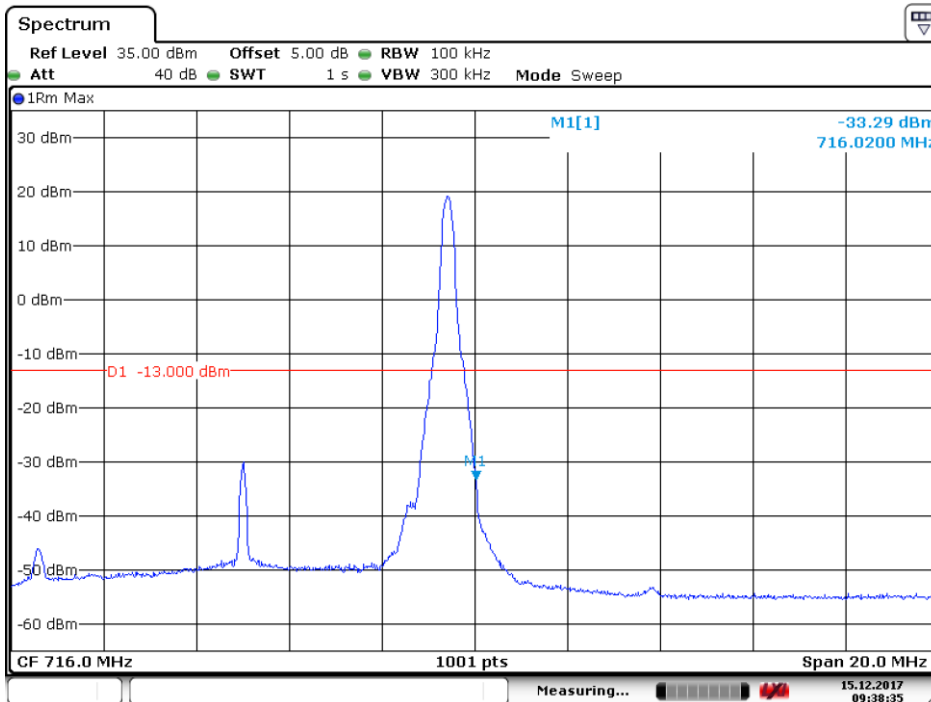
5.1.1.3.1.2 Test RB=50RB



Date: 15.DEC.2017 09:35:54

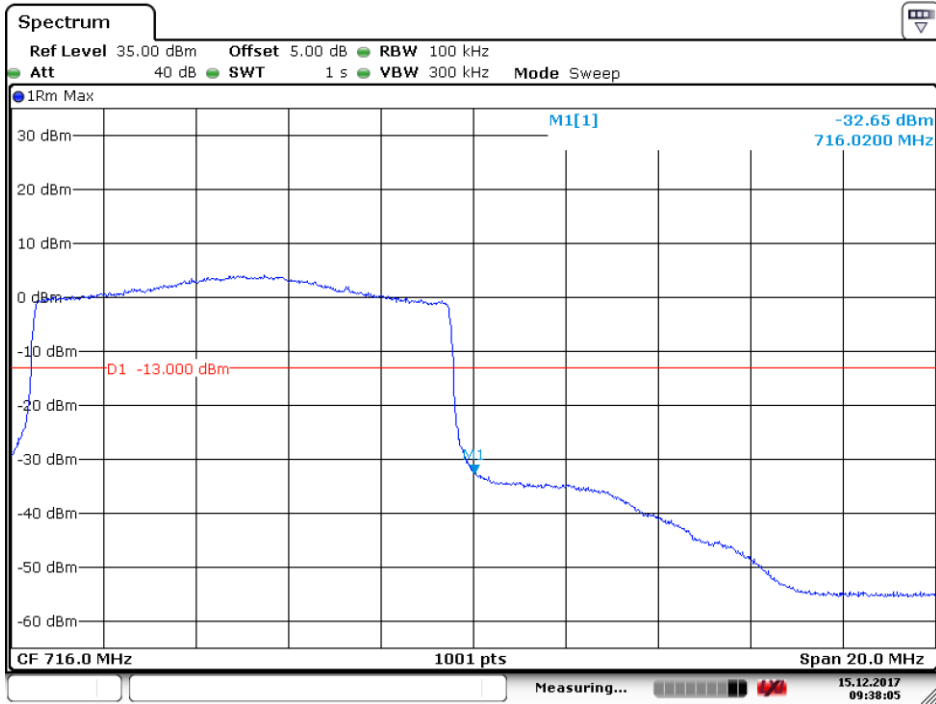
5.1.1.3.2 Test Channel = HCH

5.1.1.3.2.1 Test RB=1RB



Date: 15.DEC.2017 09:38:36

5.1.1.3.2.2 Test RB=50RB

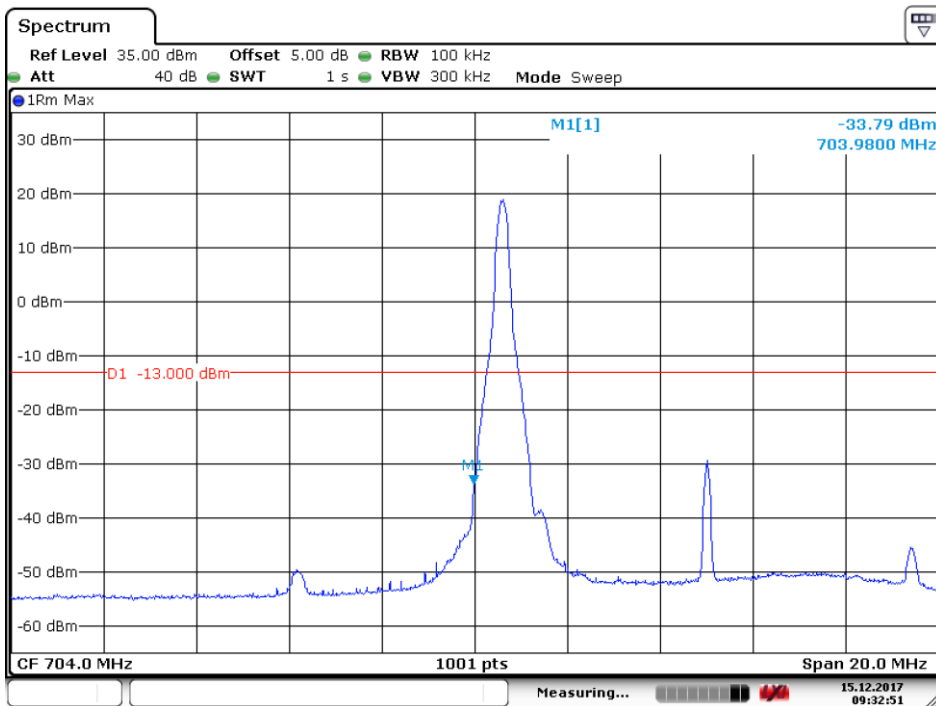


Date: 15.DEC.2017 09:38:05

5.1.1.4 Test Mode = LTE/TM2 10MHz

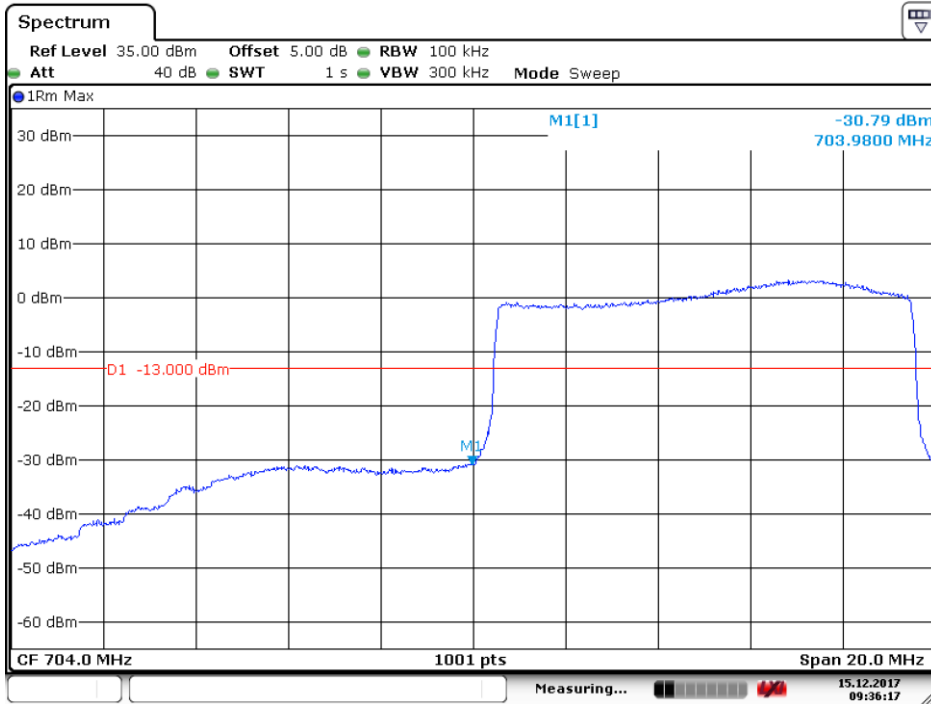
5.1.1.4.1 Test Channel = LCH

5.1.1.4.1.1 Test RB=1RB



Date: 15.DEC.2017 09:32:52

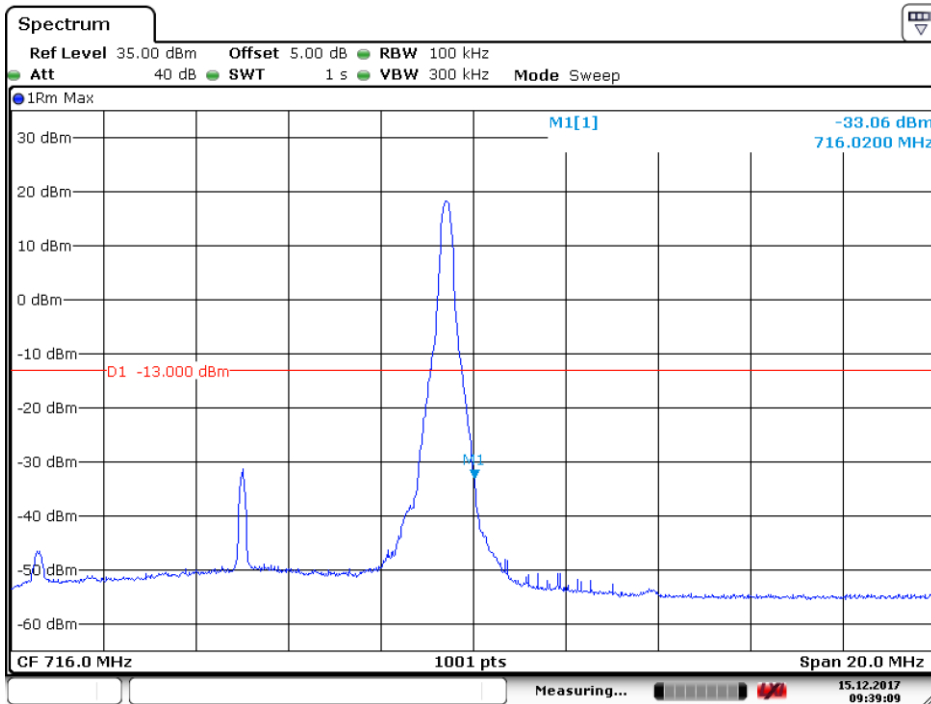
5.1.1.4.1.2 Test RB=50RB



Date: 15.DEC.2017 09:36:18

5.1.1.4.2 Test Channel = HCH

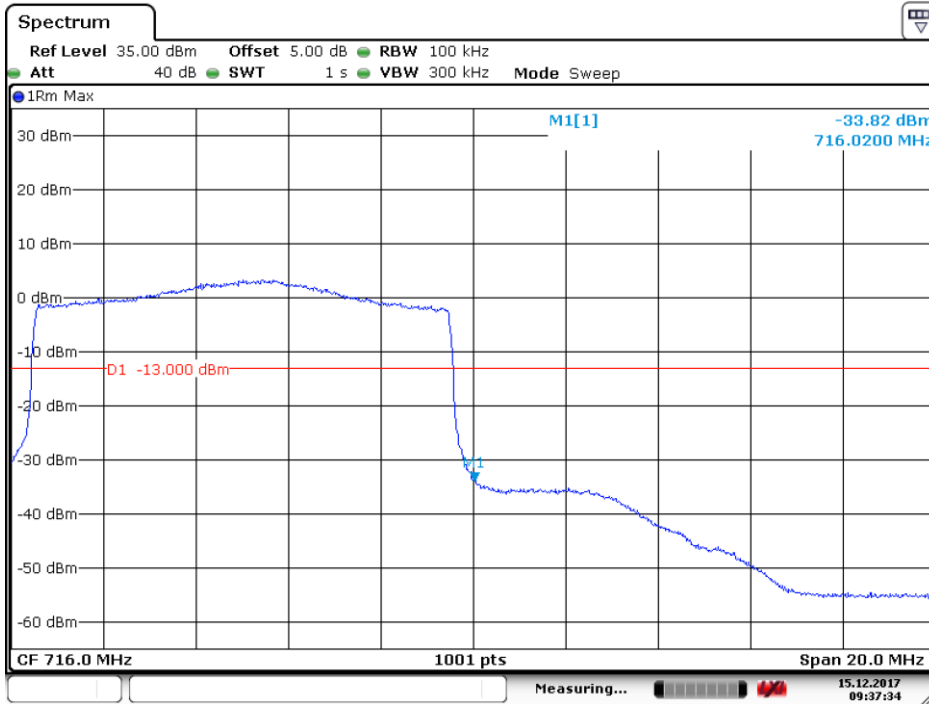
5.1.1.4.2.1 Test RB=1RB



Date: 15.DEC.2017 09:39:09



5.1.1.4.2.2 Test RB=50RB



Date: 15.DEC.2017 09:37:34

6 Spurious Emission at Antenna Terminal

NOTE: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k * (Span / RBW)$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

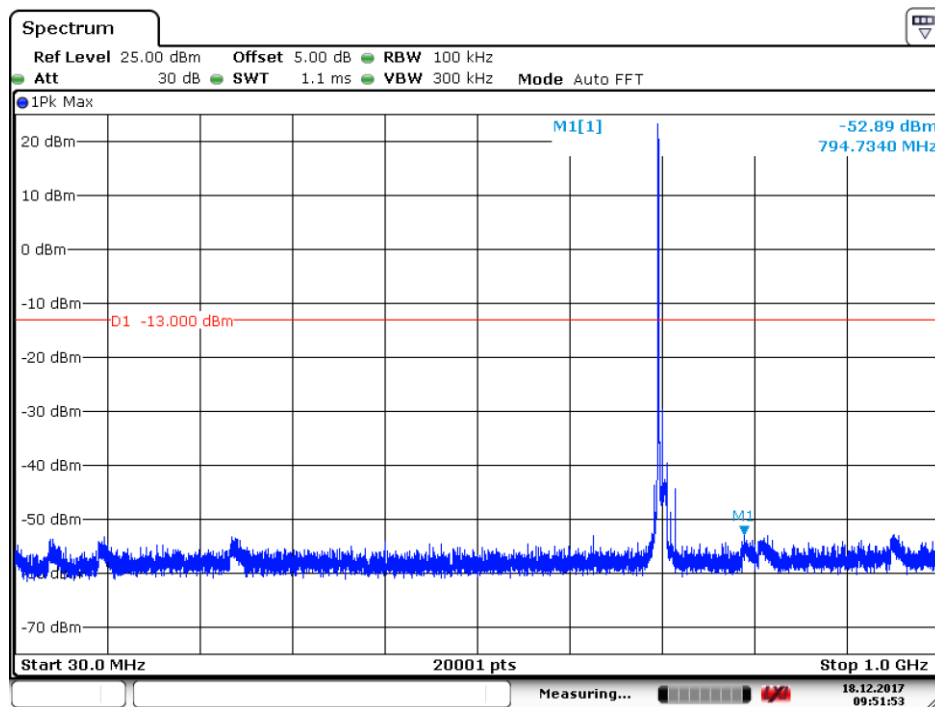
Part I - Test Plots

6.1 For LTE

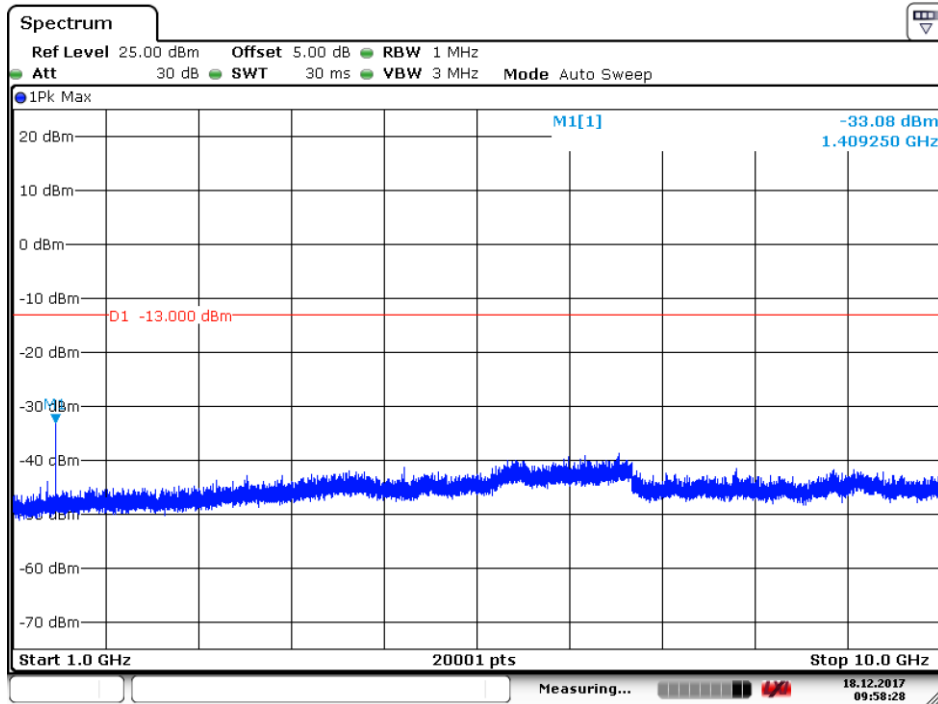
6.1.1 Test Band = LTE band17

6.1.1.1 Test Mode = LTE / TM1 10MHz RB1#0

6.1.1.1.1 Test Channel = LCH

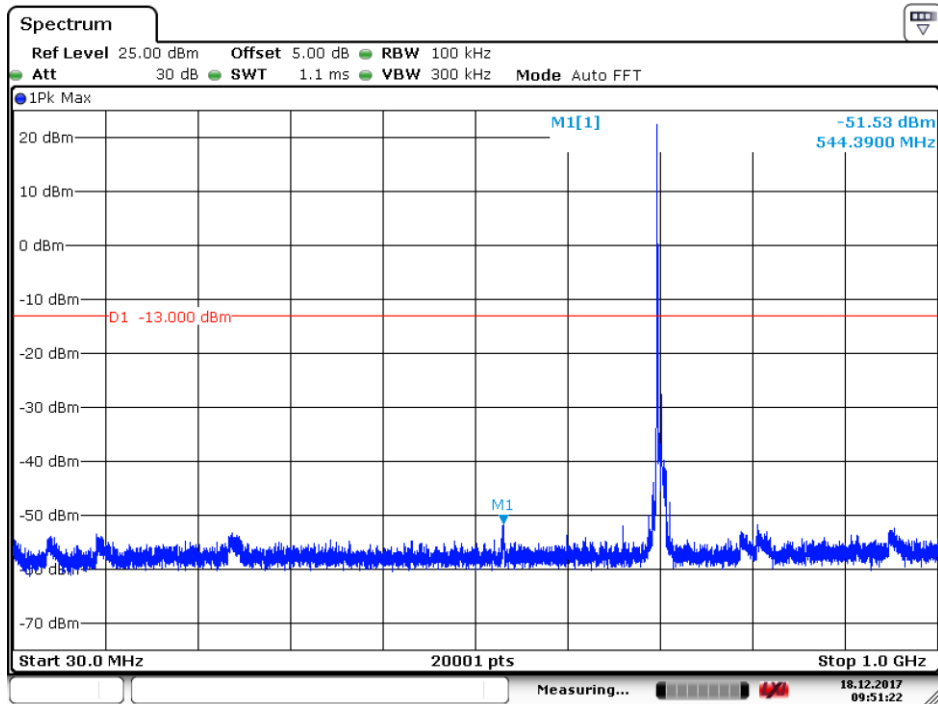


Date: 18.DEC.2017 09:51:54

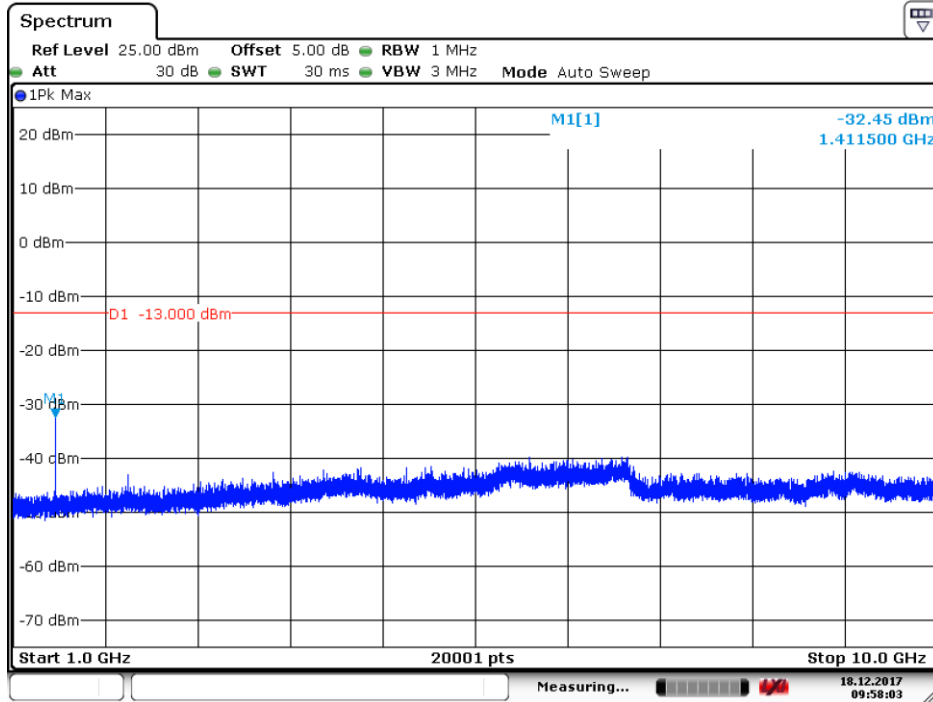


Date: 18.DEC.2017 09:58:29

6.1.1.1.2 Test Channel = MCH

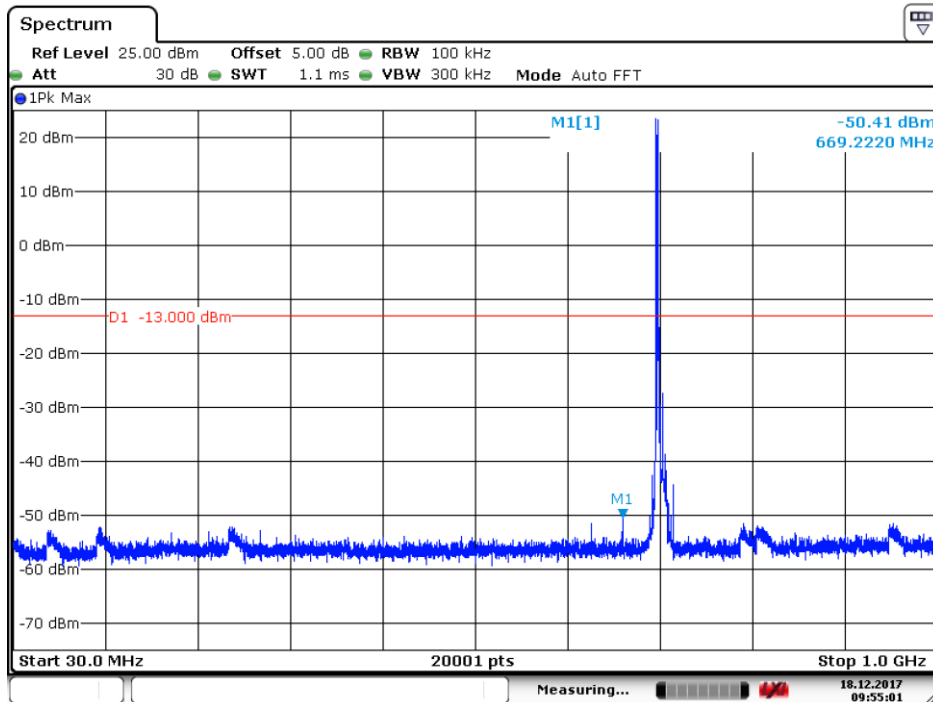


Date: 18.DEC.2017 09:51:22

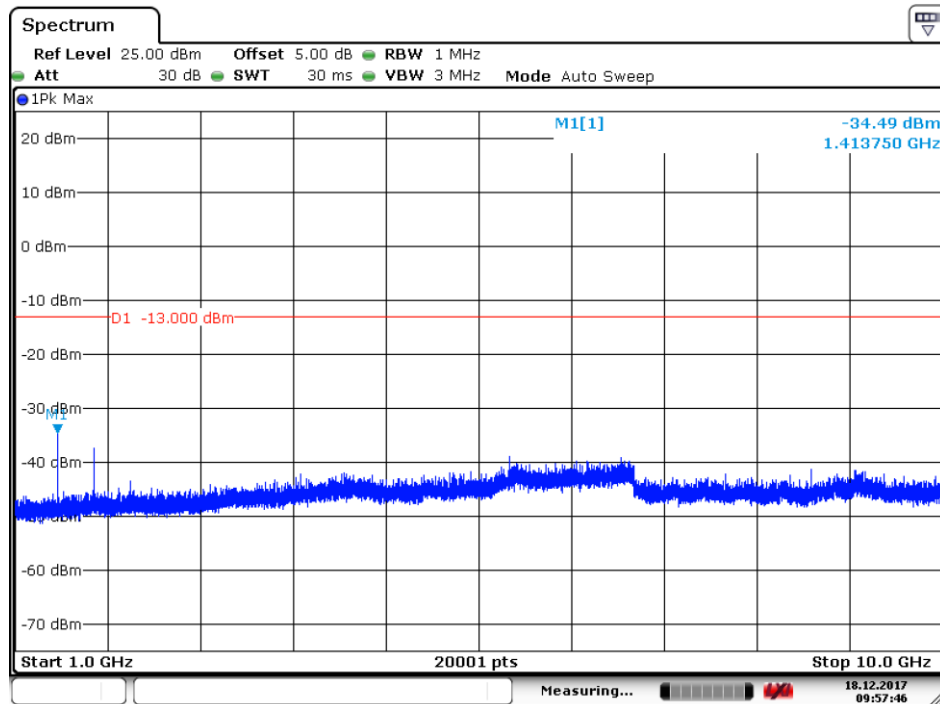


Date: 18.DEC.2017 09:58:03

6.1.1.1.3 Test Channel = HCH



Date: 18.DEC.2017 09:55:01



Date: 18.DEC.2017 09:57:46



7 Field Strength of Spurious Radiation

7.1 For LTE

7.1.1 Test Band = LTE band17

7.1.1.1 Test Mode =LTE/TM1 10MHz RB1#0

7.1.1.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
39.706667	-70.25	-13.00	-57.25	Vertical
73.353333	-72.81	-13.00	-59.81	Vertical
205.466667	-68.44	-13.00	-55.44	Vertical
1409.000000	-53.46	-13.00	-40.46	Vertical
4011.075000	-67.44	-13.00	-54.44	Vertical
6922.425000	-64.63	-13.00	-51.63	Vertical
62.480000	-77.27	-13.00	-64.27	Horizontal
130.333333	-73.55	-13.00	-60.55	Horizontal
201.546667	-75.46	-13.00	-62.46	Horizontal
1409.000000	-53.50	-13.00	-40.50	Horizontal
4286.512500	-66.49	-13.00	-53.49	Horizontal
7961.287500	-63.33	-13.00	-50.33	Horizontal

7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
39.286667	-71.02	-13.00	-58.02	Vertical
73.120000	-72.70	-13.00	-59.70	Vertical
204.766667	-68.11	-13.00	-55.11	Vertical
1411.000000	-52.39	-13.00	-39.39	Vertical
4294.312500	-66.48	-13.00	-53.48	Vertical
5917.200000	-65.54	-13.00	-52.54	Vertical
73.586667	-77.02	-13.00	-64.02	Horizontal
129.353333	-74.83	-13.00	-61.83	Horizontal
208.826667	-74.76	-13.00	-61.76	Horizontal
1411.000000	-52.51	-13.00	-39.51	Horizontal
2741.500000	-57.15	-13.00	-44.15	Horizontal
4825.687500	-66.49	-13.00	-53.49	Horizontal



**SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch**

Report No.: SZEM171001110301

Page: 36 of 39

7.1.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
39.426667	-71.14	-13.00	-58.14	Vertical
73.446667	-72.67	-13.00	-59.67	Vertical
208.873333	-68.55	-13.00	-55.55	Vertical
1413.000000	-52.04	-13.00	-39.04	Vertical
2670.000000	-57.16	-13.00	-44.16	Vertical
6058.087500	-64.60	-13.00	-51.60	Vertical
74.053333	-78.27	-13.00	-65.27	Horizontal
129.260000	-73.94	-13.00	-60.94	Horizontal
210.553333	-75.39	-13.00	-62.39	Horizontal
1413.000000	-52.12	-13.00	-39.12	Horizontal
2782.000000	-56.85	-13.00	-43.85	Horizontal
7849.650000	-63.69	-13.00	-50.69	Horizontal

NOTE:

- 1) The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.



8 Frequency Stability

8.1 Frequency Error VS. Voltage

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband17	LTE/TM1 10MHz	LCH	TN	VL	-4.93	-0.00695	PASS
				VN	3.06	0.00432	PASS
				VH	-3.63	-0.00512	PASS
		MCH	TN	VL	4.43	0.00624	PASS
				VN	-2.24	-0.00315	PASS
				VH	2.93	0.00413	PASS
		HCH	TN	VL	4.56	0.00641	PASS
				VN	-4.17	-0.00586	PASS
				VH	-6.70	-0.00942	PASS
	LTE/TM2 10MHz	LCH	TN	VL	-4.75	-0.00670	PASS
				VN	-2.85	-0.00402	PASS
				VH	-5.36	-0.00756	PASS
		MCH	TN	VL	3.96	0.00558	PASS
				VN	-5.89	-0.00830	PASS
				VH	2.54	0.00358	PASS
		HCH	TN	VL	-3.38	-0.00475	PASS
				VN	-8.98	-0.01263	PASS
				VH	3.04	0.00428	PASS



8.2 Frequency Error VS. Temperature

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband17	LTE/TM1 10MHz	LCH	VN	-30	-3.49	-0.00492	PASS
				-20	-2.44	-0.00344	PASS
				-10	4.82	0.00680	PASS
				0	2.35	0.00331	PASS
				10	1.67	0.00236	PASS
				20	0.13	0.00018	PASS
				30	-0.32	-0.00045	PASS
				40	-0.39	-0.00055	PASS
				50	4.51	0.00636	PASS
		MCH	VN	-30	-3.89	-0.00548	PASS
				-20	-5.05	-0.00711	PASS
				-10	-2.43	-0.00342	PASS
				0	-4.02	-0.00566	PASS
				10	-1.54	-0.00217	PASS
				20	-3.04	-0.00428	PASS
				30	-5.30	-0.00746	PASS
				40	-4.12	-0.00580	PASS
				50	-6.92	-0.00975	PASS
		HCH	VN	-30	3.84	0.00540	PASS
				-20	-1.49	-0.00210	PASS
				-10	4.59	0.00646	PASS
				0	-2.84	-0.00399	PASS
				10	2.39	0.00336	PASS
				20	-1.55	-0.00218	PASS
				30	-4.64	-0.00653	PASS
				40	-5.43	-0.00764	PASS
				50	-2.30	-0.00323	PASS



**SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch**

Report No.: SZEM171001110301

Page: 39 of 39

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband17	LTE/TM2 10MHz	LCH	VN	-30	-0.19	-0.00027	PASS
				-20	-2.95	-0.00416	PASS
				-10	3.64	0.00513	PASS
				0	2.74	0.00386	PASS
				10	9.67	0.01364	PASS
				20	-2.23	-0.00315	PASS
				30	-4.44	-0.00626	PASS
				40	5.55	0.00783	PASS
		MCH	VN	50	3.76	0.00530	PASS
				-30	-3.84	-0.00541	PASS
				-20	-5.33	-0.00751	PASS
				-10	-2.15	-0.00303	PASS
				0	-4.65	-0.00655	PASS
				10	-0.56	-0.00079	PASS
				20	4.44	0.00625	PASS
				30	-1.69	-0.00238	PASS
		HCH	VN	40	2.63	0.00370	PASS
				50	-5.95	-0.00838	PASS
				-30	4.36	0.00613	PASS
				-20	-2.55	-0.00359	PASS
				-10	3.69	0.00519	PASS
				0	-3.87	-0.00544	PASS
				10	2.89	0.00406	PASS
				20	-1.39	-0.00195	PASS
30	-2.89	-0.00406	PASS				
40	-3.38	-0.00475	PASS				
50	-3.62	-0.00509	PASS				

The End