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

Appendix B

E-UTRA Band 12

CONTENT

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1   Effective (Isotropic) Radiated Power Output Data

Effective Radiated Power of Transmitter (ERP) for LTE BAND 12

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND12	LTE/TM1	1.4M	LCH	RB1#0	23.23	20.94	34.77	PASS
				RB1#2	23.31	21.02	34.77	PASS
				RB1#5	23.19	20.90	34.77	PASS
				RB3#0	23.28	20.99	34.77	PASS
				RB3#2	23.30	21.01	34.77	PASS
				RB3#3	23.31	21.02	34.77	PASS
				RB6#0	22.31	20.02	34.77	PASS
			MCH	RB1#0	23.10	20.81	34.77	PASS
				RB1#2	23.21	20.92	34.77	PASS
				RB1#5	23.02	20.73	34.77	PASS
				RB3#0	23.35	21.06	34.77	PASS
				RB3#2	23.30	21.01	34.77	PASS
				RB3#3	23.23	20.94	34.77	PASS
				RB6#0	22.33	20.04	34.77	PASS
			HCH	RB1#0	23.28	20.99	34.77	PASS
				RB1#2	23.38	21.09	34.77	PASS
				RB1#5	23.17	20.88	34.77	PASS
				RB3#0	23.26	20.97	34.77	PASS
				RB3#2	23.37	21.08	34.77	PASS
				RB3#3	23.17	20.88	34.77	PASS
				RB6#0	22.31	20.02	34.77	PASS

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND12	LTE/TM2	1.4M	LCH	RB1#0	22.53	20.24	34.77	PASS
				RB1#2	22.55	20.26	34.77	PASS
				RB1#5	22.14	19.85	34.77	PASS
				RB3#0	22.57	20.28	34.77	PASS
				RB3#2	22.58	20.29	34.77	PASS
				RB3#3	22.60	20.31	34.77	PASS
				RB6#0	21.37	19.08	34.77	PASS
			MCH	RB1#0	22.25	19.96	34.77	PASS
				RB1#2	22.26	19.97	34.77	PASS
				RB1#5	22.15	19.86	34.77	PASS
				RB3#0	22.20	19.91	34.77	PASS
				RB3#2	22.23	19.94	34.77	PASS
				RB3#3	22.03	19.74	34.77	PASS
				RB6#0	21.28	18.99	34.77	PASS
			HCH	RB1#0	22.18	19.89	34.77	PASS
				RB1#2	22.49	20.20	34.77	PASS
				RB1#5	22.01	19.72	34.77	PASS
				RB3#0	22.50	20.21	34.77	PASS
				RB3#2	22.49	20.20	34.77	PASS
				RB3#3	22.65	20.36	34.77	PASS
				RB6#0	21.14	18.85	34.77	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND12	LTE/TM1	3M	LCH	RB1#0	23.17	20.88	34.77	PASS
				RB1#7	23.18	20.89	34.77	PASS
				RB1#14	23.51	21.22	34.77	PASS
				RB8#0	22.30	20.01	34.77	PASS
				RB8#4	22.38	20.09	34.77	PASS
				RB8#7	22.41	20.12	34.77	PASS
				RB15#0	22.38	20.09	34.77	PASS
			MCH	RB1#0	23.45	21.16	34.77	PASS
				RB1#7	23.40	21.11	34.77	PASS
				RB1#14	23.33	21.04	34.77	PASS
				RB8#0	22.39	20.10	34.77	PASS
				RB8#4	22.51	20.22	34.77	PASS
				RB8#7	22.35	20.06	34.77	PASS
				RB15#0	22.34	20.05	34.77	PASS
			HCH	RB1#0	23.44	21.15	34.77	PASS
				RB1#7	23.46	21.17	34.77	PASS
				RB1#14	23.27	20.98	34.77	PASS
				RB8#0	22.42	20.13	34.77	PASS
				RB8#4	22.32	20.03	34.77	PASS
				RB8#7	22.39	20.10	34.77	PASS
				RB15#0	22.41	20.12	34.77	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND12	LTE/TM2	3M	LCH	RB1#0	22.69	20.40	34.77	PASS
				RB1#7	22.63	20.34	34.77	PASS
				RB1#14	22.81	20.52	34.77	PASS
				RB8#0	21.29	19.00	34.77	PASS
				RB8#4	21.31	19.02	34.77	PASS
				RB8#7	21.51	19.22	34.77	PASS
				RB15#0	21.22	18.93	34.77	PASS
			MCH	RB1#0	22.71	20.42	34.77	PASS
				RB1#7	22.55	20.26	34.77	PASS
				RB1#14	22.21	19.92	34.77	PASS
				RB8#0	21.59	19.30	34.77	PASS
				RB8#4	21.32	19.03	34.77	PASS
				RB8#7	21.19	18.90	34.77	PASS
				RB15#0	21.32	19.03	34.77	PASS
			HCH	RB1#0	22.75	20.46	34.77	PASS
				RB1#7	22.60	20.31	34.77	PASS
				RB1#14	22.60	20.31	34.77	PASS
				RB8#0	21.35	19.06	34.77	PASS
				RB8#4	21.26	18.97	34.77	PASS
				RB8#7	21.21	18.92	34.77	PASS
				RB15#0	21.15	18.86	34.77	PASS

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND12	LTE/TM1	5M	LCH	RB1#0	23.38	21.09	34.77	PASS
				RB1#13	23.36	21.07	34.77	PASS
				RB1#24	23.43	21.14	34.77	PASS
				RB12#0	22.24	19.95	34.77	PASS
				RB12#6	22.35	20.06	34.77	PASS
				RB12#13	22.56	20.27	34.77	PASS
				RB25#0	22.46	20.17	34.77	PASS
			MCH	RB1#0	23.44	21.15	34.77	PASS
				RB1#13	23.08	20.79	34.77	PASS
				RB1#24	23.33	21.04	34.77	PASS
				RB12#0	22.48	20.19	34.77	PASS
				RB12#6	22.30	20.01	34.77	PASS
				RB12#13	22.31	20.02	34.77	PASS
				RB25#0	22.41	20.12	34.77	PASS
			HCH	RB1#0	23.43	21.14	34.77	PASS
				RB1#13	23.28	20.99	34.77	PASS
				RB1#24	23.31	21.02	34.77	PASS
				RB12#0	22.36	20.07	34.77	PASS
				RB12#6	22.45	20.16	34.77	PASS
				RB12#13	22.34	20.05	34.77	PASS
				RB25#0	22.46	20.17	34.77	PASS

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND12	LTE/TM2	5M	LCH	RB1#0	22.58	20.29	34.77	PASS
				RB1#13	22.58	20.29	34.77	PASS
				RB1#24	22.78	20.49	34.77	PASS
				RB12#0	21.12	18.83	34.77	PASS
				RB12#6	21.31	19.02	34.77	PASS
				RB12#13	21.73	19.44	34.77	PASS
				RB25#0	21.41	19.12	34.77	PASS
			MCH	RB1#0	22.66	20.37	34.77	PASS
				RB1#13	22.32	20.03	34.77	PASS
				RB1#24	22.59	20.30	34.77	PASS
				RB12#0	21.65	19.36	34.77	PASS
				RB12#6	21.29	19.00	34.77	PASS
				RB12#13	21.28	18.99	34.77	PASS
				RB25#0	21.47	19.18	34.77	PASS
			HCH	RB1#0	22.68	20.39	34.77	PASS
				RB1#13	22.53	20.24	34.77	PASS
				RB1#24	22.58	20.29	34.77	PASS
				RB12#0	21.33	19.04	34.77	PASS
				RB12#6	21.34	19.05	34.77	PASS
				RB12#13	21.33	19.04	34.77	PASS
				RB25#0	21.54	19.25	34.77	PASS

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND12	LTE/TM1	10M	LCH	RB1#0	23.30	21.01	34.77	PASS
				RB1#25	23.46	21.17	34.77	PASS
				RB1#49	23.37	21.08	34.77	PASS
				RB25#0	22.48	20.19	34.77	PASS
				RB25#13	22.58	20.29	34.77	PASS
				RB25#25	22.61	20.32	34.77	PASS
				RB50#0	22.51	20.22	34.77	PASS
			MCH	RB1#0	23.63	21.34	34.77	PASS
				RB1#25	23.49	21.20	34.77	PASS
				RB1#49	23.39	21.10	34.77	PASS
				RB25#0	22.64	20.35	34.77	PASS
				RB25#13	22.41	20.12	34.77	PASS
				RB25#25	22.41	20.12	34.77	PASS
				RB50#0	22.43	20.14	34.77	PASS
			HCH	RB1#0	23.62	21.33	34.77	PASS
				RB1#25	23.57	21.28	34.77	PASS
				RB1#49	23.46	21.17	34.77	PASS
				RB25#0	22.49	20.20	34.77	PASS
				RB25#13	22.54	20.25	34.77	PASS
				RB25#25	22.53	20.24	34.77	PASS
				RB50#0	22.50	20.21	34.77	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND12	LTE/TM2	10M	LCH	RB1#0	22.72	20.43	34.77	PASS
				RB1#25	22.91	20.62	34.77	PASS
				RB1#49	22.68	20.39	34.77	PASS
				RB25#0	21.61	19.32	34.77	PASS
				RB25#13	21.66	19.37	34.77	PASS
				RB25#25	21.56	19.27	34.77	PASS
				RB50#0	21.40	19.11	34.77	PASS
			MCH	RB1#0	22.82	20.53	34.77	PASS
				RB1#25	22.53	20.24	34.77	PASS
				RB1#49	22.61	20.32	34.77	PASS
				RB25#0	21.72	19.43	34.77	PASS
				RB25#13	21.50	19.21	34.77	PASS
				RB25#25	21.37	19.08	34.77	PASS
				RB50#0	21.41	19.12	34.77	PASS
			HCH	RB1#0	23.02	20.73	34.77	PASS
				RB1#25	22.39	20.10	34.77	PASS
				RB1#49	22.71	20.42	34.77	PASS
				RB25#0	21.37	19.08	34.77	PASS
				RB25#13	21.35	19.06	34.77	PASS
				RB25#25	21.52	19.23	34.77	PASS
				RB50#0	21.50	19.21	34.77	PASS

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

ERP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBd]

b: SGP=Signal Generator Level
c: RBW > emission bandwidth, VBW > 3 x RBW.
   Detector: RMS

2   Peak-to-Average Ratio

Part Ⅰ - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
Band 12	TM1/10M	LCH	5.36	13	PASS
		MCH	5.54	13	PASS
		HCH	5.45	13	PASS
	TM2/10M	LCH	6.17	13	PASS
		MCH	6.32	13	PASS
		HCH	6.32	13	PASS
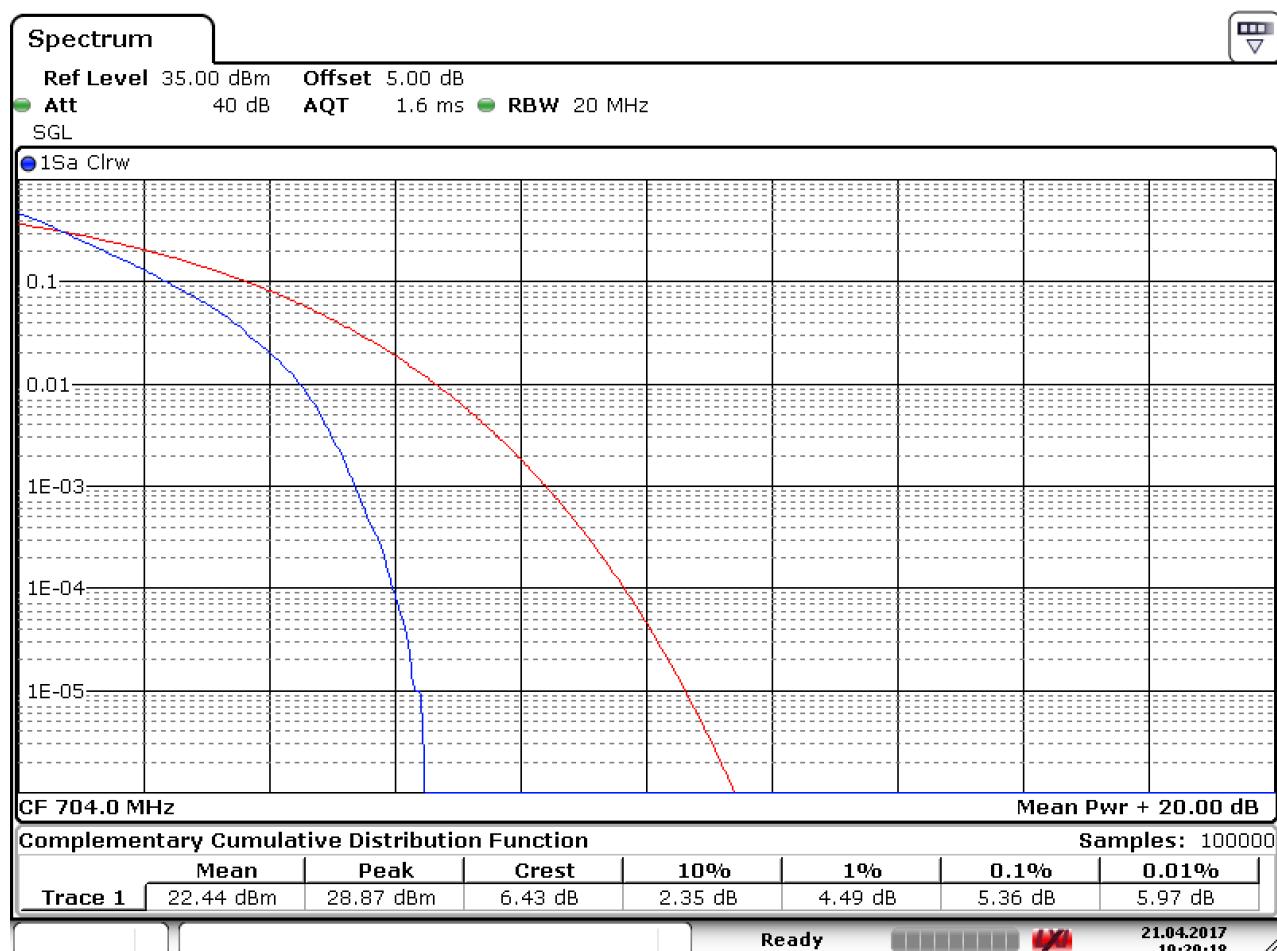
Part Ⅱ - Test Plots

2.1 For LTE
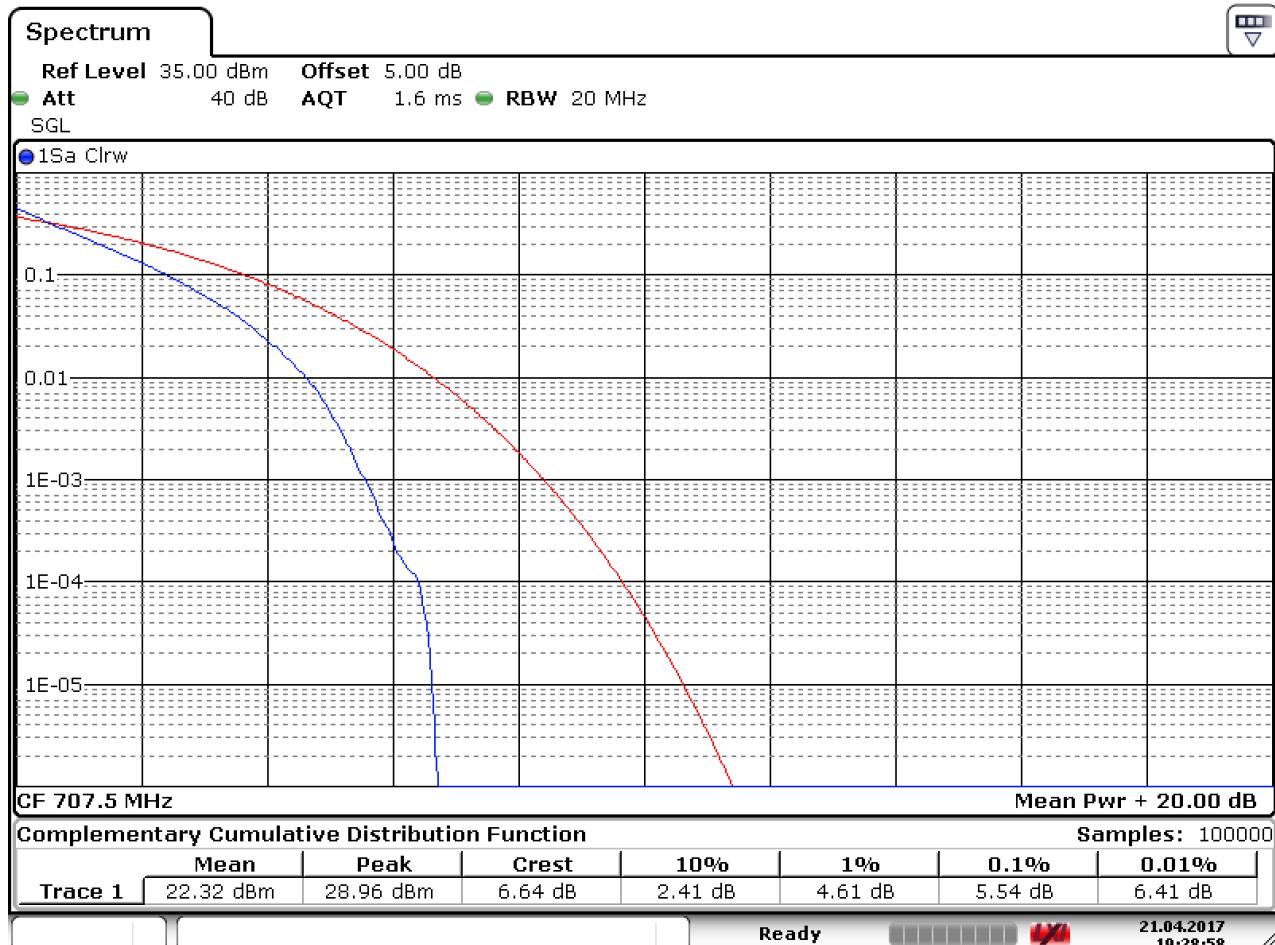
2.1.1 Test Band = LTE band12

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

2.1.1.1.1 Test Channel = LCH

	Mean	Peak	Crest	10%	1%	0.1%	0.01%
Trace 1	22.44 dBm	28.87 dBm	6.43 dB	2.35 dB	4.49 dB	5.36 dB	5.97 dB
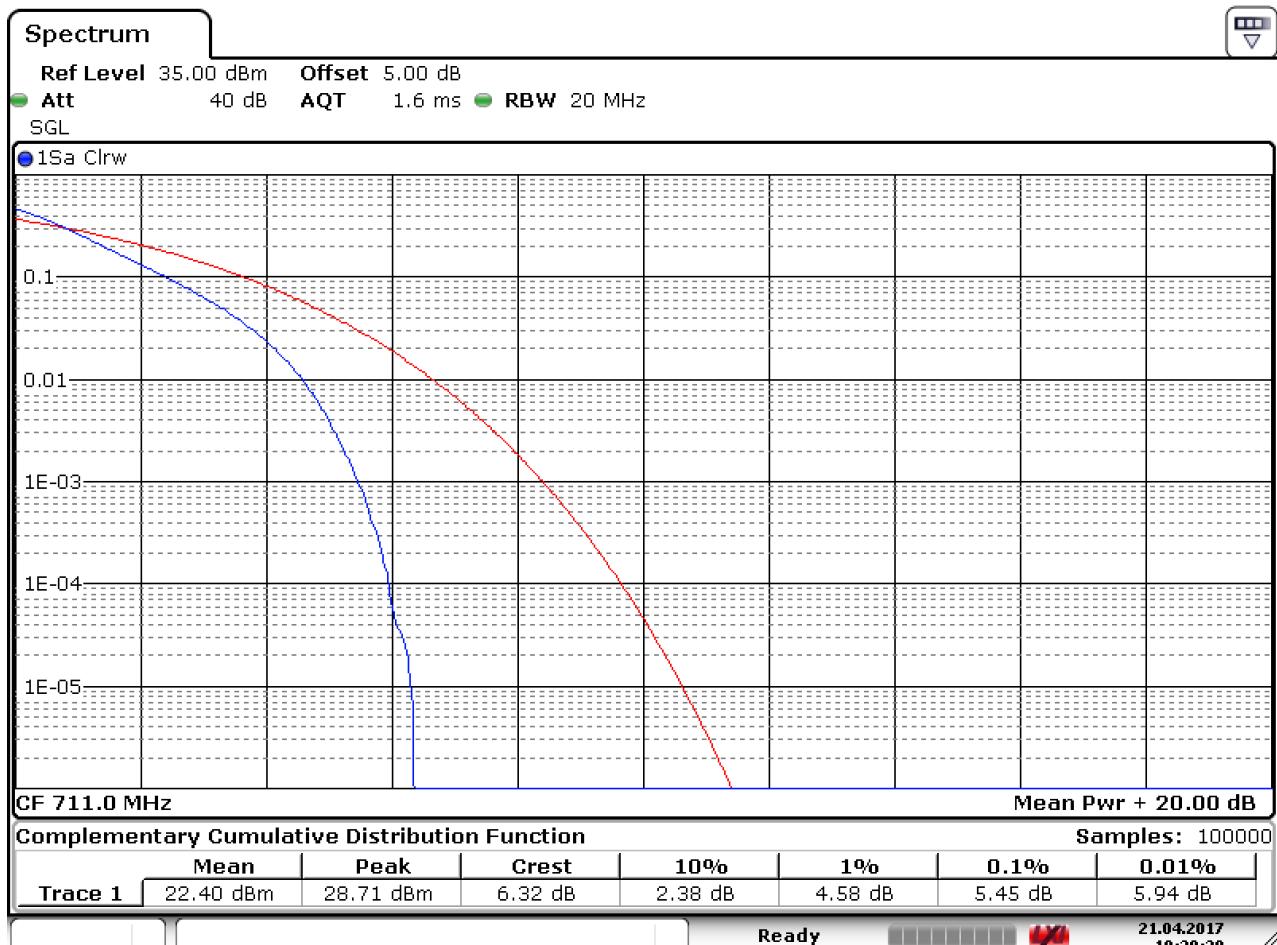
Date: 21.APR.2017 19:29:19

2.1.1.1.2   Test Channel = MCH

Spectrum							
Ref Level 35.00 dBm	Offset 5.00 dB						
Att 40 dB	AQT 1.6 ms	RBW 20 MHz					

CF 707.5 MHz — Mean Pwr + 20.00 dB

Complementary Cumulative Distribution Function — Samples: 100000

	Mean	Peak	Crest	10%	1%	0.1%	0.01%
Trace 1	22.32 dBm	28.96 dBm	6.64 dB	2.41 dB	4.61 dB	5.54 dB	6.41 dB

Ready   21.04.2017 19:28:58

Date: 21.APR.2017 19:28:59

2.1.1.1.3　Test Channel = HCH

Spectrum							
Ref Level 35.00 dBm	Offset 5.00 dB						
● Att　40 dB	AQT　1.6 ms	● RBW 20 MHz					
SGL							

● 1Sa Clrw

CF 711.0 MHz　　　　　　　　　　　　　　　　Mean Pwr + 20.00 dB

Complementary Cumulative Distribution Function　　　　Samples: 100000

	Mean	Peak	Crest	10%	1%	0.1%	0.01%
Trace 1	22.40 dBm	28.71 dBm	6.32 dB	2.38 dB	4.58 dB	5.45 dB	5.94 dB

Ready　　　　　　　　　21.04.2017 19:28:30

Date: 21.APR.2017 19:28:30

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

2.1.1.2.1   Test Channel = LCH

	Mean	Peak	Crest	10%	1%	0.1%	0.01%
Trace 1	21.48 dBm	28.77 dBm	7.28 dB	2.84 dB	5.07 dB	6.17 dB	6.90 dB
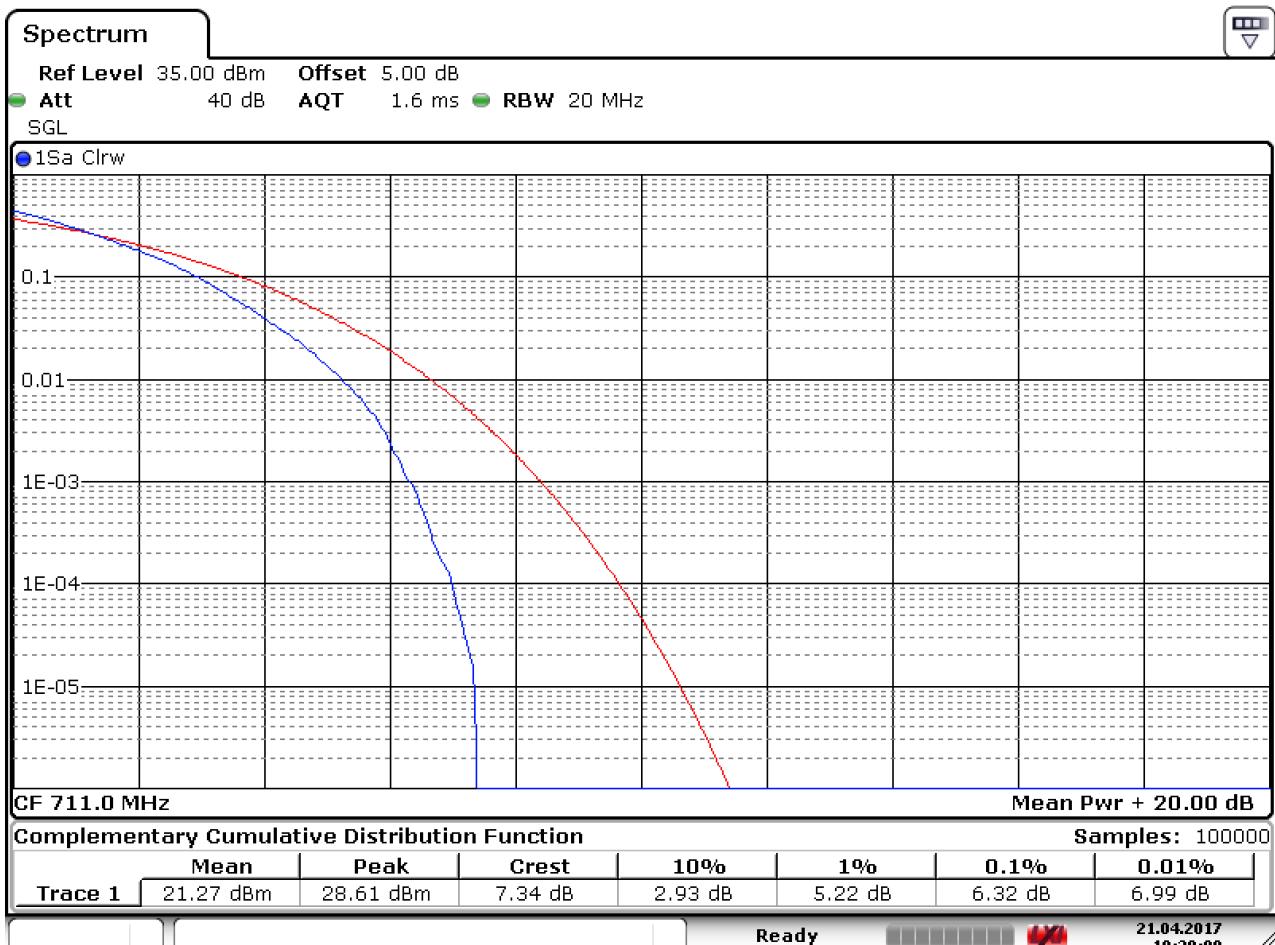
Date: 21.APR.2017 19:27:46

2.1.1.2.2   Test Channel = MCH

	Mean	Peak	Crest	10%	1%	0.1%	0.01%
Trace 1	21.22 dBm	28.62 dBm	7.40 dB	2.84 dB	5.22 dB	6.32 dB	6.93 dB

Date: 21.APR.2017 19:27:08

2.1.1.2.3　Test Channel = HCH

Spectrum

Ref Level	35.00 dBm	Offset	5.00 dB		
Att	40 dB	AQT	1.6 ms	RBW	20 MHz

SGL

1Sa Clrw

CF 711.0 MHz　　　　　　　　　　　　　　　　Mean Pwr + 20.00 dB

Complementary Cumulative Distribution Function　　　　Samples: 100000

	Mean	Peak	Crest	10%	1%	0.1%	0.01%
Trace 1	21.27 dBm	28.61 dBm	7.34 dB	2.93 dB	5.22 dB	6.32 dB	6.99 dB

Ready　　　　　　　21.04.2017 19:28:09

Date: 21.APR.2017 19:28:09
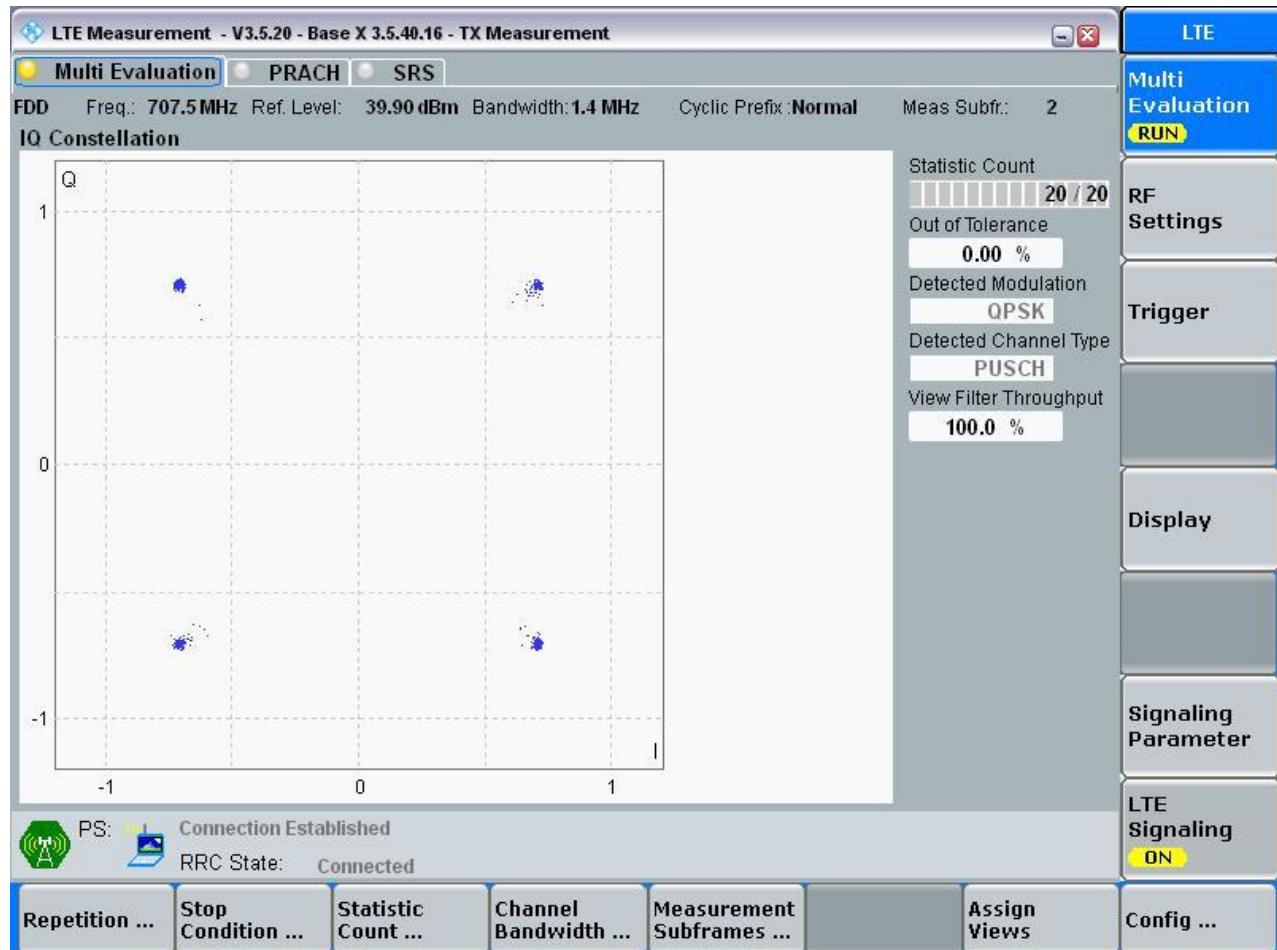
3   Modulation Characteristics

3.1 For LTE

3.1.1 Test Band = LTE band12
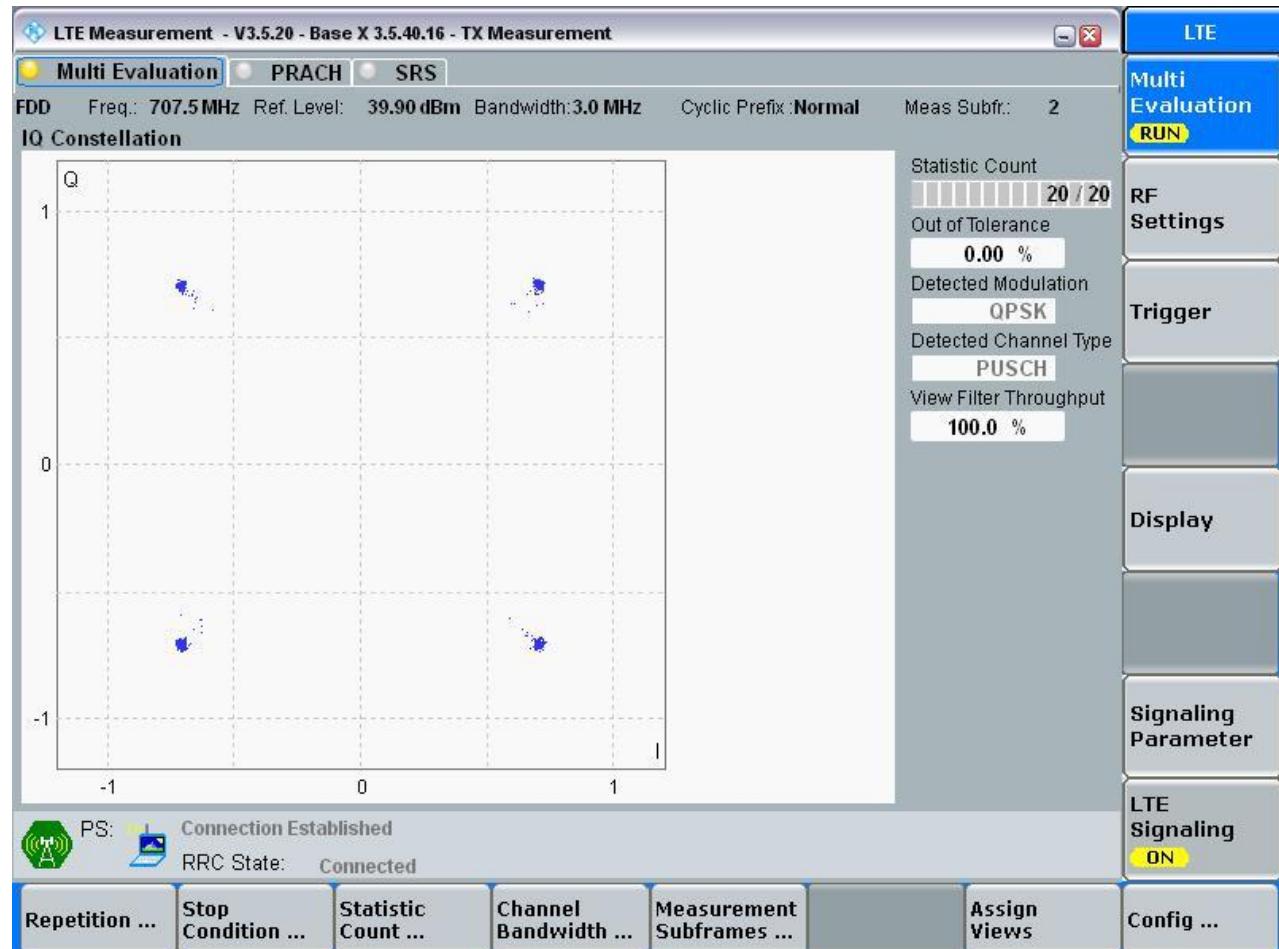
3.1.1.1   Test Mode = LTE /TM1 1.4MHz

3.1.1.1.1   Test Channel = MCH
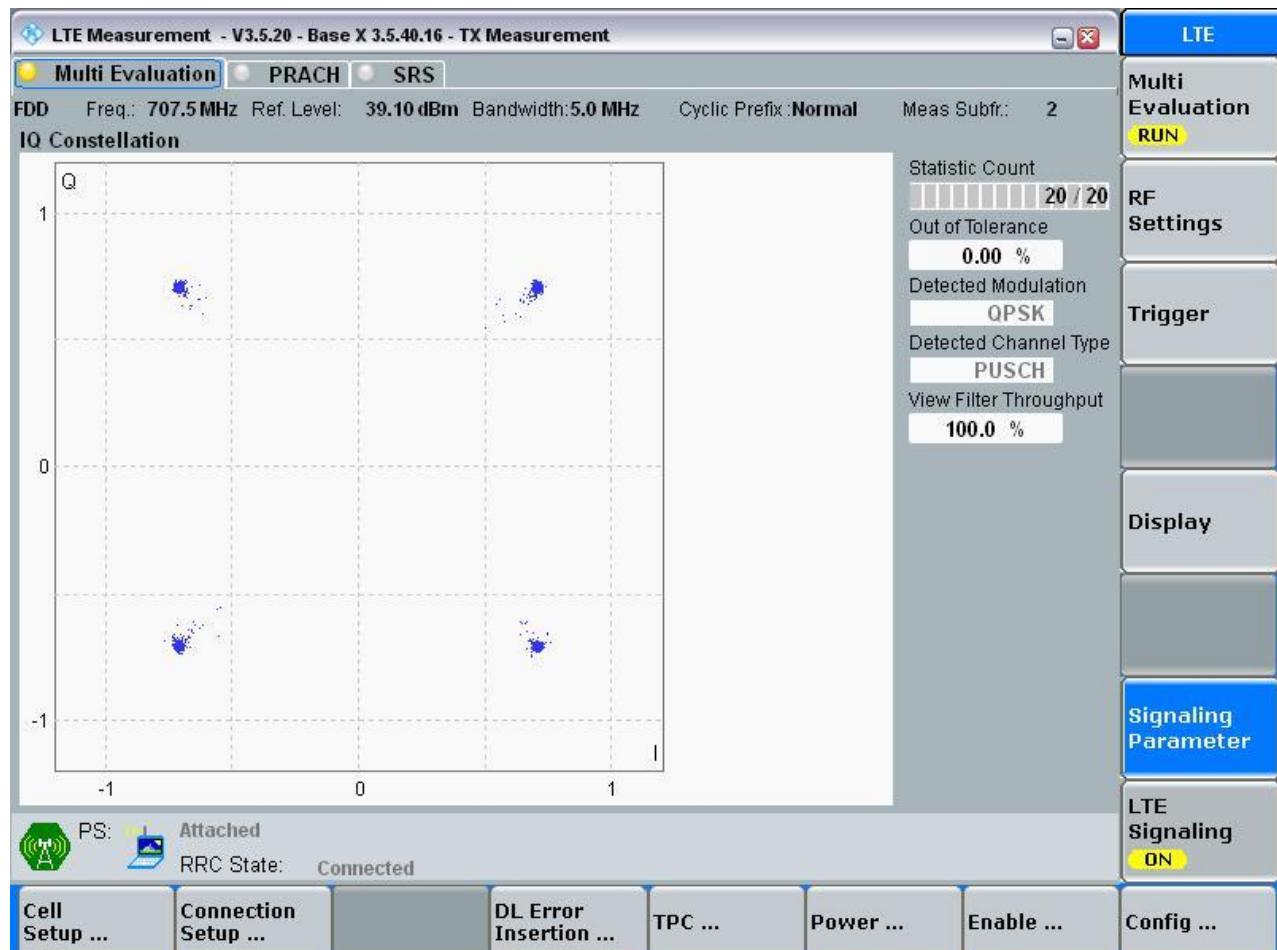
3.1.1.2   Test Mode = LTE /TM1 3MHz

3.1.1.2.1   Test Channel = MCH

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shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

3.1.1.3   Test Mode = LTE /TM1 5MHz

3.1.1.3.1   Test Channel = MCH
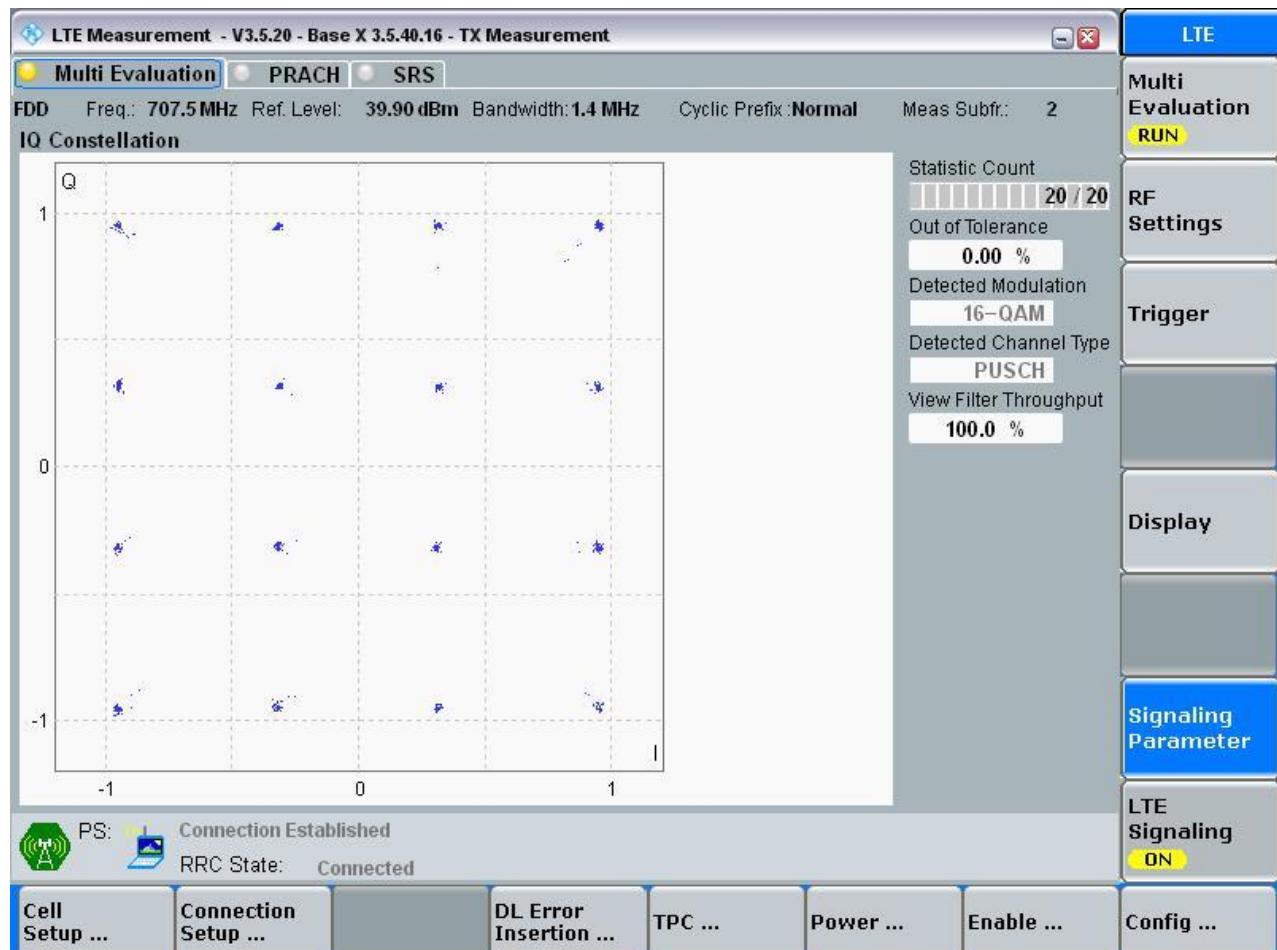
3.1.1.4   Test Mode = LTE /TM1 10MHz

3.1.1.4.1   Test Channel = MCH
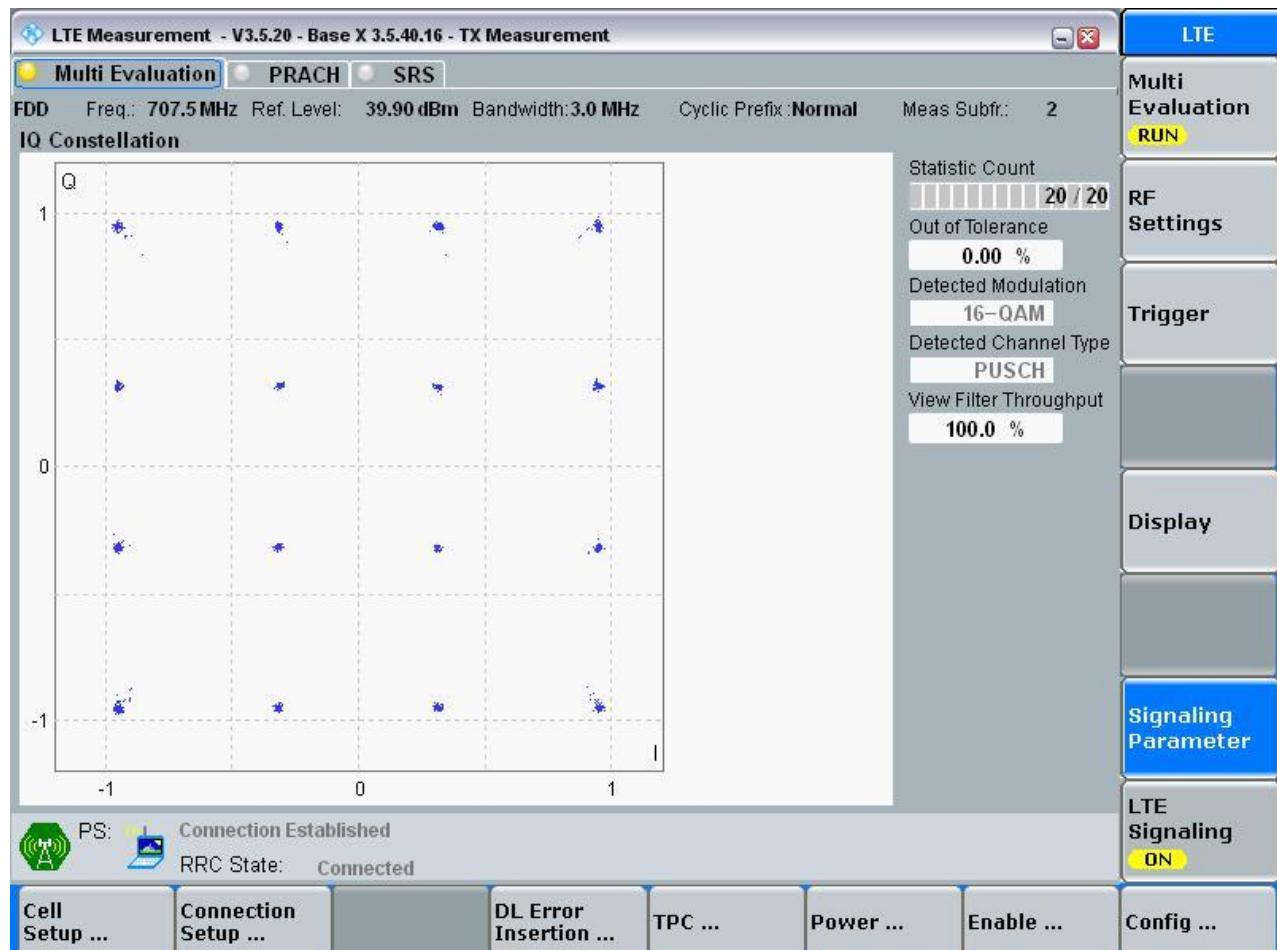
3.1.1.5   Test Mode = LTE /TM2 1.4MHz

3.1.1.5.1   Test Channel = MCH
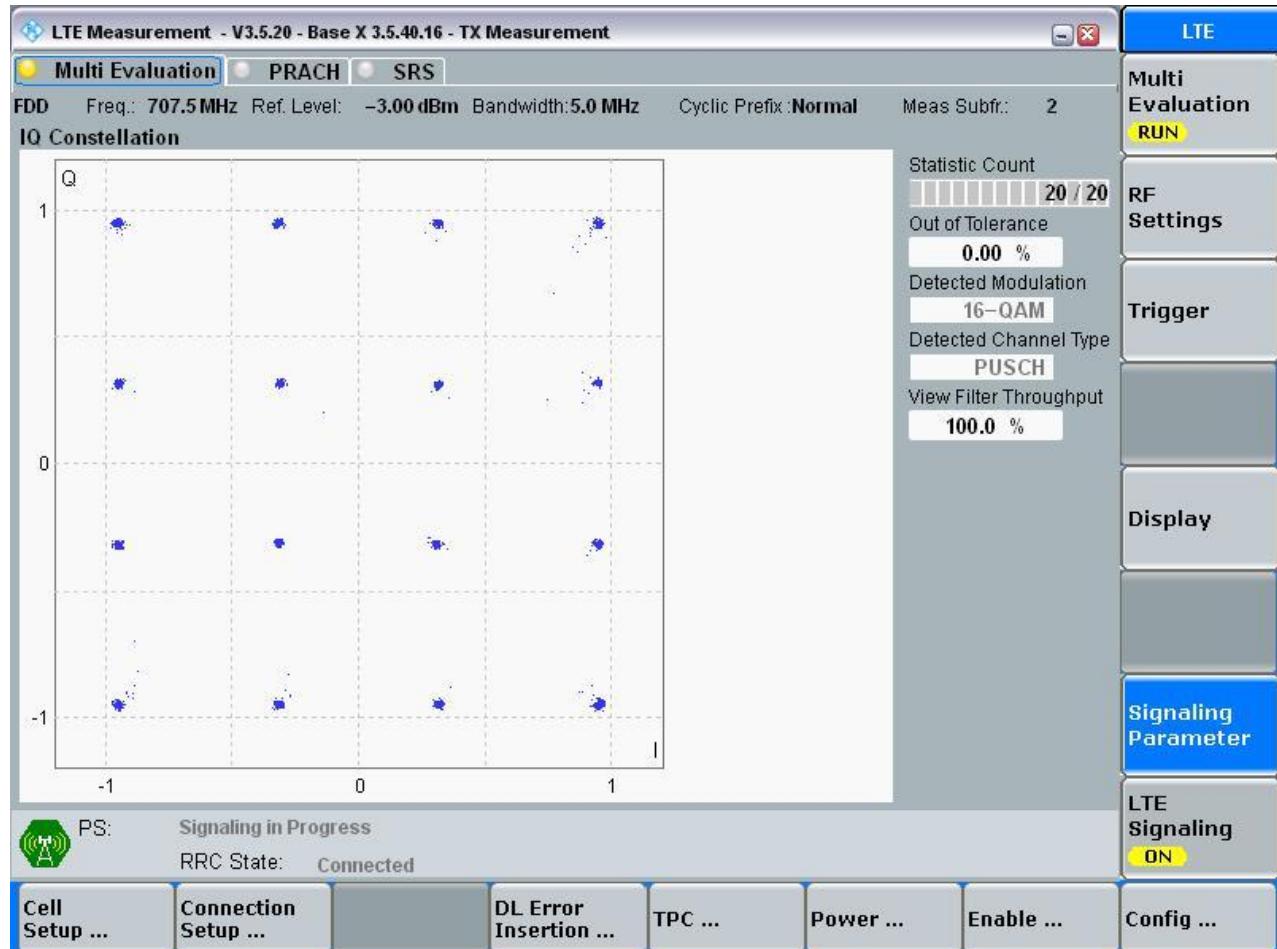
3.1.1.6   Test Mode = LTE /TM2 3MHz

3.1.1.6.1   Test Channel = MCH
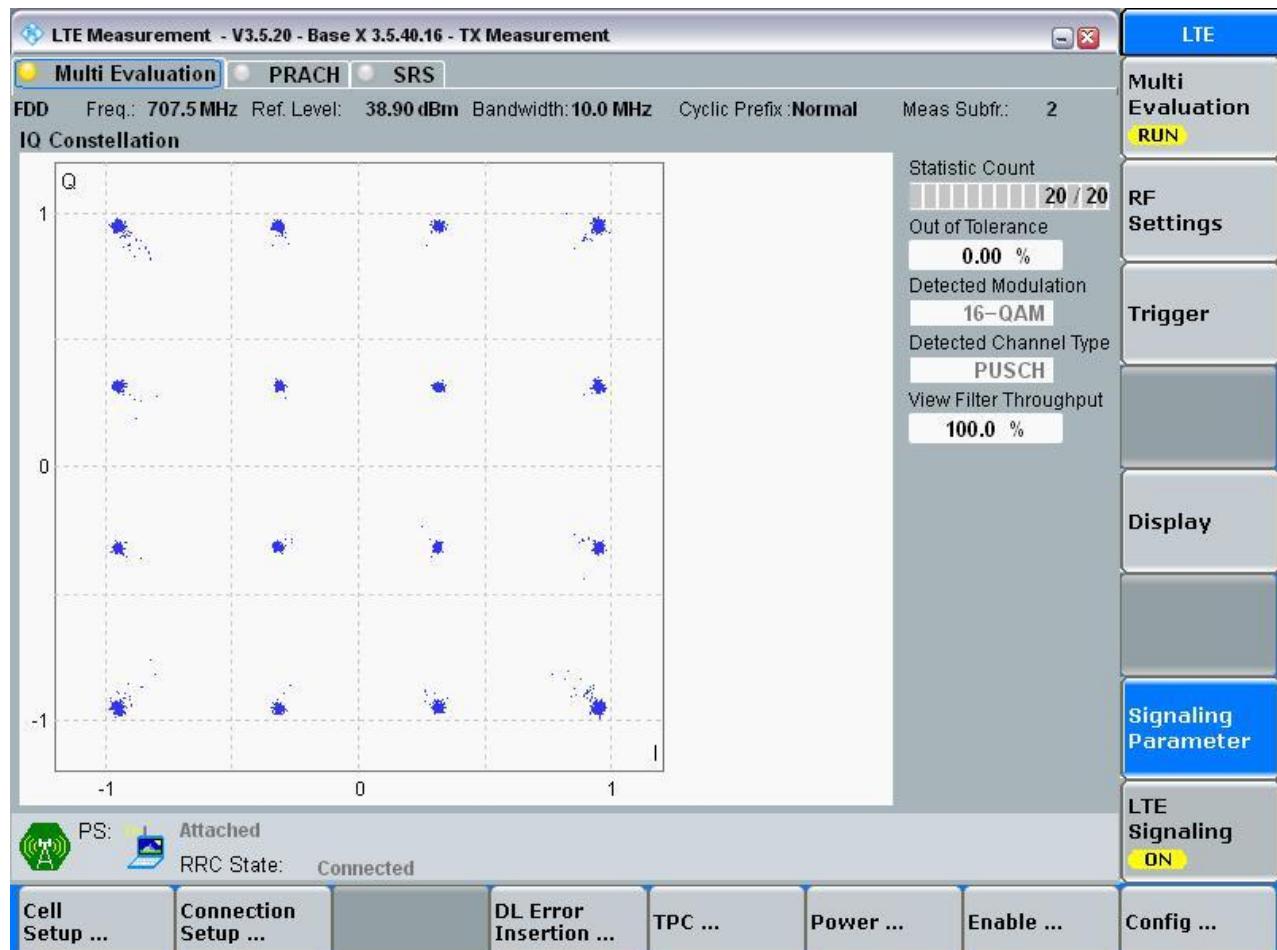
3.1.1.7   Test Mode = LTE /TM2 5MHz

3.1.1.7.1   Test Channel = MCH

3.1.1.8   Test Mode = LTE /TM2 10MHz

3.1.1.8.1   Test Channel = MCH

4   Bandwidth

PartⅠ - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
Band 12	TM1/1.4MHz	LCH	1.11	1.32	PASS
		MCH	1.10	1.32	PASS
		HCH	1.11	1.29	PASS
	TM2/1.4MHz	LCH	1.10	1.30	PASS
		MCH	1.10	1.32	PASS
		HCH	1.10	1.30	PASS
	TM1/ 3MHz	LCH	2.69	2.93	PASS
		MCH	2.69	2.94	PASS
		HCH	2.69	2.95	PASS
	TM2/3MHz	LCH	2.69	2.94	PASS
		MCH	2.69	2.97	PASS
		HCH	2.68	2.94	PASS
	TM1/ 5MHz	LCH	4.49	4.92	PASS
		MCH	4.50	5.00	PASS
		HCH	4.48	4.90	PASS
	TM2/ 5MHz	LCH	4.48	4.95	PASS
		MCH	4.49	4.95	PASS
		HCH	4.48	4.94	PASS
	TM1/10MHz	LCH	8.91	9.63	PASS
		MCH	8.97	9.83	PASS
		HCH	8.93	9.70	PASS
	TM2/ 10MHz	LCH	8.93	9.65	PASS
		MCH	8.95	9.71	PASS
		HCH	8.93	9.72	PASS

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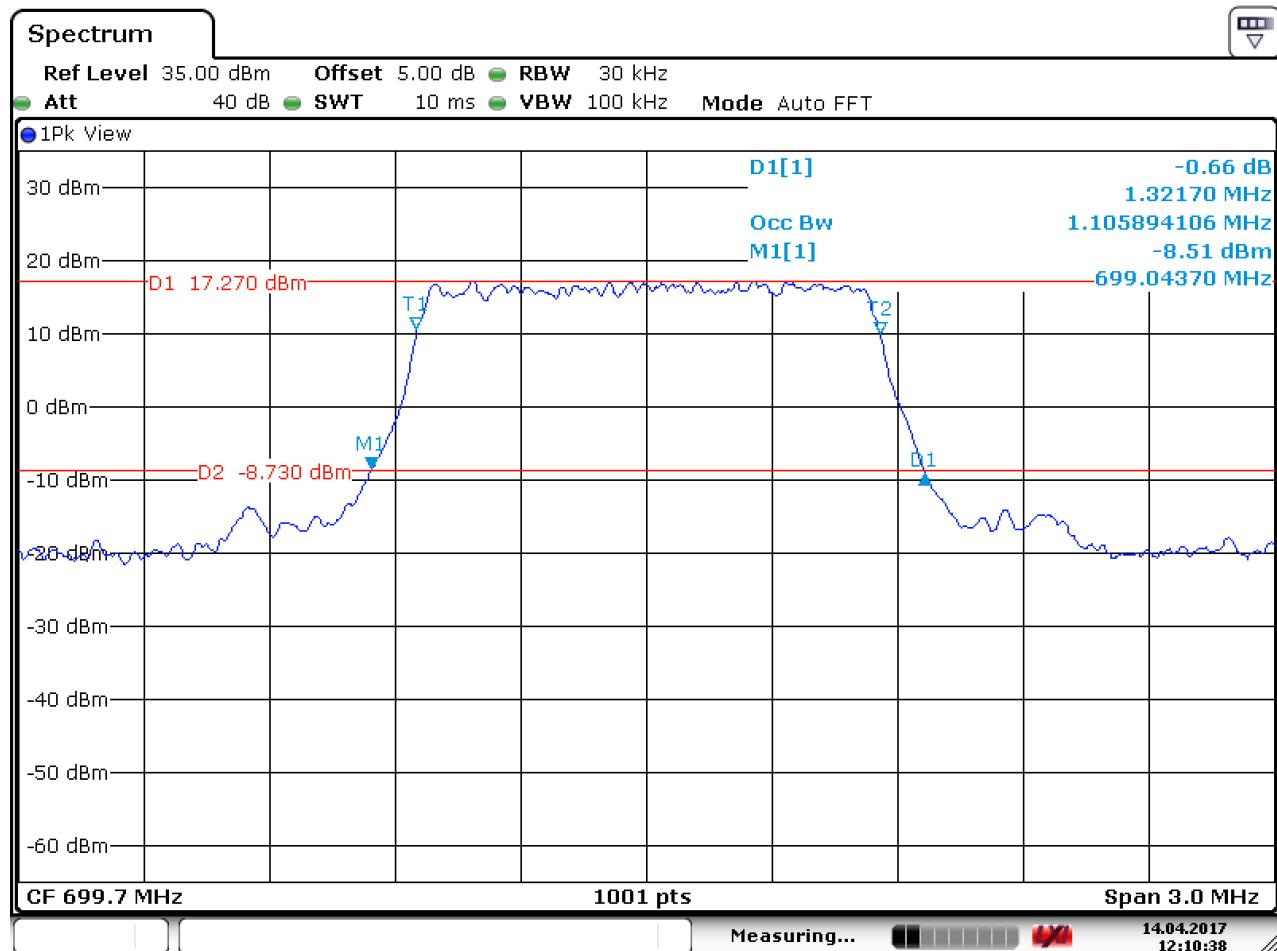
PartⅡ –Test Plots

4.1 For LTE
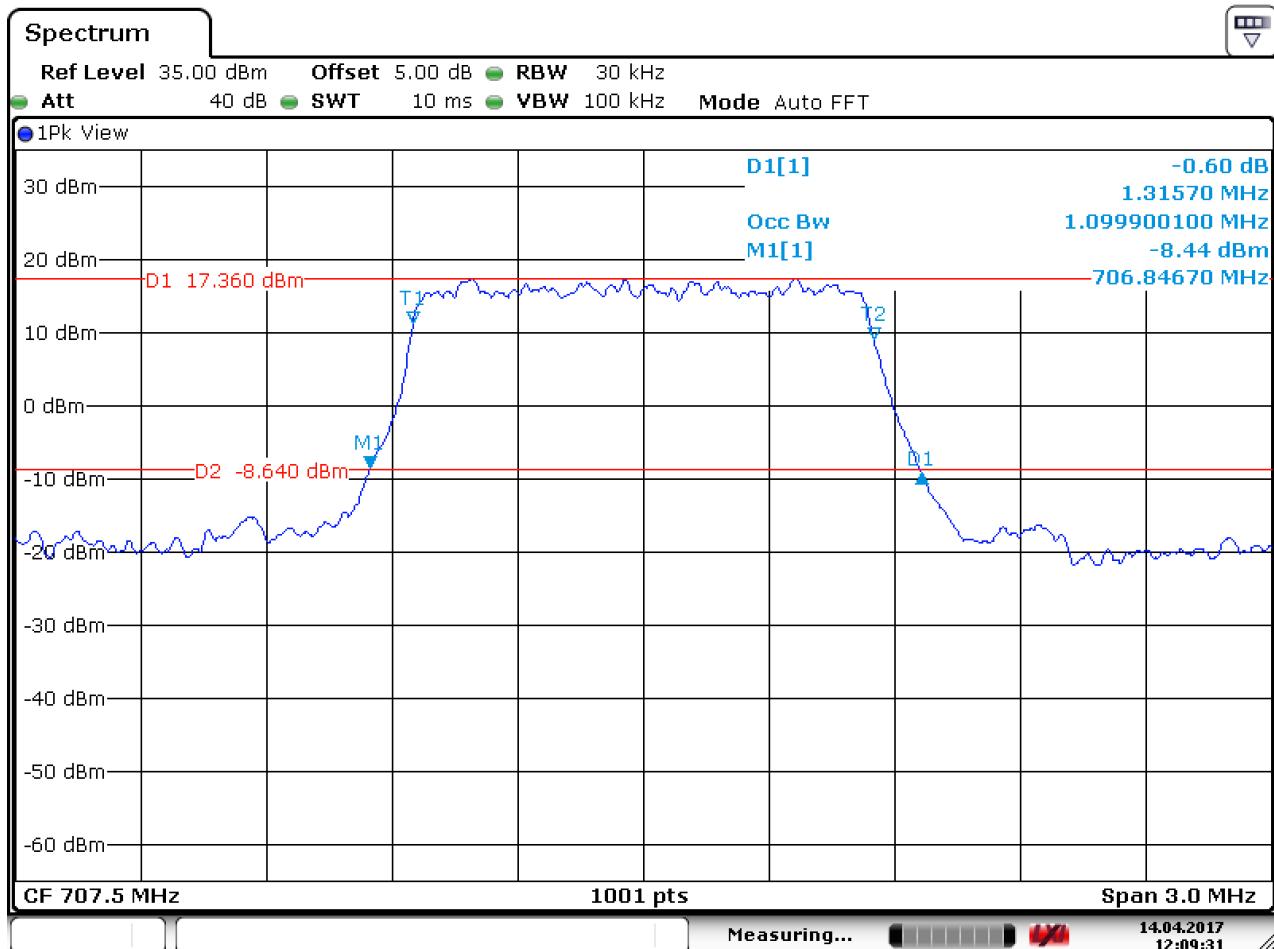
4.1.1 Test Band = LTE band12

4.1.1.1   Test Mode = LTE/TM1 1.4MHz
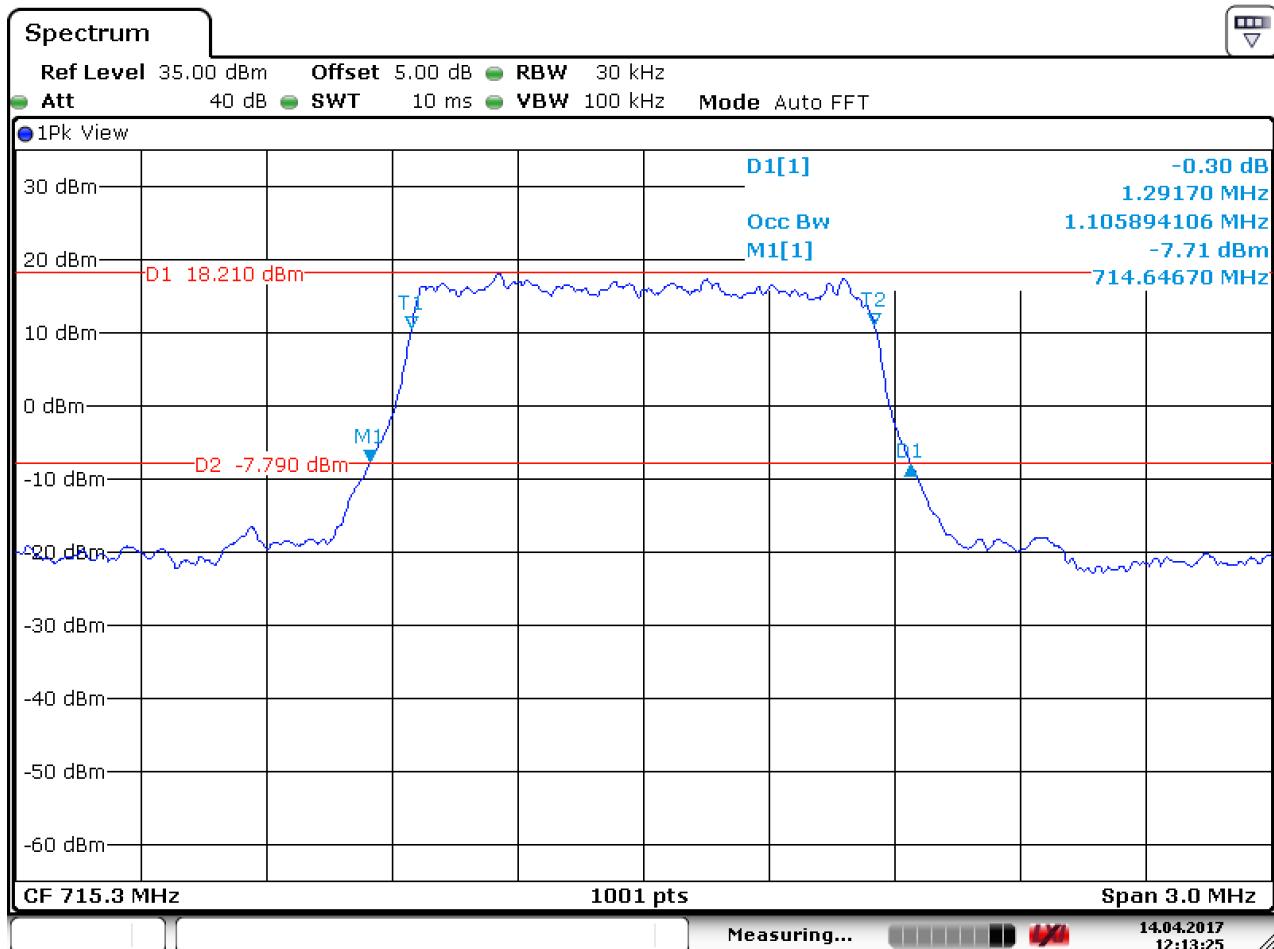
4.1.1.1.1   Test Channel = LCH
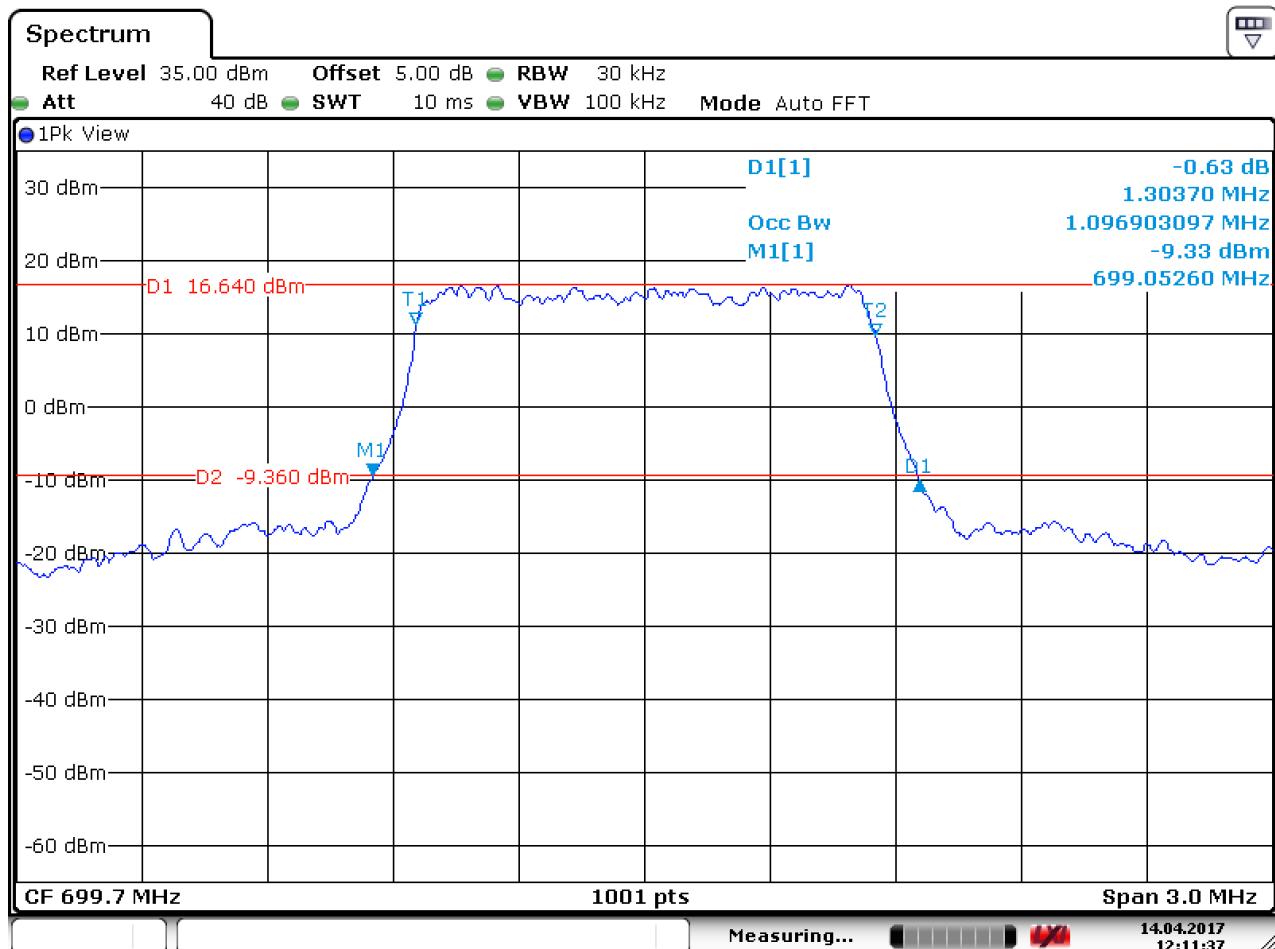
Date: 14.APR.2017 12:10:38

#### 4.1.1.1.2   Test Channel = MCH

Date: 14.APR.2017 12:09:32

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4.1.1.1.3   Test Channel = HCH

Date: 14.APR.2017 12:13:25

![SGS logo]

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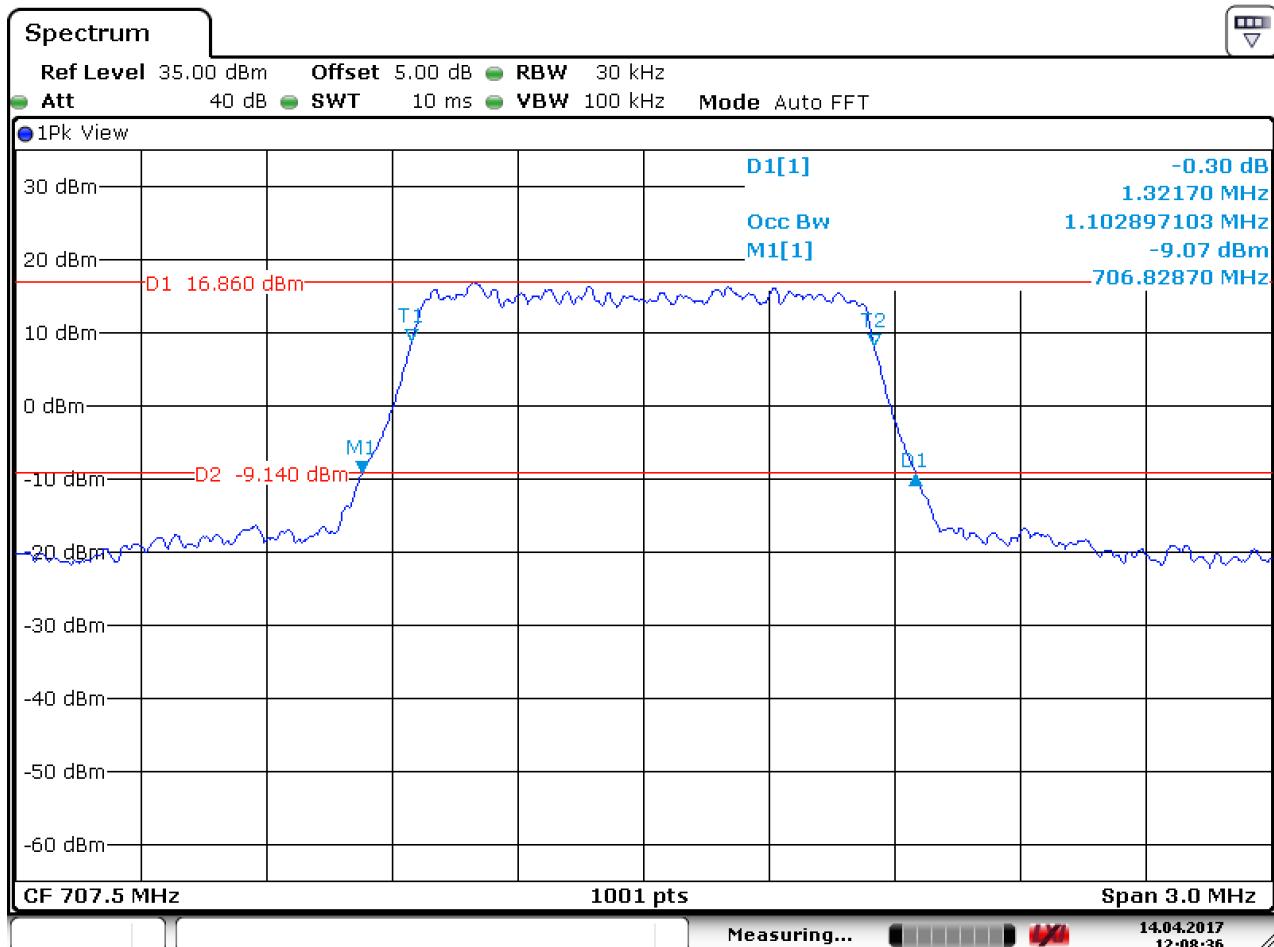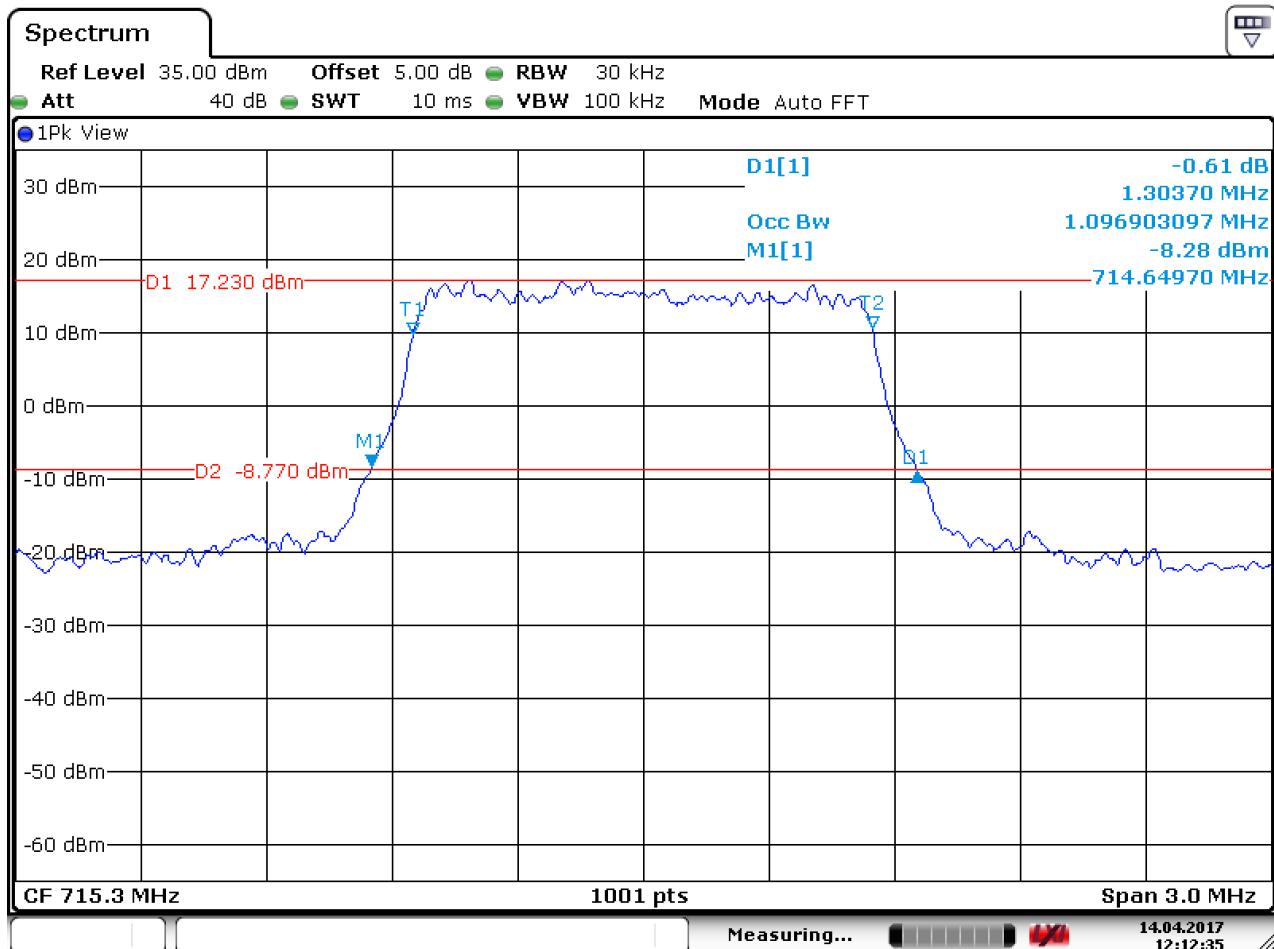
4.1.1.2   Test Mode = LTE/TM2 1.4MHz

4.1.1.2.1   Test Channel = LCH

Date: 14.APR.2017 12:11:37

4.1.1.2.2   Test Channel = MCH
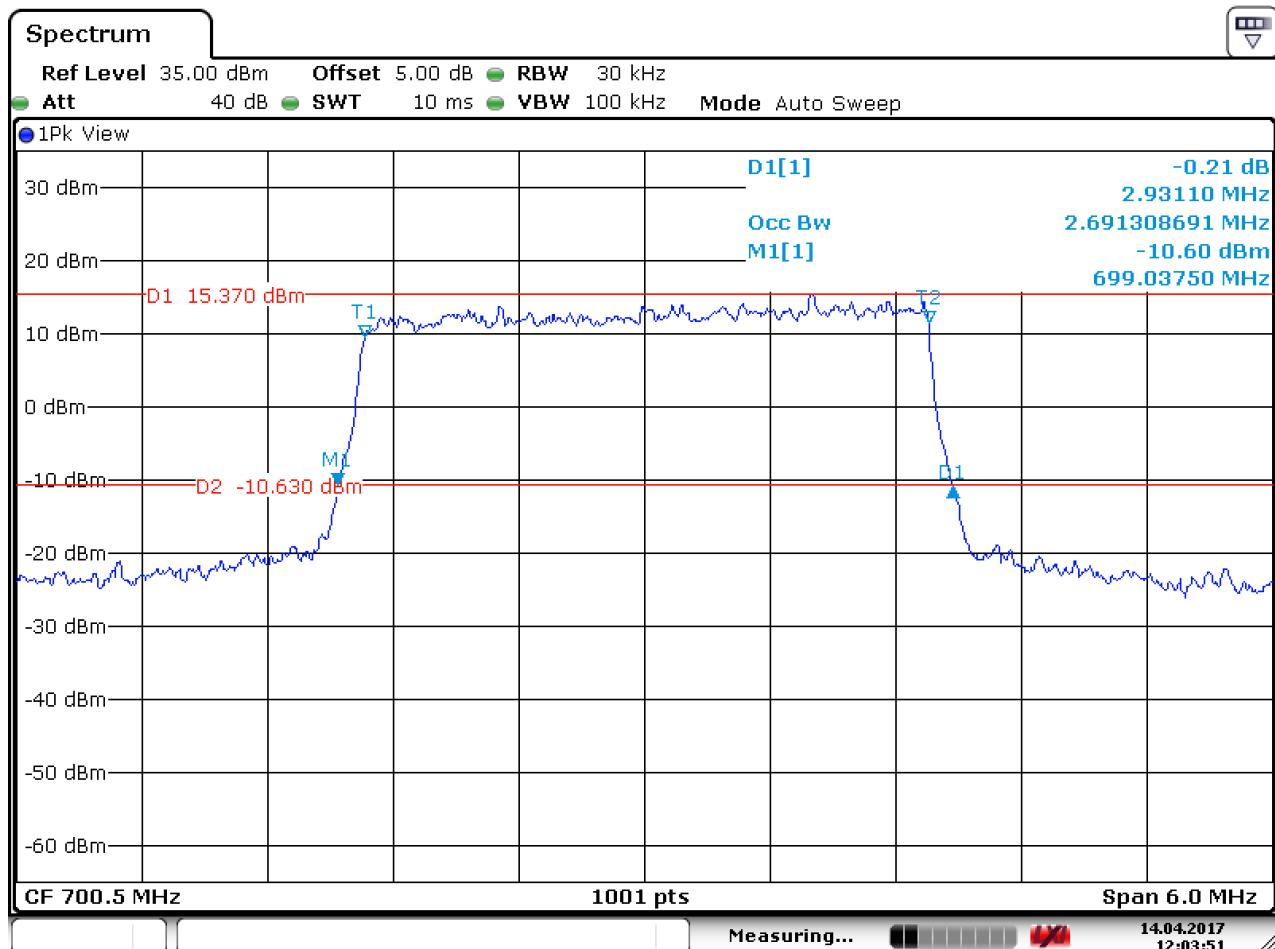
Date: 14.APR.2017 12:08:36

4.1.1.2.3   Test Channel = HCH

Date: 14.APR.2017 12:12:35
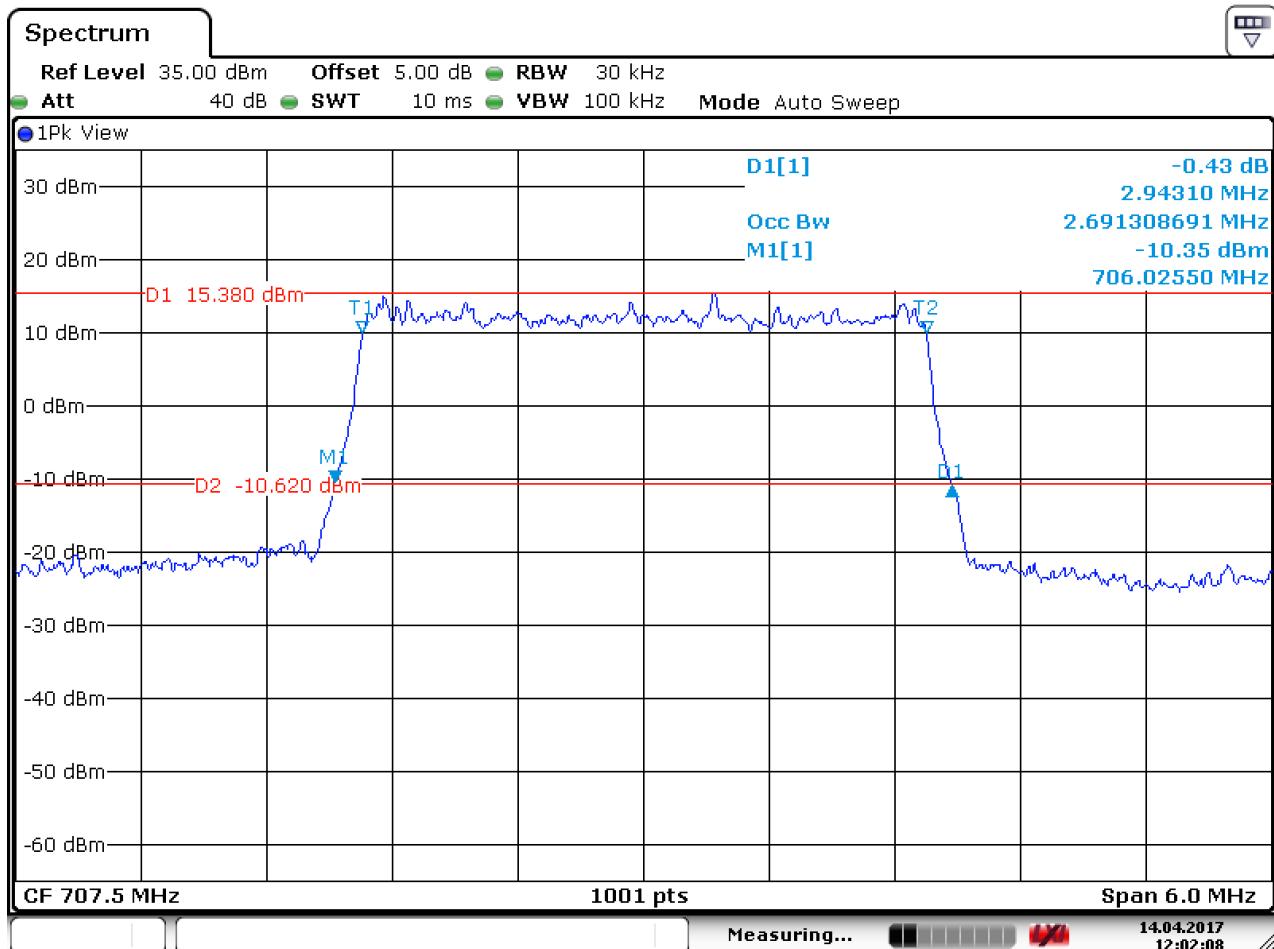
4.1.1.3   Test Mode = LTE/TM1 3MHz

#### 4.1.1.3.1   Test Channel = LCH

Date: 14.APR.2017 12:03:51

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
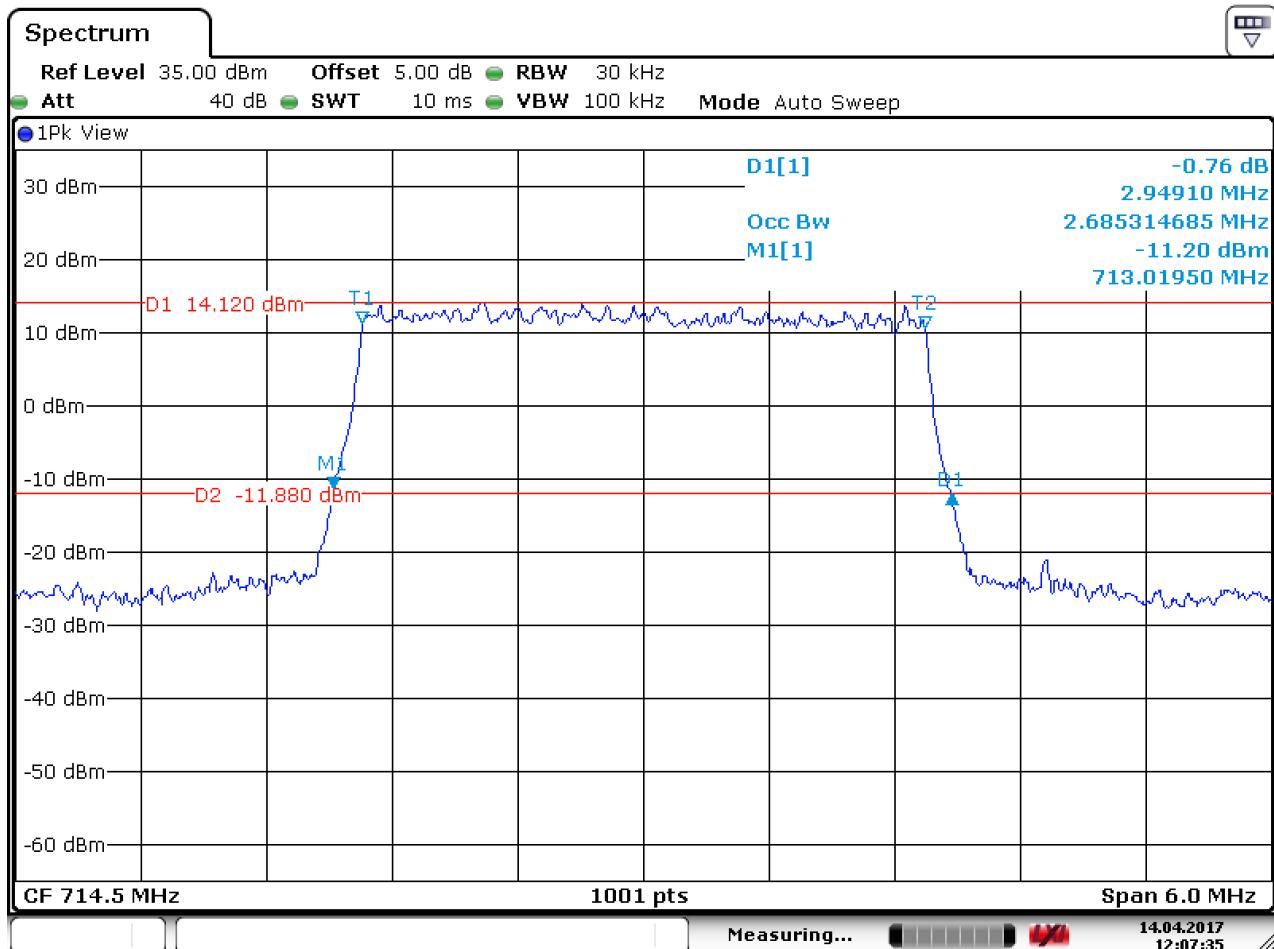
4.1.1.3.2   Test Channel = MCH
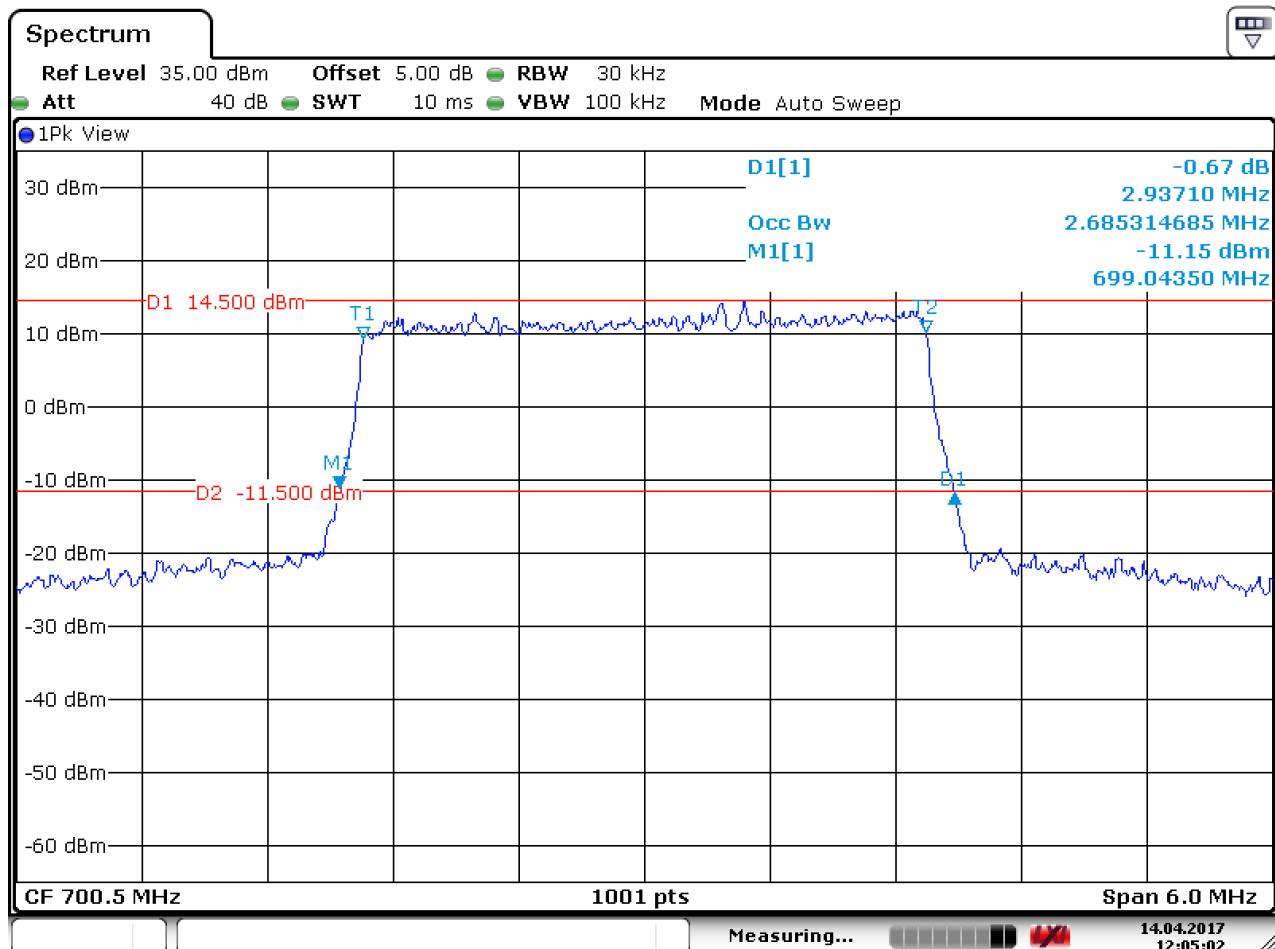
Date: 14.APR.2017 12:02:09

4.1.1.3.3   Test Channel = HCH

Date: 14.APR.2017 12:07:35

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
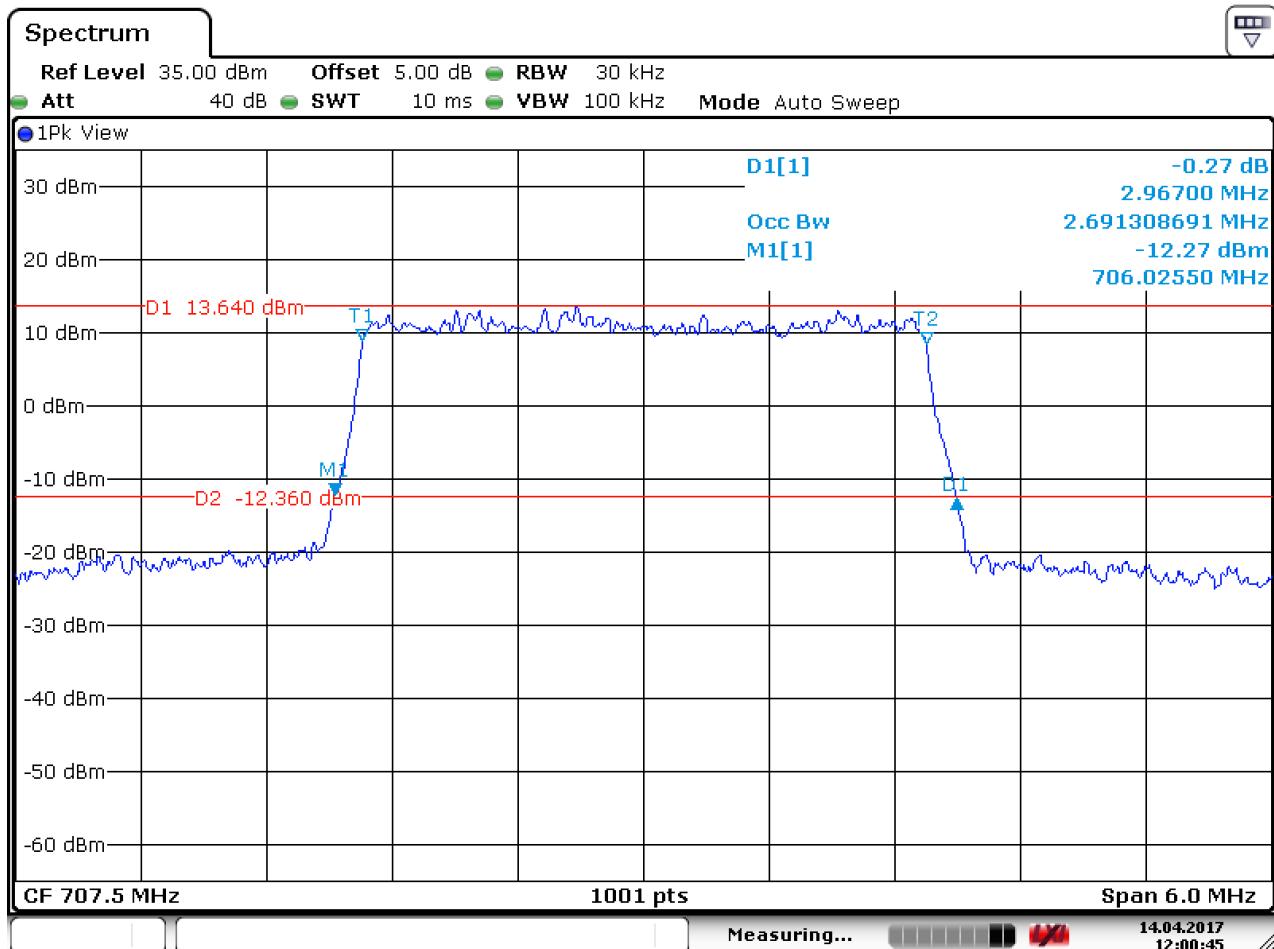
4.1.1.4 Test Mode = LTE/TM2 3MHz
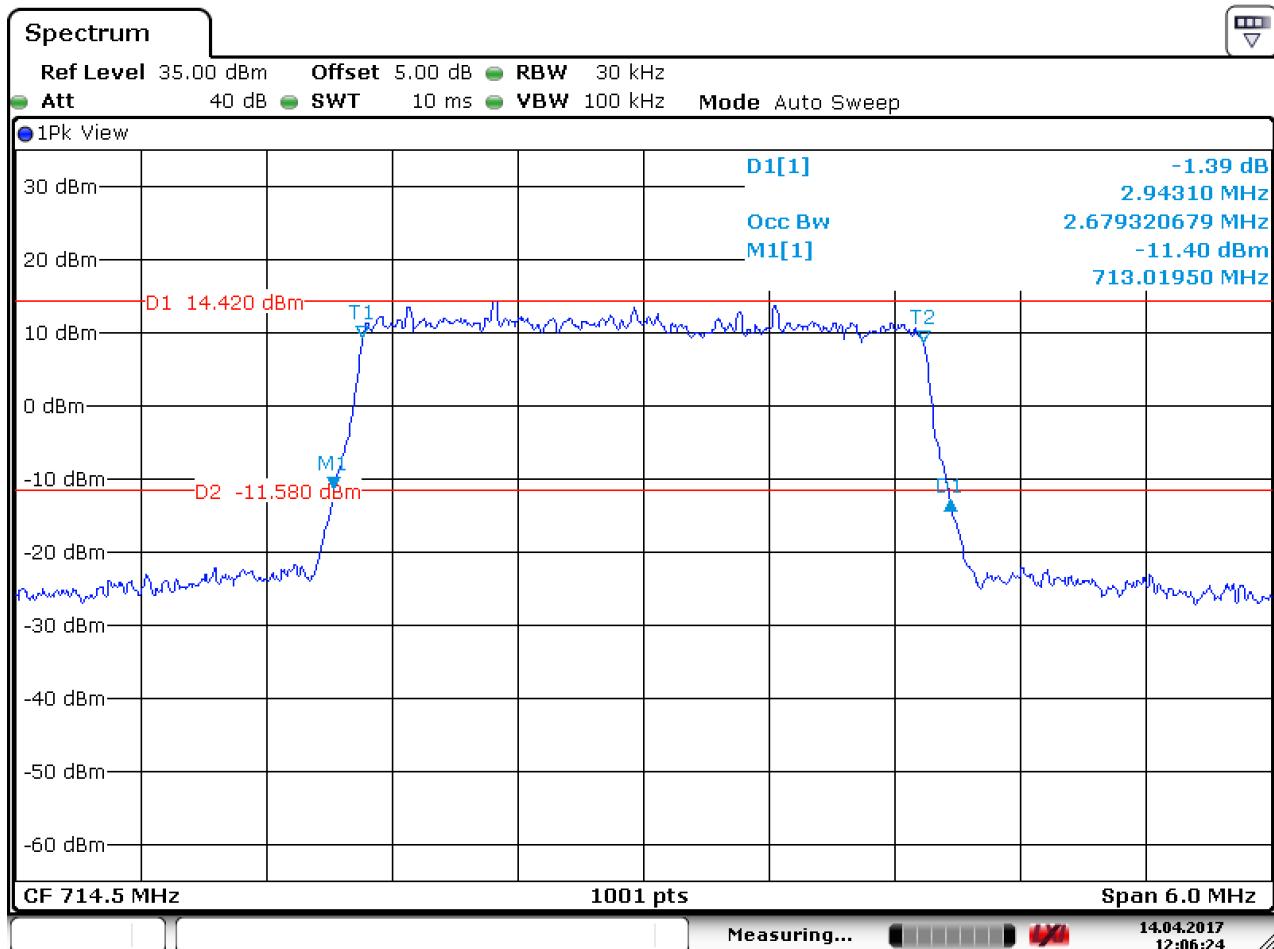
4.1.1.4.1 Test Channel = LCH

Date: 14.APR.2017 12:05:02

**4.1.1.4.2   Test Channel = MCH**
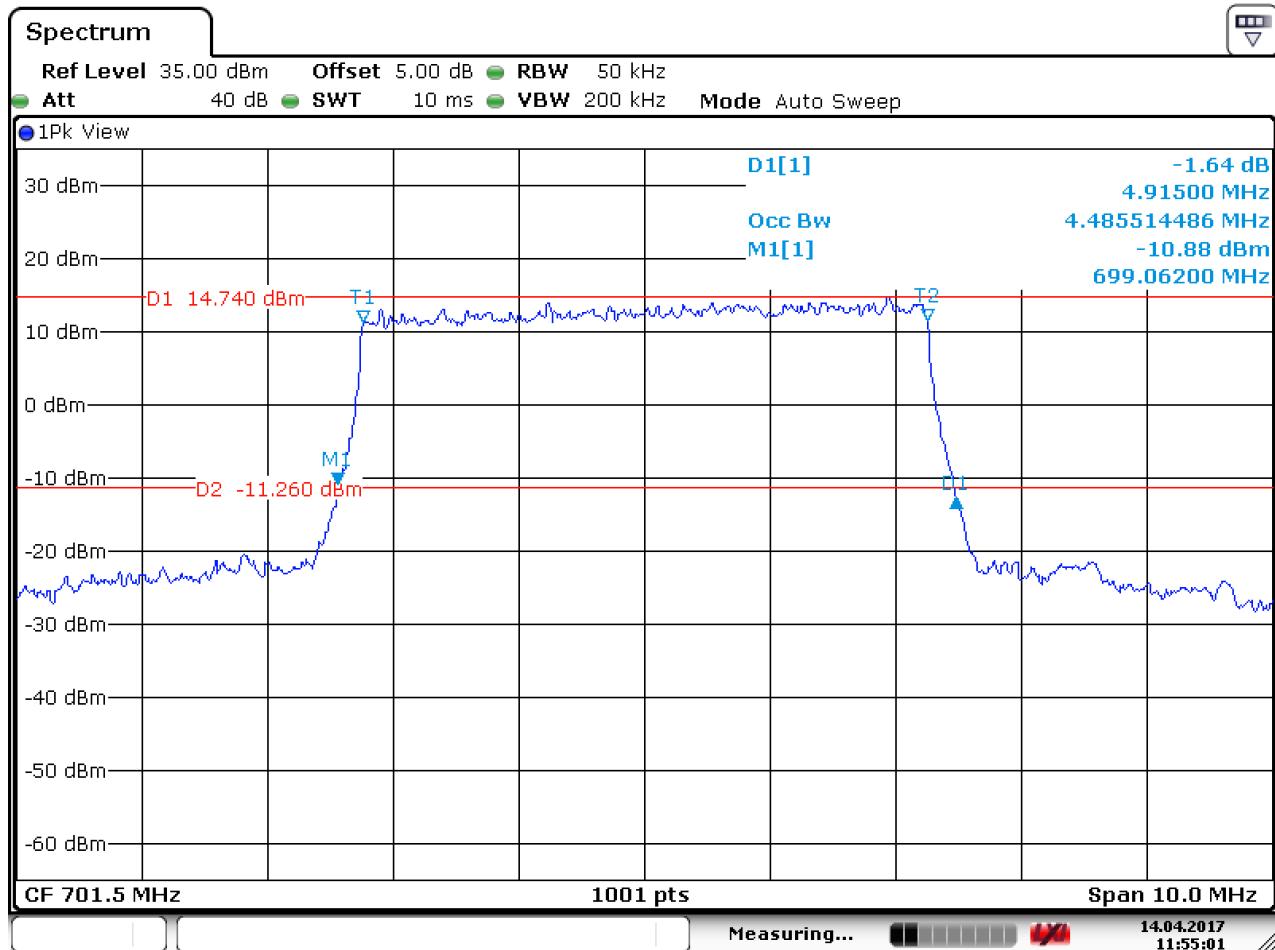
Date: 14.APR.2017 12:00:46

4.1.1.4.3   Test Channel = HCH

Date: 14.APR.2017 12:06:24

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
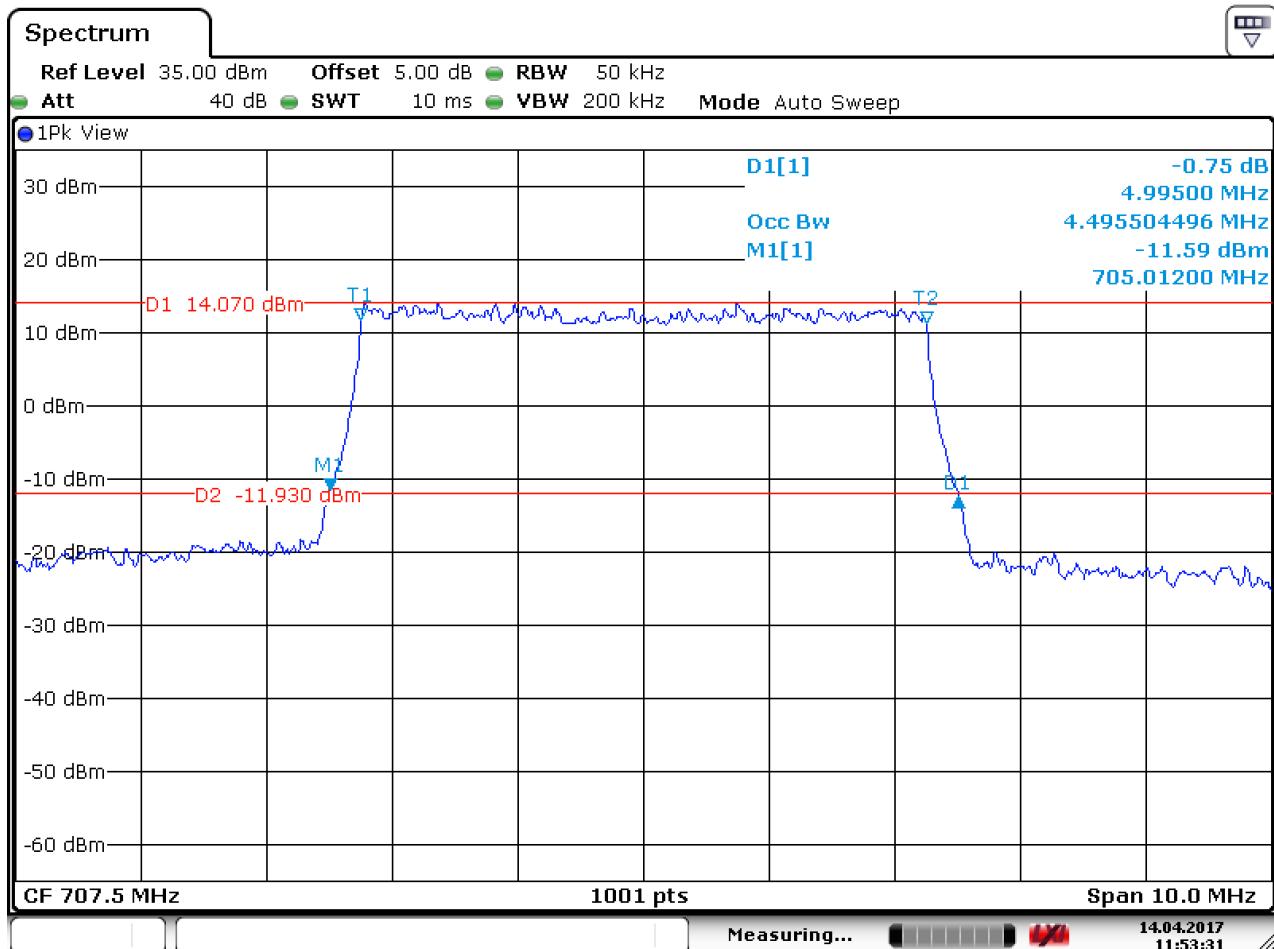
4.1.1.5   Test Mode = LTE/TM1 5MHz
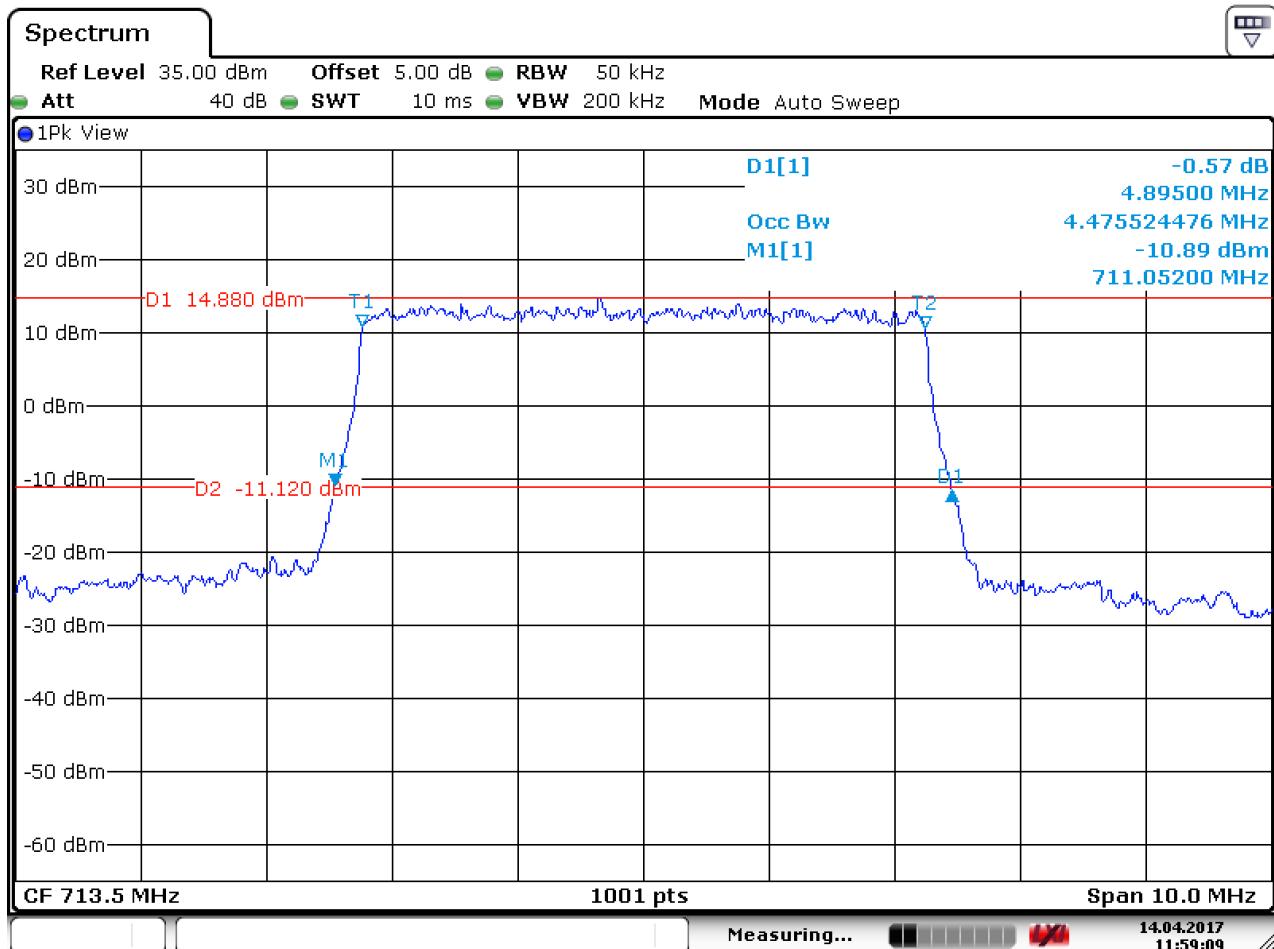
4.1.1.5.1   Test Channel = LCH
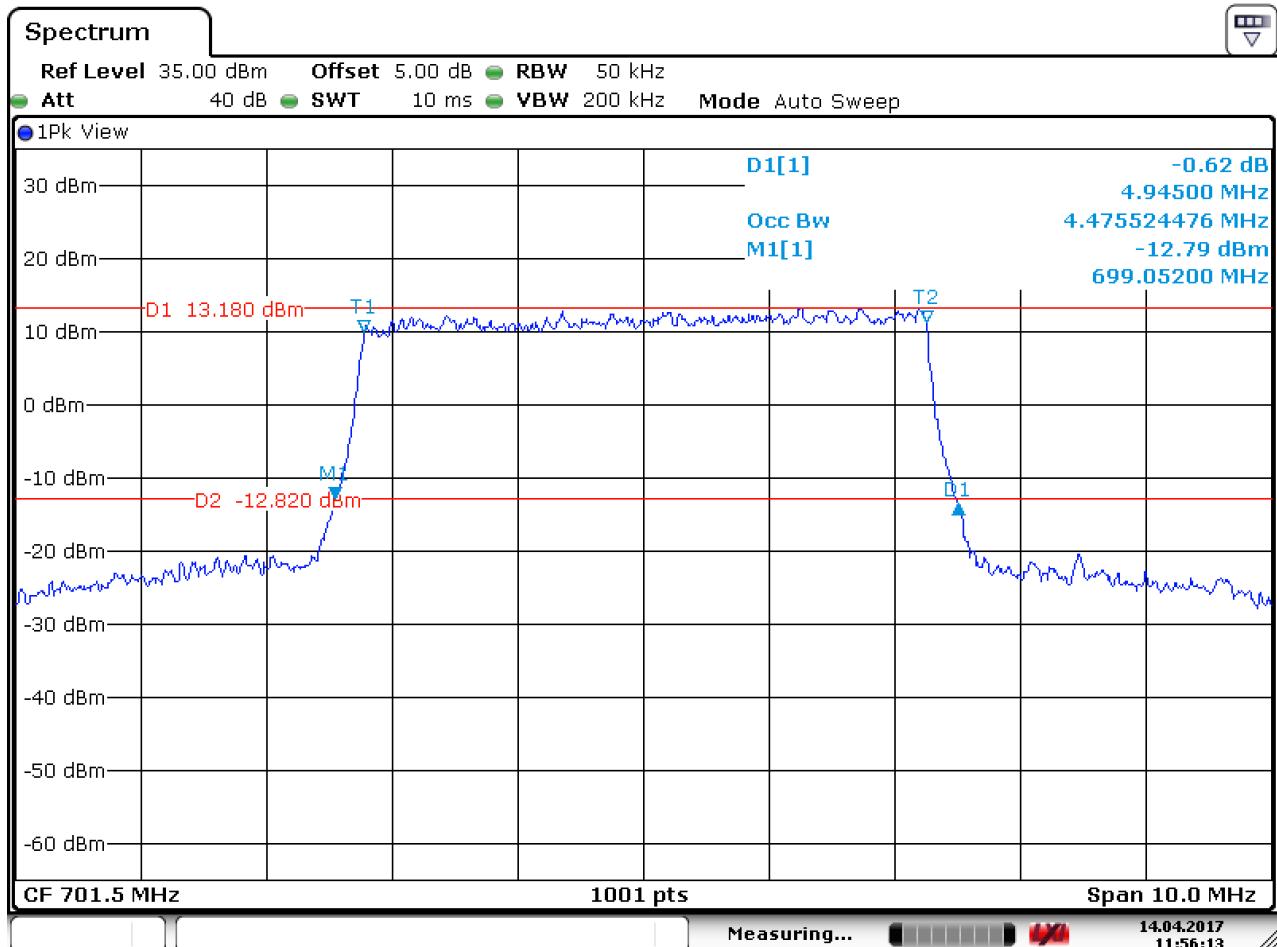
Date: 14.APR.2017 11:55:02

4.1.1.5.2   Test Channel = MCH
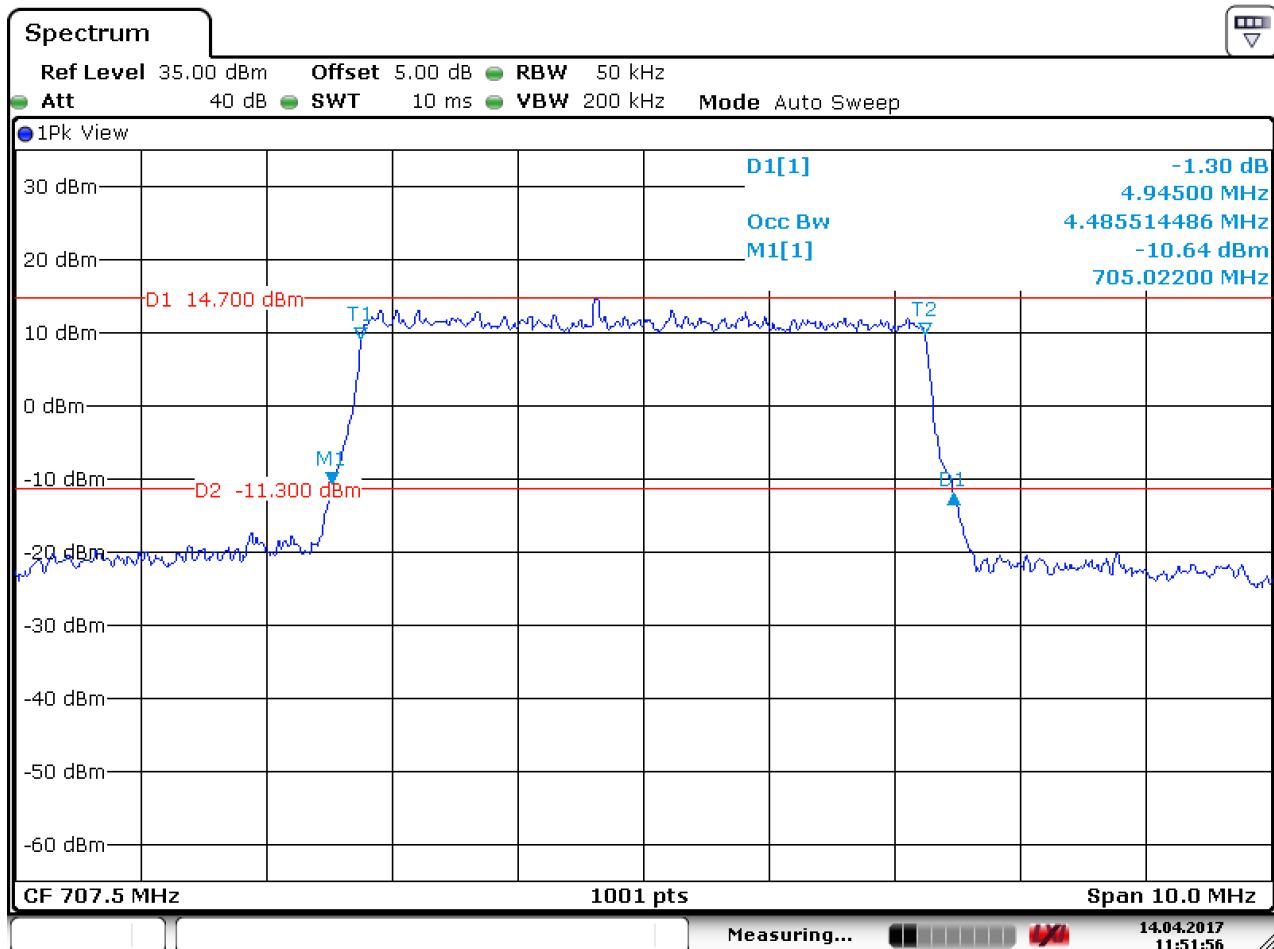
Date: 14.APR.2017 11:53:32

4.1.1.5.3 Test Channel = HCH
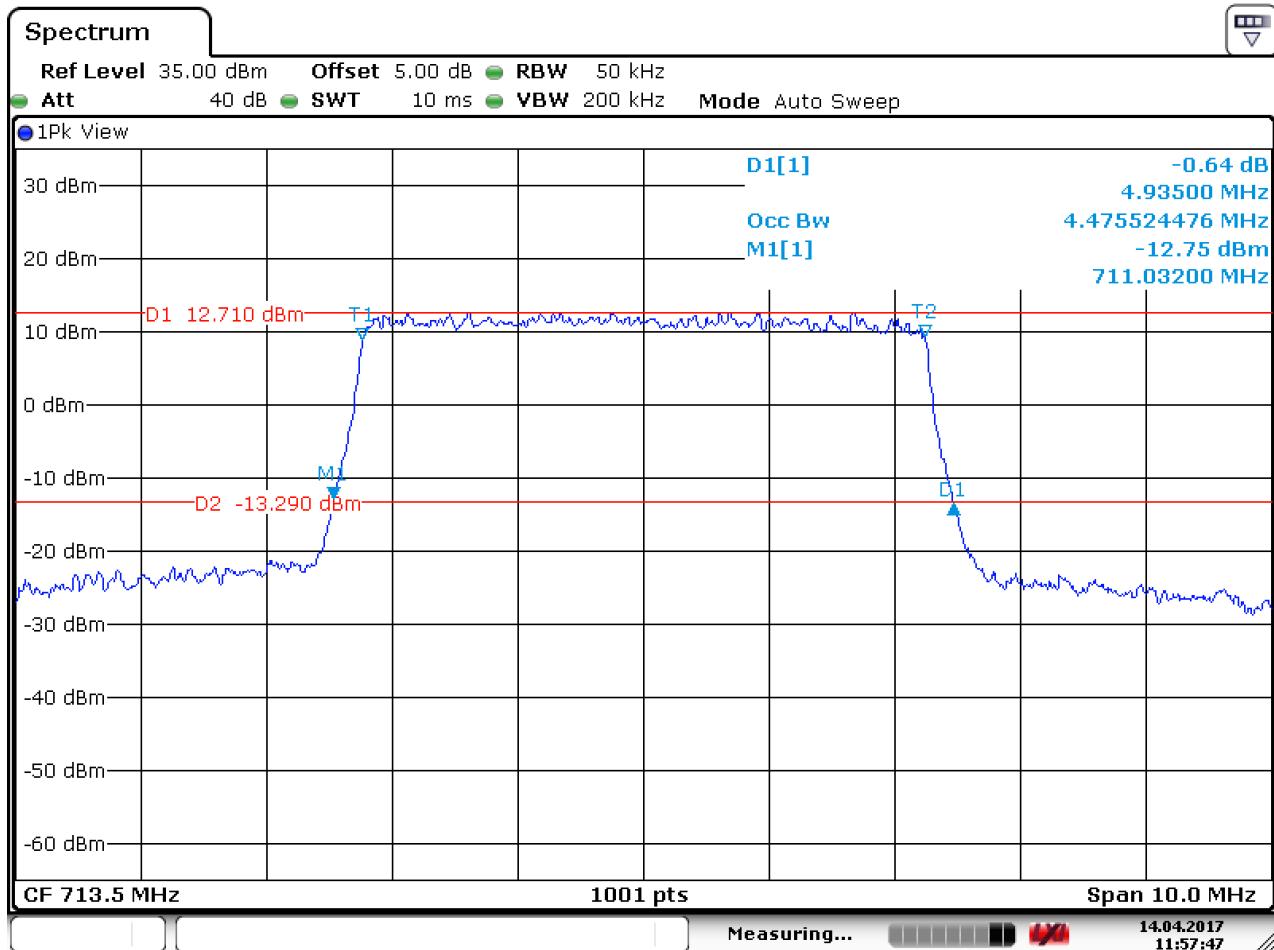
Date: 14.APR.2017 11:59:09

4.1.1.6   Test Mode = LTE/TM2 5MHz

4.1.1.6.1   Test Channel = LCH


Date: 14.APR.2017 11:56:14

4.1.1.6.2 Test Channel = MCH
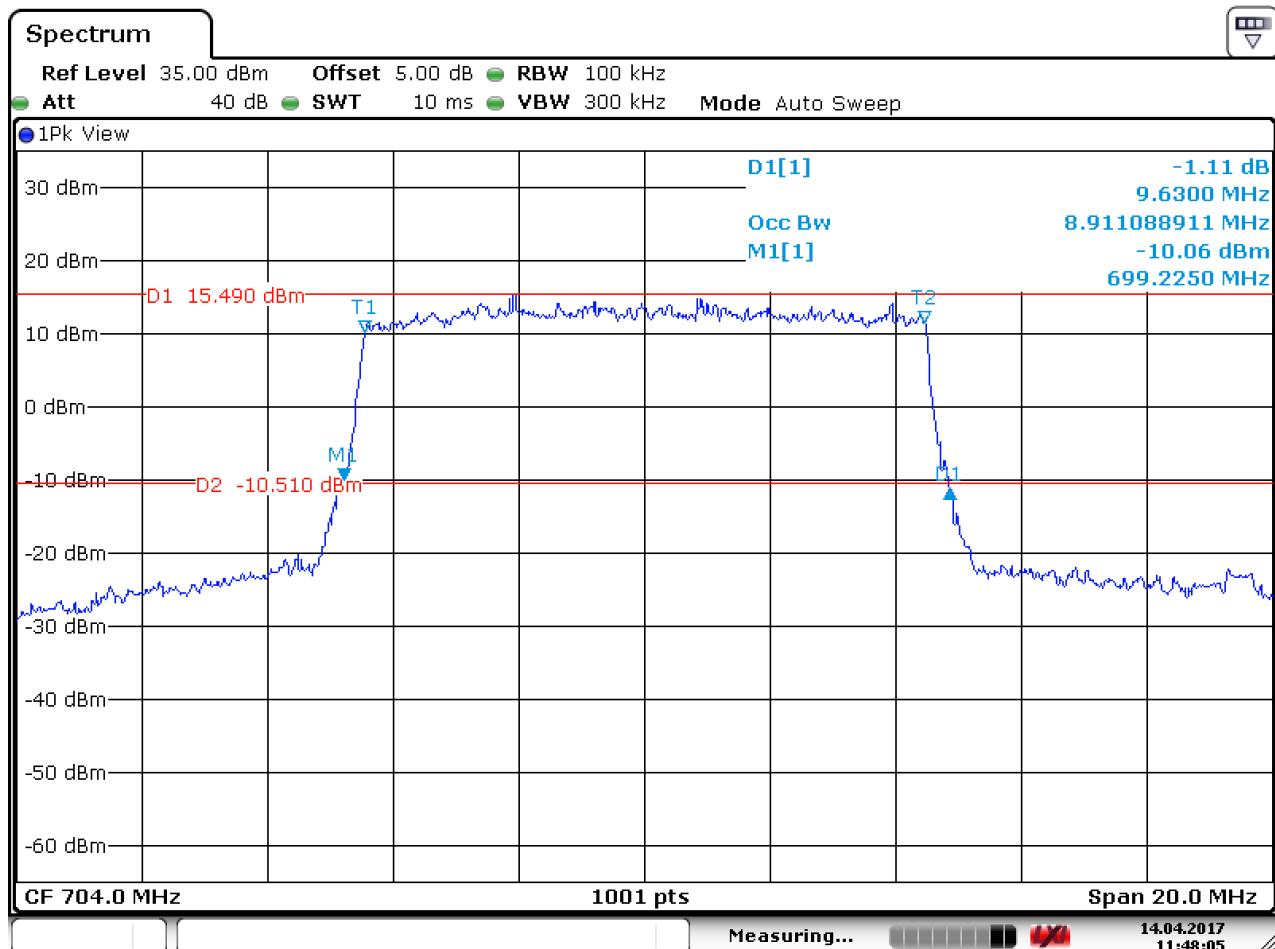
Date: 14.APR.2017 11:51:56

4.1.1.6.3   Test Channel = HCH

Date: 14.APR.2017 11:57:47

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
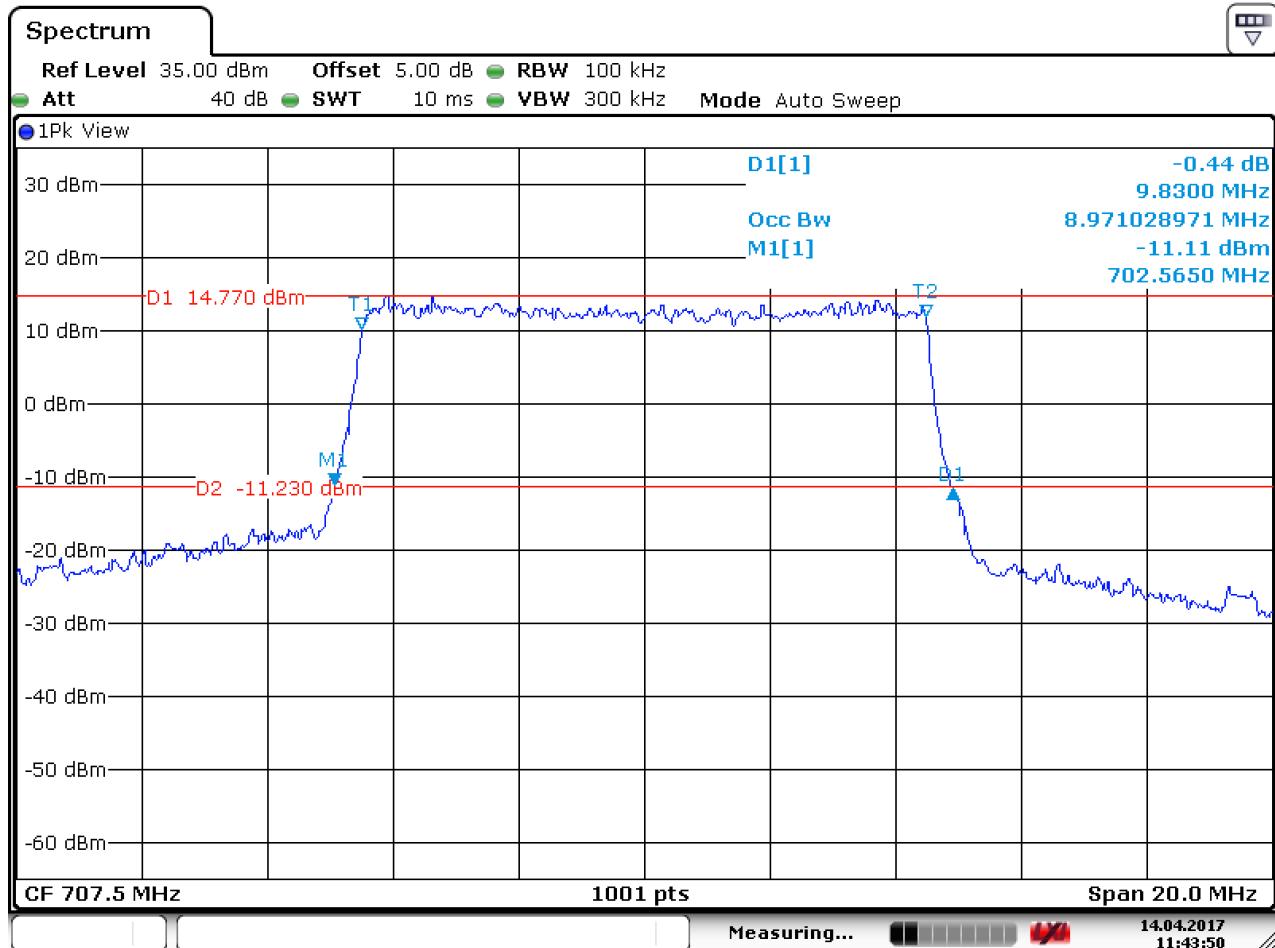
4.1.1.7   Test Mode = LTE/TM1 10MHz

4.1.1.7.1   Test Channel = LCH

Date: 14.APR.2017 11:48:05

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
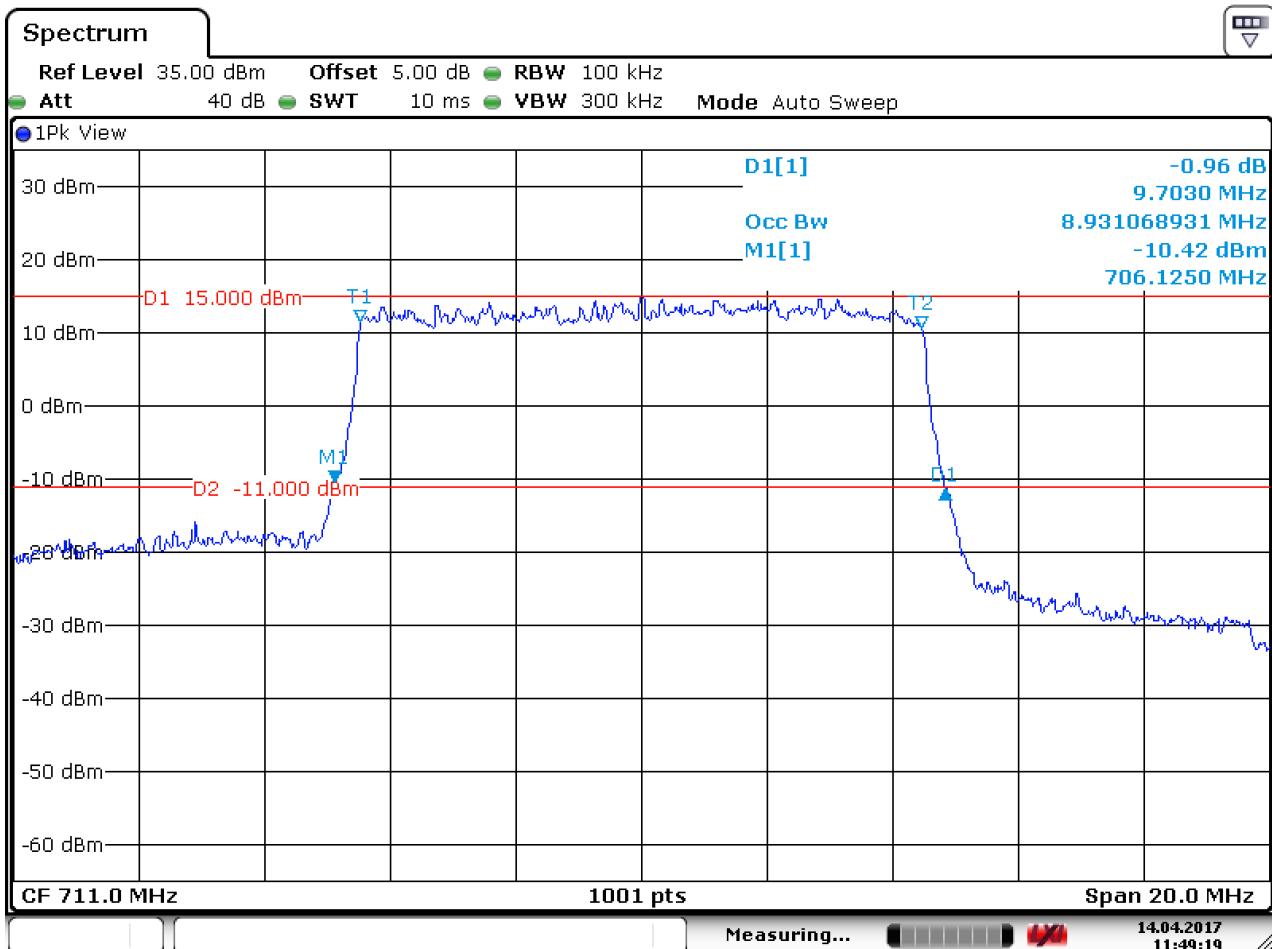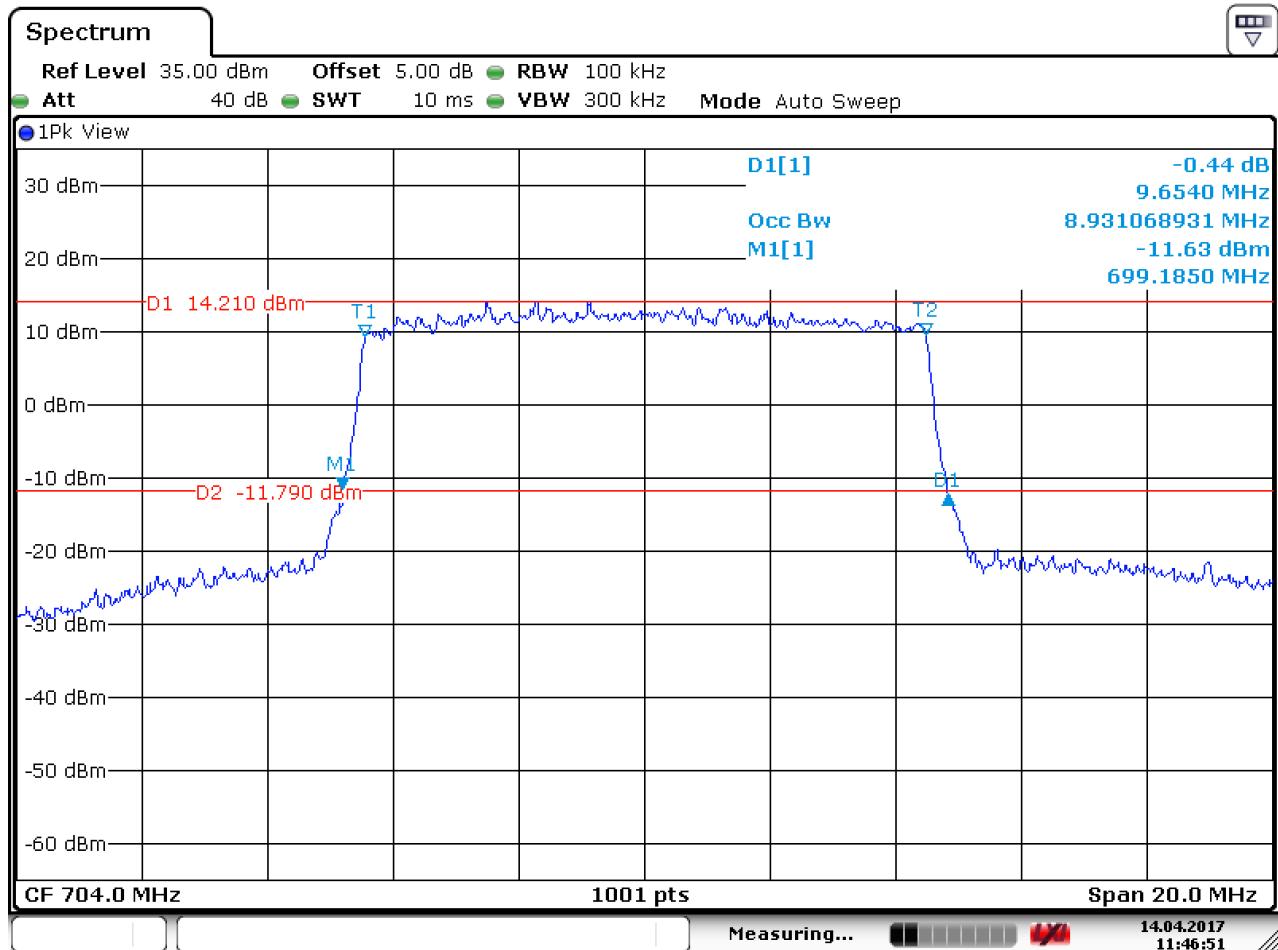
4.1.1.7.2   Test Channel = MCH

Date: 14.APR.2017 11:43:51
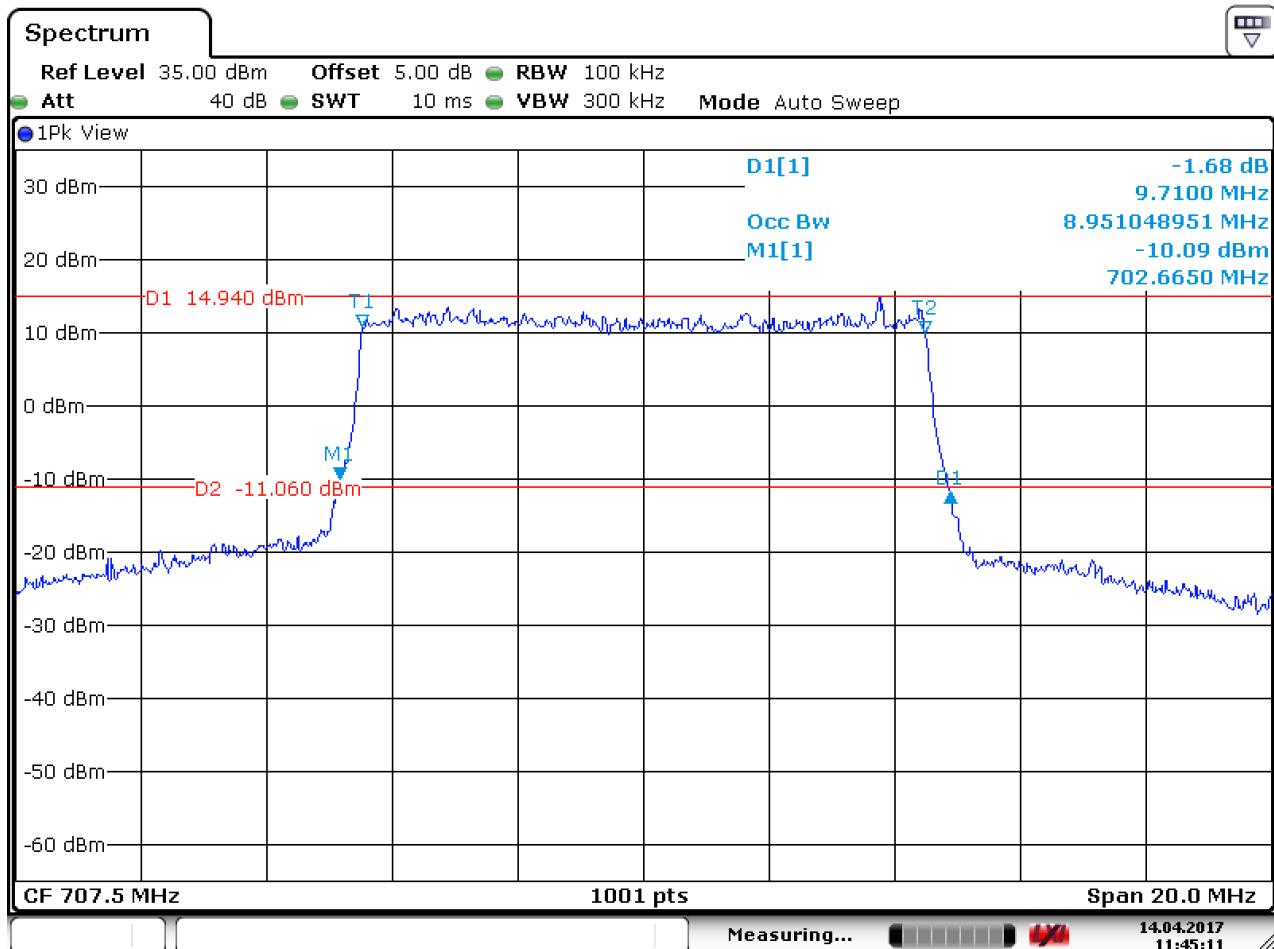
4.1.1.7.3   Test Channel = HCH

Date: 14.APR.2017 11:49:19

![SGS logo]

SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch
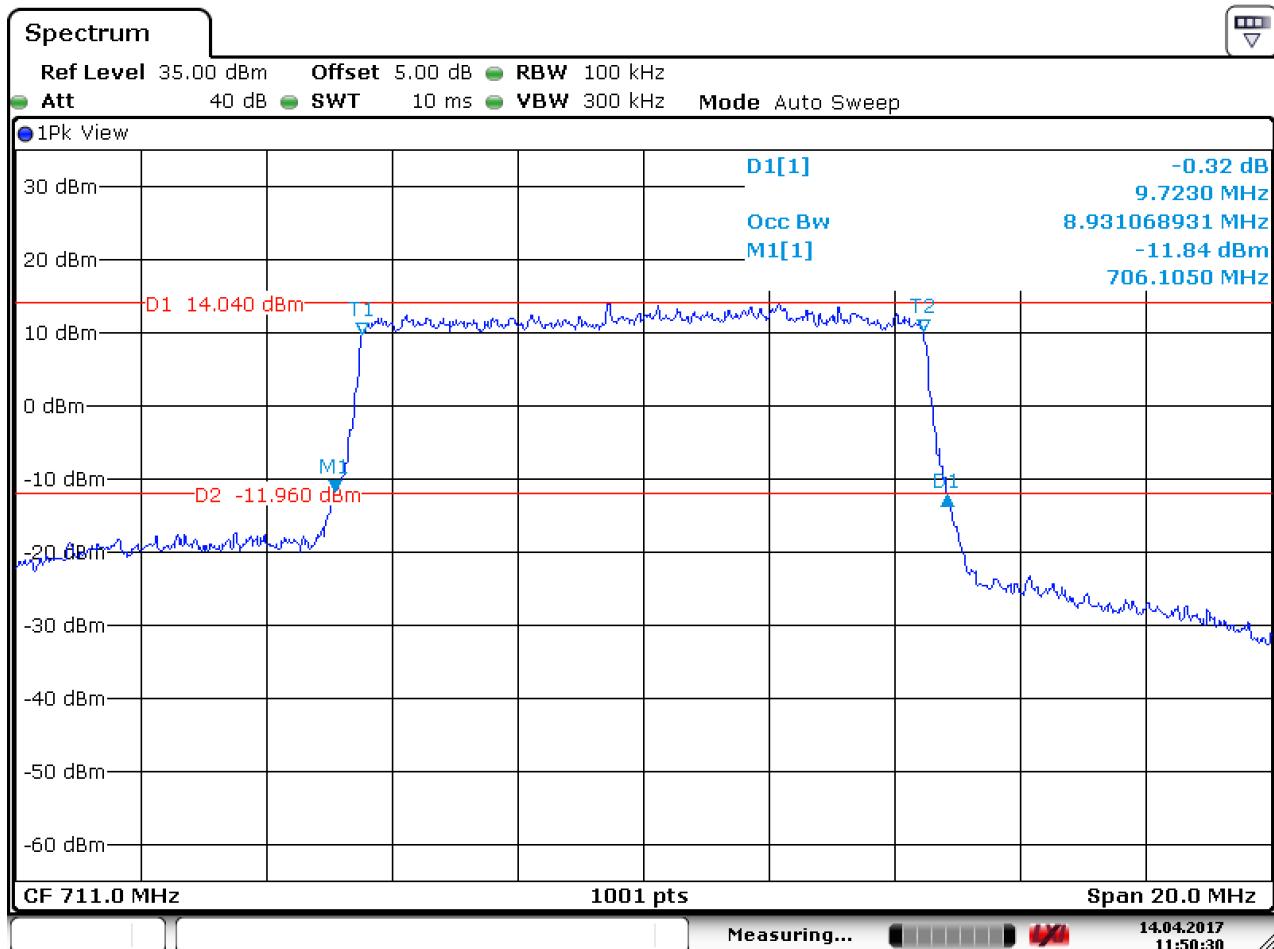
4.1.1.8   Test Mode = LTE/TM2 10MHz

4.1.1.8.1   Test Channel = LCH

Date: 14.APR.2017 11:46:51

4.1.1.8.2   Test Channel = MCH

Date: 14.APR.2017 11:45:12

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

4.1.1.8.3   Test Channel = HCH

Date: 14.APR.2017 11:50:30

5   Band Edges Compliance
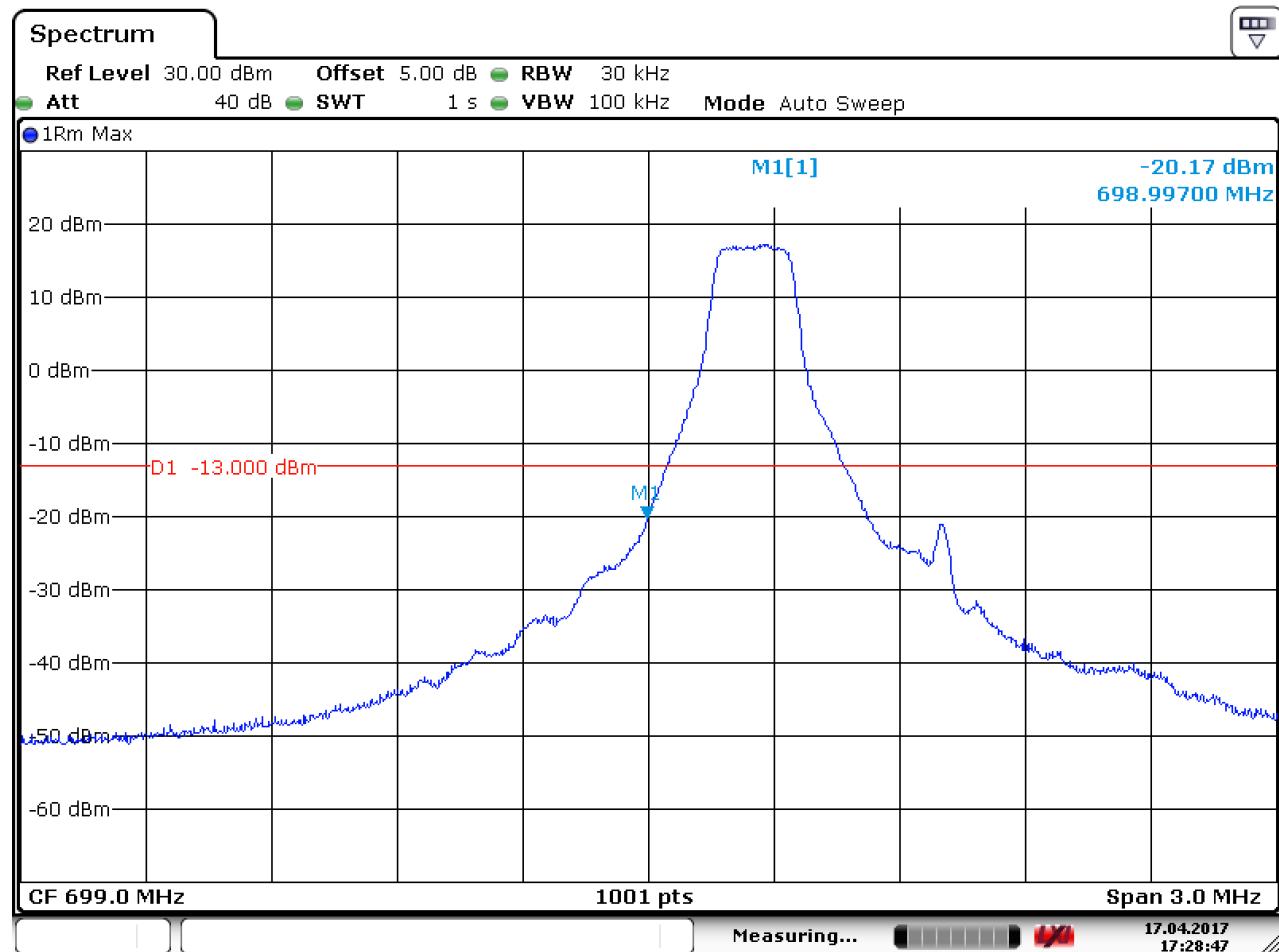
5.1 For LTE

5.1.1 Test Band = LTE band12

5.1.1.1   Test Mode = LTE/TM1 1.4MHz
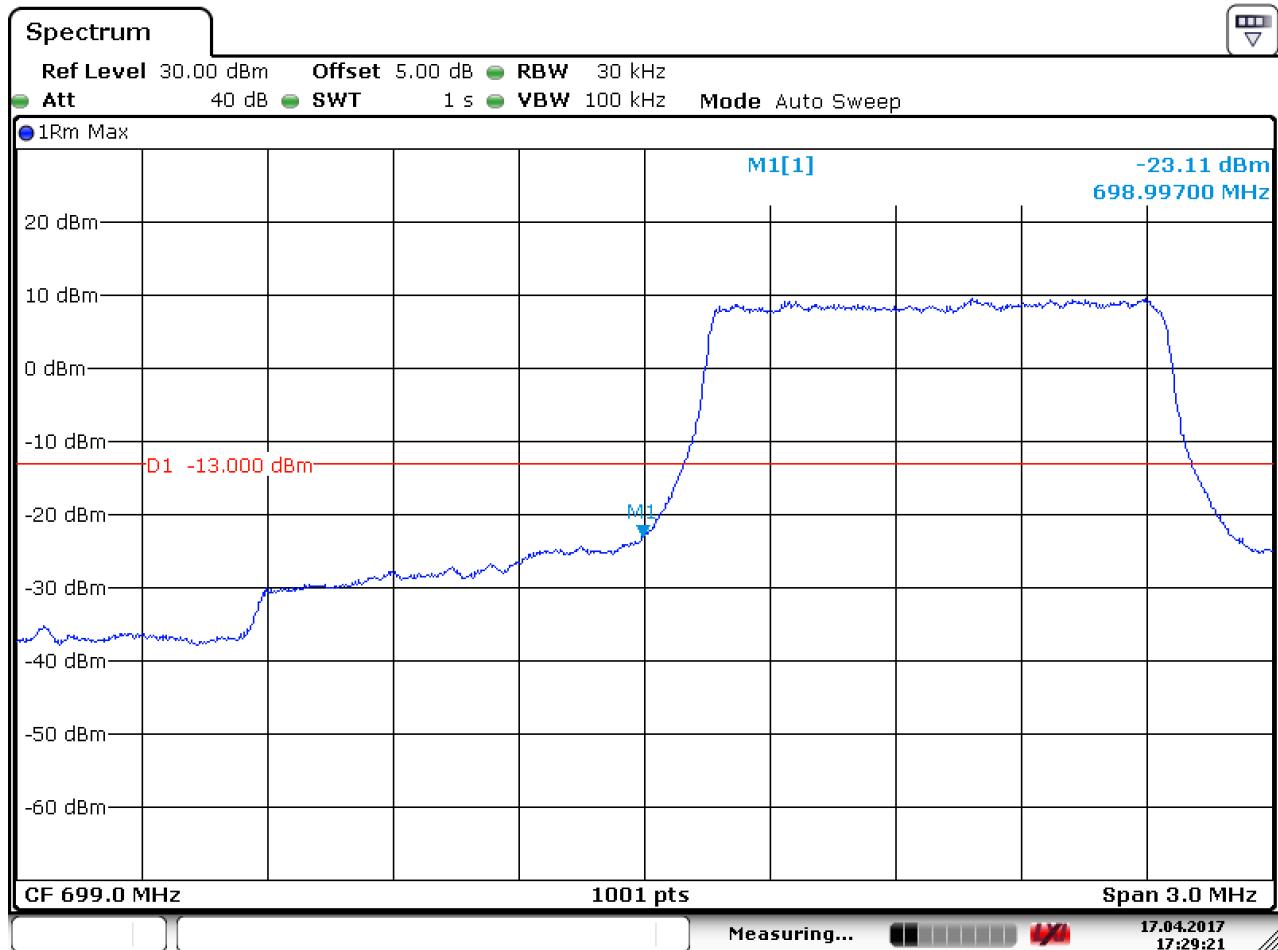
5.1.1.1.1   Test Channel = LCH

5.1.1.1.1.1 Test RB=1RB

Date: 17.APR.2017 17:28:48

5.1.1.1.1.2 Test RB=6RB

Spectrum				
Ref Level 30.00 dBm	Offset 5.00 dB	RBW 30 kHz		
Att 40 dB	SWT 1 s	VBW 100 kHz	Mode Auto Sweep	

1Rm Max

M1[1]   -23.11 dBm
698.99700 MHz

D1 -13.000 dBm

M1

CF 699.0 MHz   1001 pts   Span 3.0 MHz

Measuring...   17.04.2017 17:29:21

Date: 17.APR.2017 17:29:22

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
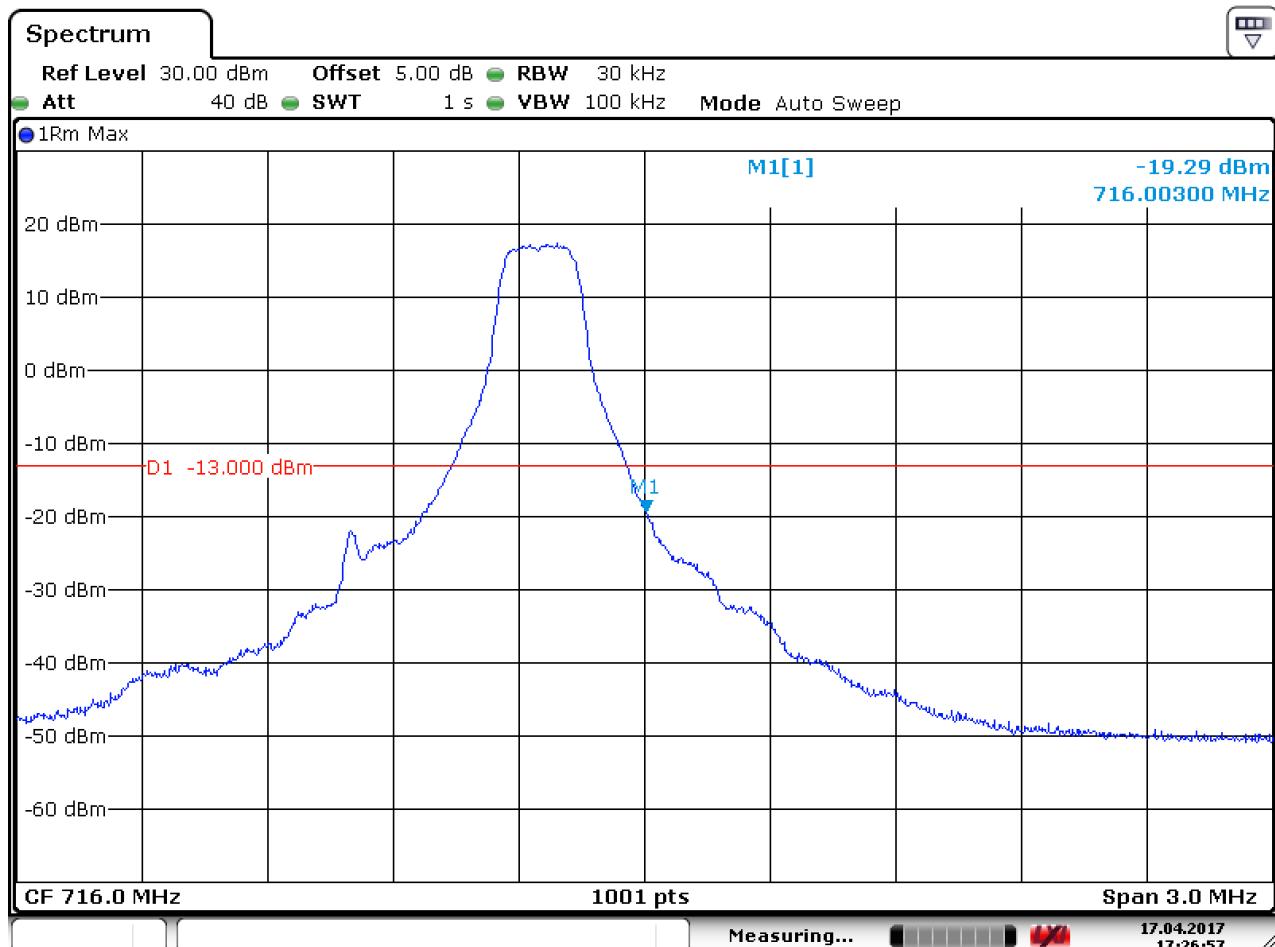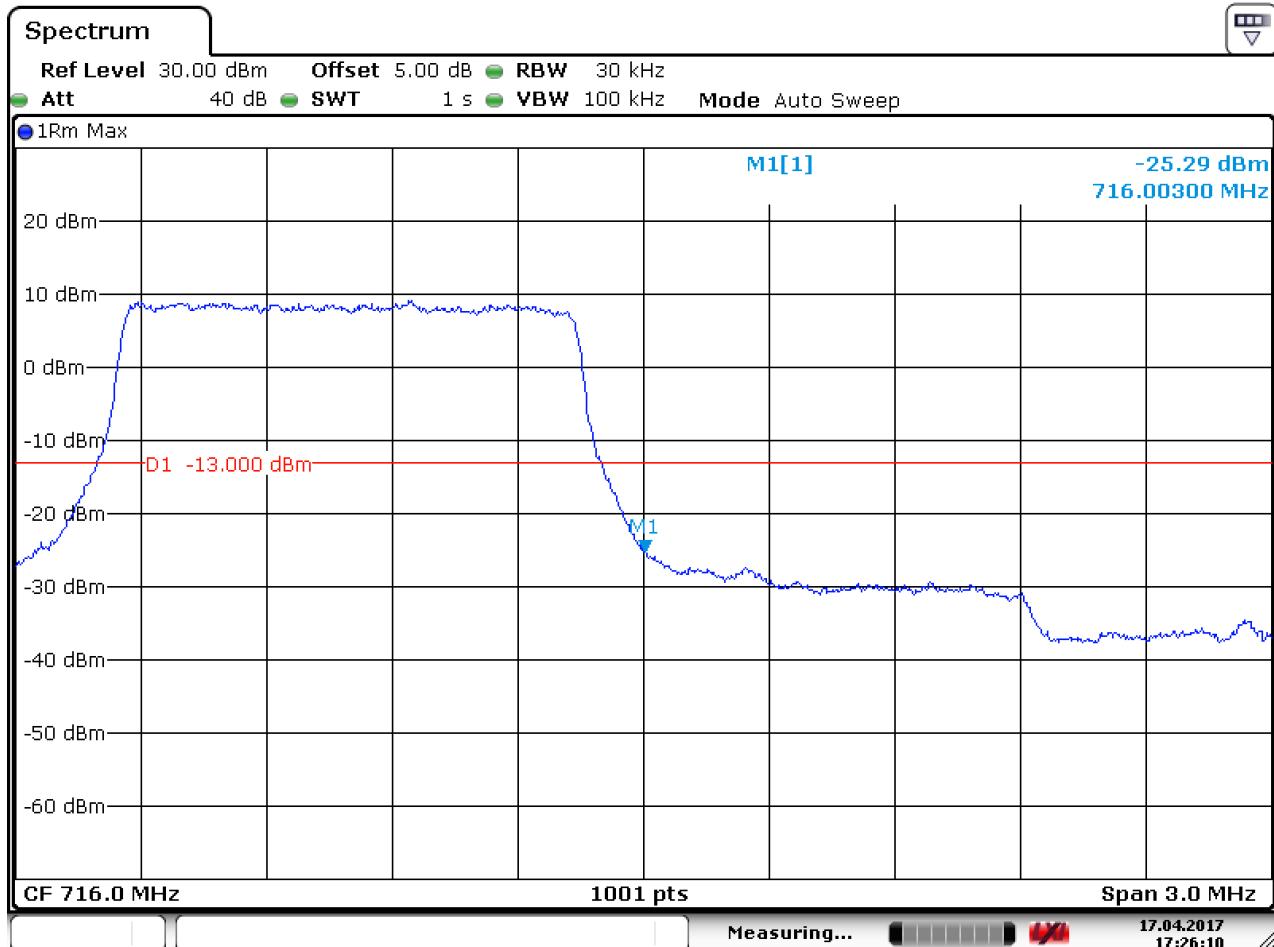
5.1.1.1.2 Test Channel = HCH
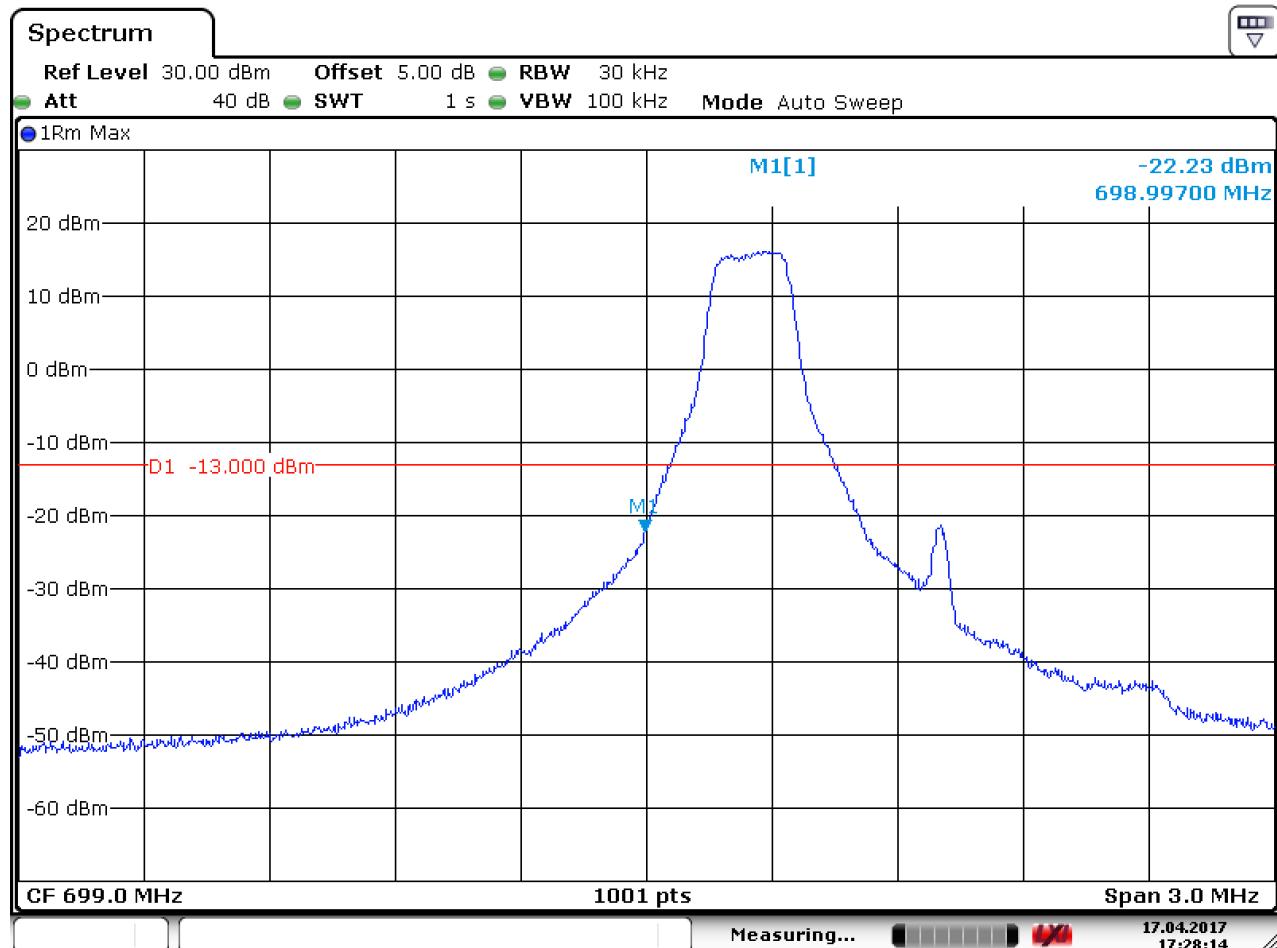
5.1.1.1.2.1 Test RB=1RB

Date: 17.APR.2017 17:26:58

5.1.1.1.2.2 Test RB=6RB

Spectrum					
Ref Level 30.00 dBm	Offset 5.00 dB	● RBW	30 kHz		
● Att	40 dB	● SWT	1 s	● VBW 100 kHz	Mode Auto Sweep

● 1Rm Max

M1[1]   -25.29 dBm
716.00300 MHz

20 dBm

10 dBm

0 dBm

-10 dBm

D1 -13.000 dBm

-20 dBm

M1

-30 dBm

-40 dBm

-50 dBm

-60 dBm

CF 716.0 MHz   1001 pts   Span 3.0 MHz

Measuring...   17.04.2017 17:26:10
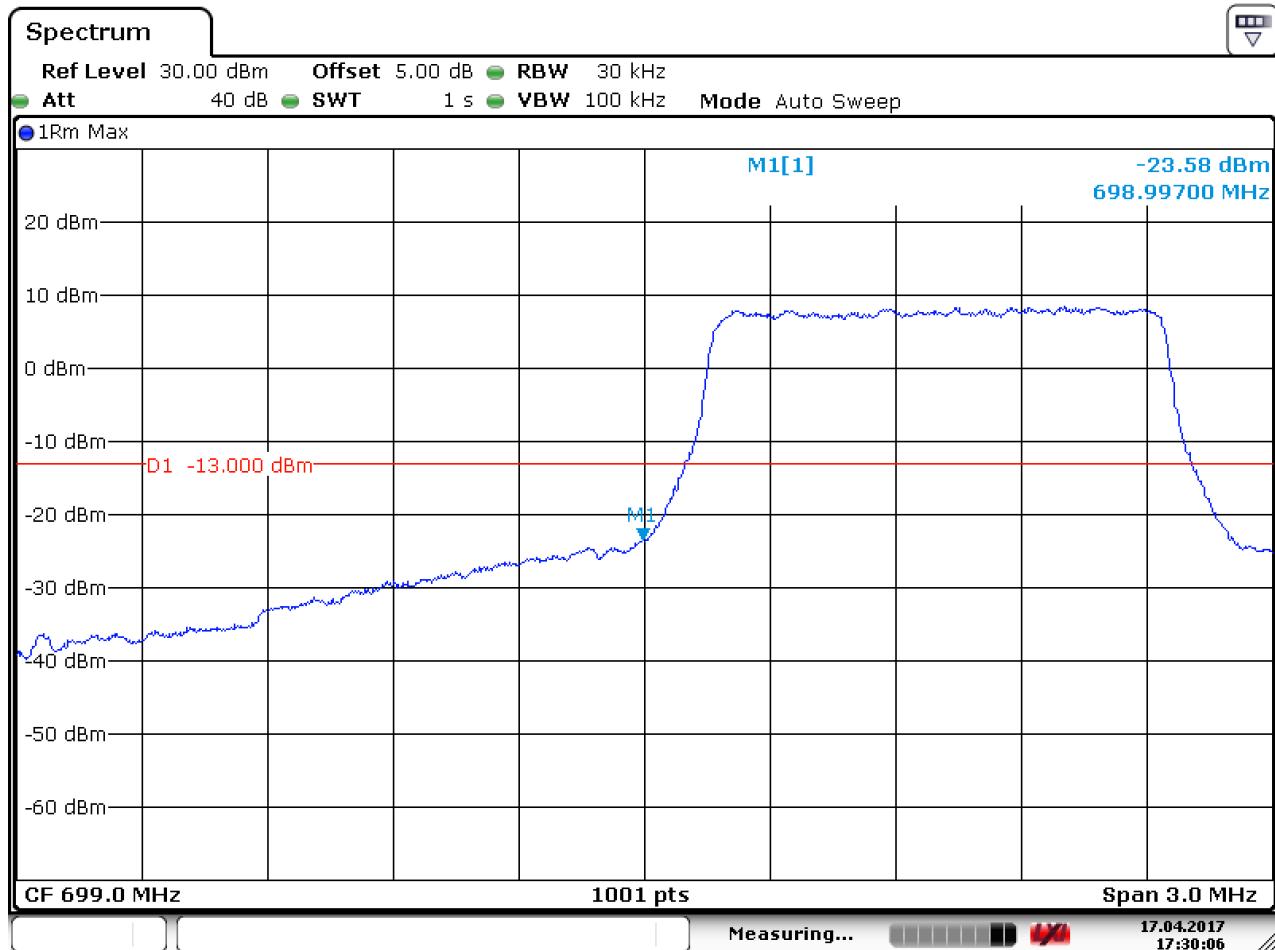
Date: 17.APR.2017 17:26:11
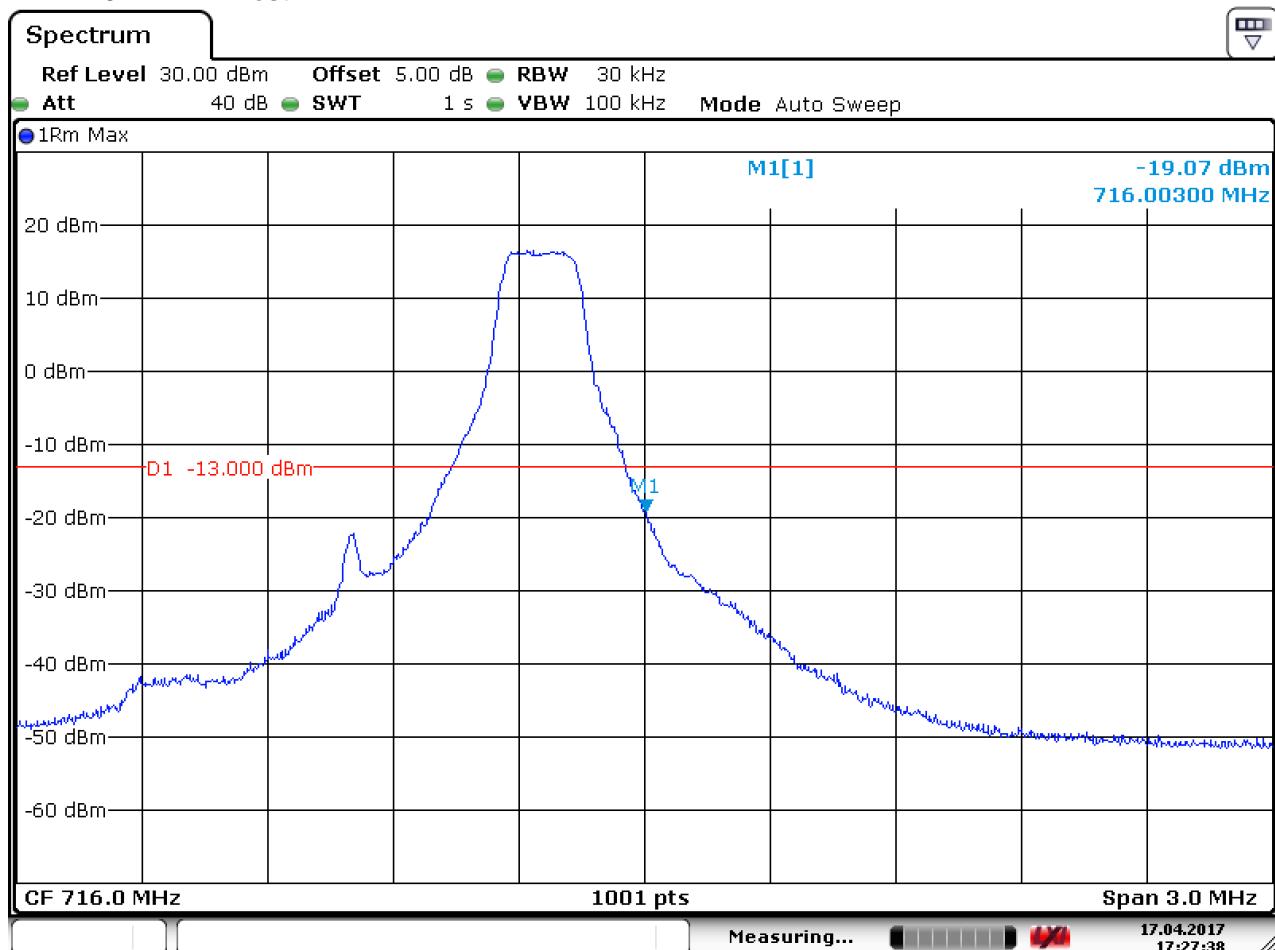
5.1.1.2   Test Mode = LTE/TM2 1.4MHz

5.1.1.2.1   Test Channel = LCH

5.1.1.2.1.1 Test RB=1RB

Date: 17.APR.2017 17:28:15

**SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch**
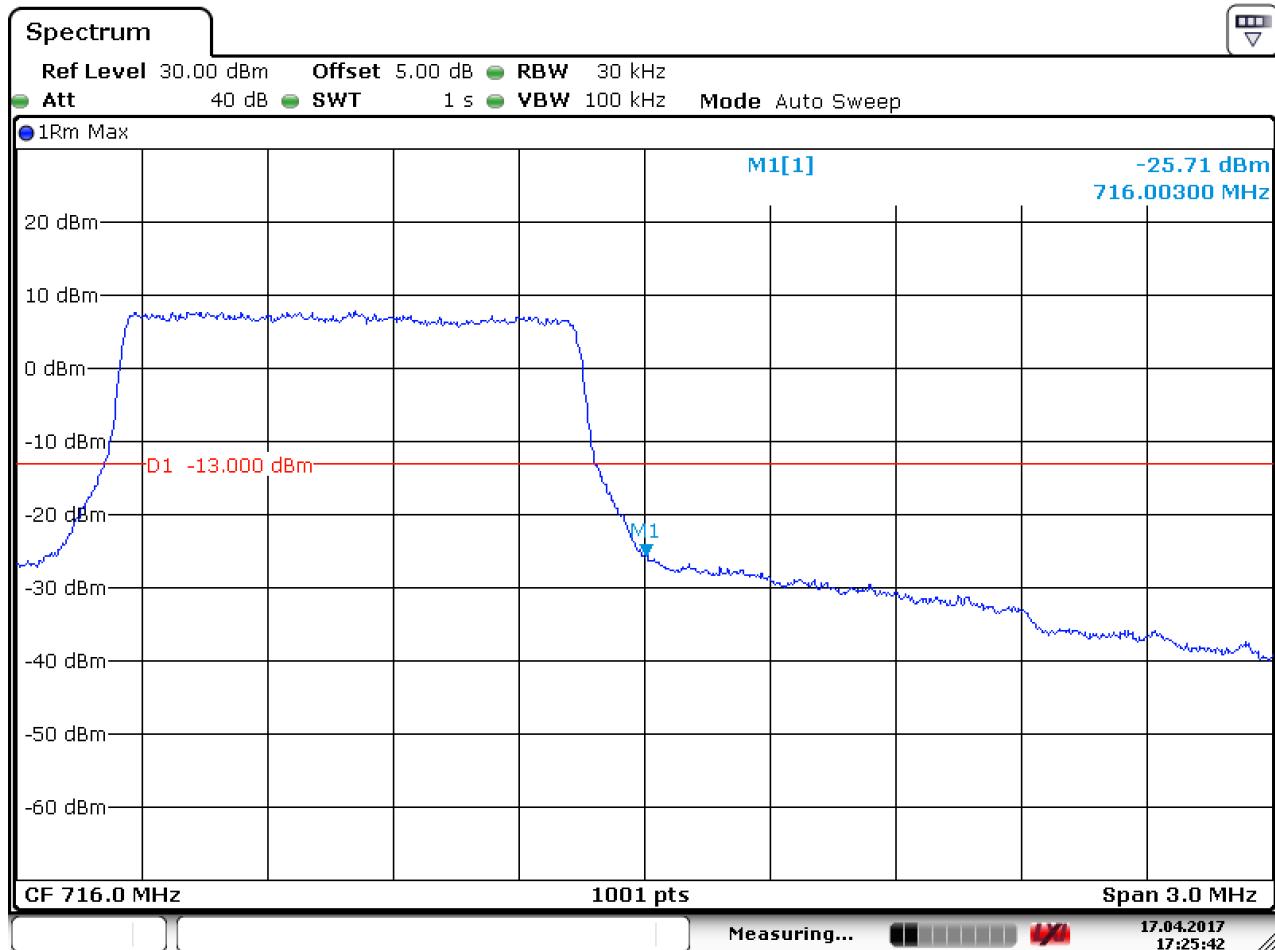
5.1.1.2.1.2 Test RB=6RB

Date: 17.APR.2017 17:30:06
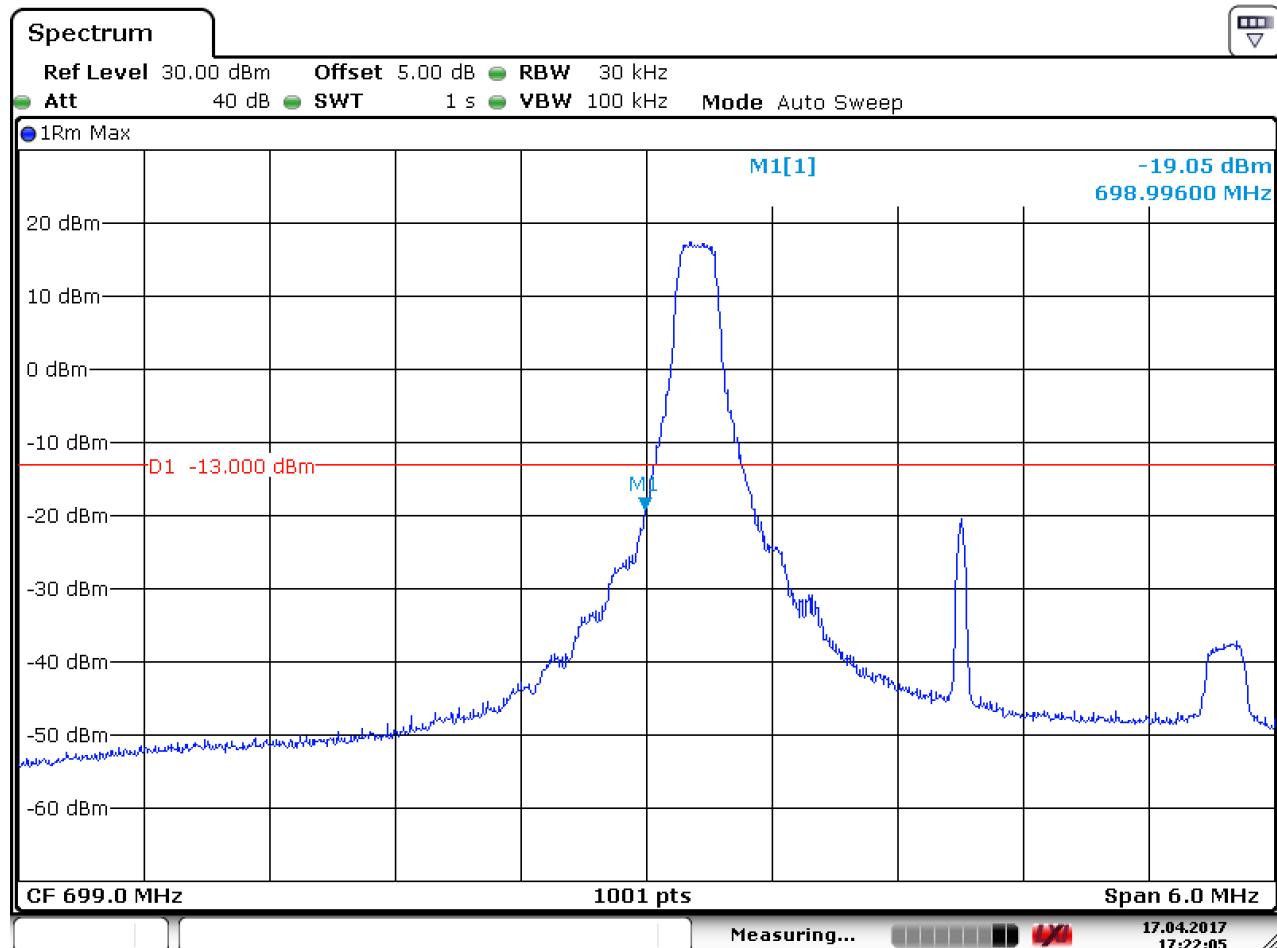
5.1.1.2.2   Test Channel = HCH

5.1.1.2.2.1 Test RB=1RB


Date: 17.APR.2017 17:27:38

5.1.1.2.2.2 Test RB=6RB
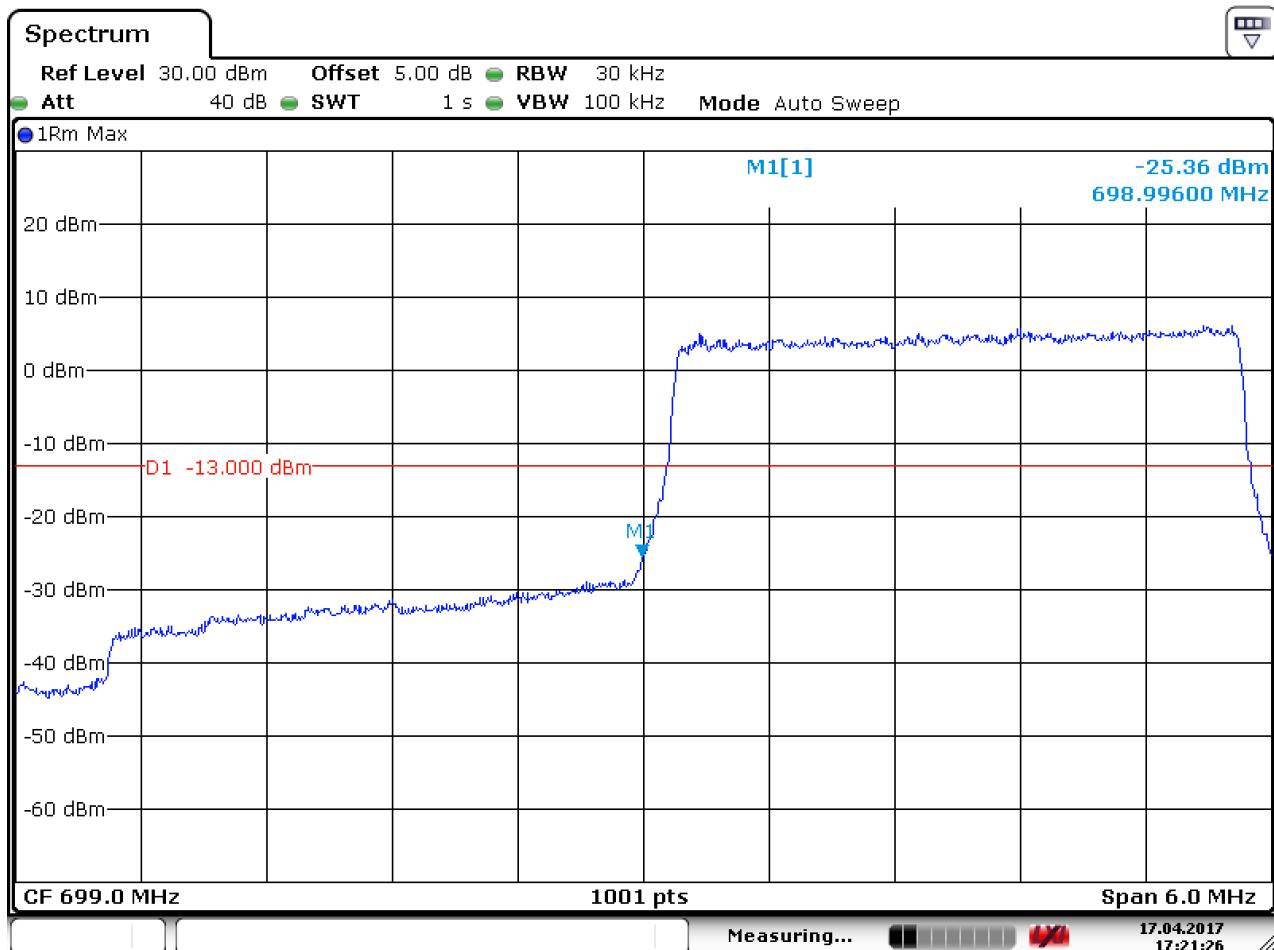
Date: 17.APR.2017 17:25:42
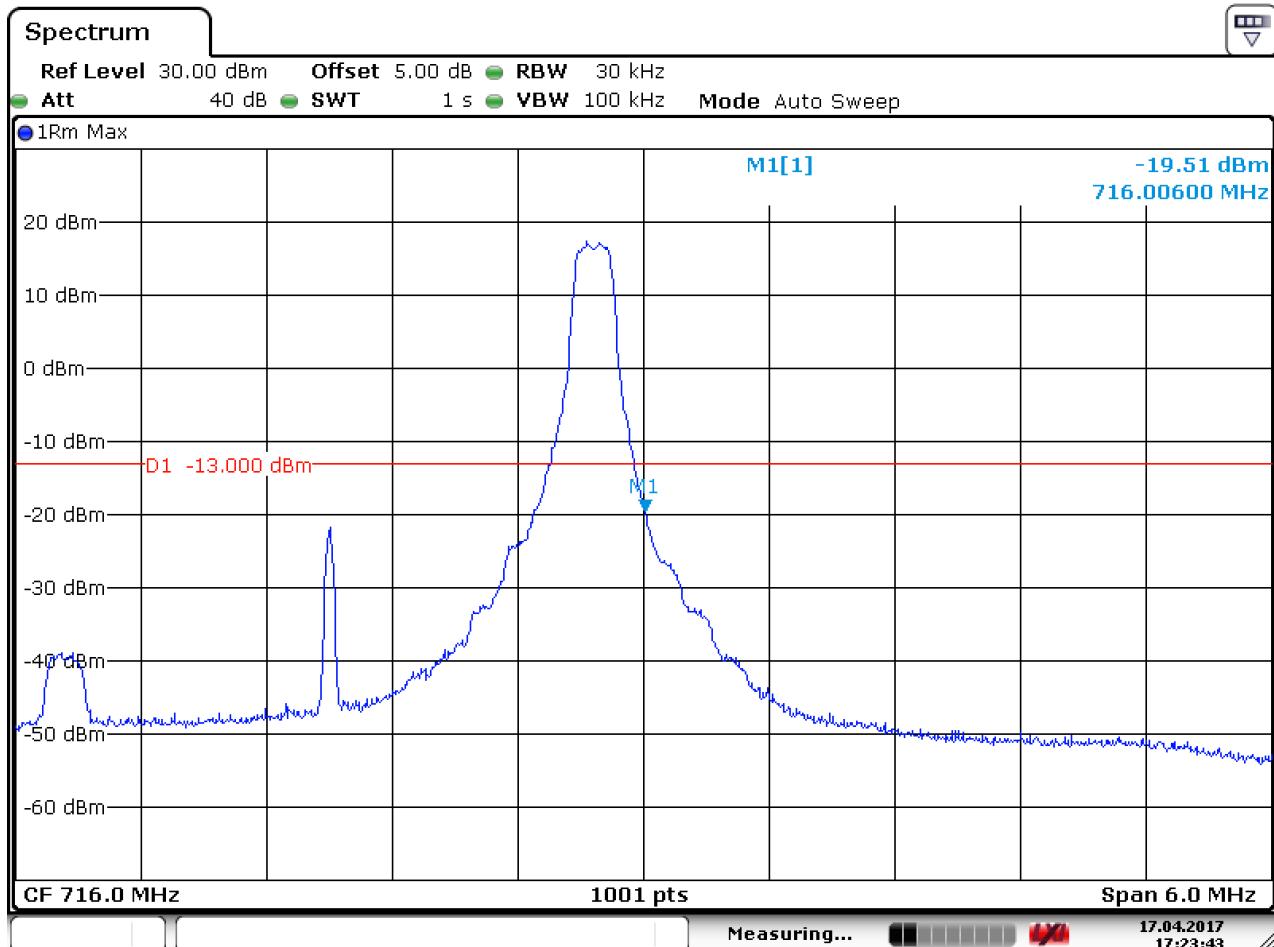
5.1.1.3   Test Mode = LTE/TM1 3MHz

5.1.1.3.1   Test Channel = LCH

##### 5.1.1.3.1.1 Test RB=1RB

Date: 17.APR.2017 17:22:05

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
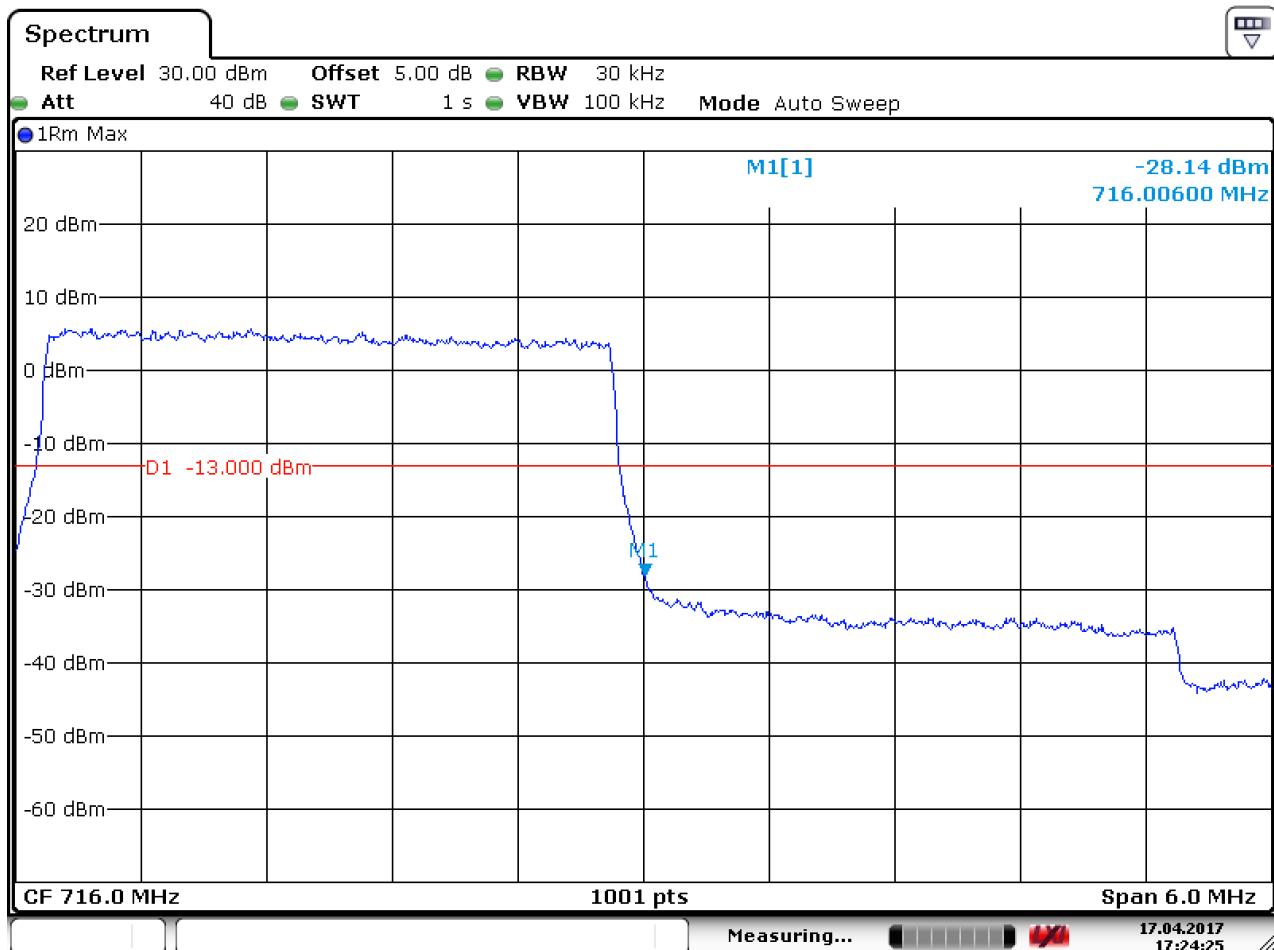
5.1.1.3.1.2 Test RB=15RB

Date: 17.APR.2017 17:21:27
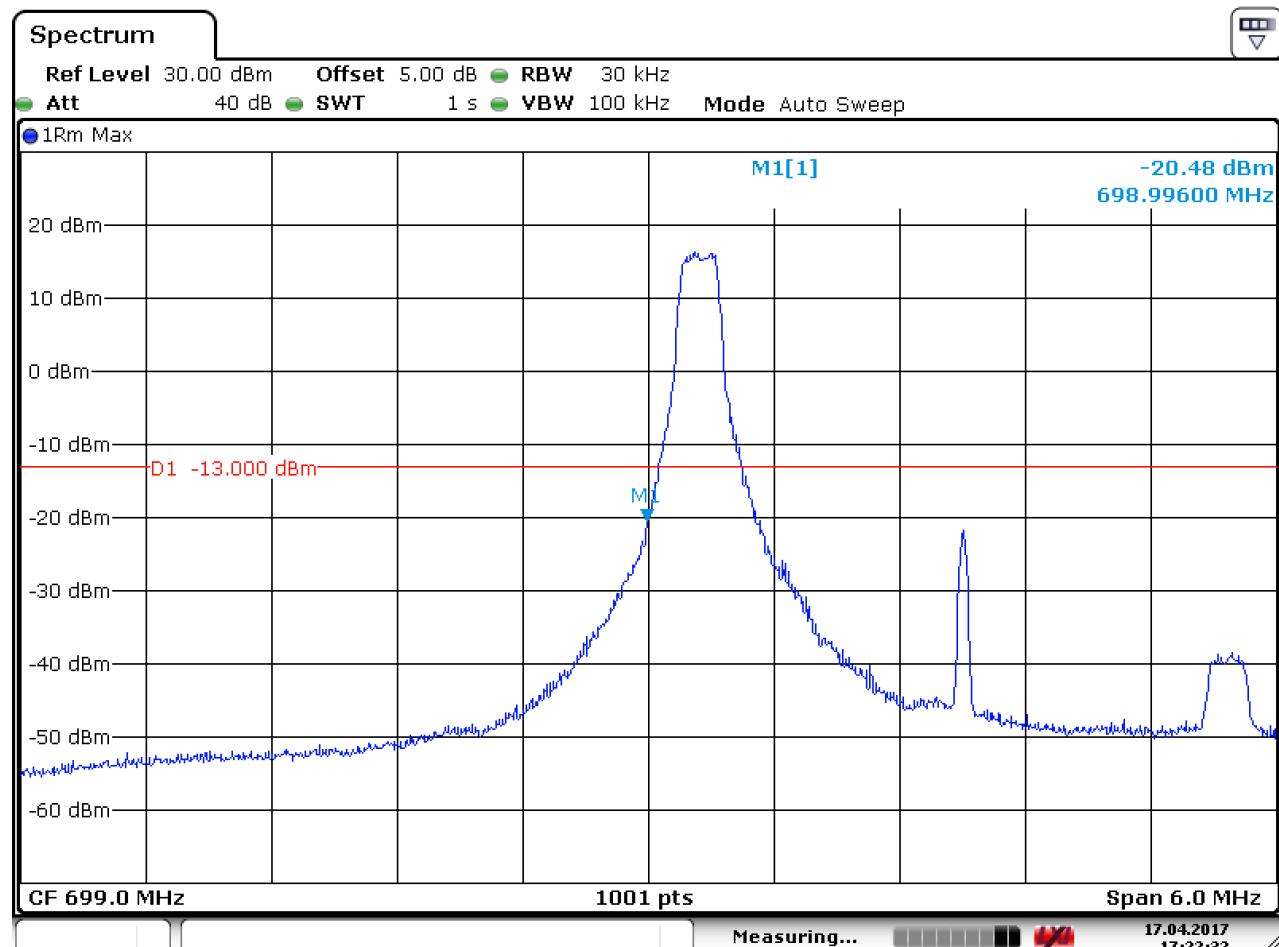
5.1.1.3.2   Test Channel = HCH

5.1.1.3.2.1 Test RB=1RB

Date: 17.APR.2017 17:23:43

5.1.1.3.2.2 Test RB=15RB
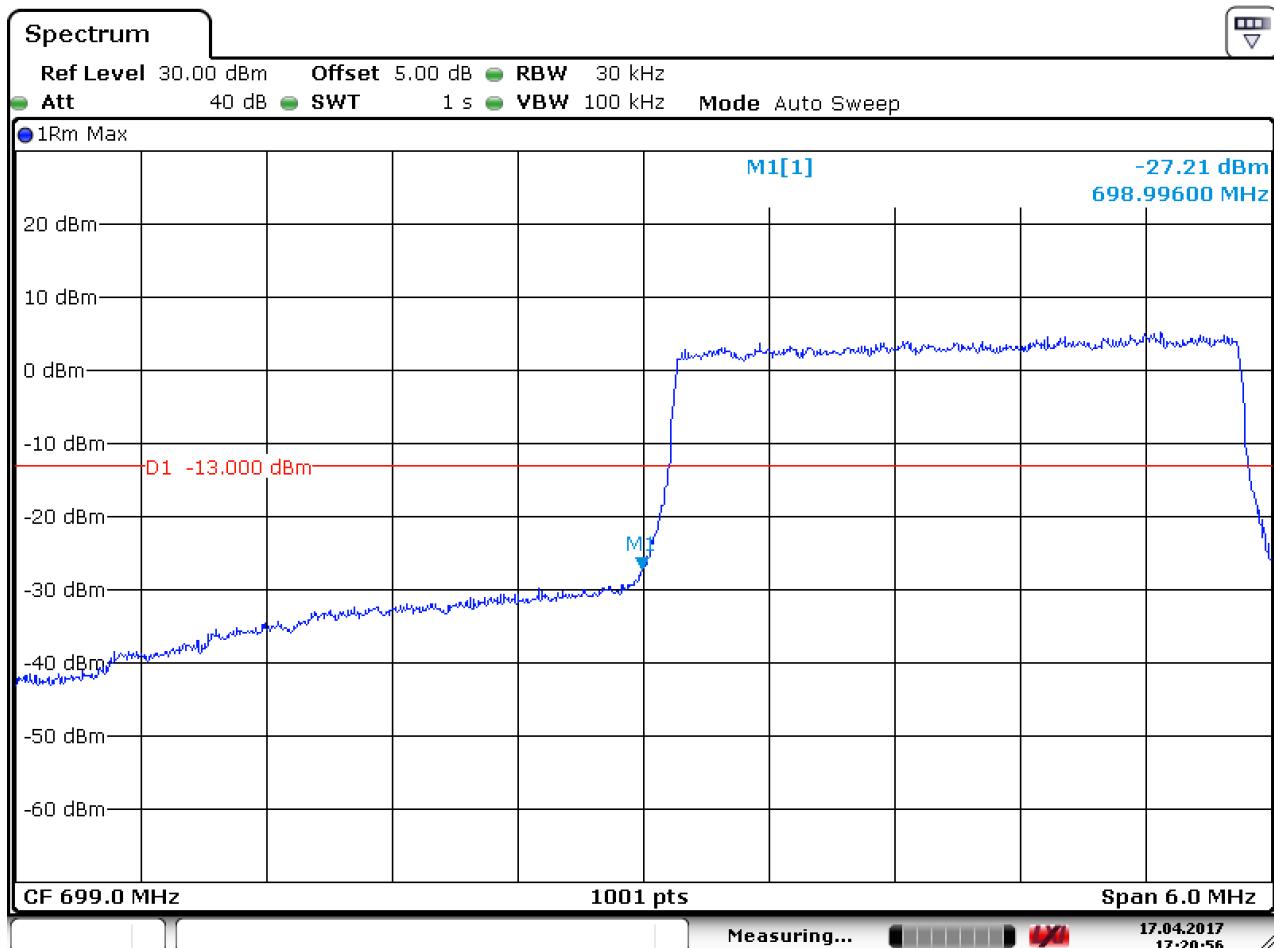
Date: 17.APR.2017 17:24:25
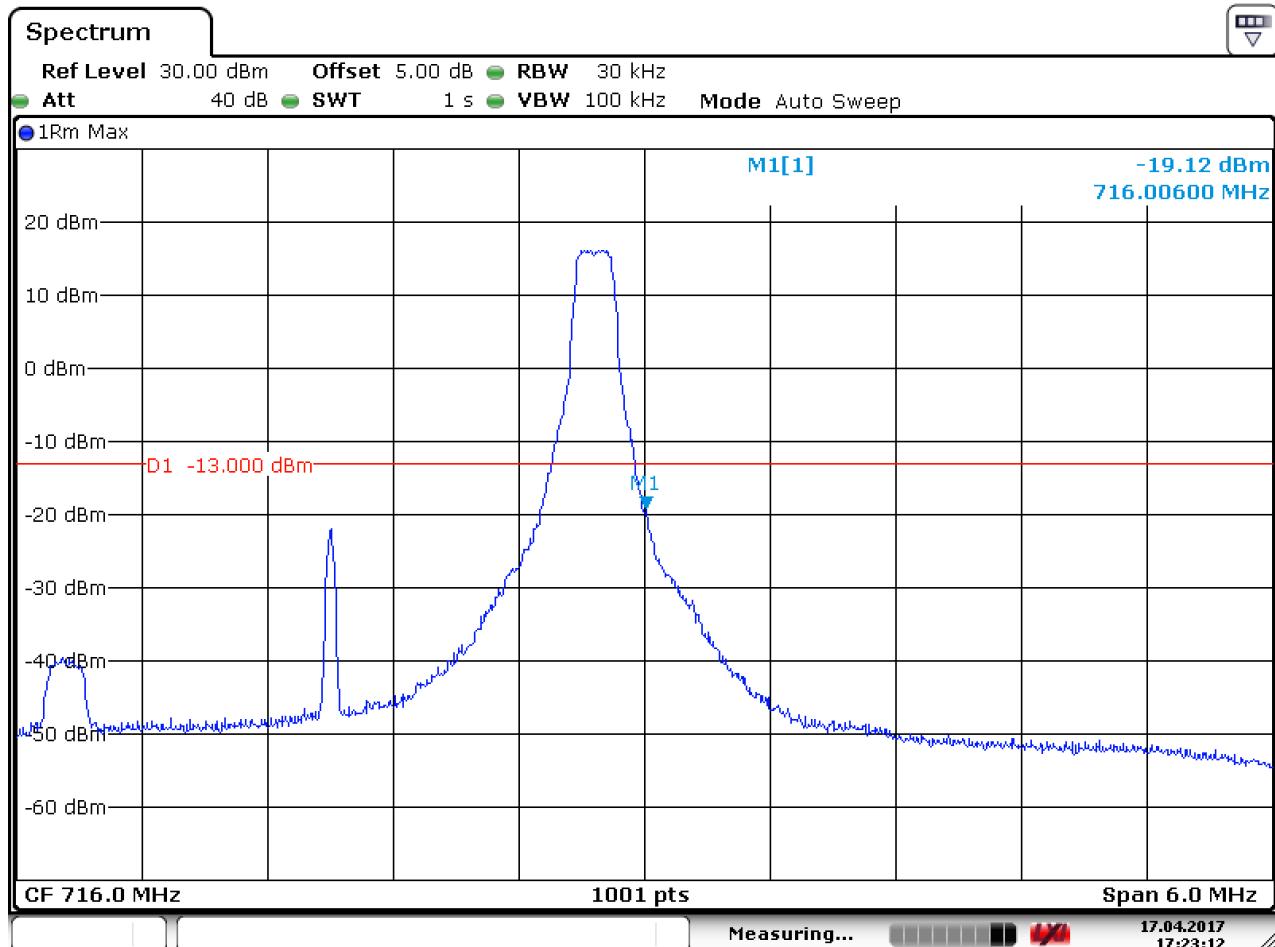
**5.1.1.4 Test Mode = LTE/TM2 3MHz**

5.1.1.4.1 Test Channel = LCH

5.1.1.4.1.1 Test RB=1RB

Date: 17.APR.2017 17:22:32

5.1.1.4.1.2 Test RB=15RB
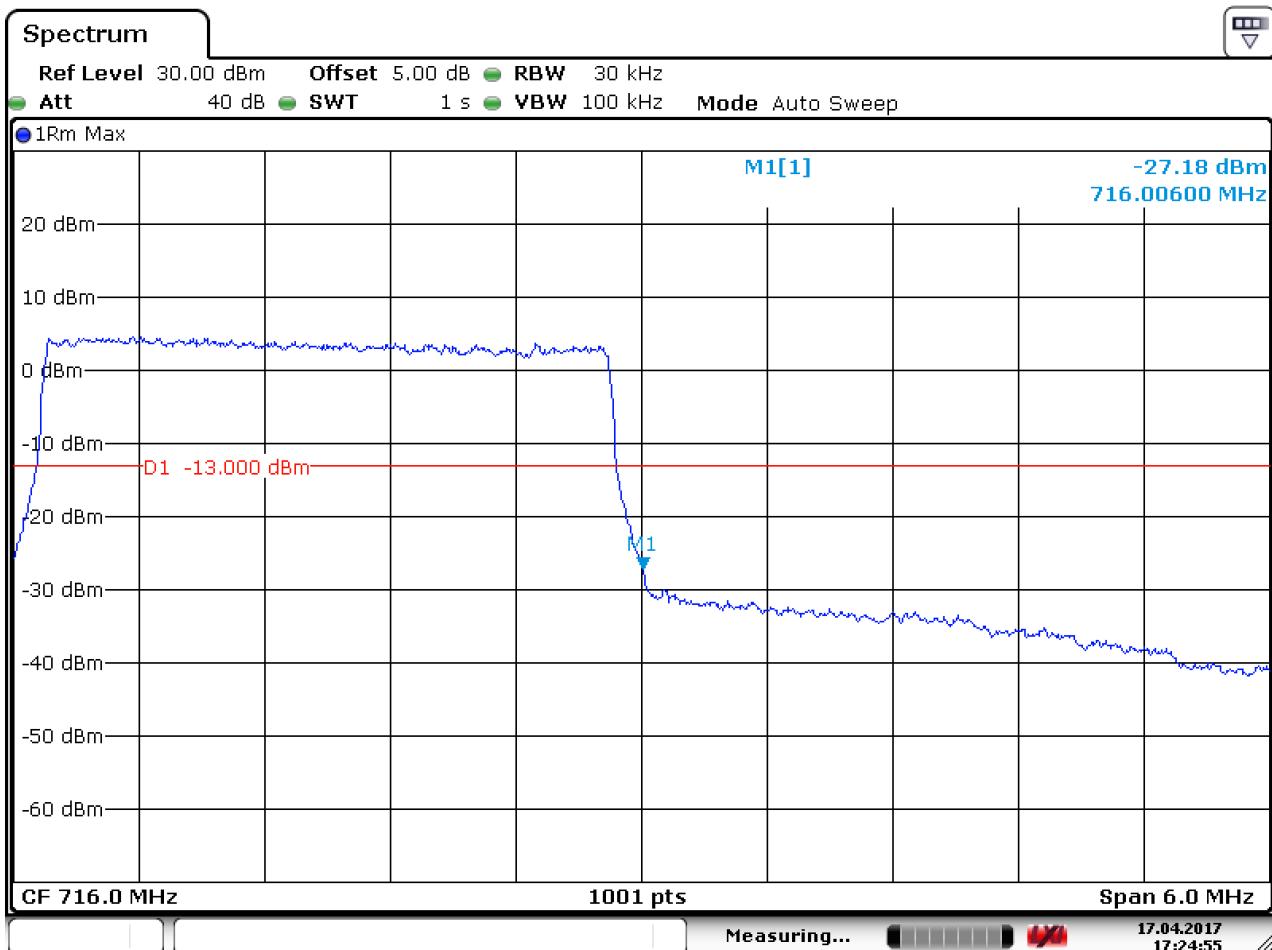

Date: 17.APR.2017 17:20:56
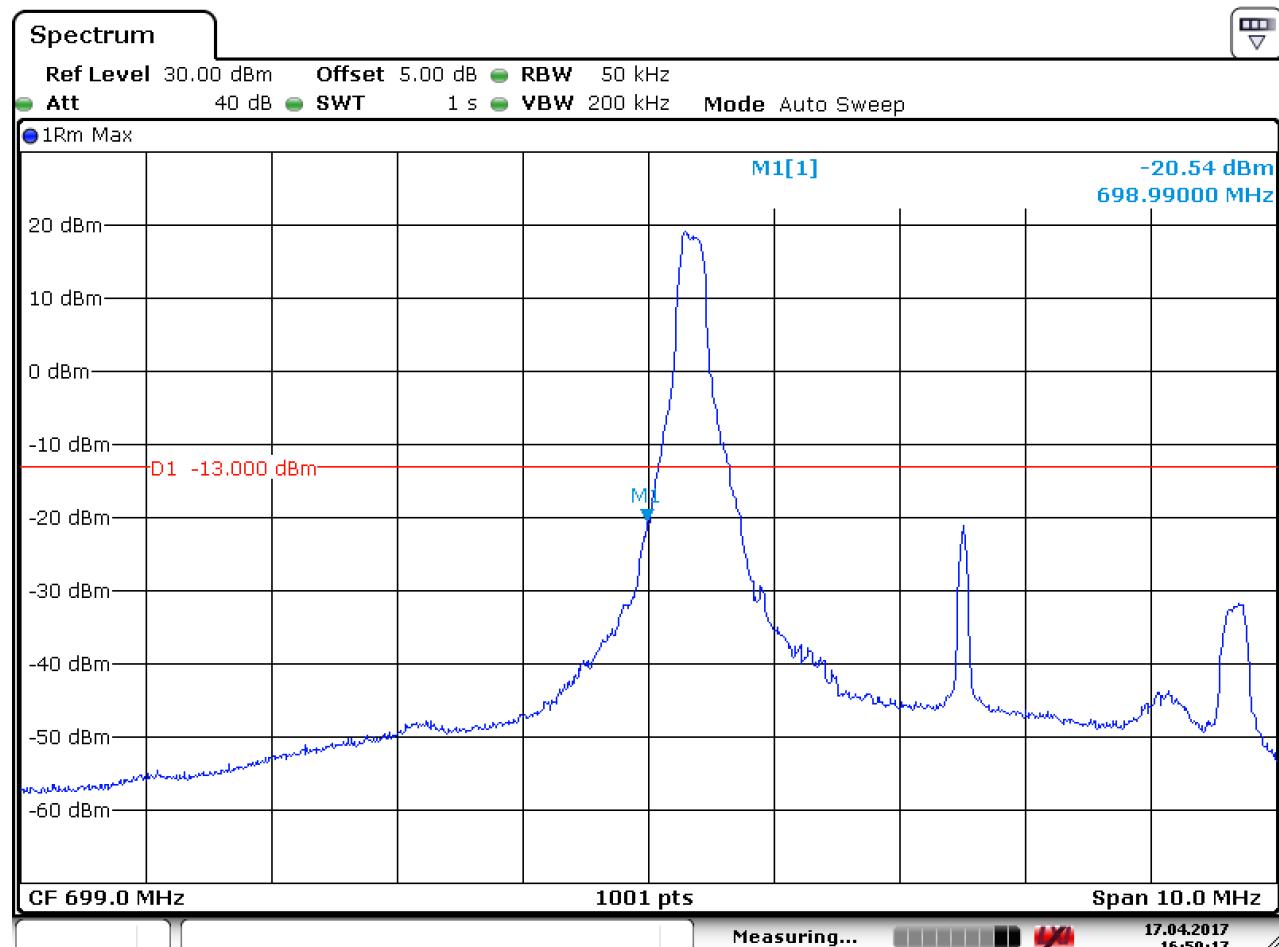
5.1.1.4.2   Test Channel = HCH

5.1.1.4.2.1 Test RB=1RB

Date: 17.APR.2017 17:23:12

### 5.1.1.4.3 Test RB=15RB
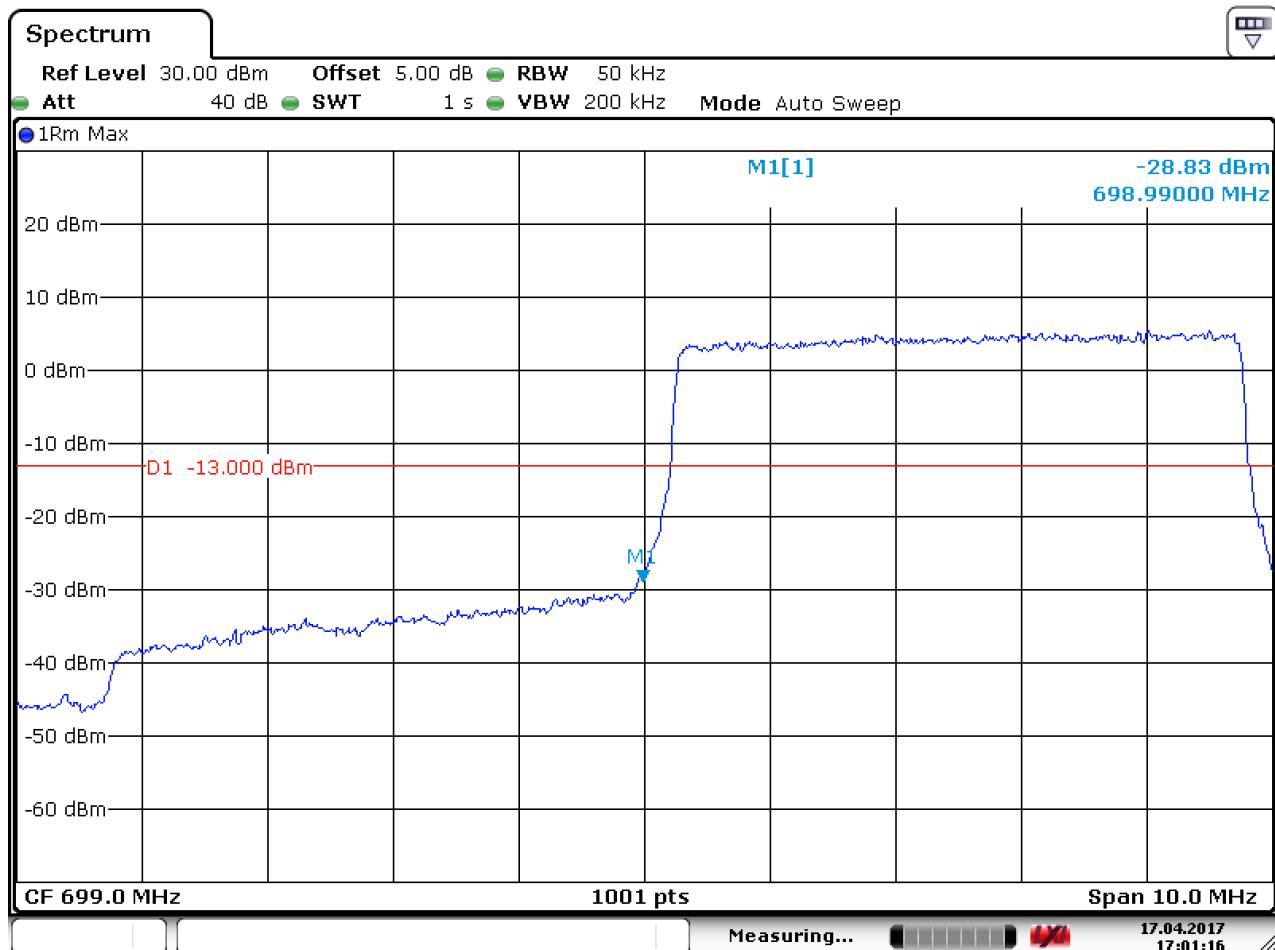
Date: 17.APR.2017 17:24:55
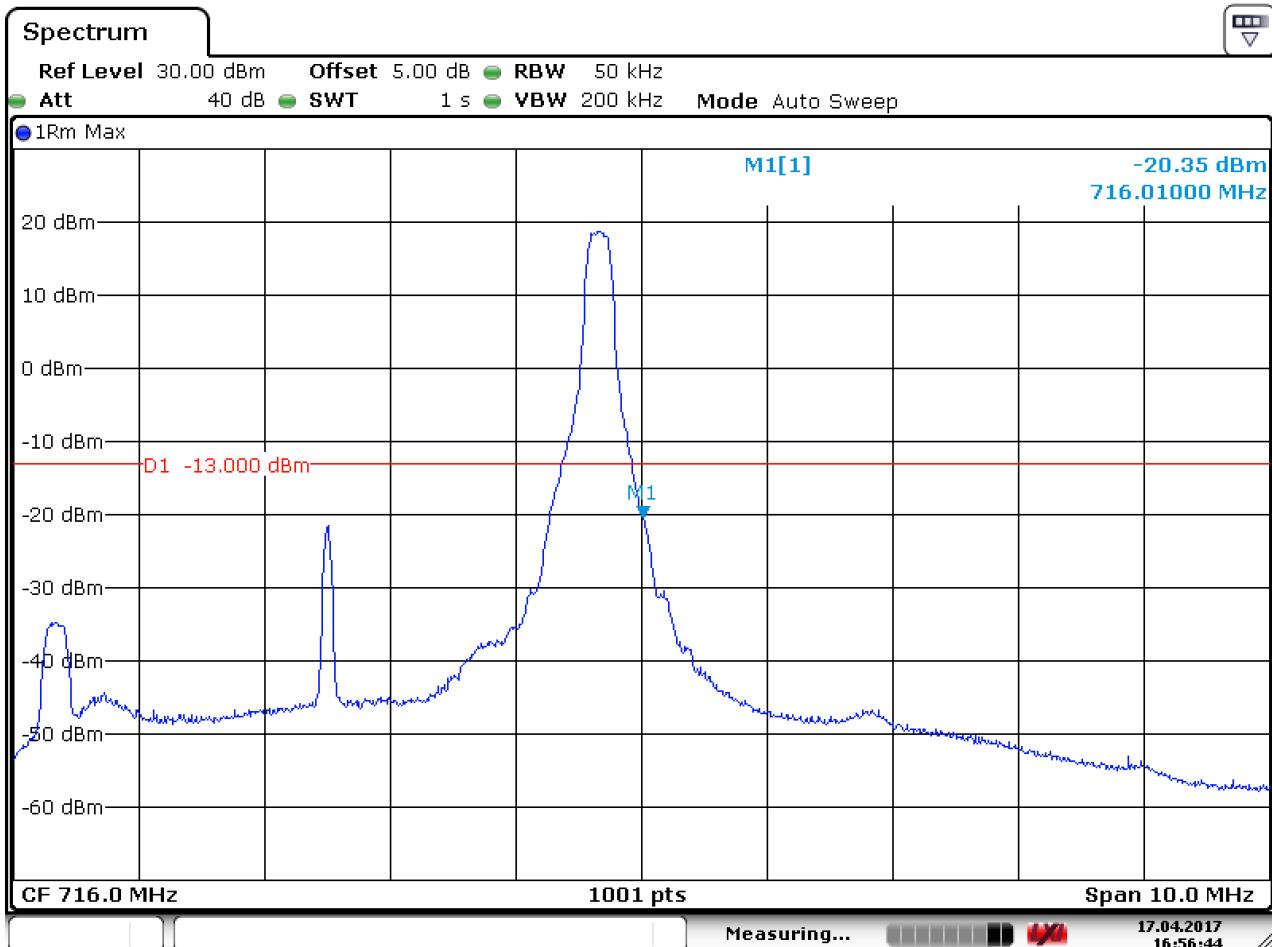
5.1.1.5   Test Mode = LTE/TM1 5MHz

5.1.1.5.1   Test Channel = LCH

5.1.1.5.1.1 Test RB=1RB

Date: 17.APR.2017 16:59:18

5.1.1.5.1.2 Test RB=25RB
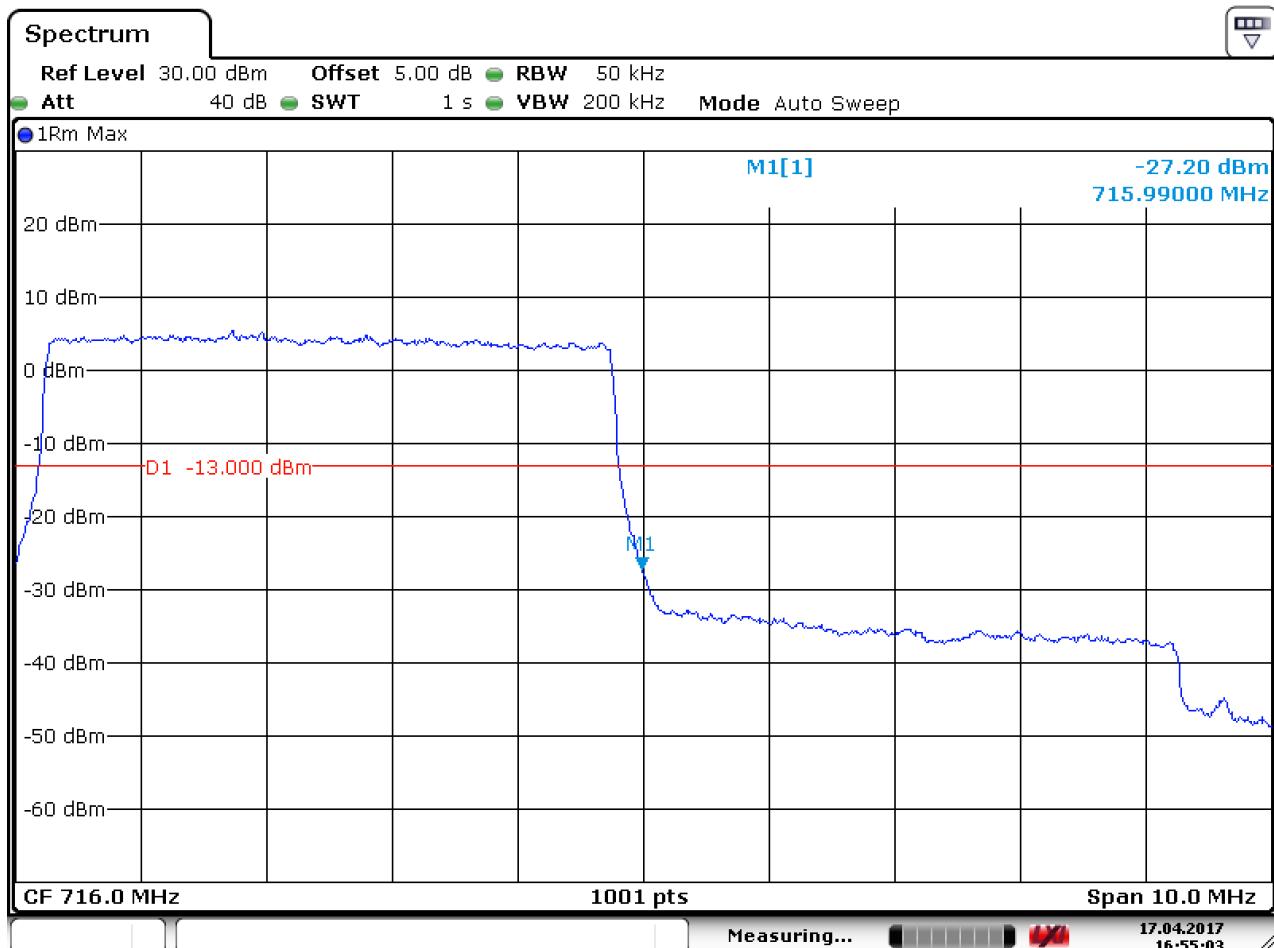
Date: 17.APR.2017 17:01:16
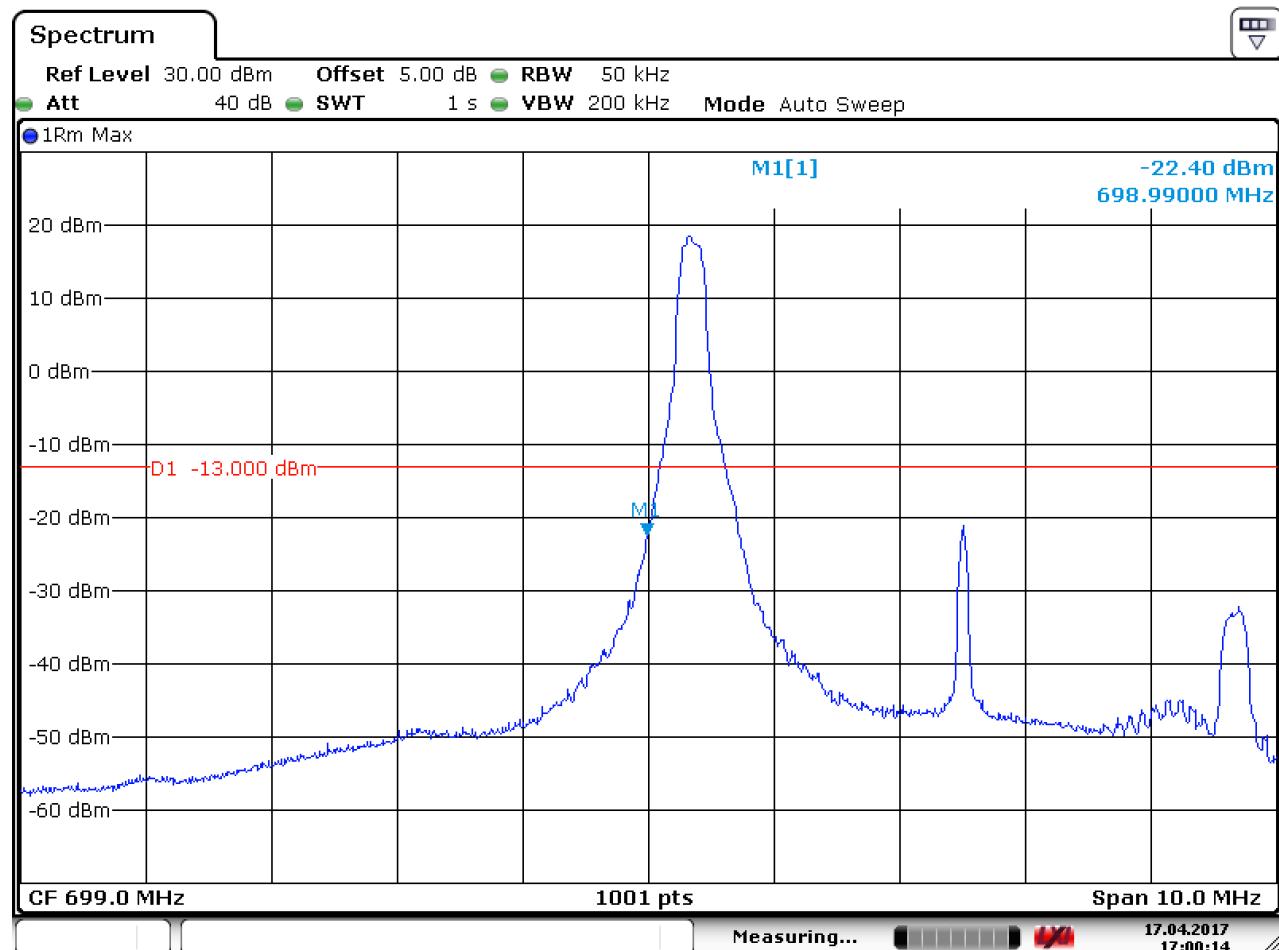
5.1.1.5.2   Test Channel = HCH

5.1.1.5.2.1 Test RB=1RB

Date: 17.APR.2017 16:56:44

5.1.1.5.2.2 Test RB=25RB
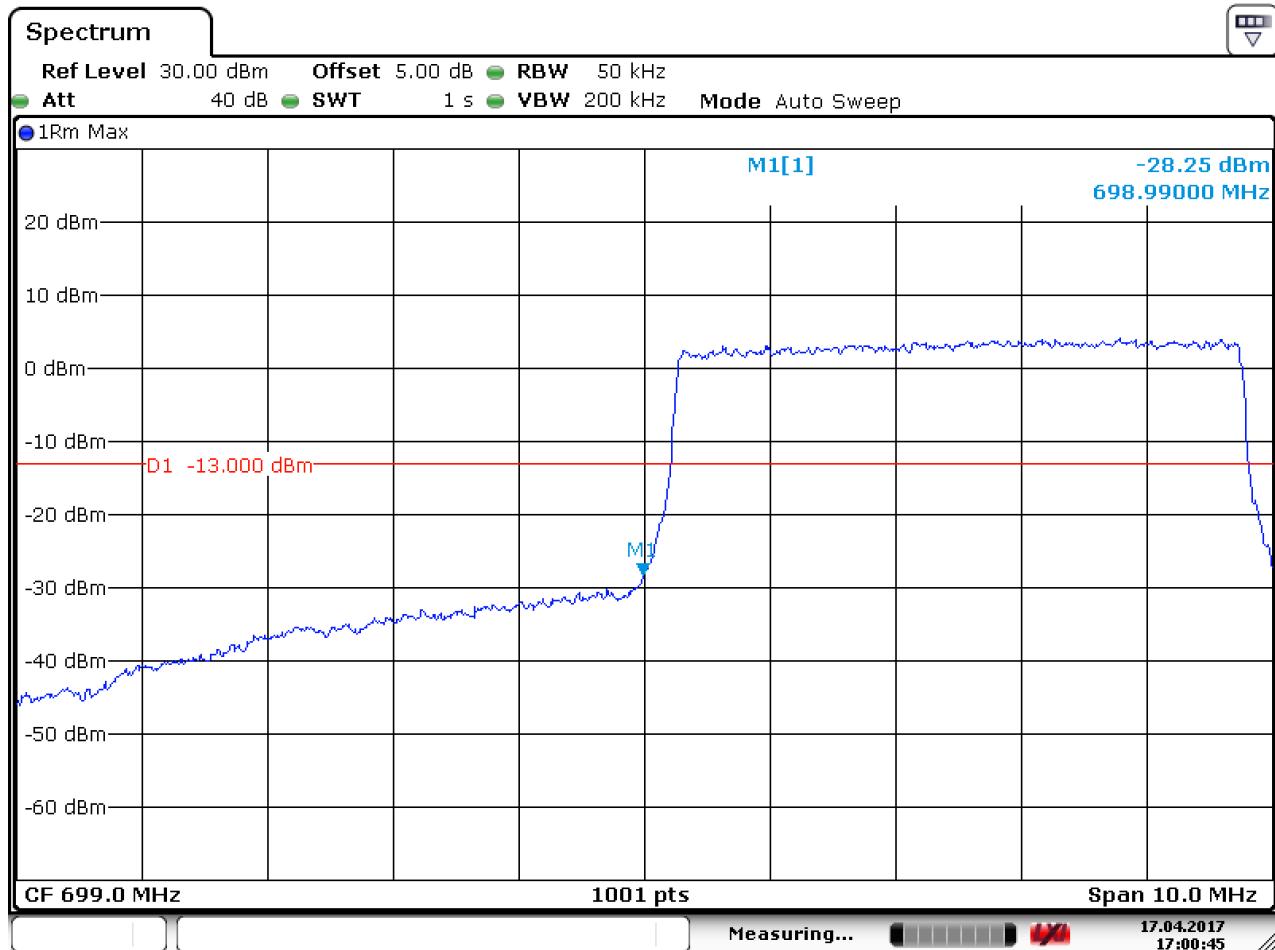
Date: 17.APR.2017 16:55:03
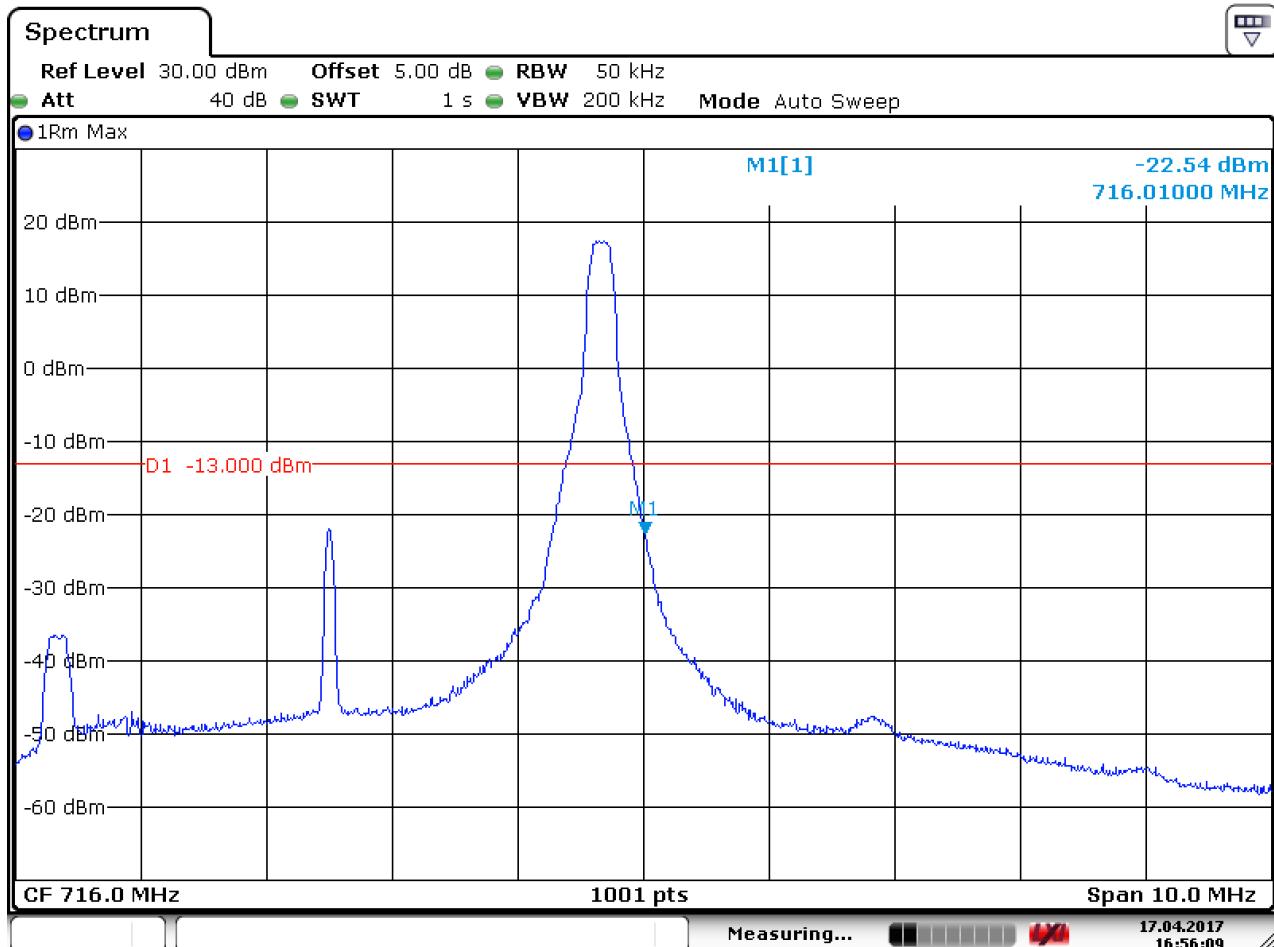
5.1.1.6   Test Mode = LTE/TM2 5MHz

5.1.1.6.1   Test Channel = LCH

5.1.1.6.1.1 Test RB=1RB


Date: 17.APR.2017 17:00:14

5.1.1.6.1.2 Test RB=25RB
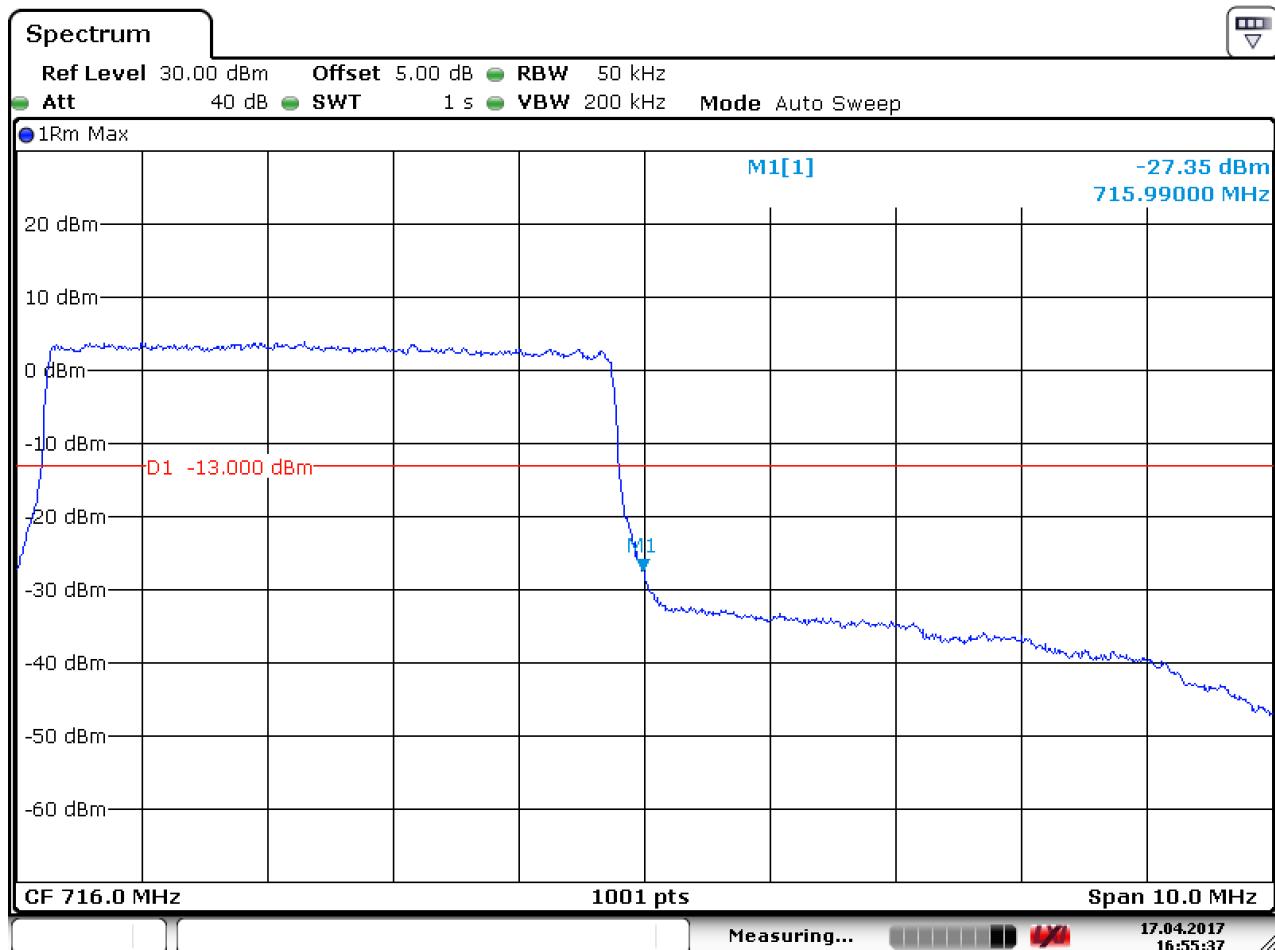
Date: 17.APR.2017 17:00:46
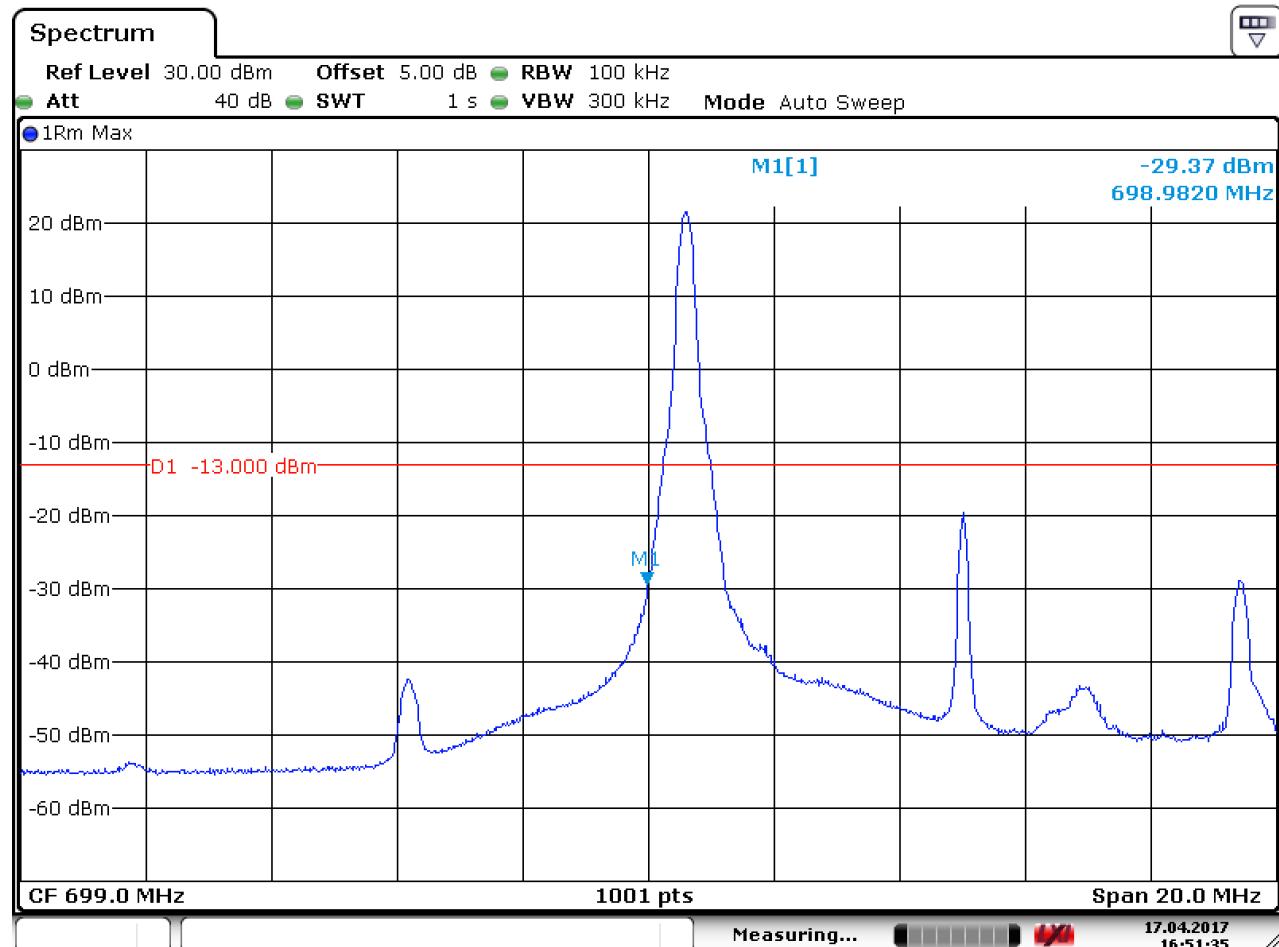
5.1.1.6.2   Test Channel = HCH

5.1.1.6.2.1 Test RB=1RB

Date: 17.APR.2017 16:56:10

5.1.1.6.2.2 Test RB=25RB

Spectrum						
Ref Level 30.00 dBm		Offset 5.00 dB	RBW	50 kHz		
Att	40 dB	SWT	1 s	VBW 200 kHz	Mode Auto Sweep	

1Rm Max

M1[1]   -27.35 dBm
715.99000 MHz

```
 20 dBm ─

 10 dBm ─

  0 dBm ─────────────────────────────

-10 dBm ─
         D1  -13.000 dBm
-20 dBm ─

-30 dBm ─                          M1

-40 dBm ─

-50 dBm ─

-60 dBm ─
```

CF 716.0 MHz   1001 pts   Span 10.0 MHz

Measuring...   17.04.2017
                                                    16:55:37
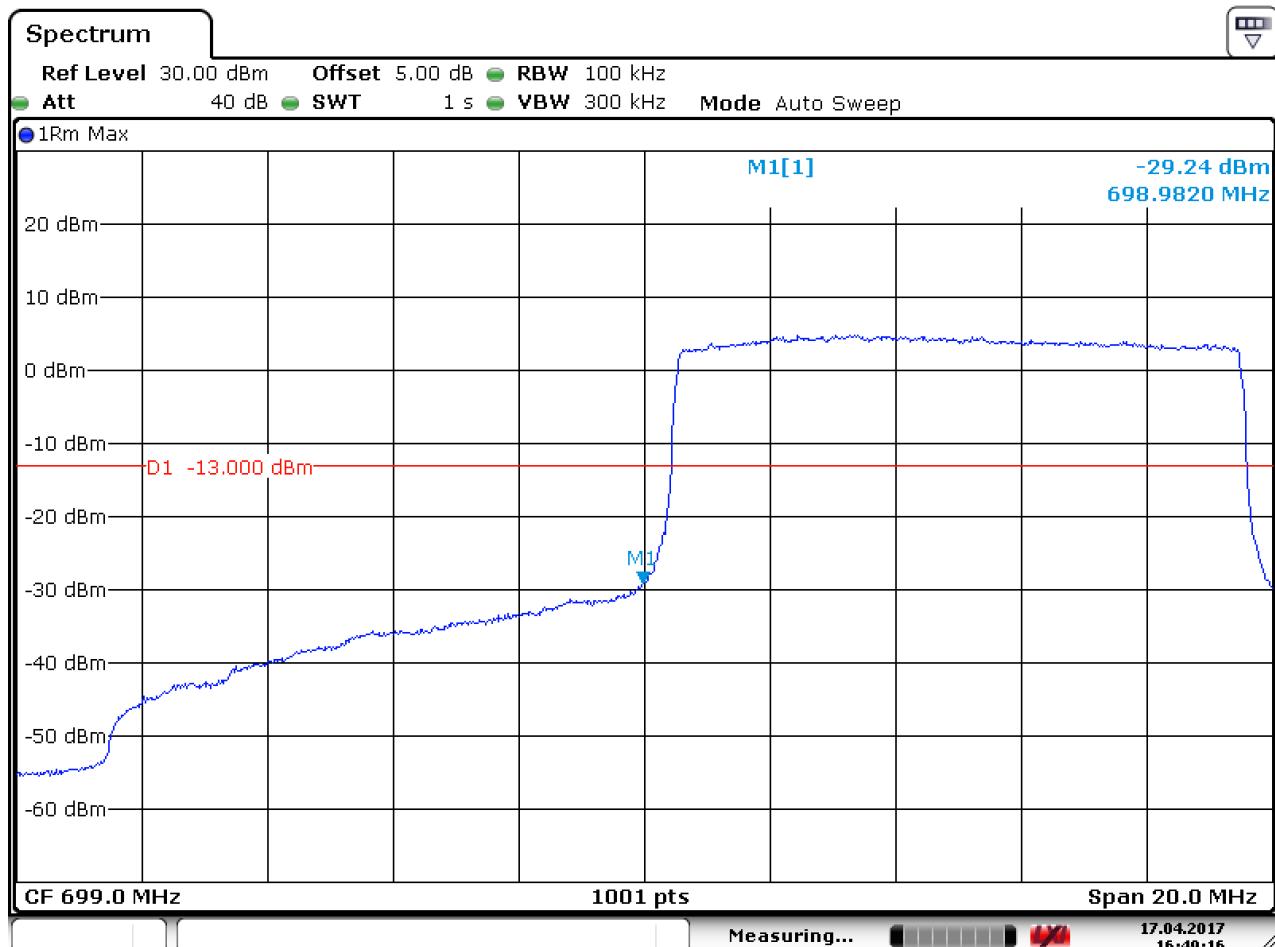
Date: 17.APR.2017 16:55:38
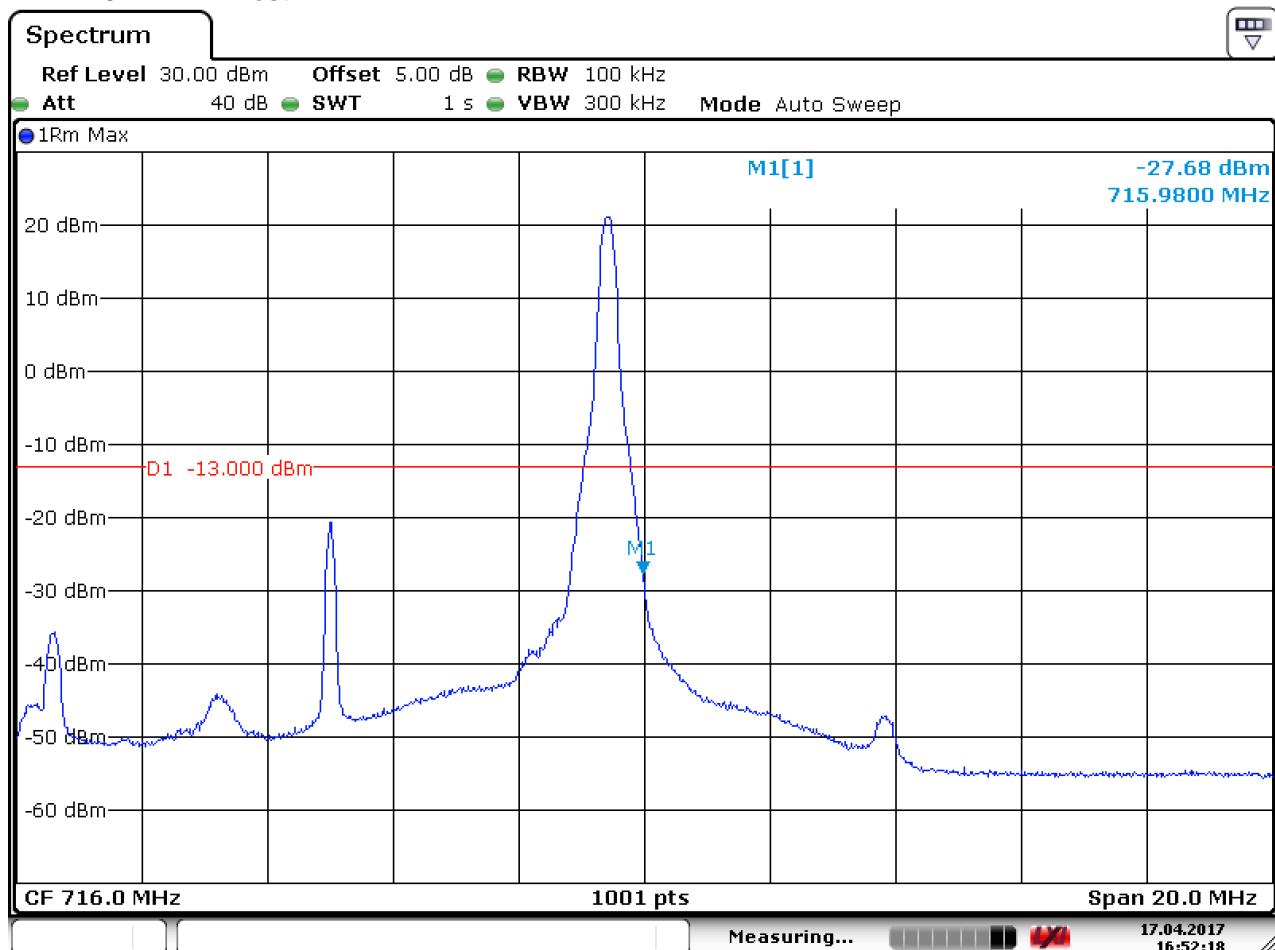
5.1.1.7   Test Mode = LTE/TM1 10MHz

5.1.1.7.1   Test Channel = LCH

5.1.1.7.1.1 Test RB=1RB

Date: 17.APR.2017 16:51:35

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
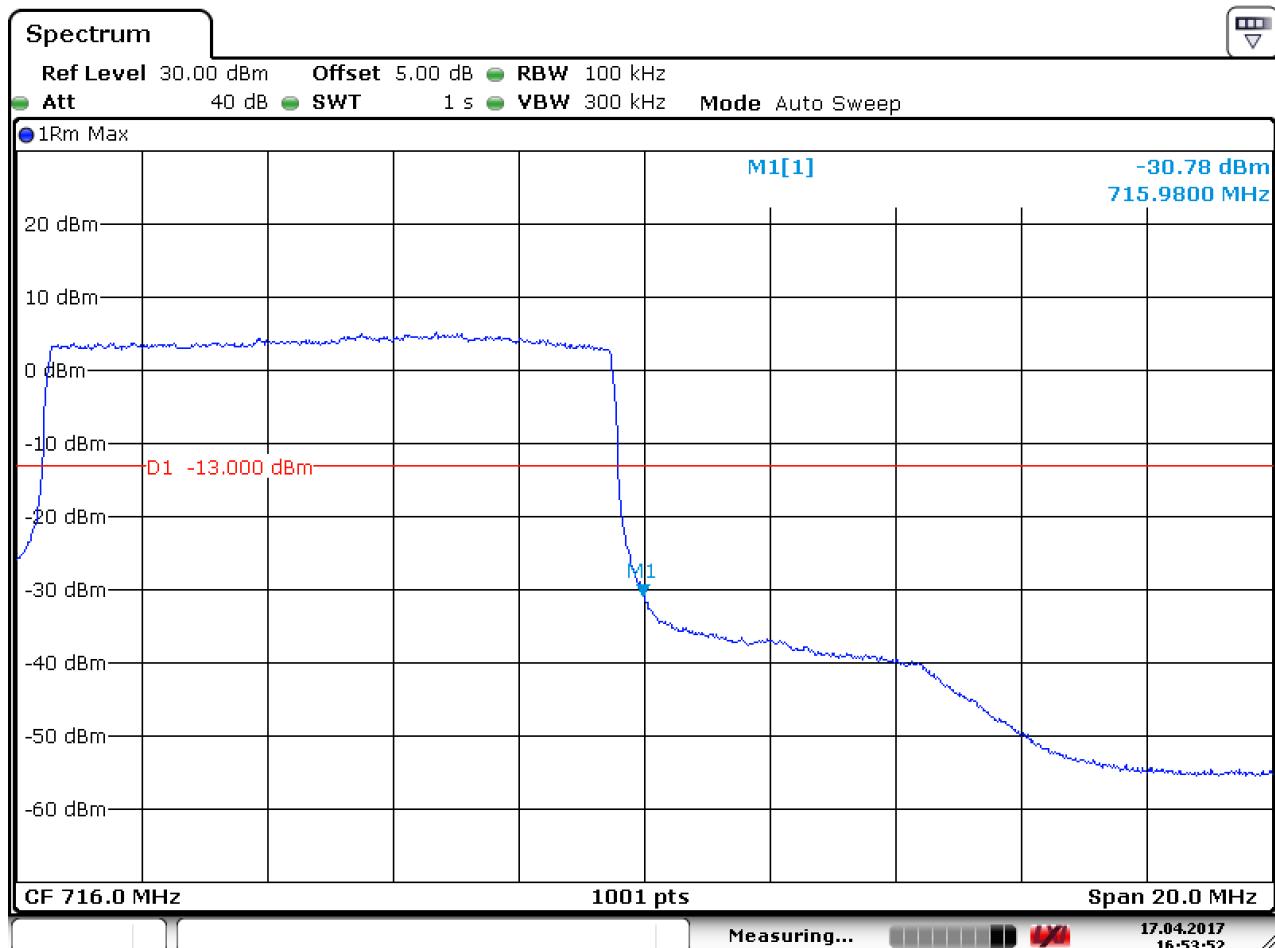
5.1.1.7.1.2 Test RB=50RB

Date: 17.APR.2017 16:49:16

5.1.1.7.2   Test Channel = HCH

5.1.1.7.2.1 Test RB=1RB

Date: 17.APR.2017 16:52:18

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

5.1.1.7.2.2 Test RB=50RB

Spectrum

Ref Level 30.00 dBm	Offset 5.00 dB	RBW 100 kHz
Att 40 dB	SWT 1 s	VBW 300 kHz Mode Auto Sweep

1Rm Max

M1[1]   -30.78 dBm
                         715.9800 MHz

D1 -13.000 dBm

M1

CF 716.0 MHz   1001 pts   Span 20.0 MHz

Measuring...   17.04.2017
                                16:53:52
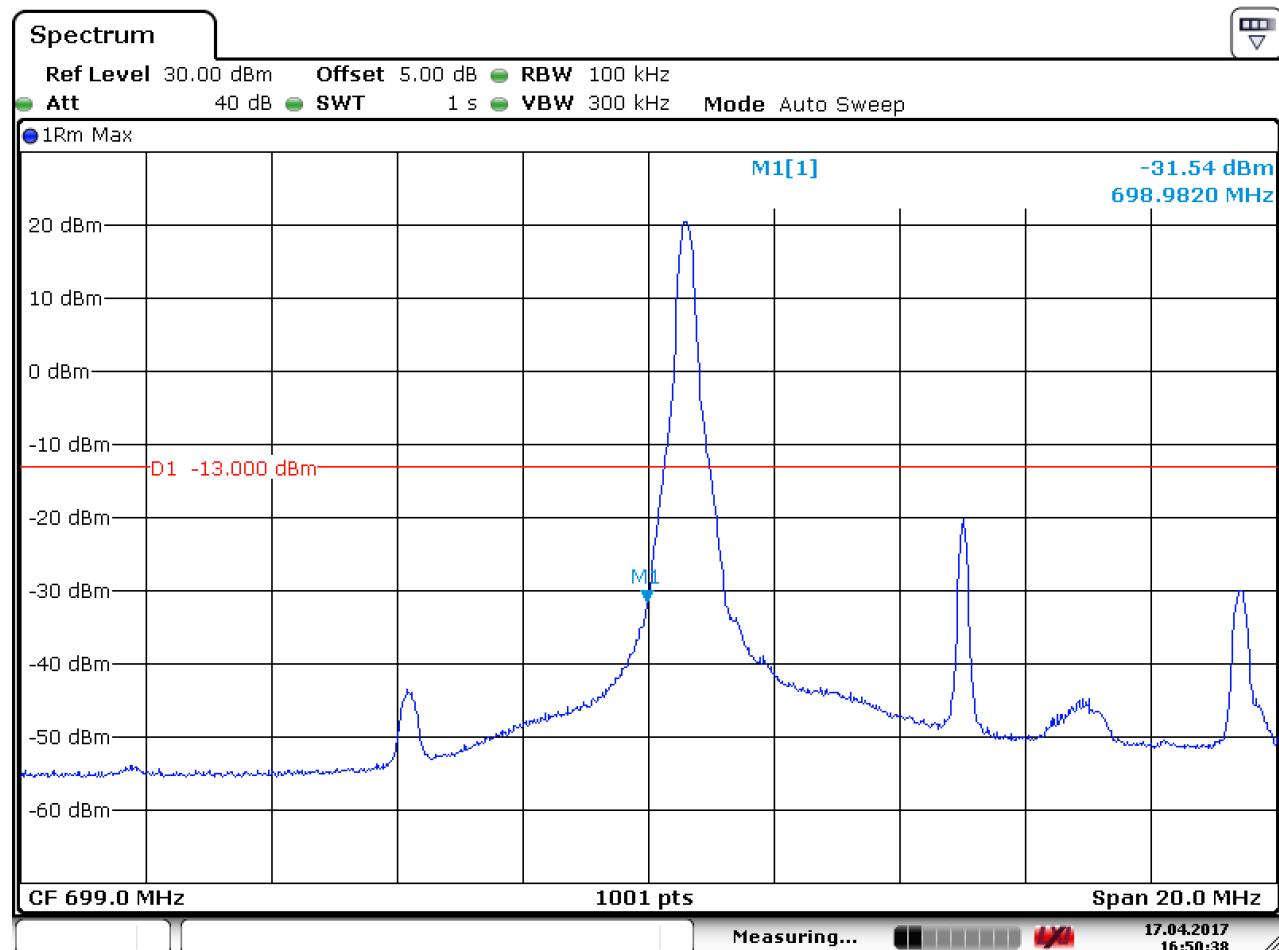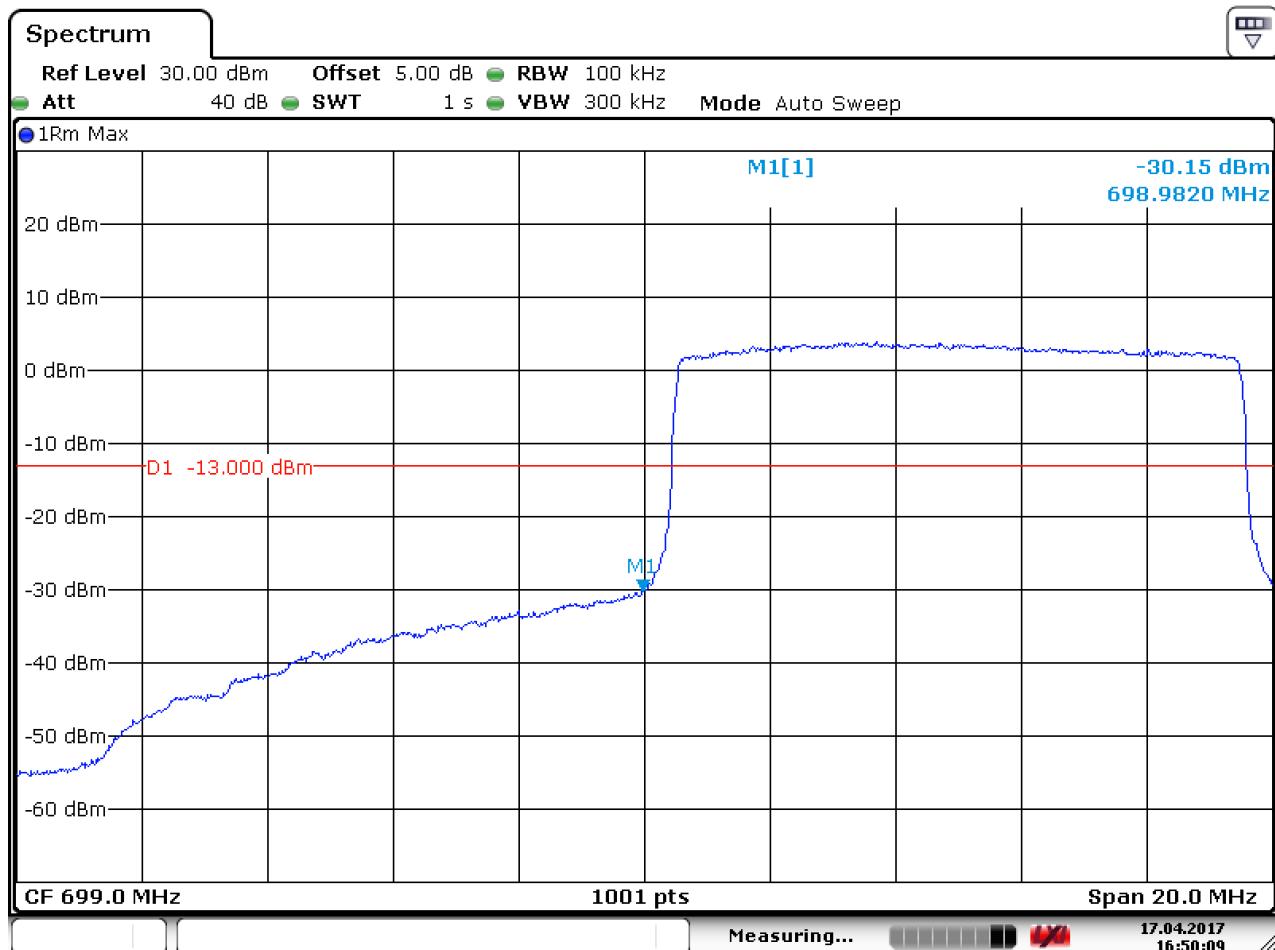
Date: 17.APR.2017 16:53:52
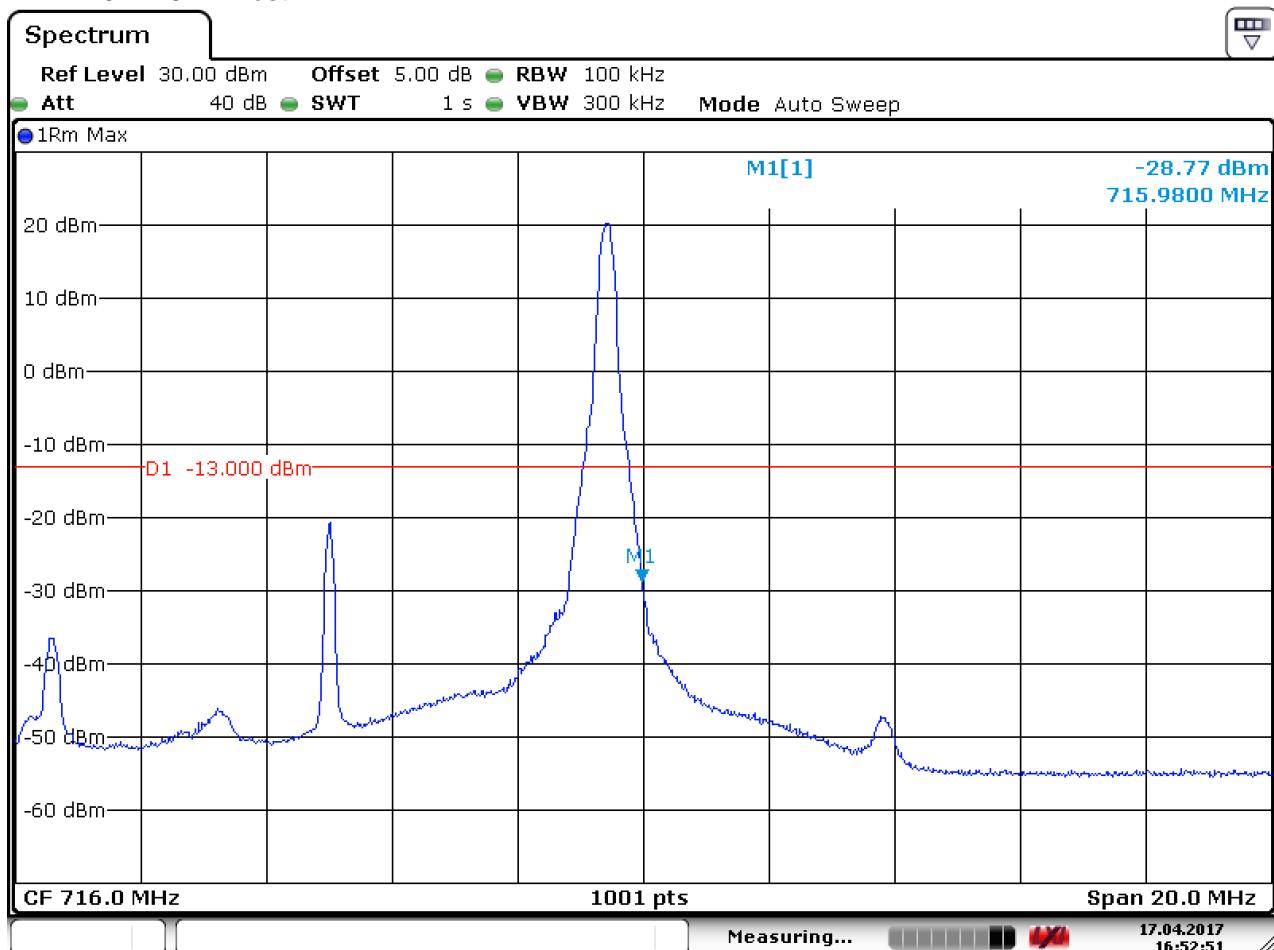
5.1.1.8 Test Mode = LTE/TM2 10MHz

5.1.1.8.1 Test Channel = LCH

5.1.1.8.1.1 Test RB=1RB

Date: 17.APR.2017 16:50:38

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

5.1.1.8.1.2 Test RB=50RB

Date: 17.APR.2017 16:50:10

### SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
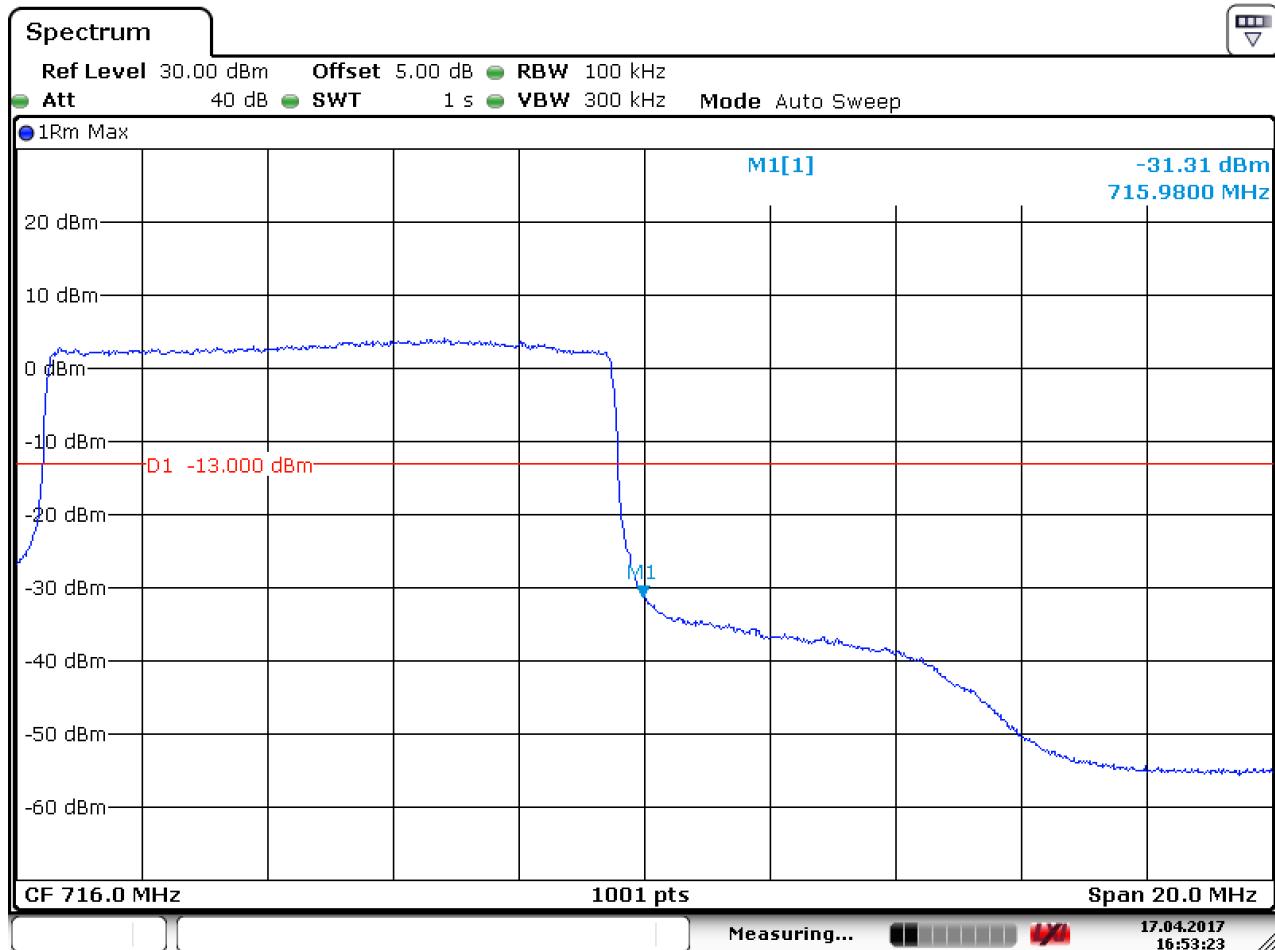
5.1.1.8.2   Test Channel = HCH

5.1.1.8.2.1 Test RB=1RB

Date: 17.APR.2017 16:52:51

**5.1.1.8.2.2 Test RB=50RB**

Date: 17.APR.2017 16:53:23

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.
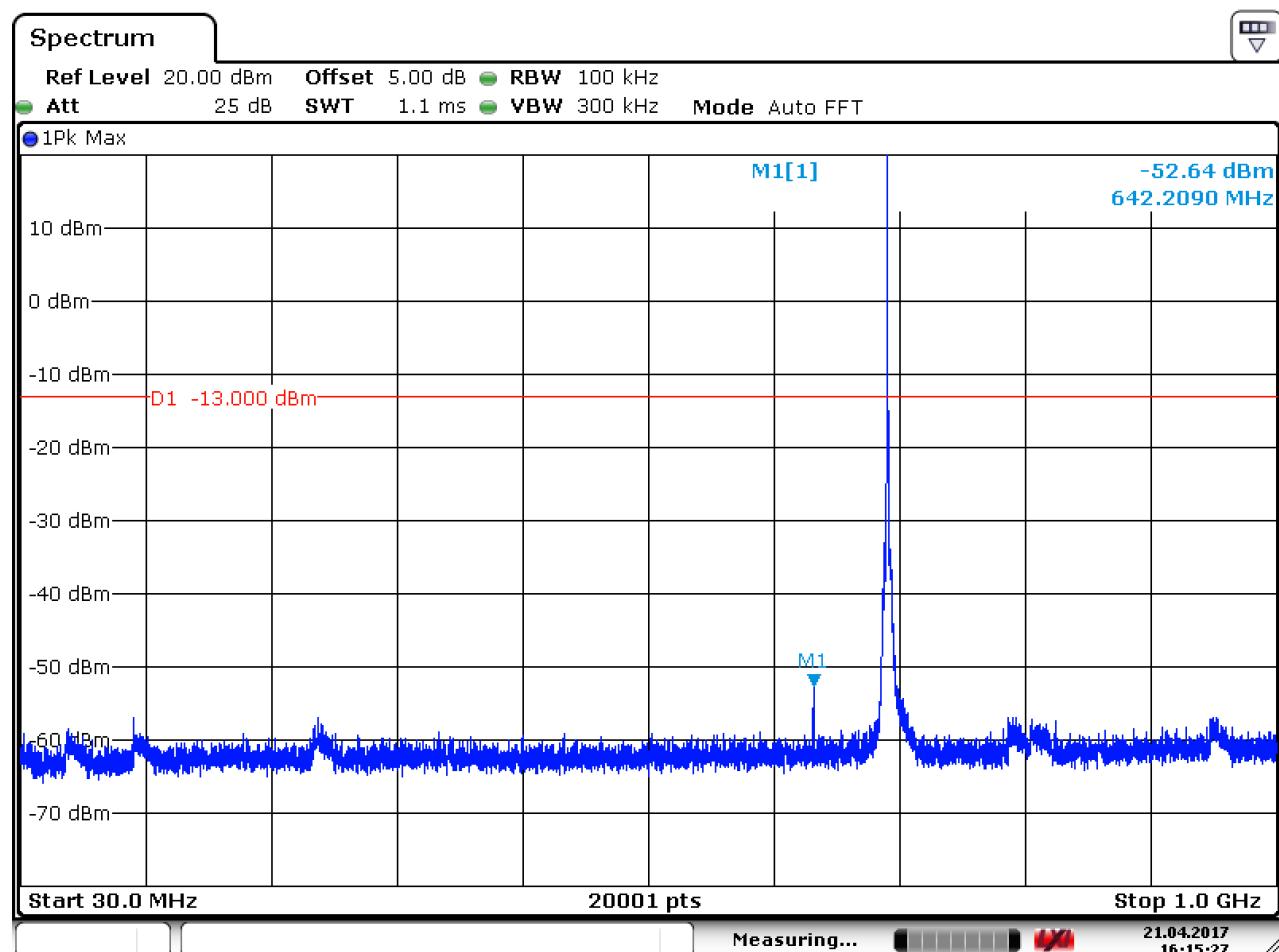
Part I - Test Plots

6.1 For LTE
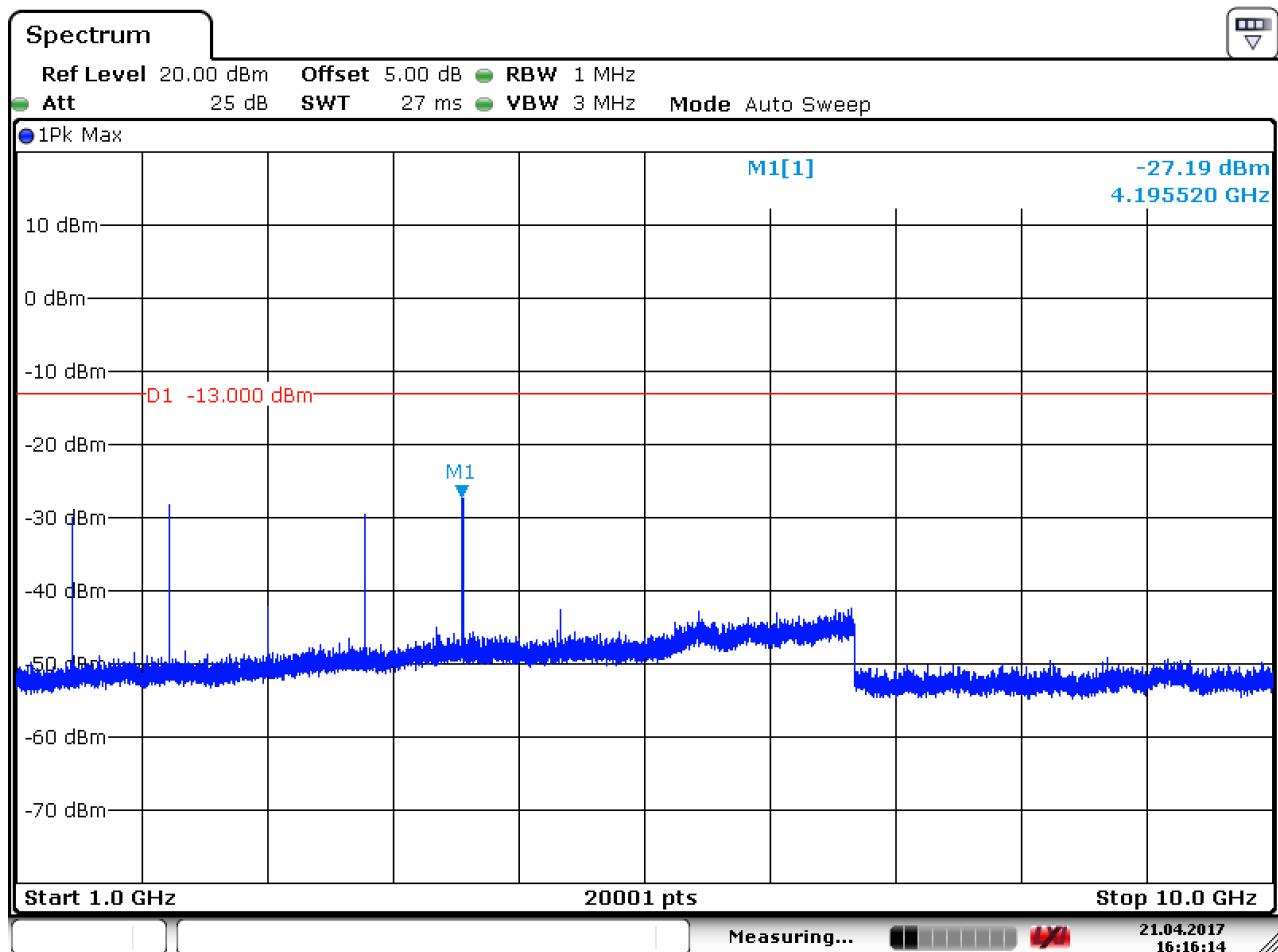
6.1.1 Test Band = LTE band12

6.1.1.1   Test Mode = LTE / TM1 1.4MHz RB1#0

6.1.1.1.1   Test Channel = LCH

Date: 21.APR.2017 16:15:28

Spectrum

Ref Level 20.00 dBm	Offset 5.00 dB	● RBW 1 MHz	
● Att 25 dB	SWT 27 ms	● VBW 3 MHz	Mode Auto Sweep

● 1Pk Max

M1[1]   -27.19 dBm
               4.195520 GHz

D1 -13.000 dBm

Start 1.0 GHz   20001 pts   Stop 10.0 GHz

Measuring...   21.04.2017 16:16:14
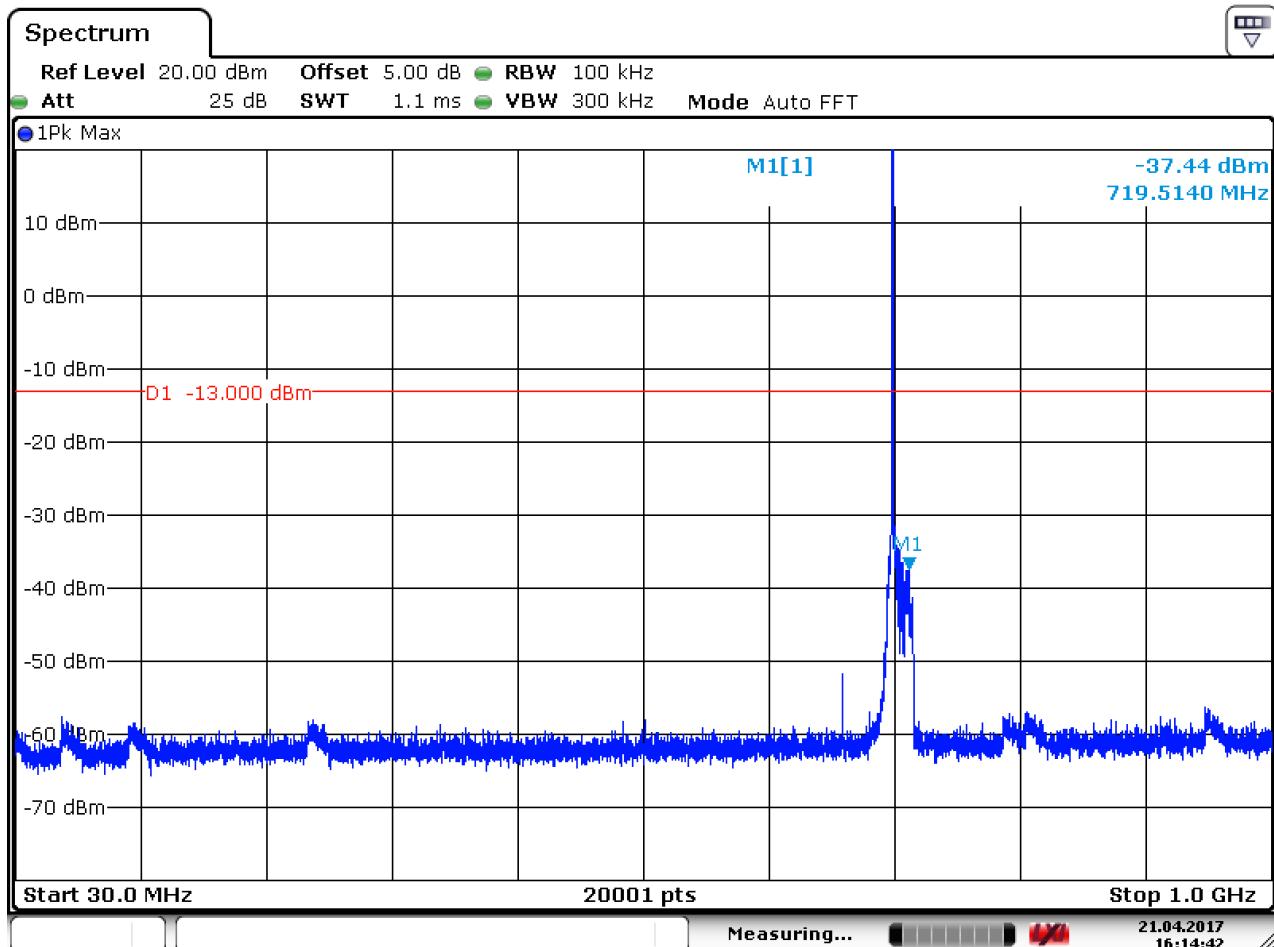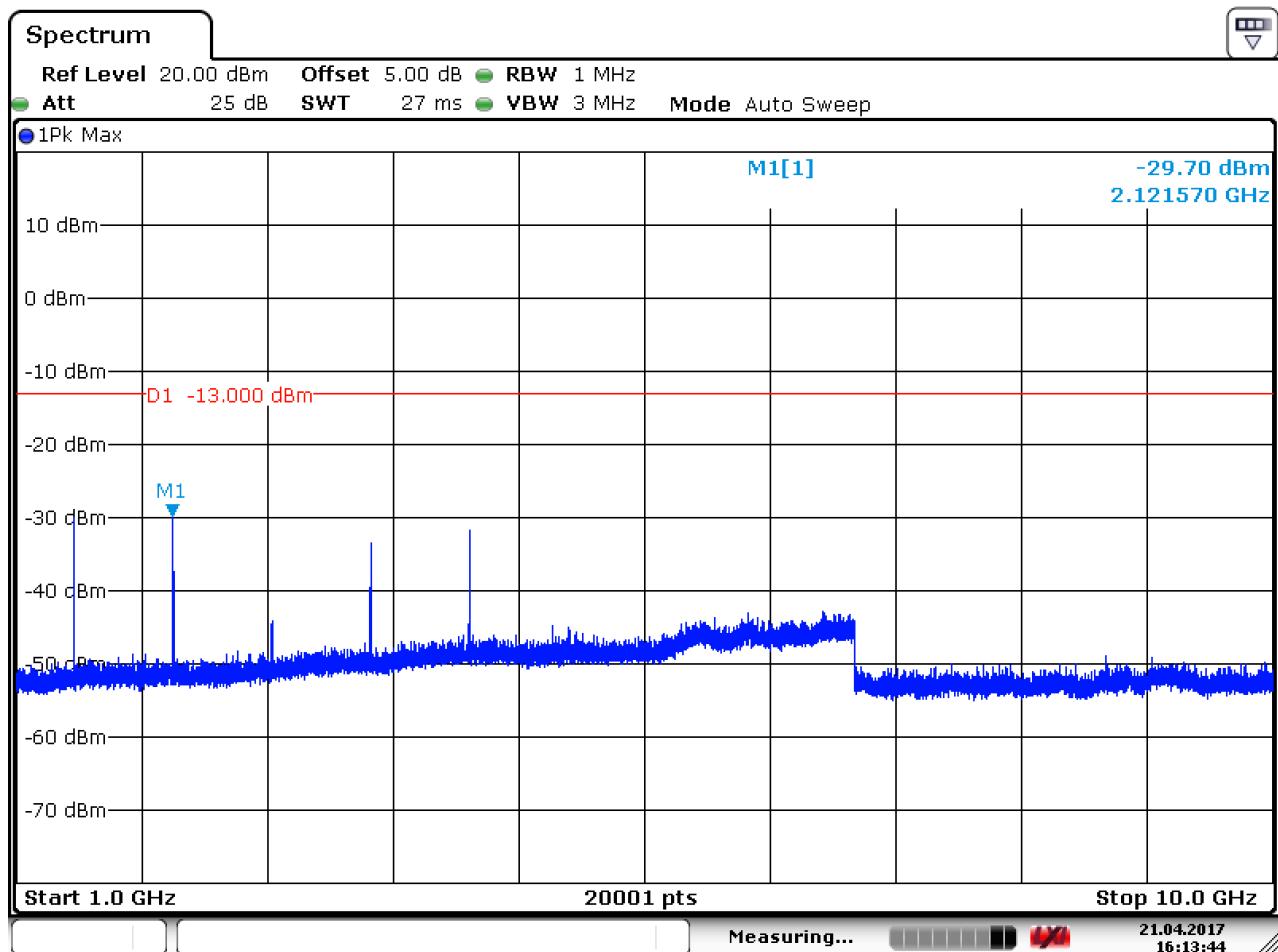
Date: 21.APR.2017 16:16:14

6.1.1.1.2   Test Channel = MCH

Date: 21.APR.2017 16:14:43

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
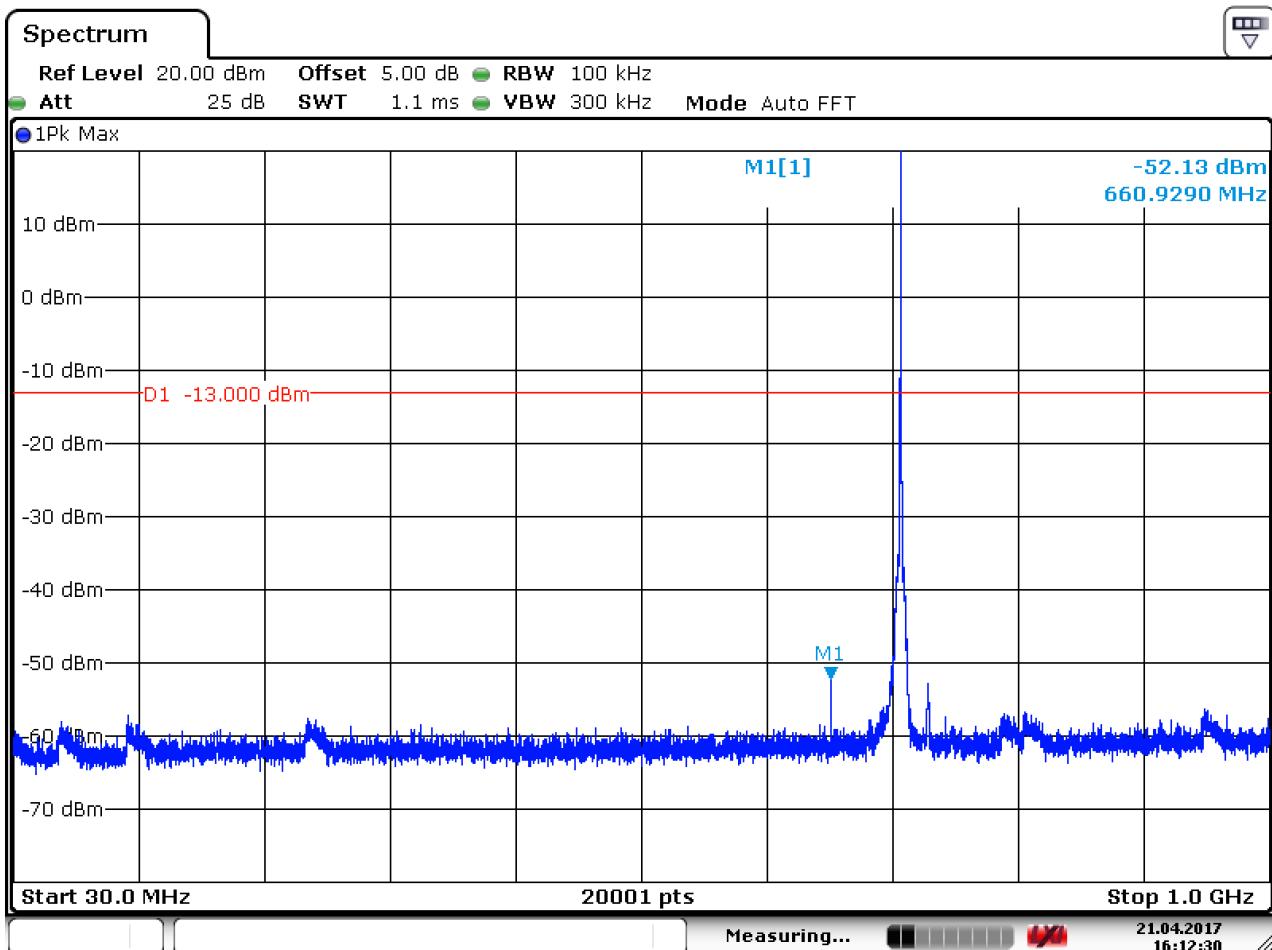
Date: 21.APR.2017 16:13:44

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
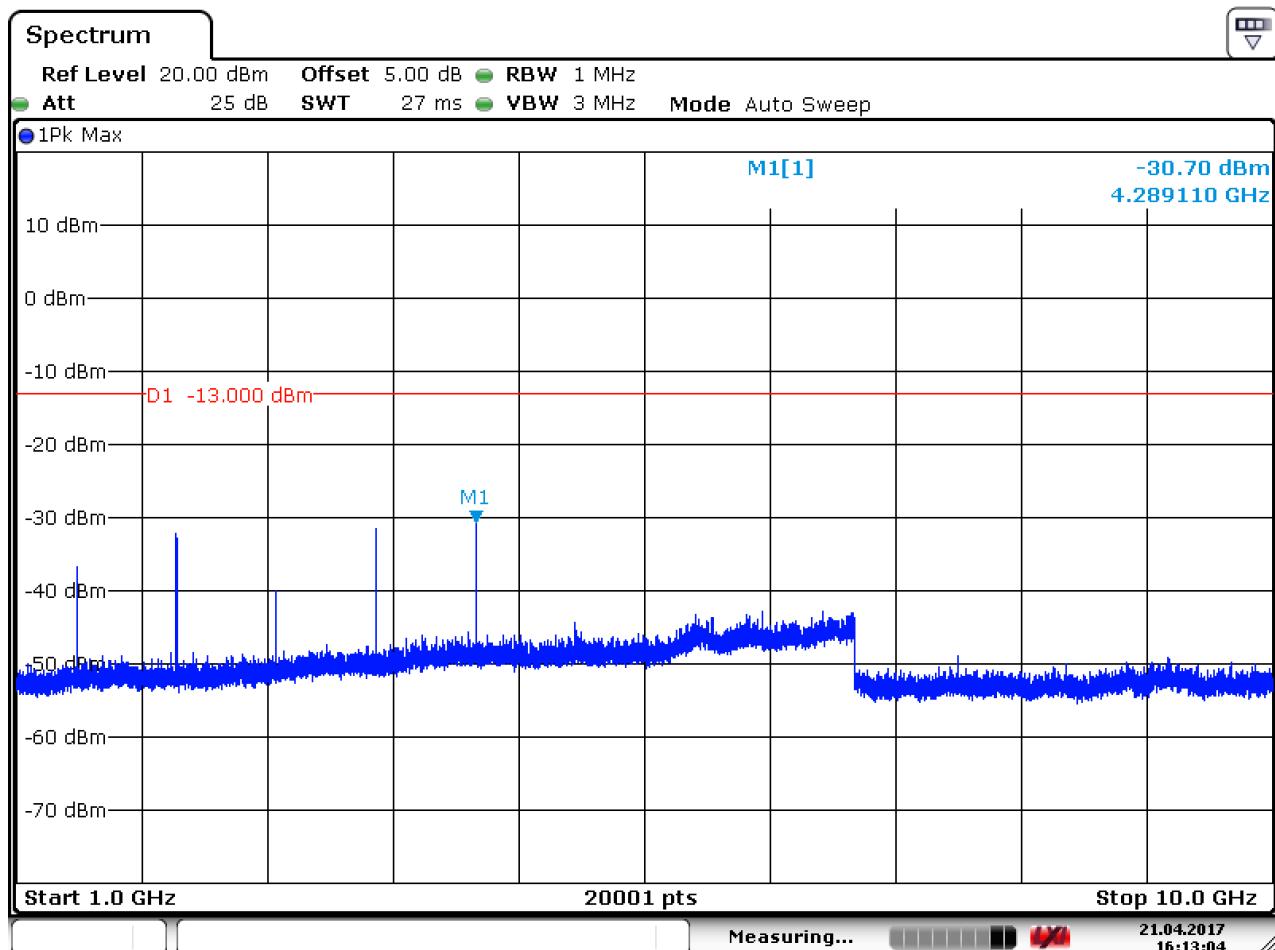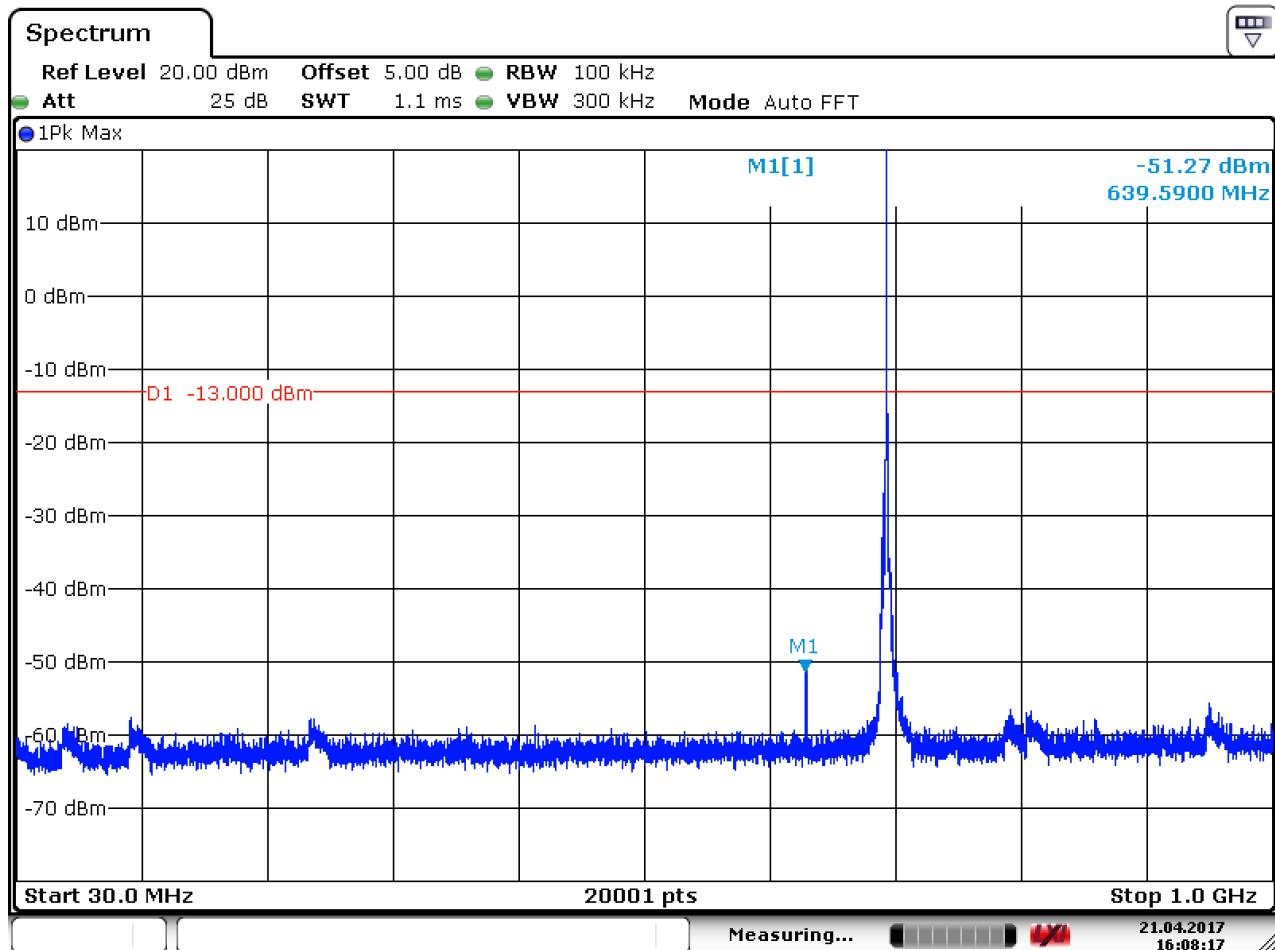
6.1.1.1.3 Test Channel = HCH
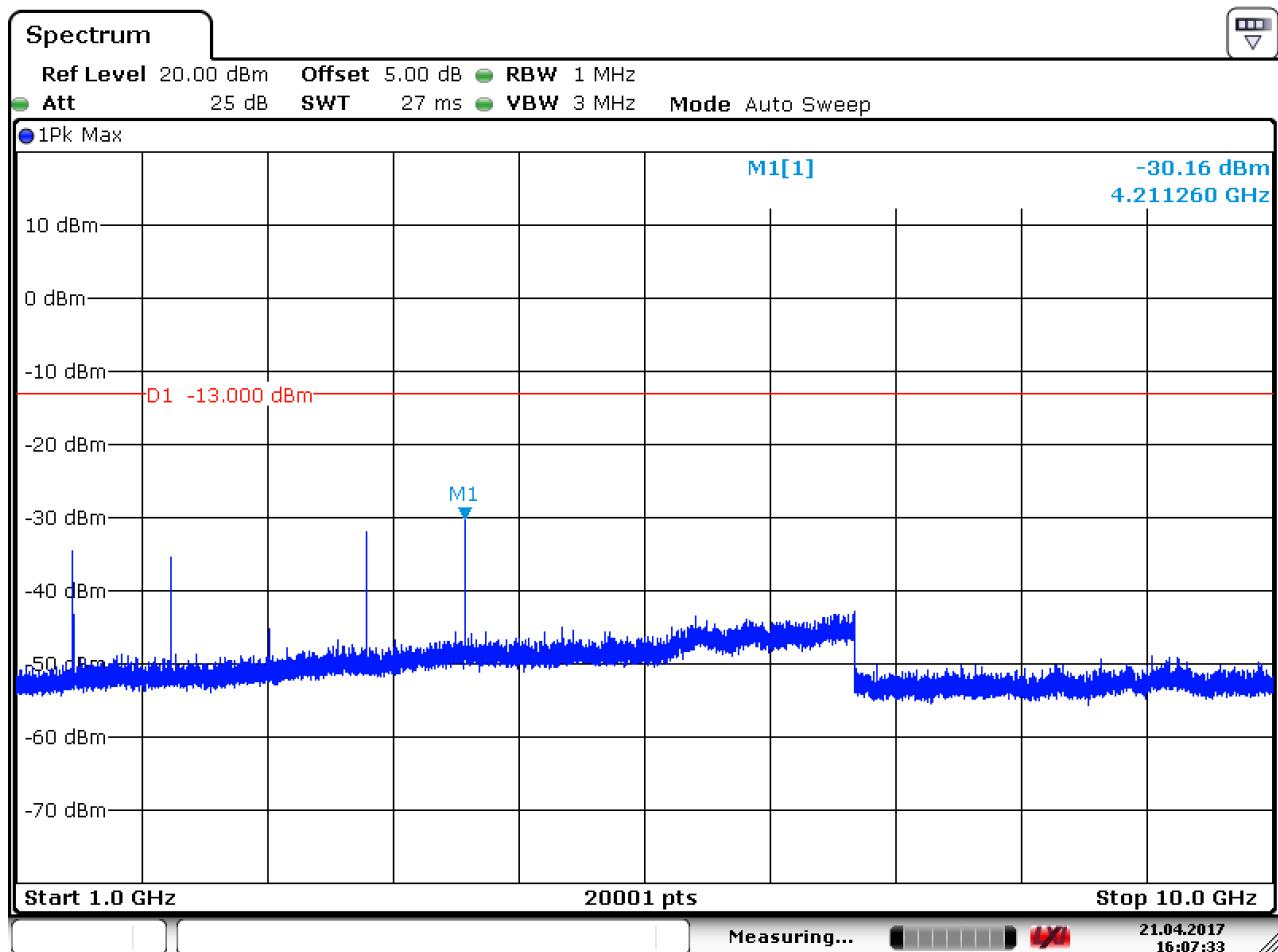
Date: 21.APR.2017 16:12:30

Date: 21.APR.2017 16:13:05

SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch
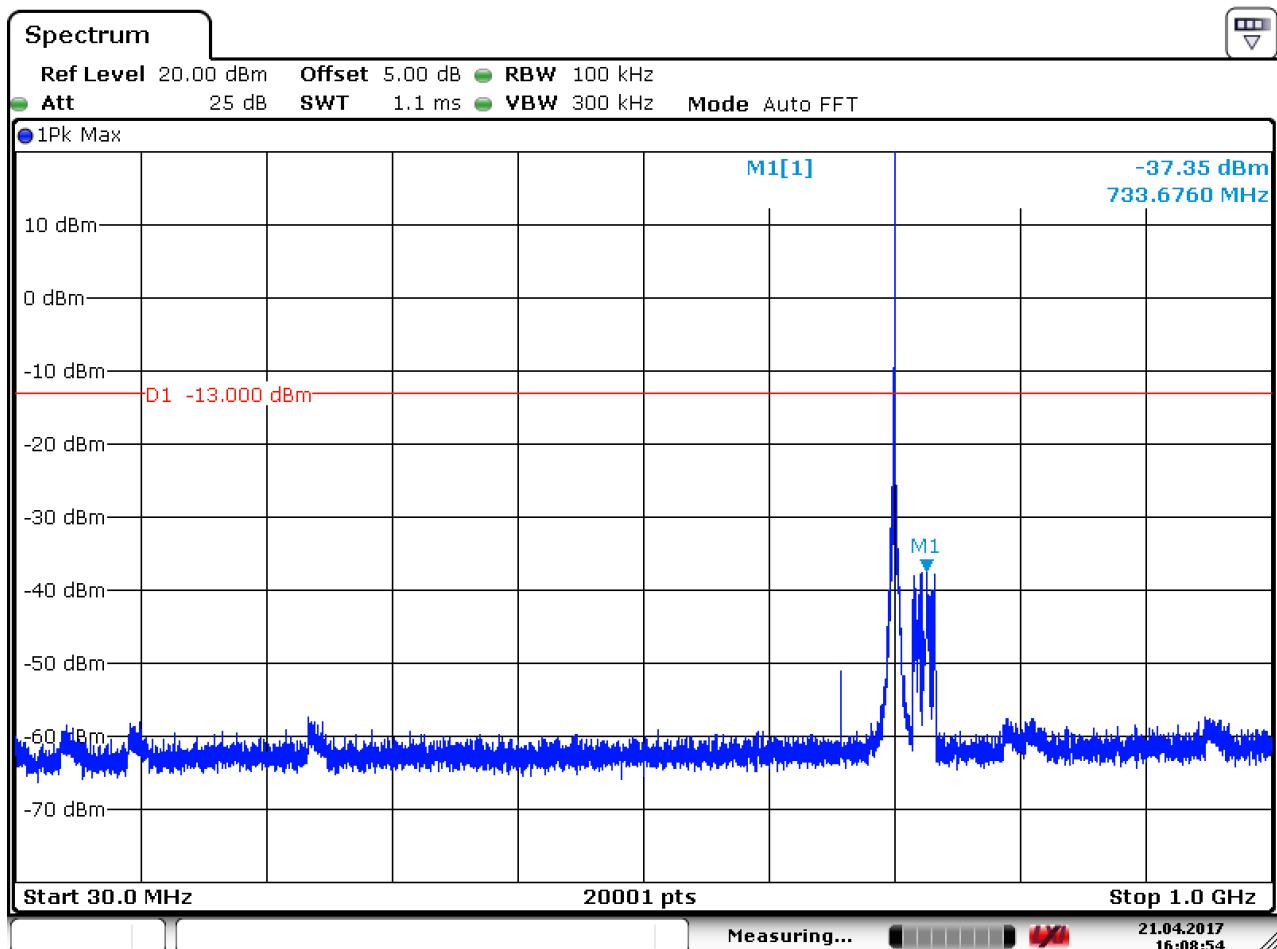
6.1.1.2 Test Mode = LTE / TM1 3MHz RB1#0

6.1.1.2.1 Test Channel = LCH

Date: 21.APR.2017 16:08:18

Spectrum

| Ref Level | 20.00 dBm | Offset | 5.00 dB | ● RBW | 1 MHz |
| Att | 25 dB | SWT | 27 ms | ● VBW | 3 MHz | Mode Auto Sweep |

● 1Pk Max

M1[1] -30.16 dBm
4.211260 GHz

10 dBm

0 dBm

-10 dBm

D1 -13.000 dBm

-20 dBm

M1

-30 dBm

-40 dBm

-50 dBm

-60 dBm

-70 dBm

Start 1.0 GHz   20001 pts   Stop 10.0 GHz

Measuring...   21.04.2017 16:07:33
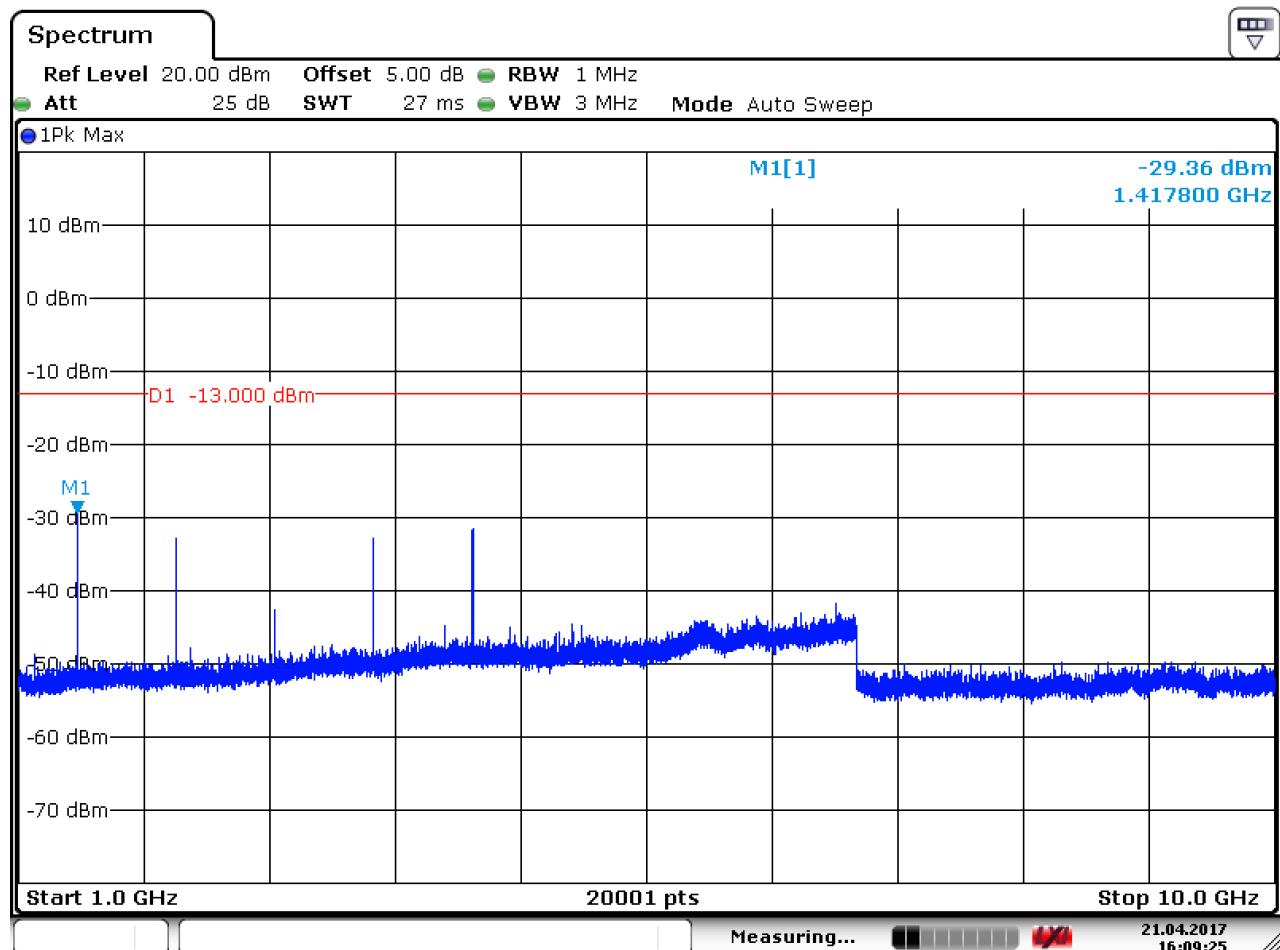
Date: 21.APR.2017 16:07:33

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6.1.1.2.2 Test Channel = MCH
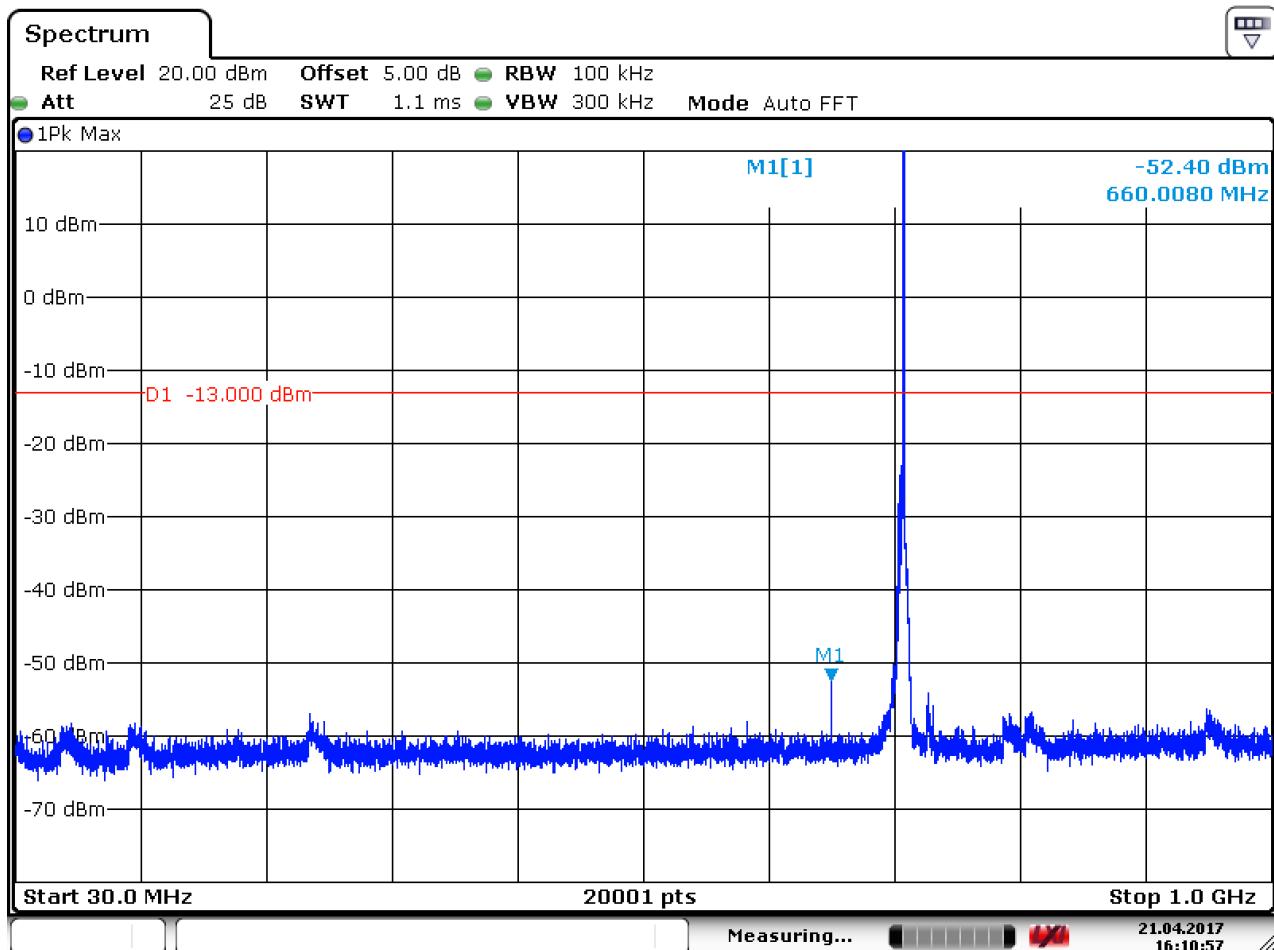
Date: 21.APR.2017 16:08:54

Date: 21.APR.2017 16:09:25

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
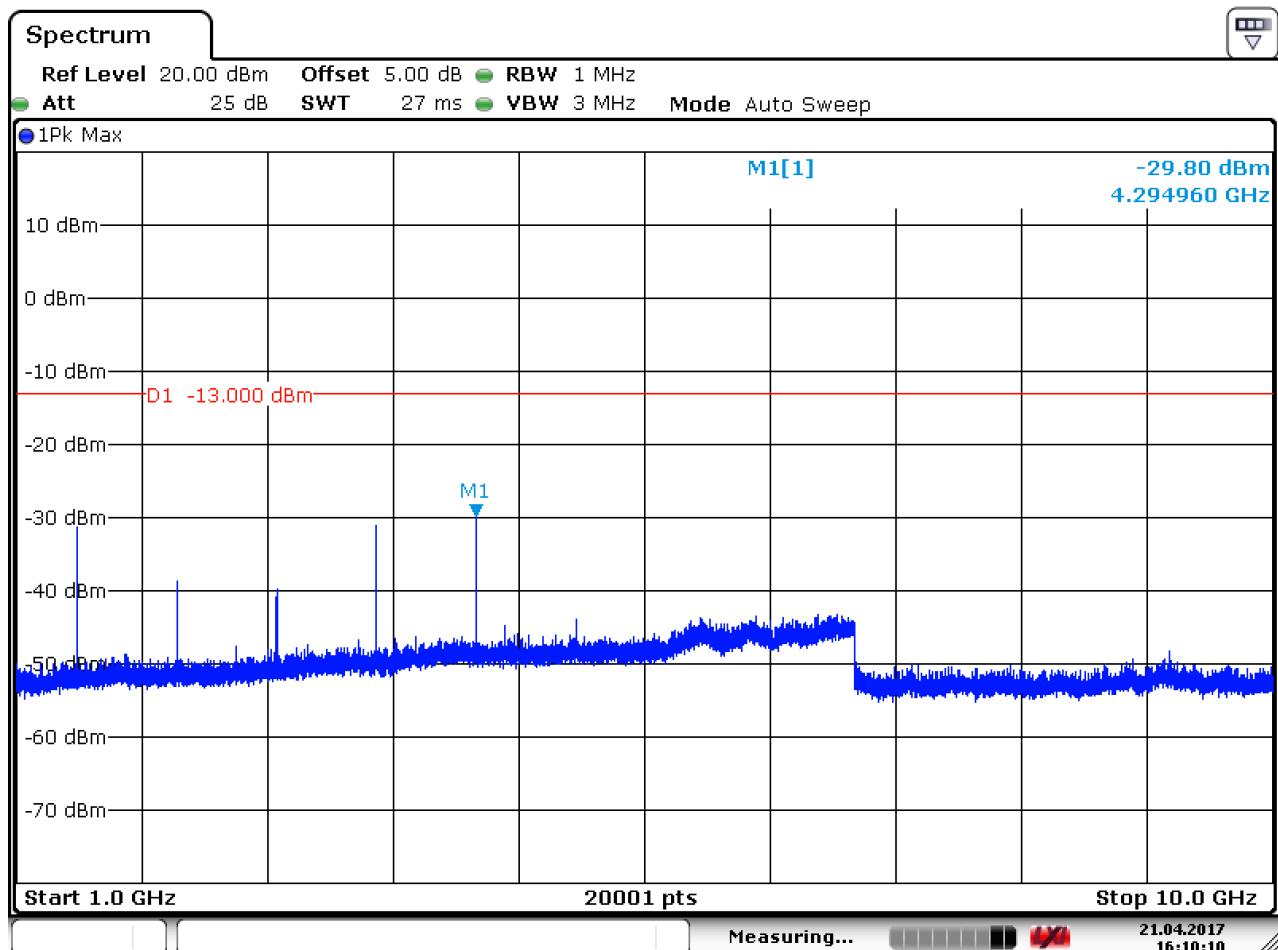
6.1.1.2.3   Test Channel = HCH
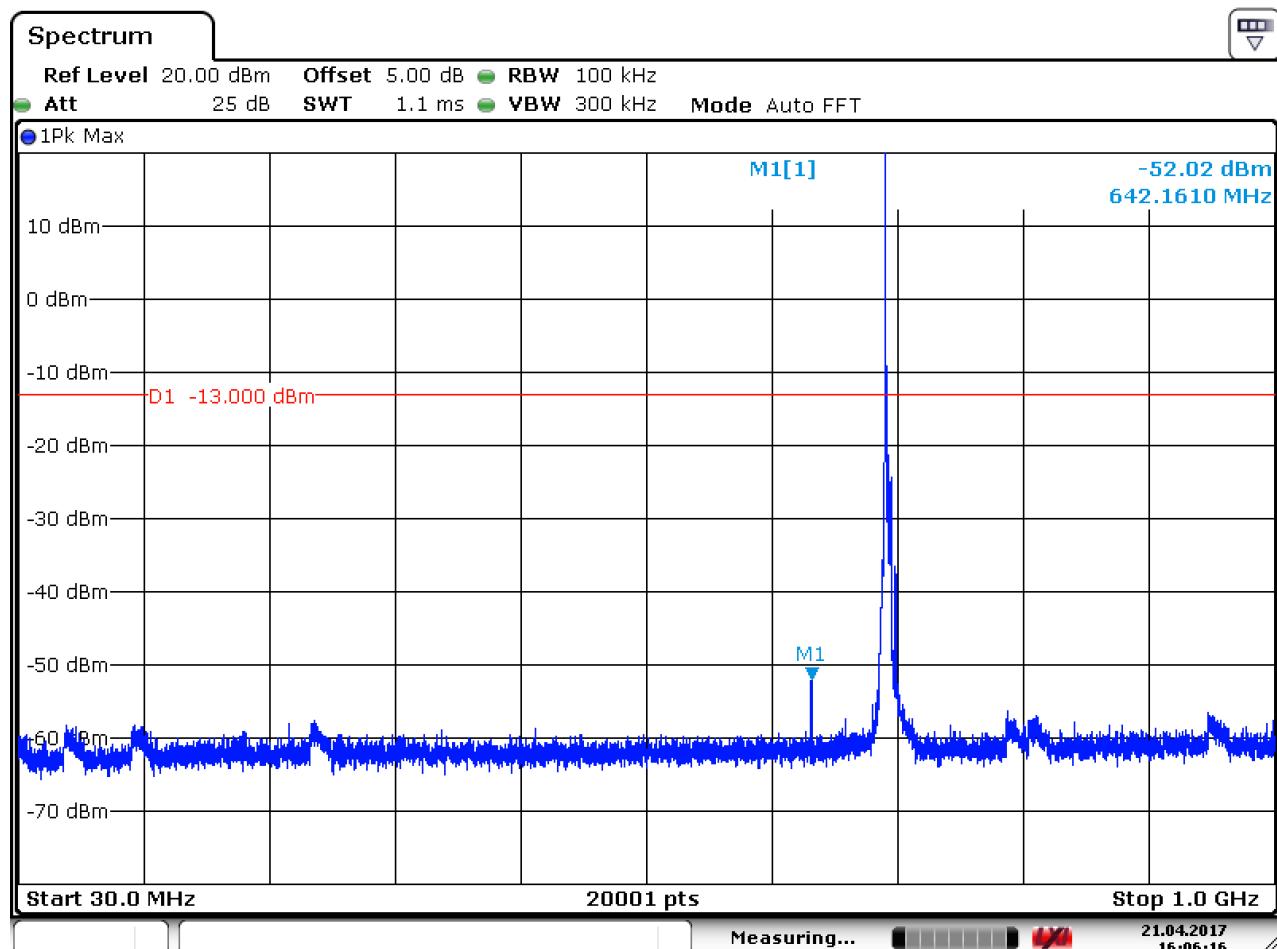
Date: 21.APR.2017 16:10:57

Date: 21.APR.2017 16:10:10

SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch
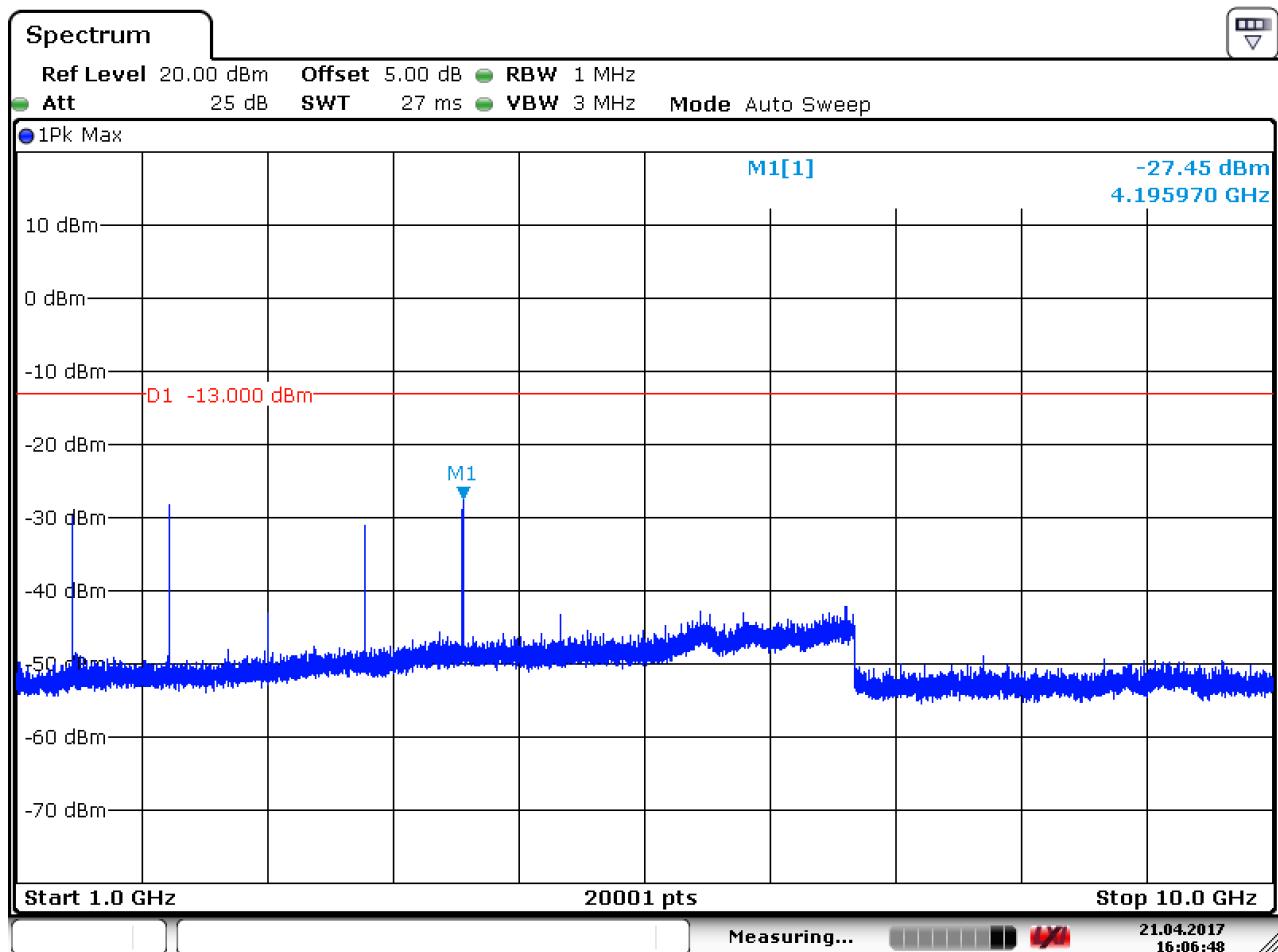
6.1.1.3   Test Mode = LTE / TM1 5MHz RB1#0

6.1.1.3.1   Test Channel = LCH

Date: 21.APR.2017 16:06:17

Spectrum						
Ref Level 20.00 dBm	**Offset** 5.00 dB	● **RBW** 1 MHz				
● **Att** 25 dB	**SWT** 27 ms	● **VBW** 3 MHz	**Mode** Auto Sweep			

● 1Pk Max

M1[1]   -27.45 dBm
                         4.195970 GHz

10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
M1
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm

Start 1.0 GHz   20001 pts   Stop 10.0 GHz

Measuring...   21.04.2017 16:06:48
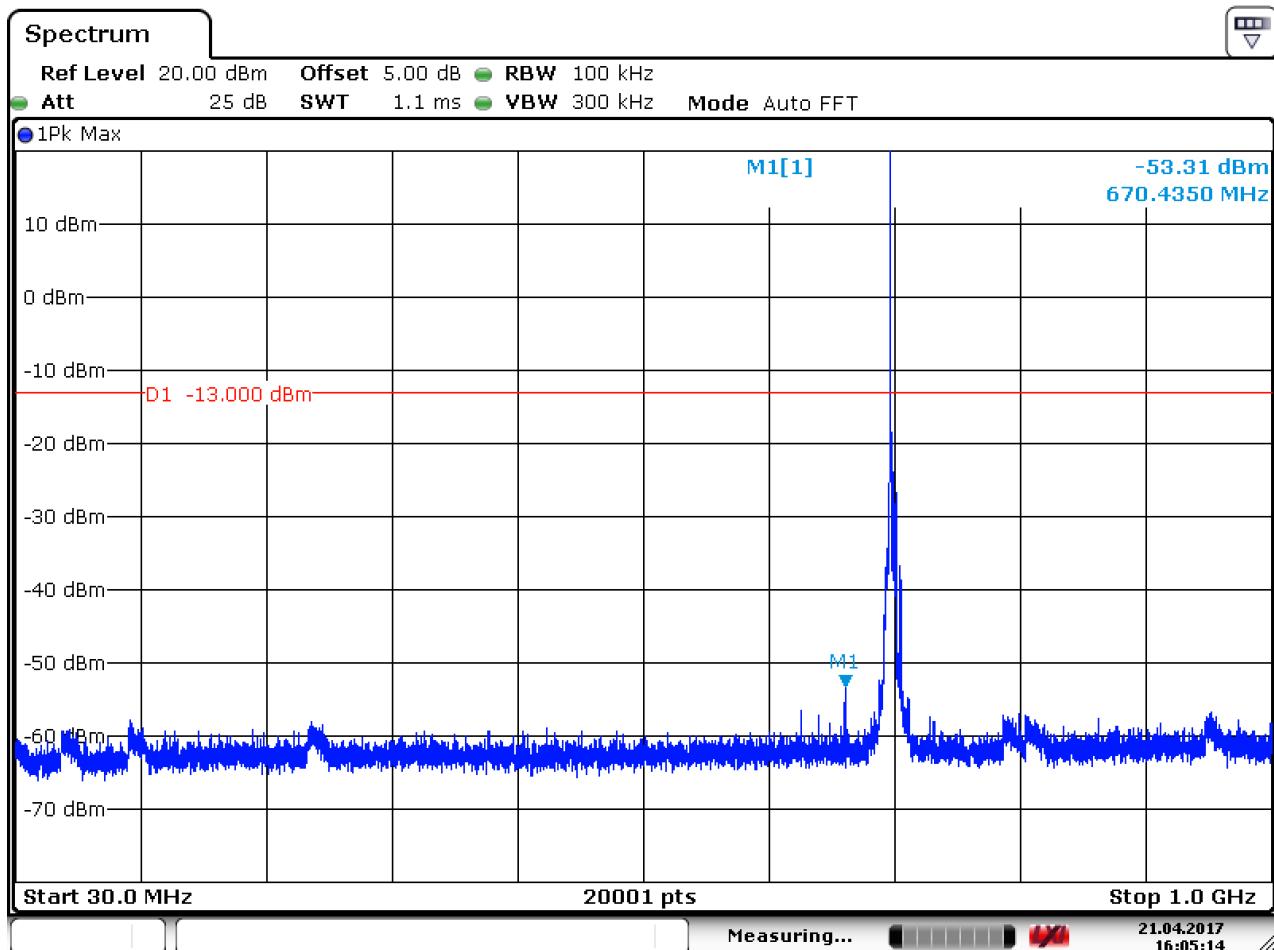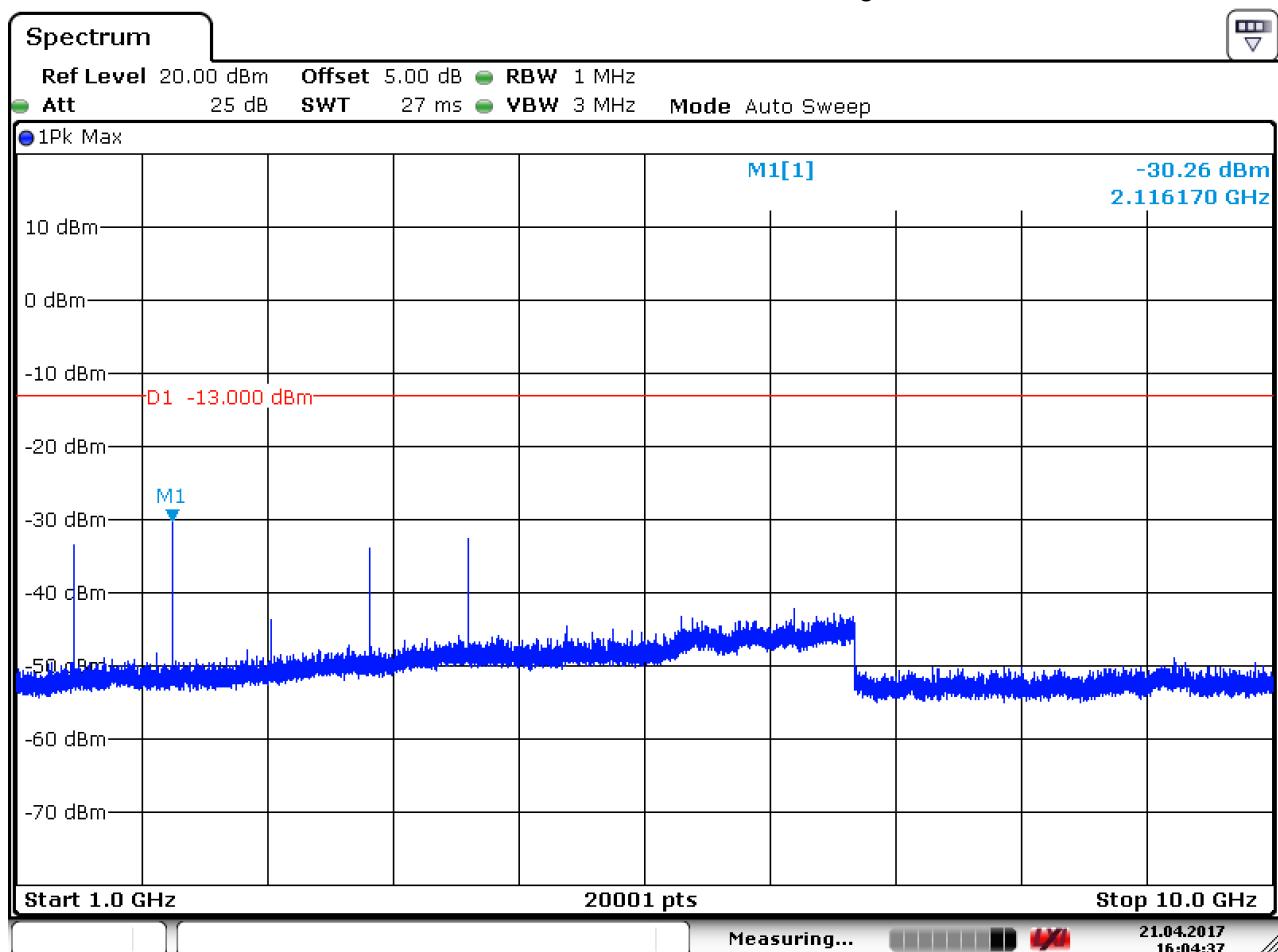
Date: 21.APR.2017 16:06:48

6.1.1.3.2   Test Channel = MCH
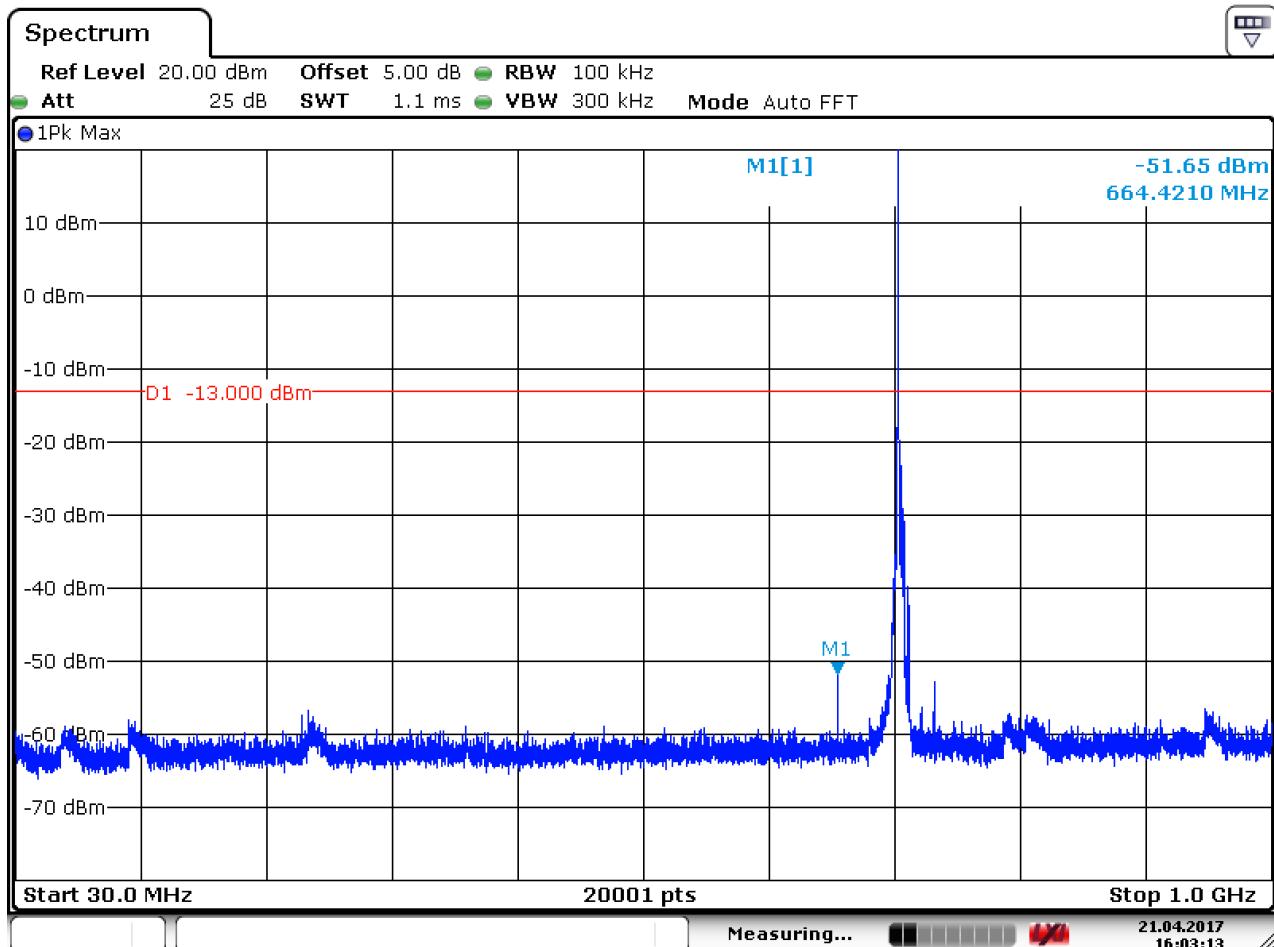
Date: 21.APR.2017 16:05:14
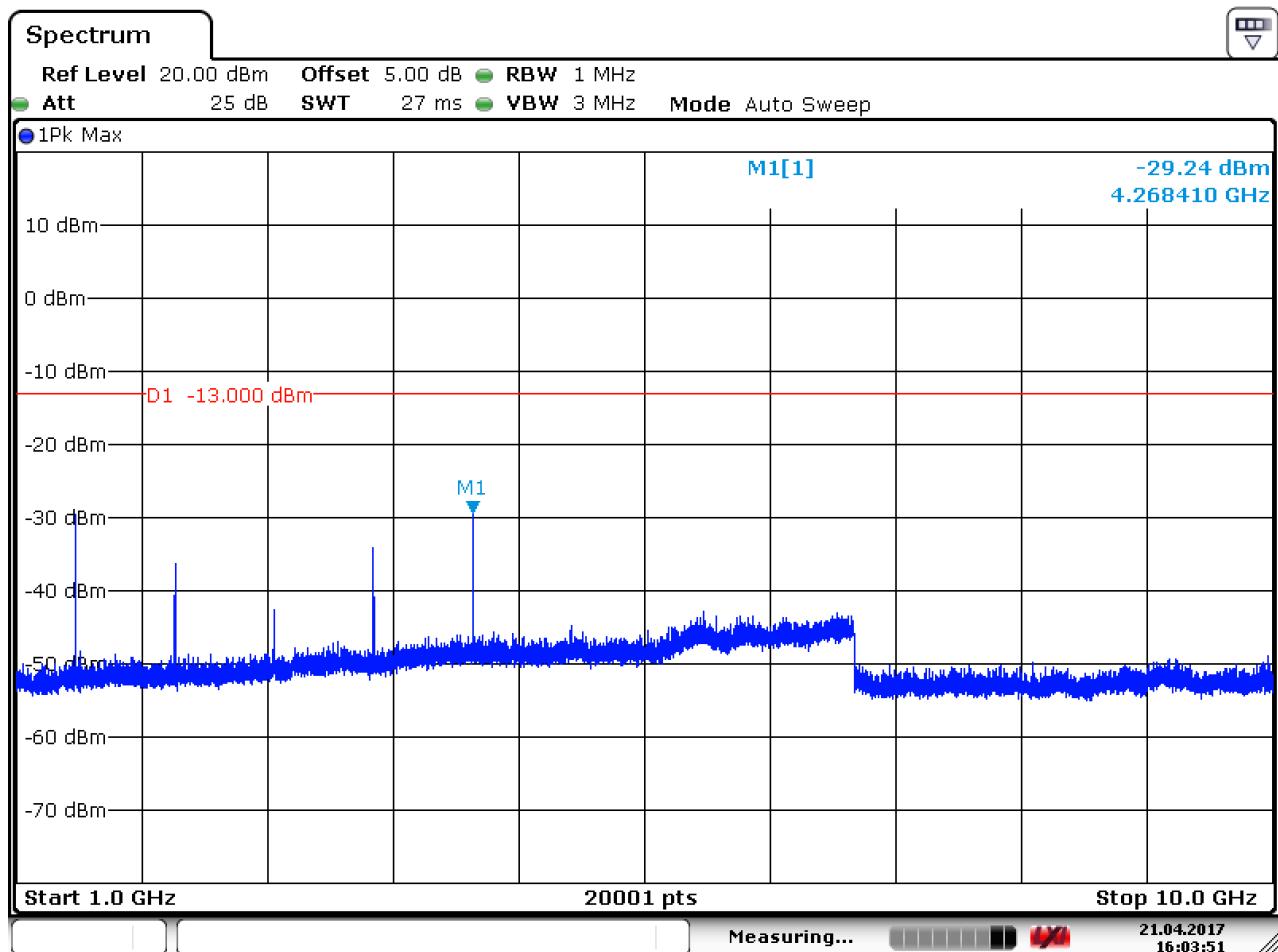
Date: 21.APR.2017 16:04:38

6.1.1.3.3 Test Channel = HCH
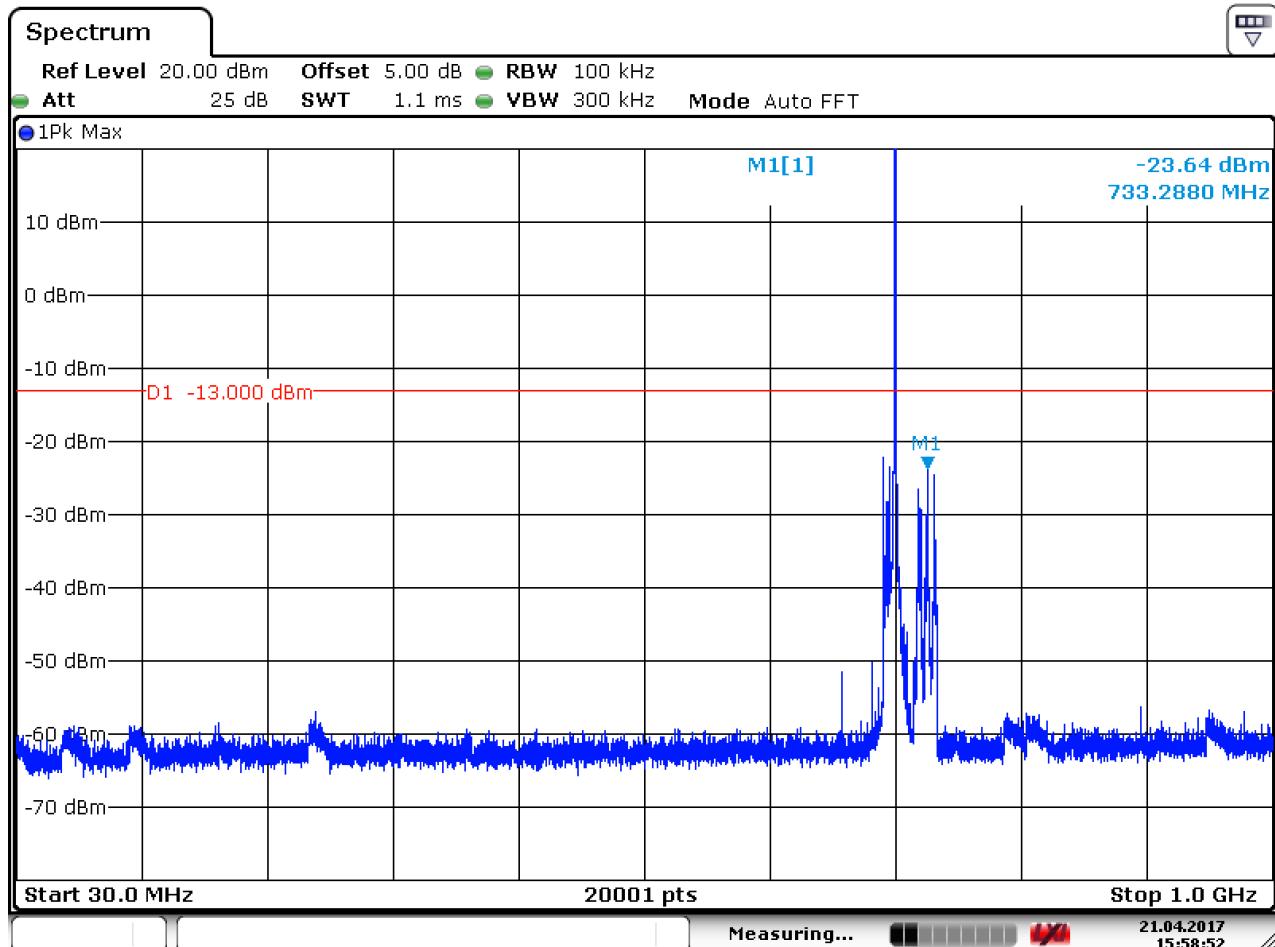
Date: 21.APR.2017 16:03:13
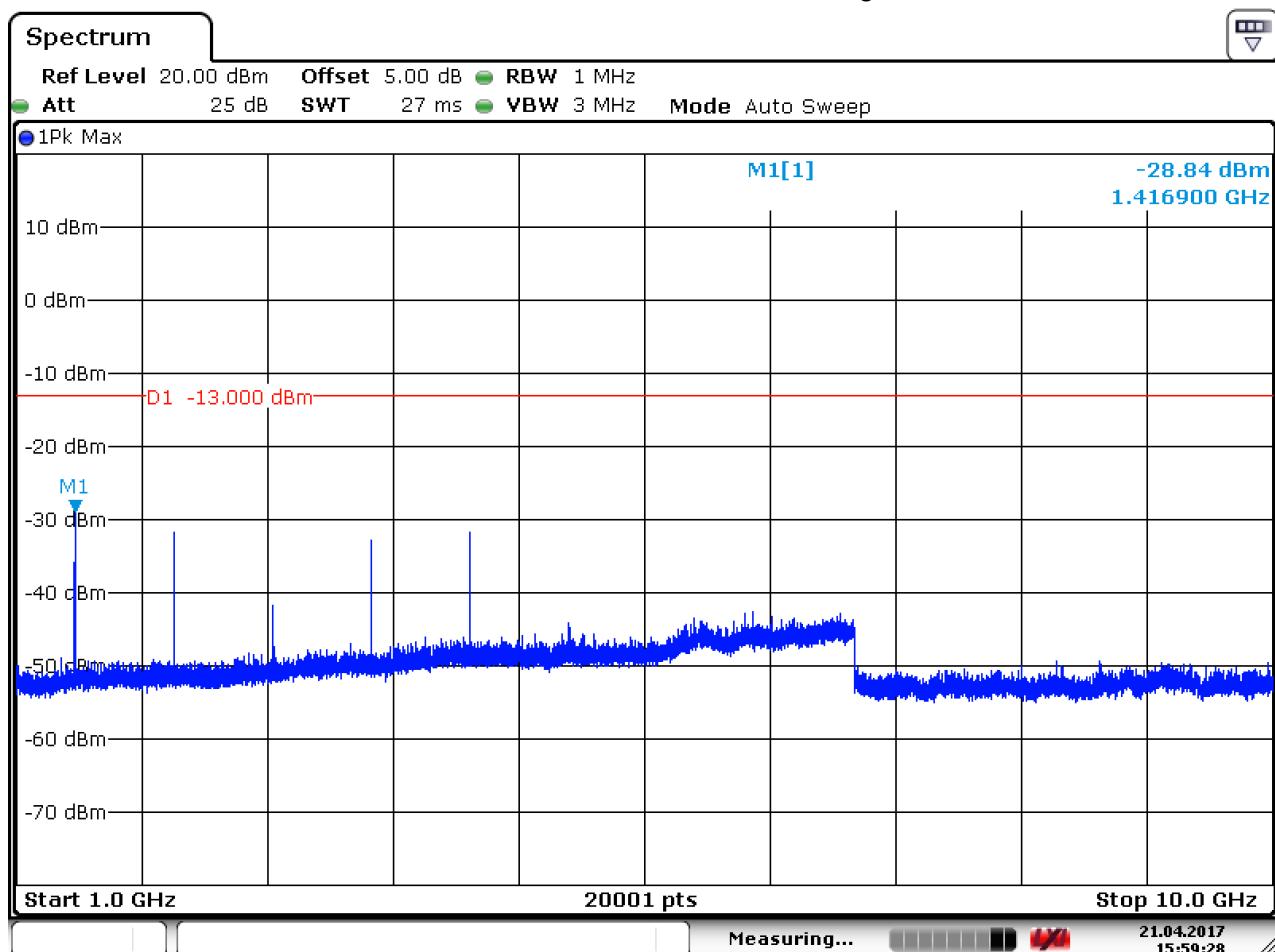
Date: 21.APR.2017 16:03:52

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

6.1.1.4.1   Test Channel = LCH
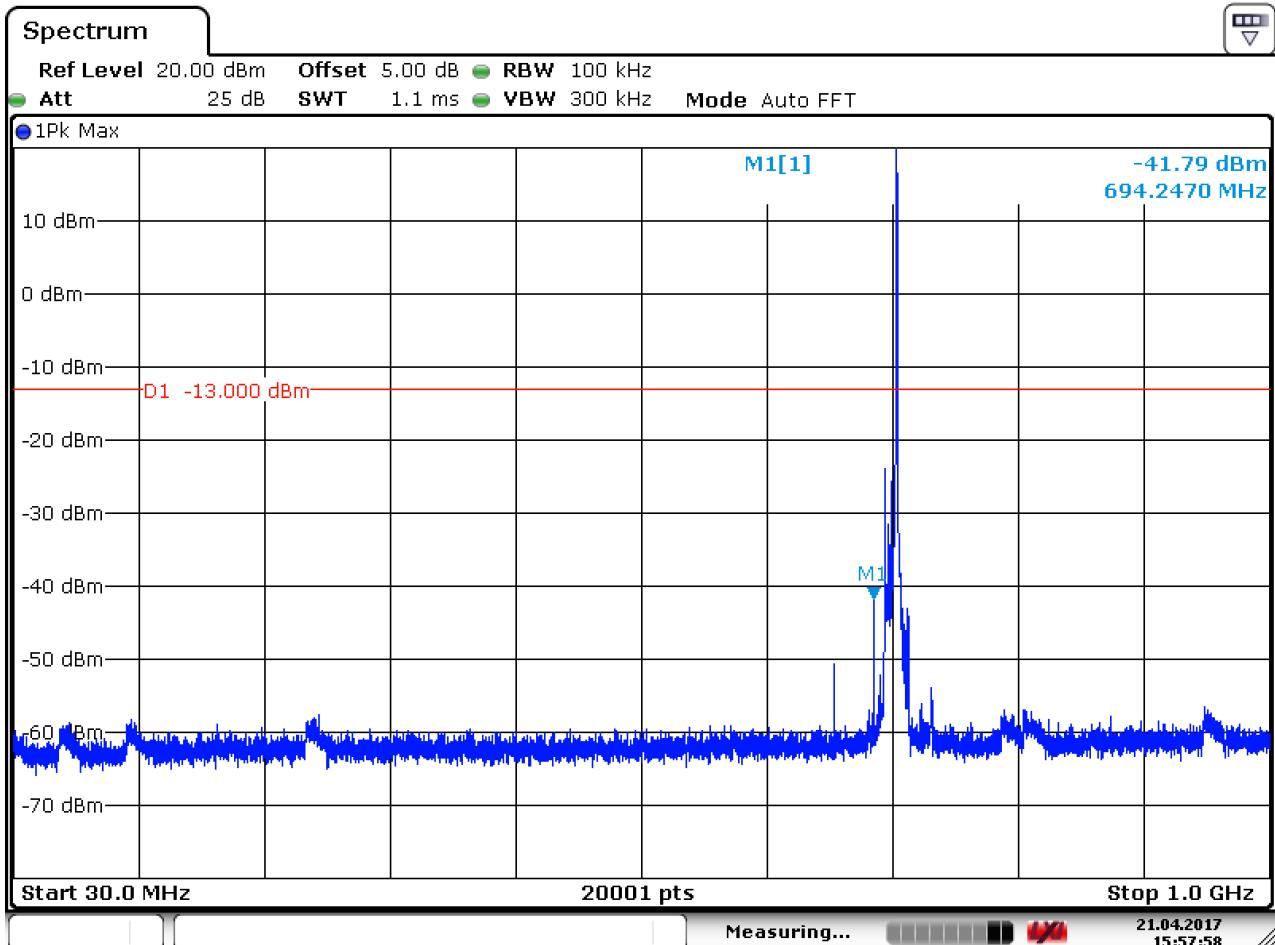
Date: 21.APR.2017 15:58:53
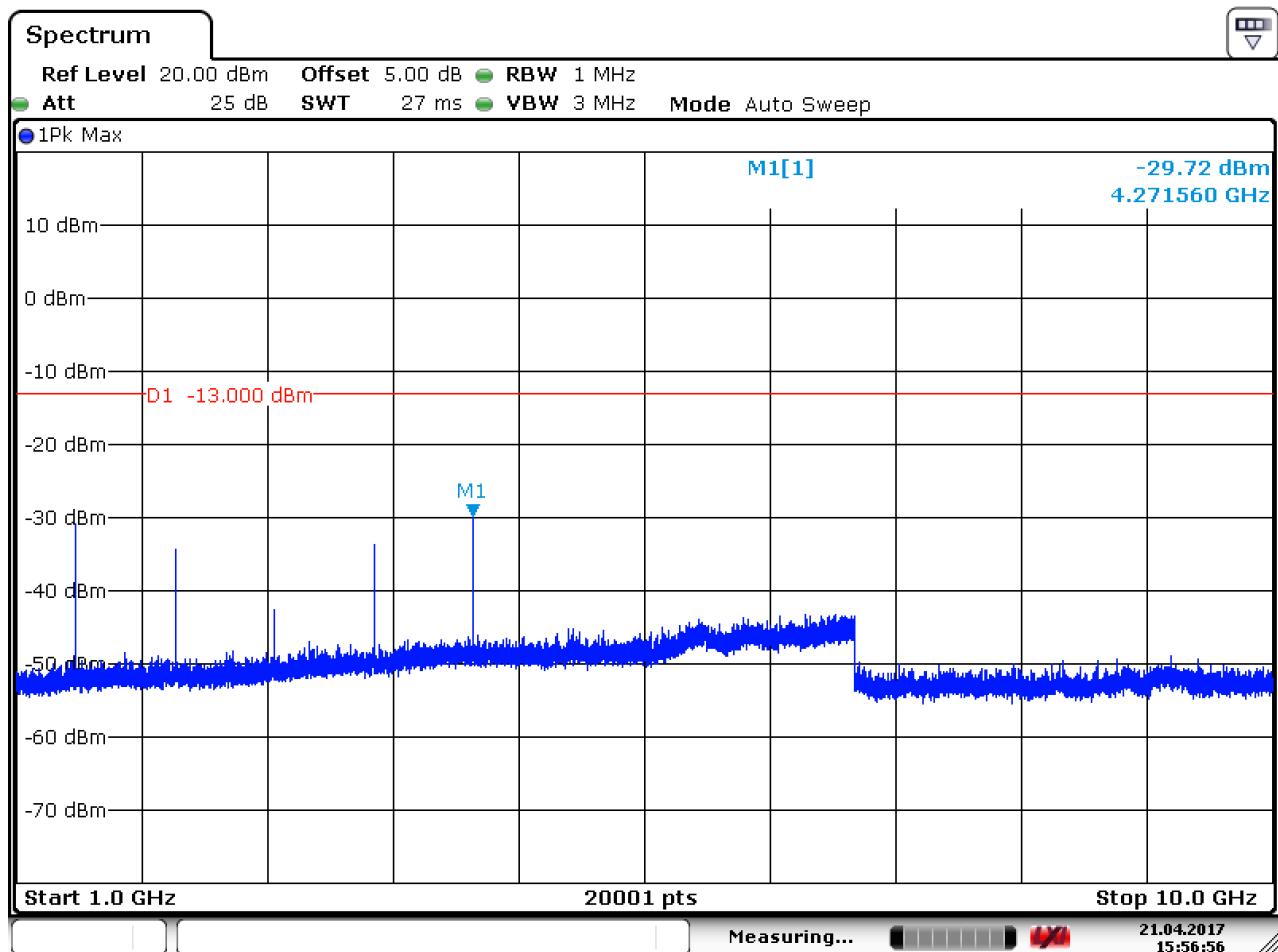
Date: 21.APR.2017 15:59:28

6.1.1.4.2   Test Channel = MCH

Spectrum

| Ref Level 20.00 dBm | Offset 5.00 dB | RBW 100 kHz |
| Att   25 dB | SWT   1.1 ms | VBW 300 kHz | Mode Auto FFT |

1Pk Max

M1[1]   -41.79 dBm
             694.2470 MHz

D1 -13.000 dBm

Start 30.0 MHz   20001 pts   Stop 1.0 GHz

Measuring...   21.04.2017
   15:57:58
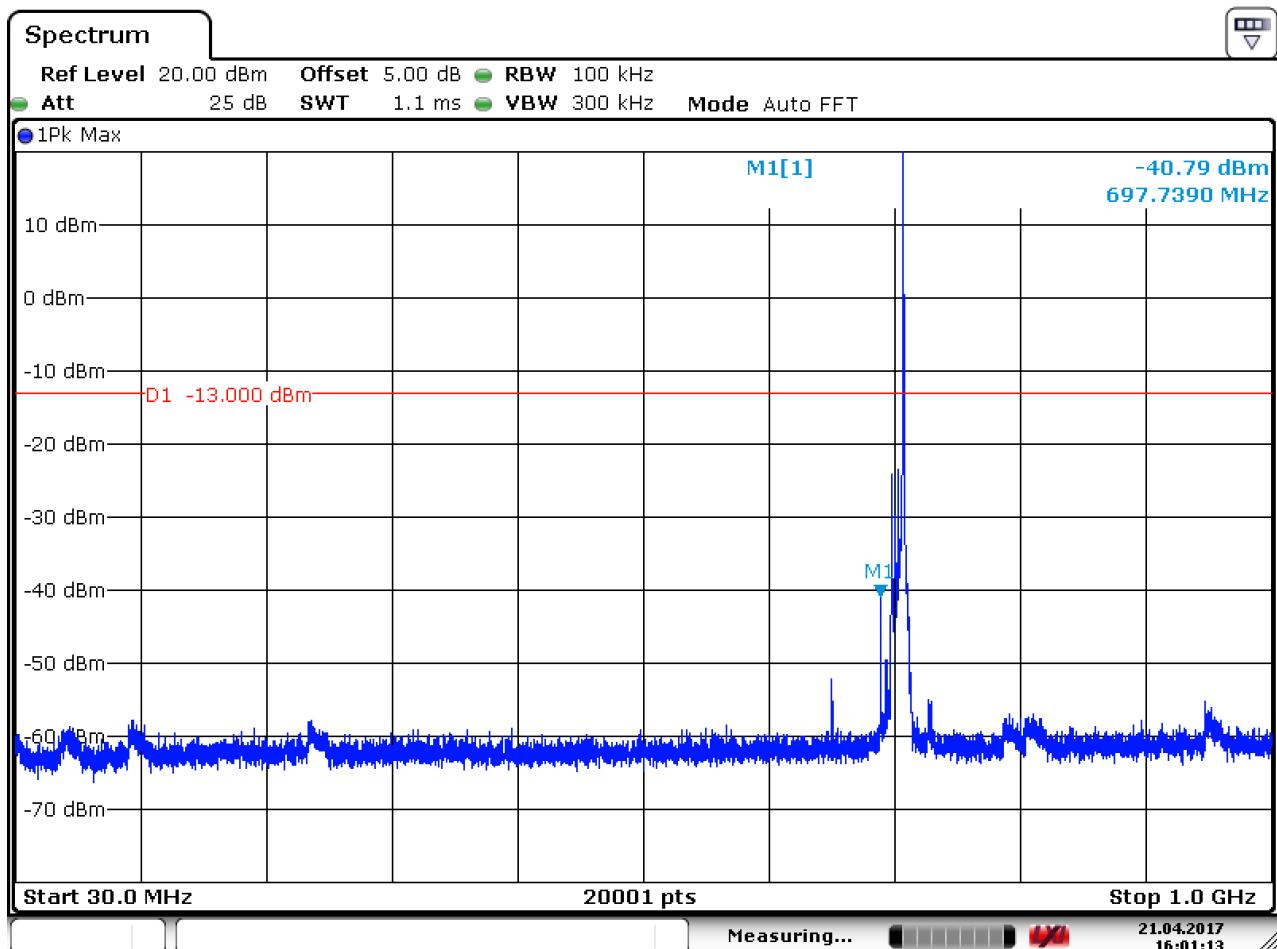
Date: 21.APR.2017 15:57:58
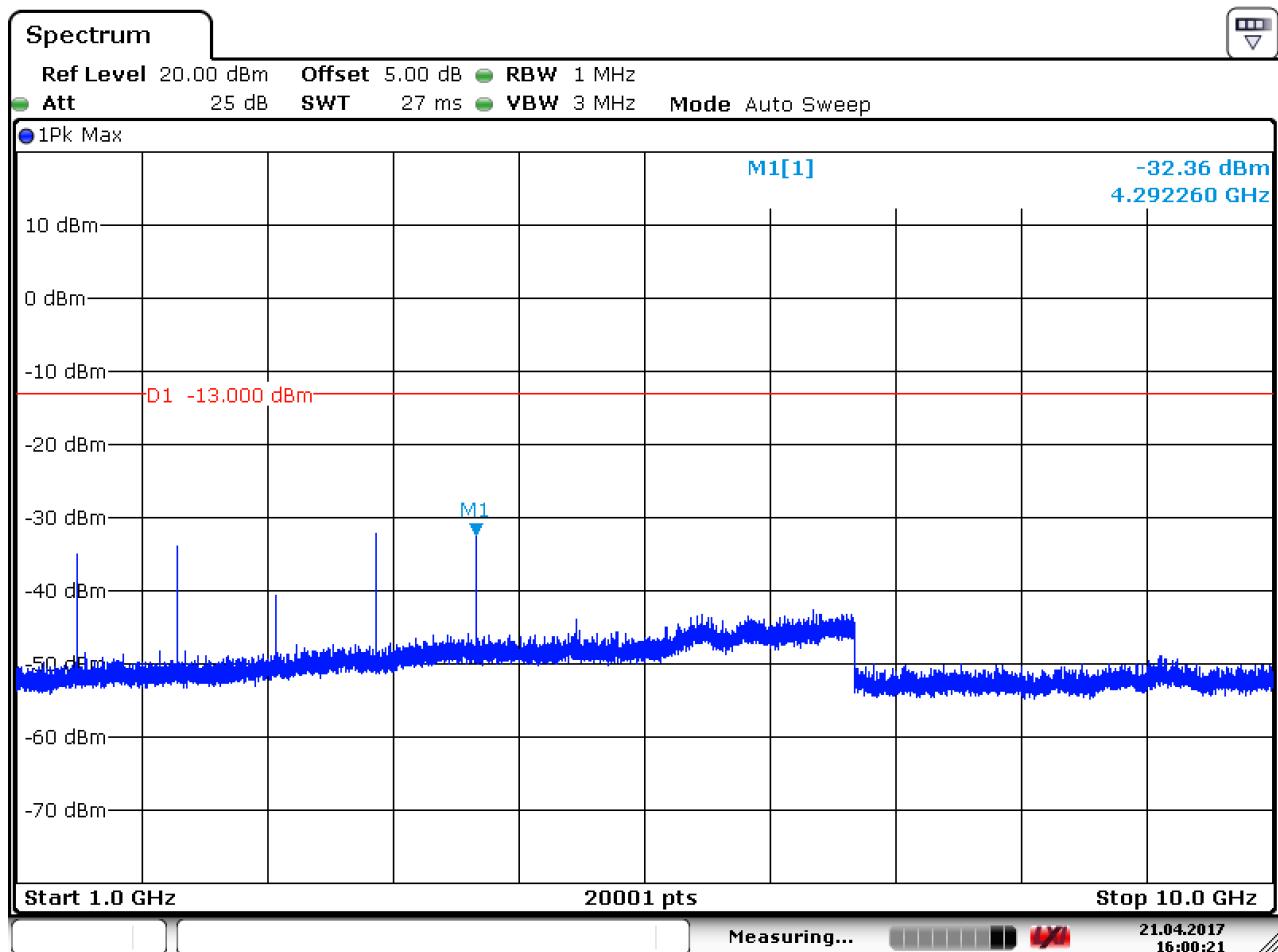
Date: 21.APR.2017 15:56:56

6.1.1.4.3   Test Channel = HCH

Date: 21.APR.2017 16:01:13

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Spectrum						
Ref Level 20.00 dBm		Offset 5.00 dB	RBW 1 MHz			
Att 25 dB		SWT 27 ms	VBW 3 MHz	Mode Auto Sweep		

1Pk Max

M1[1]   -32.36 dBm
4.292260 GHz

10 dBm

0 dBm

-10 dBm

D1 -13.000 dBm

-20 dBm

-30 dBm   M1

-40 dBm

-50 dBm

-60 dBm

-70 dBm

Start 1.0 GHz   20001 pts   Stop 10.0 GHz

Measuring...   21.04.2017
16:00:21

Date: 21.APR.2017 16:00:21

7   Field Strength of Spurious Radiation

7.1 For LTE

7.1.1 Test Band = LTE band12

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
1287.000	-66.34	-13.00	-53.34	Vertical
1826.000	-62.96	-13.00	-49.96	Vertical
5535.000	-67.45	-13.00	-54.45	Vertical
1199.000	-66.53	-13.00	-53.53	Horizontal
4072.500	-68.44	-13.00	-55.44	Horizontal
6997.500	-65.73	-13.00	-52.73	Horizontal

7.1.1.1.2   Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1210.000	-65.95	-13.00	-52.95	Vertical
1716.000	-63.97	-13.00	-50.97	Vertical
2896.000	-56.95	-13.00	-43.95	Vertical
1155.000	-67.64	-13.00	-54.64	Horizontal
1903.000	-62.83	-13.00	-49.83	Horizontal
5145.000	-67.66	-13.00	-54.66	Horizontal

7.1.1.1.3   Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
2712.000	-57.30	-13.00	-44.30	Vertical
1265.000	-66.10	-13.00	-53.10	Vertical
1782.000	-63.49	-13.00	-50.49	Vertical
1199.000	-66.82	-13.00	-53.82	Horizontal
1771.000	-63.71	-13.00	-50.71	Horizontal
2264.000	-59.01	-13.00	-46.01	Horizontal

NOTE:

1)   All modes are tested,but the data presented above is the worst case.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.

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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
LTE band12	LTE/TM1 10MHz	LCH	TN	VL	3.28	0.00466	PASS
				VN	-0.18	-0.00026	PASS
				VH	0.32	0.00045	PASS
		MCH	TN	VL	3.34	0.00472	PASS
				VN	2.75	0.00389	PASS
				VH	-1.35	-0.00191	PASS
		HCH	TN	VL	4.72	0.00664	PASS
				VN	-2.60	-0.00366	PASS
				VH	2.24	0.00315	PASS
	LTE/TM2 10MHz	LCH	TN	VL	-5.15	-0.00732	PASS
				VN	-7.18	-0.01020	PASS
				VH	-2.03	-0.00288	PASS
		MCH	TN	VL	-5.16	-0.00729	PASS
				VN	2.28	0.00322	PASS
				VH	-6.38	-0.00902	PASS
		HCH	TN	VL	1.54	0.00217	PASS
				VN	-2.13	-0.00300	PASS
				VH	-6.50	-0.00914	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
LTE band12	LTE/TM1 10MHz	LCH	VN	-30	-5.29	-0.00751	PASS
				-20	-3.46	-0.00491	PASS
				-10	-5.92	-0.00841	PASS
				0	-1.50	-0.00213	PASS
				10	-5.65	-0.00803	PASS
				20	-3.11	-0.00442	PASS
				30	-4.92	-0.00699	PASS
				40	-5.31	-0.00754	PASS
				50	-4.44	-0.00631	PASS
		MCH	VN	-30	-6.24	-0.00882	PASS
				-20	-5.29	-0.00748	PASS
				-10	-4.32	-0.00611	PASS
				0	-2.76	-0.00390	PASS
				10	-5.10	-0.00721	PASS
				20	-4.43	-0.00626	PASS
				30	-6.13	-0.00866	PASS
				40	-3.00	-0.00424	PASS
				50	-2.54	-0.00359	PASS
		HCH	VN	-30	-4.14	-0.00582	PASS
				-20	-6.52	-0.00917	PASS
				-10	-3.17	-0.00446	PASS
				0	-1.30	-0.00183	PASS
				10	-7.04	-0.00990	PASS
				20	-4.11	-0.00578	PASS
				30	-7.22	-0.01015	PASS
				40	-2.30	-0.00323	PASS
				50	-4.07	-0.00572	PASS

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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTE band12	LTE/TM2 10MHz	LCH	VN	-30	-3.43	-0.00487	PASS
				-20	-8.34	-0.01185	PASS
				-10	-5.22	-0.00741	PASS
				0	-7.45	-0.01058	PASS
				10	-5.58	-0.00793	PASS
				20	3.08	0.00438	PASS
				30	1.89	0.00268	PASS
				40	-5.70	-0.00810	PASS
				50	-4.64	-0.00659	PASS
		MCH	VN	-30	-6.92	-0.00978	PASS
				-20	-8.27	-0.01169	PASS
				-10	-4.43	-0.00626	PASS
				0	-7.84	-0.01108	PASS
				10	-5.25	-0.00742	PASS
				20	-6.59	-0.00931	PASS
				30	-4.27	-0.00604	PASS
				40	-8.13	-0.01149	PASS
				50	-3.11	-0.00440	PASS
		HCH	VN	-30	-6.35	-0.00893	PASS
				-20	-6.68	-0.00940	PASS
				-10	-3.85	-0.00541	PASS
				0	-3.37	-0.00474	PASS
				10	-4.18	-0.00588	PASS
				20	-4.16	-0.00585	PASS
				30	-7.31	-0.01028	PASS
				40	-2.92	-0.00411	PASS
				50	-5.24	-0.00737	PASS

The End