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# Appendix B

E-UTRA Band 7



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## 1 Effective (Isotropic) Radiated Power Output Data

### Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE BAND 7

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
				RB1#0	22.83	23.37	33.00	PASS
				RB1#13	22.83	23.37	33.00	PASS
				RB1#24	22.71	23.25	33.00	PASS
			LCH	RB12#0	21.96	22.50	33.00	PASS
				RB12#6	21.89	22.43	33.00	PASS
				RB12#13	21.83	22.37	33.00	PASS
				RB25#0	21.86	22.40	33.00	PASS
				RB1#0	22.42	22.96	33.00	PASS
				RB1#13	22.44	22.98	33.00	PASS
				RB1#24	22.31	22.85	33.00	PASS
BAND7	LTE/TM1	5M	MCH	RB12#0	21.60	22.14	33.00	PASS
				RB12#6	21.56	22.10	33.00	PASS
				RB12#13	21.52	22.06	33.00	PASS
				RB25#0	21.53	22.07	33.00	PASS
				RB1#0	21.79	22.33	33.00	PASS
				RB1#13	21.81	22.35	33.00	PASS
				RB1#24	21.67	22.21	33.00	PASS
			НСН	RB12#0	20.92	21.46	33.00	PASS
				RB12#6	20.89	21.43	33.00	PASS
				RB12#13	20.84	21.38	33.00	PASS
				RB25#0	20.83	21.37	33.00	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
				RB1#0	22.19	22.73	33.00	PASS
				RB1#13	21.93	22.47	33.00	PASS
				RB1#24	21.74	22.28	33.00	PASS
			LCH	RB12#0	20.91	21.45	33.00	PASS
				RB12#6	20.91	21.45	33.00	PASS
				RB12#13	20.90	21.44	33.00	PASS
				RB25#0	20.76	21.30	33.00	PASS
				RB1#0	21.35	21.89	33.00	PASS
				RB1#13	21.67	22.21	33.00	PASS
		5M	МСН	RB1#24	21.39	21.93	33.00	PASS
BAND7	LTE/TM2			RB12#0	20.50	21.04	33.00	PASS
				RB12#6	20.46	21.00	33.00	PASS
				RB12#13	20.48	21.02	33.00	PASS
				RB25#0	20.46	21.00	33.00	PASS
				RB1#0	21.33	21.87	33.00	PASS
				RB1#13	21.25	21.79	33.00	PASS
				RB1#24	20.78	21.32	33.00	PASS
			НСН	RB12#0	19.95	20.49	33.00	PASS
			RB12#6	19.91	20.45	33.00	PASS	
				RB12#13	19.87	20.41	33.00	PASS
				RB25#0	19.81	20.35	33.00	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
				RB1#0	22.72	23.26	33.00	PASS
				RB1#25	22.72	23.26	33.00	PASS
				RB1#49	22.74	23.28	33.00	PASS
			LCH	RB25#0	21.83	22.37	33.00	PASS
				RB25#13	21.88	22.42	33.00	PASS
				RB25#25	21.81	22.35	33.00	PASS
				RB50#0	21.95	22.49	33.00	PASS
				RB1#0	22.38	22.92	33.00	PASS
				RB1#25	22.38	22.92	33.00	PASS
			МСН	RB1#49	22.36	22.90	33.00	PASS
BAND7	LTE/TM1	10M		RB25#0	21.58	22.12	33.00	PASS
				RB25#13	21.54	22.08	33.00	PASS
				RB25#25	21.53	22.07	33.00	PASS
				RB50#0	21.58	22.12	33.00	PASS
				RB1#0	22.09	22.63	33.00	PASS
				RB1#25	21.90	22.44	33.00	PASS
				RB1#49	21.58	22.12	33.00	PASS
			НСН	RB25#0	21.01	21.55	33.00	PASS
				RB25#13	20.96	21.50	33.00	PASS
				RB25#25	20.85	21.39	33.00	PASS
				RB50#0	20.95	21.49	33.00	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
				RB1#0	21.82	22.36	33.00	PASS
				RB1#25	22.15	22.69	33.00	PASS
				RB1#49	22.09	22.63	33.00	PASS
			LCH	RB25#0	20.86	21.40	33.00	PASS
				RB25#13	20.85	21.39	33.00	PASS
				RB25#25	20.84	21.38	33.00	PASS
				RB50#0	20.86	21.40	33.00	PASS
				RB1#0	21.91	22.45	33.00	PASS
				RB1#25	21.53	22.07	33.00	PASS
				RB1#49	21.70	22.24	33.00	PASS
BAND7	LTE/TM2	10M	MCH	RB25#0	20.49	21.03	33.00	PASS
				RB25#13	20.51	21.05	33.00	PASS
				RB25#25	20.51	21.05	33.00	PASS
				RB50#0	20.50	21.04	33.00	PASS
				RB1#0	20.95	21.49	33.00	PASS
				RB1#25	20.82	21.36	33.00	PASS
				RB1#49	20.73	21.27	33.00	PASS
			НСН	RB25#0	20.05	20.59	33.00	PASS
				RB25#13	19.92	20.46	33.00	PASS
				RB25#25	19.98	20.52	33.00	PASS
				RB50#0	19.95	20.49	33.00	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
				RB1#0	22.85	23.39	33.00	PASS
				RB1#38	22.68	23.22	33.00	PASS
				RB1#74	22.47	23.01	33.00	PASS
			LCH	RB36#0	21.87	22.41	33.00	PASS
				RB36#18	21.85	22.39	33.00	PASS
				RB36#39	21.79	22.33	33.00	PASS
				RB75#0	21.85	22.39	33.00	PASS
				RB1#0	22.53	23.07	33.00	PASS
				RB1#38	22.47	23.01	33.00	PASS
		15M	МСН	RB1#74	22.43	22.97	33.00	PASS
BAND7	LTE/TM1			RB36#0	21.65	22.19	33.00	PASS
				RB36#18	21.59	22.13	33.00	PASS
				RB36#39	21.57	22.11	33.00	PASS
				RB75#0	21.60	22.14	33.00	PASS
				RB1#0	21.97	22.51	33.00	PASS
				RB1#38	22.01	22.55	33.00	PASS
				RB1#74	21.70	22.24	33.00	PASS
			HCH	RB36#0	21.21	21.75	33.00	PASS
				RB36#18	21.08	21.62	33.00	PASS
				RB36#39	20.98	21.52	33.00	PASS
				RB75#0	21.04	21.58	33.00	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
				RB1#0	21.58	22.12	33.00	PASS
				RB1#38	22.20	22.74	33.00	PASS
				RB1#74	21.91	22.45	33.00	PASS
			LCH	RB36#0	20.83	21.37	33.00	PASS
				RB36#18	20.85	21.39	33.00	PASS
				RB36#39	20.66	21.20	33.00	PASS
				RB75#0	20.87	21.41	33.00	PASS
				RB1#0	21.70	22.24	33.00	PASS
				RB1#38	21.78	22.32	33.00	PASS
				RB1#74	21.95	22.49	33.00	PASS
BAND7	LTE/TM2	15M	MCH	RB36#0	20.53	21.07	33.00	PASS
				RB36#18	20.53	21.07	33.00	PASS
				RB36#39	20.50	21.04	33.00	PASS
				RB75#0	20.51	21.05	33.00	PASS
				RB1#0	20.90	21.44	33.00	PASS
				RB1#38	21.55	22.09	33.00	PASS
				RB1#74	20.69	21.23	33.00	PASS
			HCH	RB36#0	20.06	20.60	33.00	PASS
				RB36#18	20.10	20.64	33.00	PASS
				RB36#39	20.01	20.55	33.00	PASS
				RB75#0	20.07	20.61	33.00	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
				RB1#0	22.83	23.37	33.00	PASS
				RB1#50	22.06	22.60	33.00	PASS
				RB1#99	21.69	22.23	33.00	PASS
			LCH	RB50#0	21.96	22.50	33.00	PASS
				RB50#25	21.25	21.79	33.00	PASS
				RB50#50	20.76	21.30	33.00	PASS
				RB100#0	21.54	22.08	33.00	PASS
				RB1#0	22.54	23.08	33.00	PASS
				RB1#50	22.54	23.08	33.00	PASS
				RB1#99	22.51	23.05	33.00	PASS
BAND7	LTE/TM1	20M	МСН	RB50#0	21.67	22.21	33.00	PASS
				RB50#25	21.72	22.26	33.00	PASS
				RB50#50	21.67	22.21	33.00	PASS
				RB100#0	21.57	22.11	33.00	PASS
				RB1#0	21.48	22.02	33.00	PASS
				RB1#50	22.07	22.61	33.00	PASS
				RB1#99	21.70	22.24	33.00	PASS
			НСН	RB50#0	20.50	21.04	33.00	PASS
				RB50#25	21.20	21.74	33.00	PASS
				RB50#50	21.04	21.58	33.00	PASS
				RB100#0	21.14	21.68	33.00	PASS



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Test Band(LTE )	Test Mode	Test Bandwidth	Test channe I	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
				RB1#0	21.82	22.36	33.00	PASS
				RB1#50	21.59	22.13	33.00	PASS
				RB1#99	21.21	21.75	33.00	PASS
			LCH	RB50#0	20.88	21.42	33.00	PASS
				RB50#25	20.35	20.89	33.00	PASS
				RB50#50	19.81	20.35	33.00	PASS
				RB100#0	20.61	21.15	33.00	PASS
				RB1#0	21.65	22.19	33.00	PASS
				RB1#50	21.69	22.23	33.00	PASS
				RB1#99	21.63	22.17	33.00	PASS
BAND7	LTE/TM2	20M	MCH	RB50#0	20.71	21.25	33.00	PASS
				RB50#25	20.60	21.14	33.00	PASS
				RB50#50	20.60	21.14	33.00	PASS
				RB100#0	20.60	21.14	33.00	PASS
				RB1#0	20.47	21.01	33.00	PASS
				RB1#50	21.27	21.81	33.00	PASS
				RB1#99	21.34	21.88	33.00	PASS
			НСН	RB50#0	19.36	19.90	33.00	PASS
				RB50#25	20.17	20.71	33.00	PASS
				RB50#50	20.05	20.59	33.00	PASS
				RB100#0	20.16	20.70	33.00	PASS

Note:

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

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW >  $3 \times RBW$ .

Detector: RMS



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## 2 Peak-to-Average Ratio

### Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
		LCH	5.54	13	PASS
	TM1/20M	MCH	5.42	13	PASS
Dand 7		НСН	5.51	13	PASS
Band 7		LCH	6.35	13	PASS
	TM2/20M	MCH	6.29	13	PASS
		НСН	6.43	13	PASS



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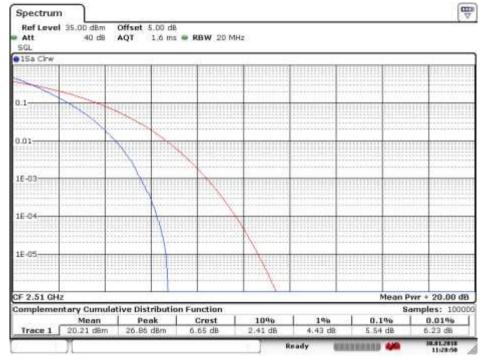
### Part II - Test Plots

### 2.1 For LTE

2.1.1 Test Band = LTE band7







Date: 30 JAN 2018 11:28:50

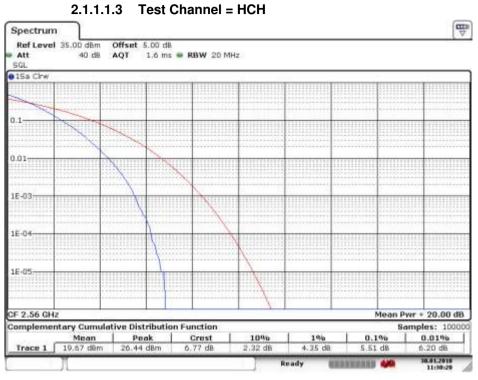




Date: 30 JAN 2018 11:30 03

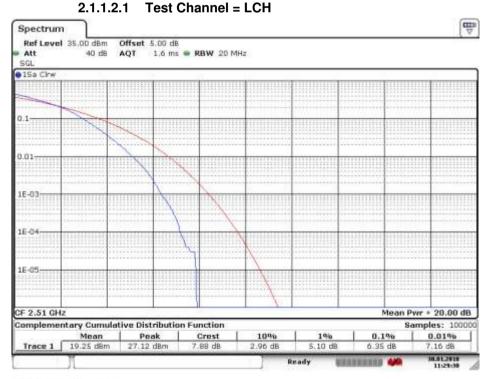


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Date: 30 JAN 2018 11:30:21

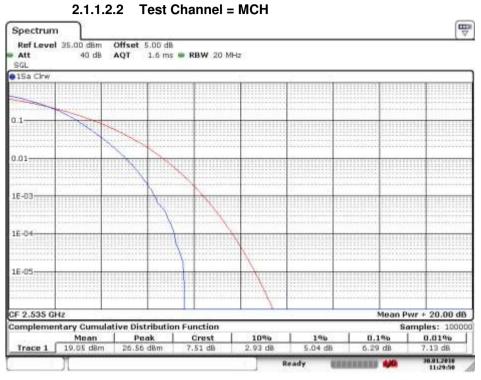
### 2.1.1.2 Test Mode = LTE/TM2.Bandwidth=20MHz



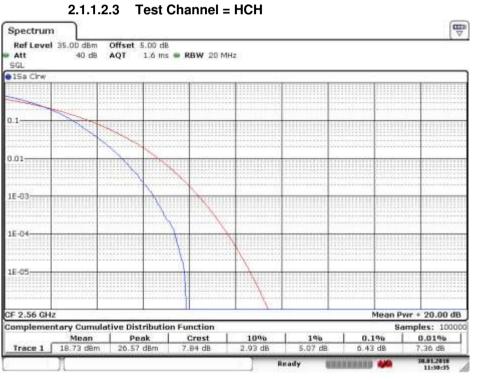
Date: 30 JAN 2018 11:29:30



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Date: 30 JAN 2018 11:29:50



Date: 30 JAN 2018 11:30:35



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## **3 Modulation Characteristics**

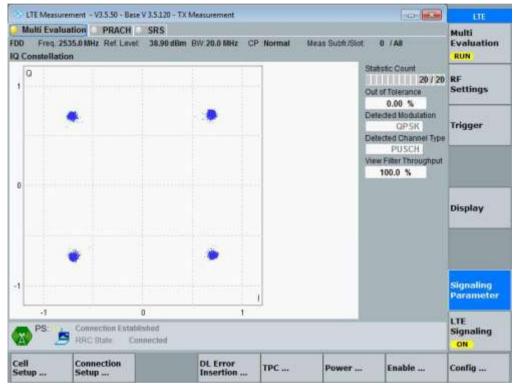
Part I - Test Plots

### 3.1 For LTE

### 3.1.1 Test Band = LTE band7

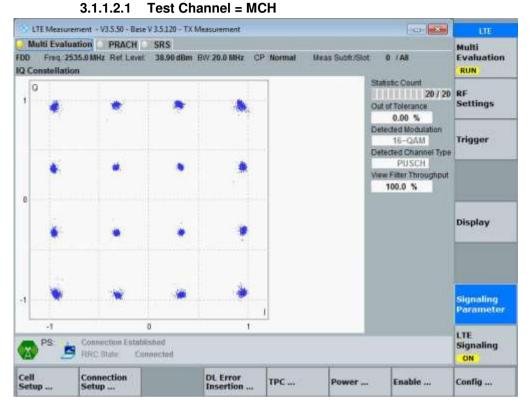
### 3.1.1.1 Test Mode = LTE /TM1 20MHz

3.1.1.1.1 Test Channel = MCH





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3.1.1.2 Test Mode = LTE /TM2 20MHz



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### 4 Bandwidth

### Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
		LCH	4.49	4.97	PASS
	TM1/ 5MHz	MCH	4.48	4.91	PASS
		HCH	4.49	4.90	PASS
		LCH	4.48	4.93	PASS
	TM2/ 5MHz	MCH	4.48	4.97	PASS
		HCH	4.48	4.95	PASS
		LCH	8.93	9.73	PASS
	TM1/10MHz	MCH	8.93	9.61	PASS
		HCH	8.93	9.71	PASS
		LCH	8.93	9.69	PASS
	TM2/ 10MHz	MCH	8.93	9.71	PASS
Band 7		HCH	8.93	9.73	PASS
Ballu /		LCH	13.43	14.63	PASS
	TM1/ 15MHz	MCH	13.42	14.65	PASS
		HCH	13.38	14.55	PASS
		LCH	13.49	14.90	PASS
	TM2/ 15MHz	MCH	13.46	14.90	PASS
		HCH	13.46	14.80	PASS
		LCH	17.94	19.42	PASS
	TM1/ 20MHz	MCH	17.86	19.38	PASS
		HCH	17.94	19.66	PASS
		LCH	17.94	19.50	PASS
	TM2/ 20MHz	MCH	17.90	19.38	PASS
		HCH	17.90	19.30	PASS



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### 4.1 For LTE

### 4.1.1 Test Band = LTE band7

### 4.1.1.1 Test Mode = LTE/TM1 5MHz

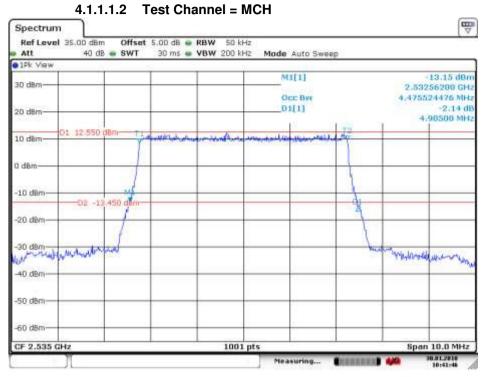
### 4.1.1.1.1 Test Channel = LCH

1Pk: View				<i>n</i>			<u>()</u>		
30 dām-				-		1[1] ecc Bw			-0.01 di 96500 MH 14486 MH
20 d8m						1[1]		a la state	13.41 dBn 102200 GH
10 dBm-D	1 12.250	dBm i	Aletterio	Annanta	بتنابغيه إرهب	Allentrum	word	-	
0 dBm		-1		-		-	+		
-10 dBm		750 dam-					1		
-20 d9m									
-boreathing	nuttually a	w					w.	Hibror with	Martuch
-40 d8m-	-						-		
-50 d8m	-								
-60 d8m	-						-		-
CF 2.5025 G	Hz			1001	ots			Span	10.0 MHz

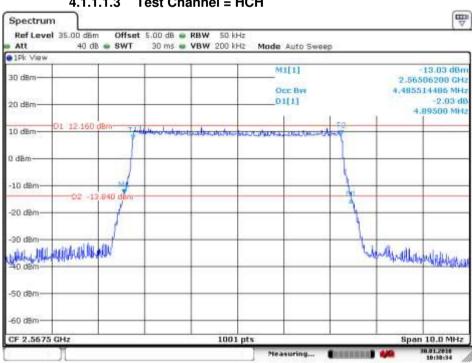
Date: 30 JAN 2018 10:42:53



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Date: 30 JAN 2018 10:41 46



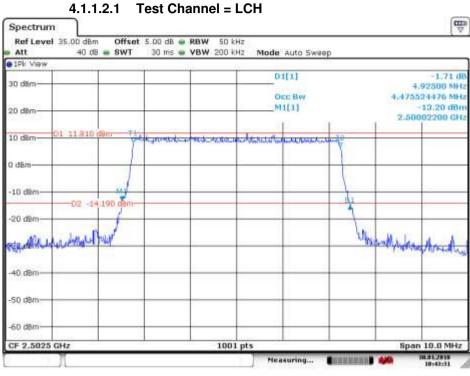
4.1.1.1.3 Test Channel = HCH

Date: 30.JAN 2018 10:38:34

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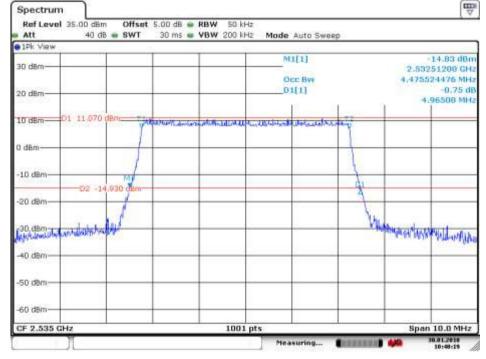
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#### 4.1.1.2 Test Mode = LTE/TM2 5MHz

Date: 30 JAN 2018 10:43:32

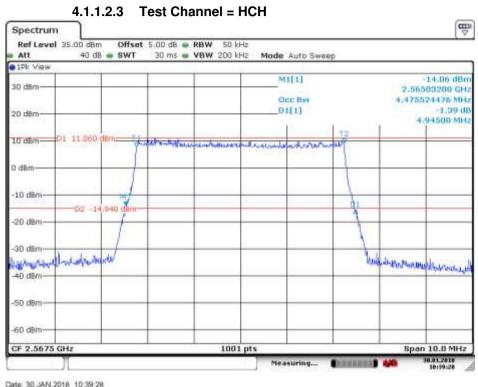




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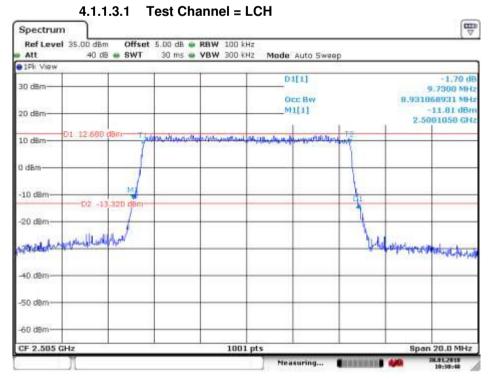


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#### Date: 30 JAN 2018 10:39 28

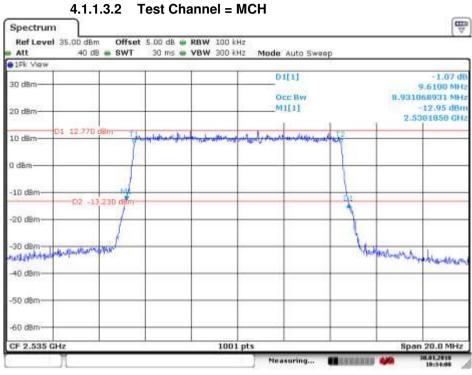
#### 4.1.1.3 Test Mode = LTE/TM1 10MHz



Date: 30 JAN 2018 10:30 48

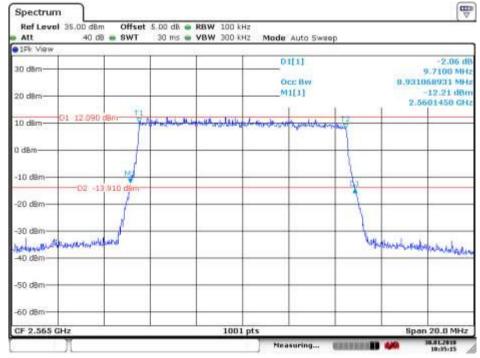


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Date: 30 JAN 2018 10:34 09

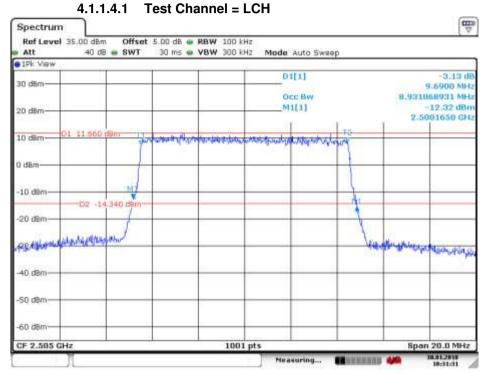




Date: 30 JAN 2018 10:35 16

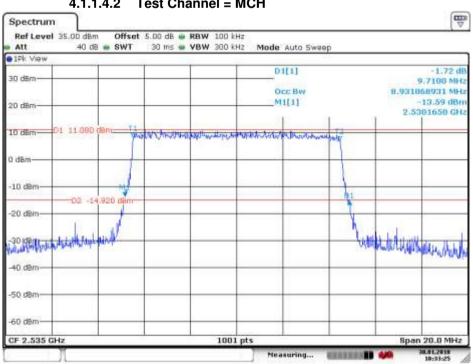


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#### Test Mode = LTE/TM2 10MHz 4.1.1.4

Date: 30 JAN 2018 10:31:32



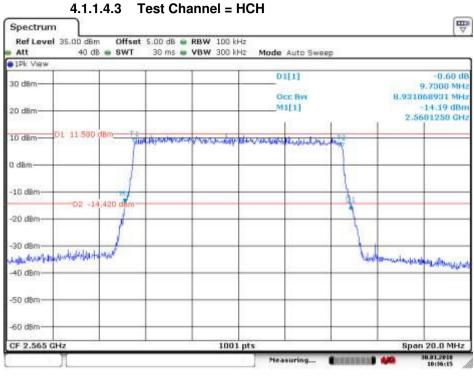
4.1.1.4.2 Test Channel = MCH

Date: 30 JAN 2018 10:33:25

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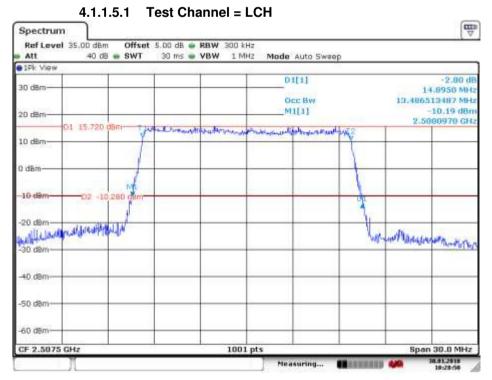


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Date: 30 JAN 2018 10:36:15

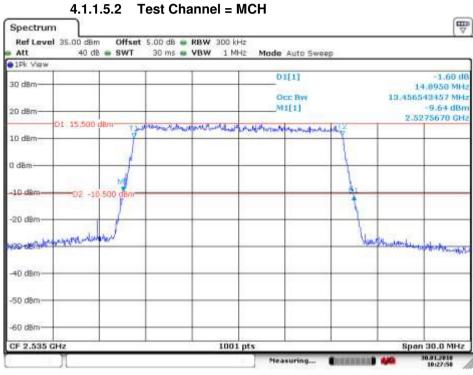
### 4.1.1.5 Test Mode = LTE/TM1 15MHz



Date: 30 JAN 2018 10:28:50

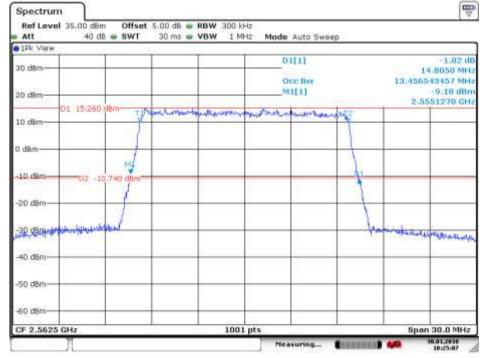


Report No.: SZEM180100071902 Page: 25 of 59



Date: 30 JAN 2018 10:27:59

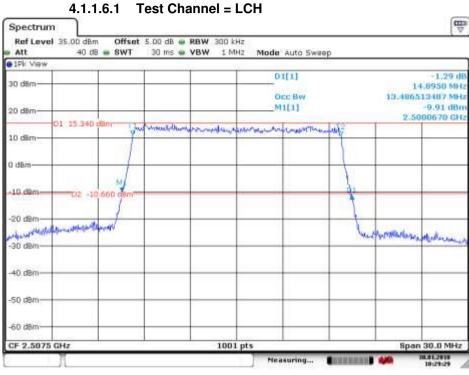




Date: 30 JAN 2018 10:25:07



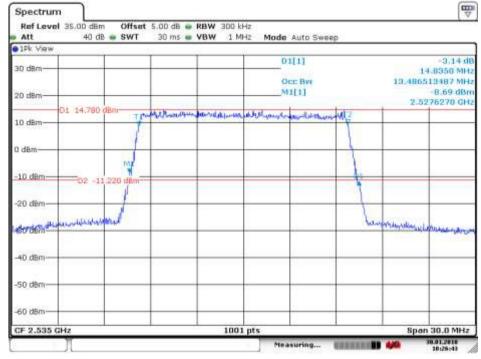
Report No.: SZEM180100071902 Page: 26 of 59



#### 4.1.1.6 Test Mode = LTE/TM2 15MHz

Date: 30 JAN 2018 10:29 29

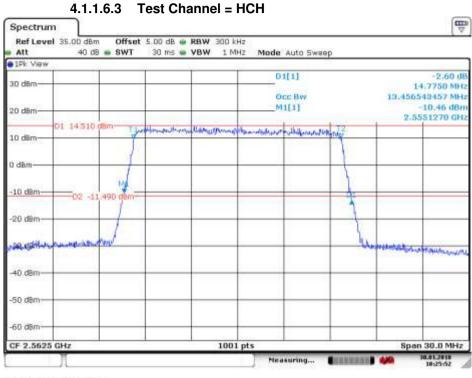




Date: 30.JAN 2018 10:26:44

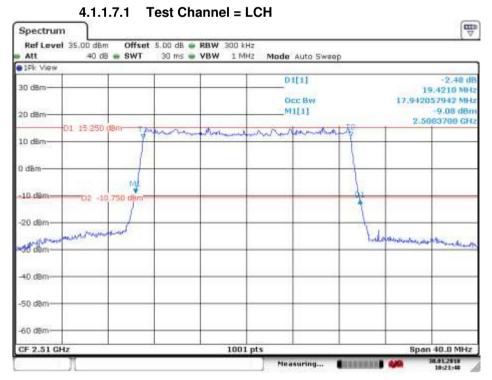


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Date: 30 JAN 2018 10:25:53

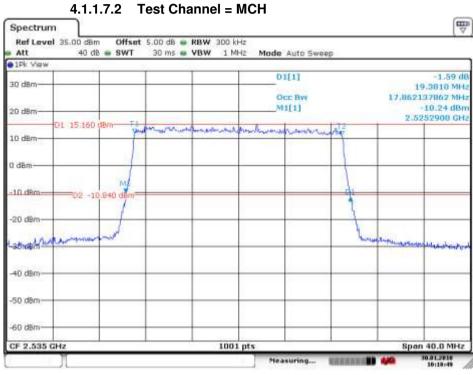
### 4.1.1.7 Test Mode = LTE/TM1 20MHz



Date: 30 JAN 2018 10:21:49

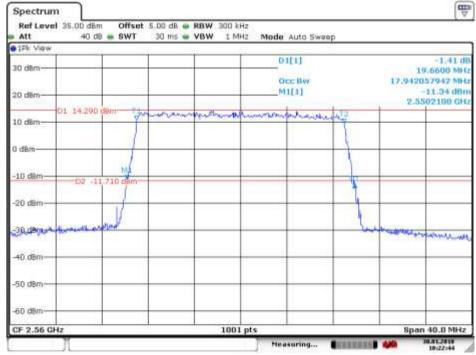


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Date: 30.JAN 2018 10:18:49

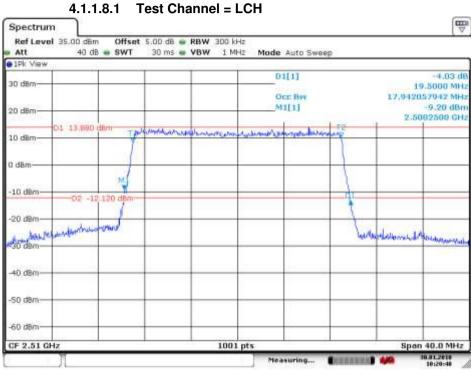




Date: 30 JAN 2018 10:22:45



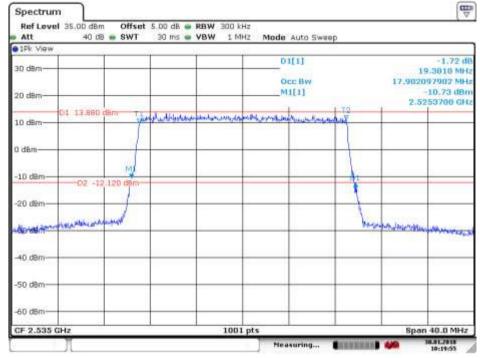
Report No.: SZEM180100071902 Page: 29 of 59



#### 4.1.1.8 Test Mode = LTE/TM2 20MHz

Date: 30 JAN 2018 10:20 49

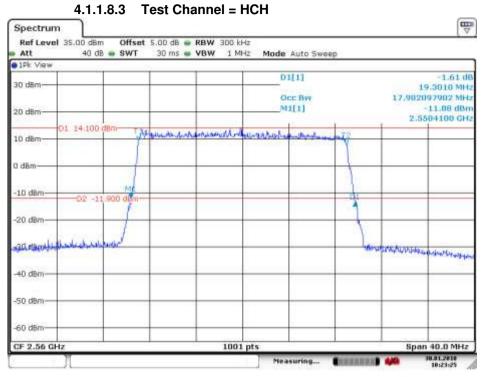
4.1.1.8.2 Test Channel = MCH



Date: 30 JAN 2018 10:19:54



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Date: 30.JAN 2018 10:23:26



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#### **Band Edges Compliance** 5

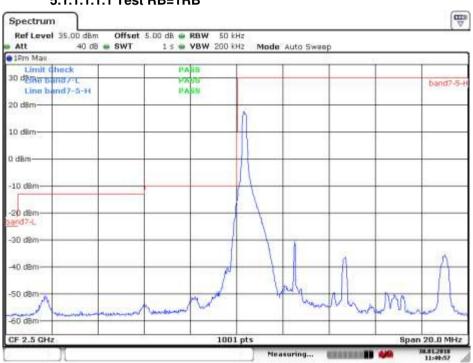
Part I -

### 5.1 For LTE

### 5.1.1 Test Band = LTE band7

### 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: 30 JAN 2018 11:49:57



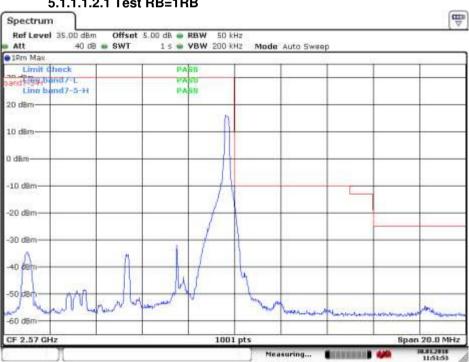
Report No.: SZEM180100071902 Page: 32 of 59

#### -Spectrum Ref Level 35.00 dBm Offset 5.00 dB . RBW 50 kHz Att 40 dB 🐽 SWT 1 s 🖷 VBW 200 kHz Mode Auto Sweep ● 1Pm Max Limit Check PABS 30 dBille band /-L band7-5-Line band7-5-H PASS 20 dBm 10 dBm 0 dBm -10 d9m -20 dBm -30 d8m 40 d8m Sec. 18 ALC: NO -50 d8m--60 d8m 1001 pts Span 20.0 MHz CF 2.5 GHz 30.01.2018 11:50:40 Measuring... **H**ERRERS

5.1.1.1.1.2 Test RB=25RB

Date: 30.JAN 2018 11:50:40

### 5.1.1.1.2 Test Channel = HCH

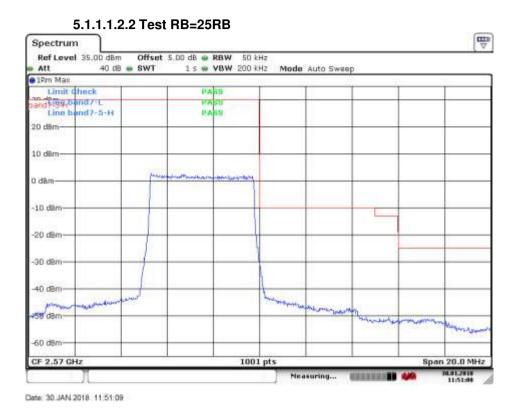


5.1.1.1.2.1 Test RB=1RB

Date: 30 JAN 2018 11:51:54



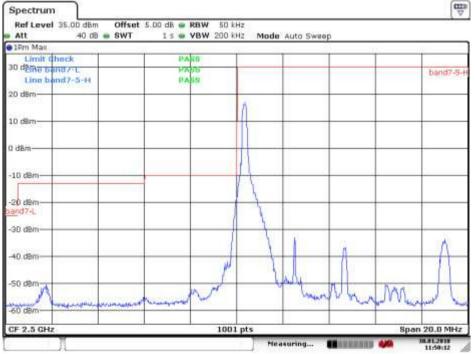
Report No.: SZEM180100071902 Page: 33 of 59



### 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: 30 JAN 2018 11:50 12

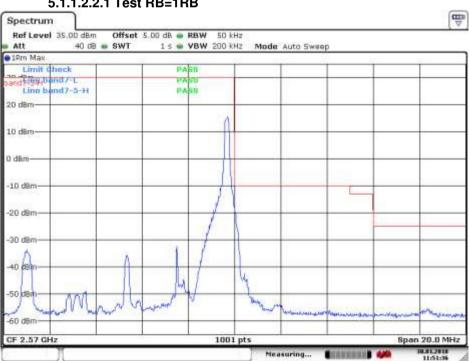


Report No.: SZEM180100071902 Page: 34 of 59

#### -Spectrum Ref Level 35.00 dBm Offset 5.00 dB . RBW 50 kHz Att 40 dB 🐽 SWT 1 s 💩 VBW 200 kHz Mode Auto Sweep ● 1Pm Max Limit Check PABS 30 dBme band /-D band7-5 Line band7-5-H PASS 20 dBm 10 dBm 0 dBm -10 d8m -20 dBm -30 d8m 40 d8m -50 d8m--60 d8m 1001 pts CF 2.5 GHz Span 20.0 MHz 30.01.2018 Measuring... **H**ERRERS

Date: 30.JAN 2018 11:50:40

### 5.1.1.2.2 Test Channel = HCH



5.1.1.2.2.1 Test RB=1RB

Date: 30 JAN 2018 11:51:37

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#### 5.1.1.2.1.2 Test RB=25RB



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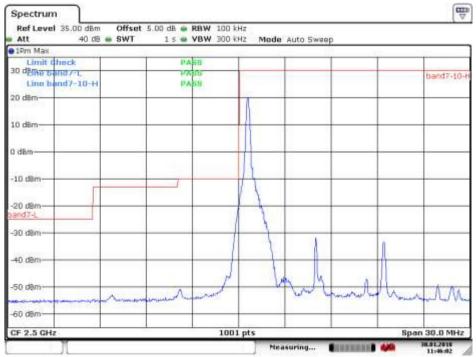
#### -Spectrum Ref Level 35.00 dBm Offset 5.00 dB 👜 RBW 50 kHz Att 40 dB 🐽 SWT 1 s 👜 VBW 200 kHz Mode Auto Sweep a 19m Max Limit Check PASS and tigg band 7-L Ling band 7-5-H PASS 20 dBm 10 dBm 0 dBm -10 d9m -20 d9m--30 dBm 40.d8m energenting -50 d8m Sec. 1 14 MARCH IN -60 d8m 1001 pts CF 2.57 GHz Span 20.0 MHz 11:51:21 Measuring... THE R. P. LEWIS CO., NAMES

5.1.1.2.2.2 Test RB=25RB

Date: 30 JAN 2018 11:51:21

### 5.1.1.3 Test Mode = LTE/TM1 10MHz 5.1.1.3.1 Test Channel = LCH

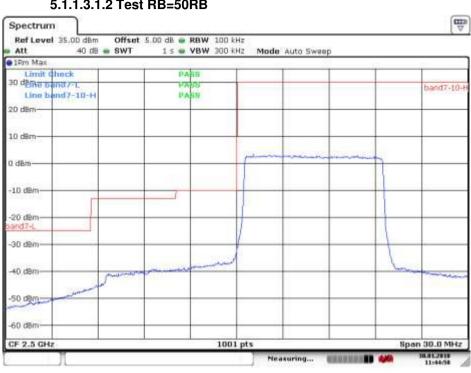
### 5.1.1.3.1.1 Test RB=1RB



Date: 30 JAN 2018 11:46:03



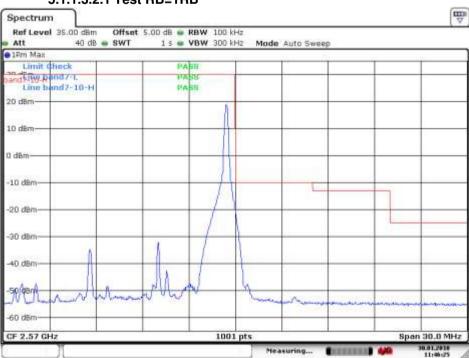
Report No.: SZEM180100071902 Page: 36 of 59



#### 5.1.1.3.1.2 Test RB=50RB

Date: 30 JAN 2018 11:44:58

### 5.1.1.3.2 Test Channel = HCH



5.1.1.3.2.1 Test RB=1RB

Date: 30 JAN 2018 11:46 25

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Report No.: SZEM180100071902 Page: 37 of 59

#### **₩** Spectrum Ref Level 35.00 dBm Offset 5.00 dB - RBW 100 kHz 40 dB 🖷 SWT 1 s . VBW 300 kHz Mode Auto Sweep Att • 1Pm Max Limit Check PABE and HW hand /-L PASS Line band7-10-H PASS 20 dBm 10 dBm 0 dBm -10 dBm--20 dBm -30 d8m 40 d8m -50 d8m -60 d8m-CF 2.57 GHz 1001 pts Span 30.0 MHz 30.01.2010 Measuring. Concession in the local division of the loca

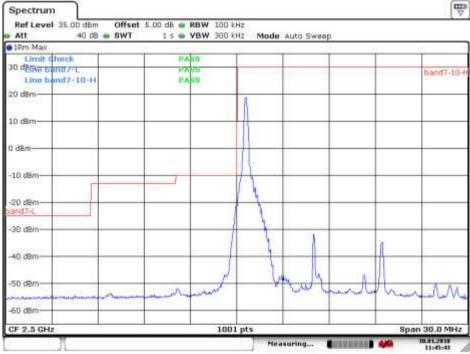
5.1.1.3.2.2 Test RB=50RB

Date: 30.JAN 2018 11:47:17

### 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: 30 JAN 2018 11:45:43



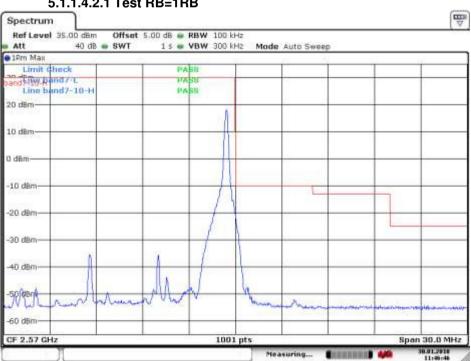
Report No.: SZEM180100071902 Page: 38 of 59

#### -Spectrum Ref Level 35.00 dBm Offset 5.00 dB 👜 RBW 100 kHz Att 40 dB 🐽 SWT 1 s 👜 VBW 300 kHz Mode Auto Sweep a 19m Max Limit Check PASS 30 deme band / L band7-10-Line bend7-10-H PASS 20 dBm 10 dBm 0 dBm -10 d9m -20 dBm -30 dBm -40.d8m -50 d8m -60 d8m 1001 pts CF 2.5 GHz Span 30.0 MHz 10.01.2018 Measuring... ALCONO. DURANTE A

5.1.1.4.1.2 Test RB=50RB

Date: 30 JAN 2018 11:45:22

### 5.1.1.4.2 Test Channel = HCH



5.1.1.4.2.1 Test RB=1RB

Date: 30.JAN 2018 11:46:46



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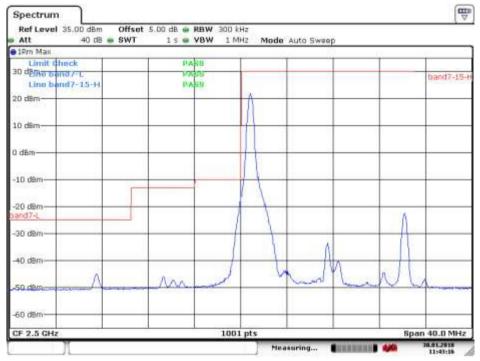
#### -Spectrum Ref Level 35.00 dBm Offset 5.00 dB 👜 RBW 100 kHz Att 40 dB 🐽 SWT 1 s 👜 VBW 300 kHz Mode Auto Sweep a 19m Max Limit Check PASS and File hand 7-L PASS 20 dBm 10 dBm 0 dBm -10 d9m -20 dBm--30 dBm 40.d8m -50 d8m -60 d8m-1001 pts CF 2.57 GHz Span 30.0 MHz 10.01.2018 Measuring... Excession and the second

5.1.1.4.2.2 Test RB=50RB

Date: 30 JAN 2018 11:47:02

### 5.1.1.5 Test Mode = LTE/TM1 15MHz 5.1.1.5.1 Test Channel = LCH

### 5.1.1.5.1.1 Test RB=1RB



Date: 30 JAN 2018 11:43:17

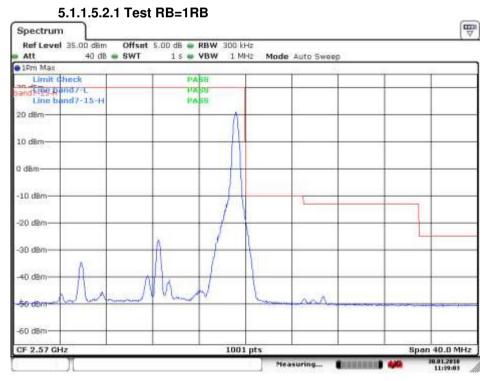


Report No.: SZEM180100071902 Page: 40 of 59

#### -Spectrum Ref Level 35.00 dBm Offset 5.00 dB 🖷 RBW 300 kHz Att 40 dB 🐽 SWT 1 5 🗰 VBW 1 MHz Mode Auto Sweep ● 1Pm Max Limit Check PABS 30 dBille band /-D and7-15-Line band7-15-H PASS 20 dBm 10 dBm 0 dBm -10 d9m -20 d8m -30 d8m 40 dBm 50 dam -60 d8m 1001 pts Span 40.0 MHz CF 2.5 GHz 38.01.2018 Measuring... NAMES AND D

Date: 30.JAN 2018 11:42.59

### 5.1.1.5.2 Test Channel = HCH



Date: 30.JAN 2018 11:39:03

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5.1.1.5.1.2 Test RB=75RB



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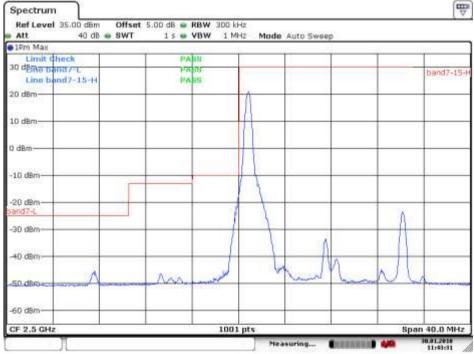
#### **m** Spectrum Ref Level 35.00 dBm Offset 5.00 dB 🗰 RBW 300 kHz 40 dB 🐽 SWT 1 5 . VBW Mode Auto Sweep Att 1 MHz 1Pm Max Limit Check and the hand / L PASE Line bend7-15-H PA \$5 20 d8m 10 dBm 0 dBm -10 d8m--20 d9m -30 dBm 40 dBm -50 d8m -60 d8m-CF 2.57 GHz 1001 pts Span 40.0 MHz 10.01.2018 11:99:20 Measuring... THE R. P. LEWIS CO., NAMES

Date: 30 JAN 2018 11:39:20

### 5.1.1.6 Test Mode = LTE/TM2 15MHz

### 5.1.1.6.1 Test Channel = LCH

### 5.1.1.6.1.1 Test RB=1RB



Date: 30.JAN 2018 11:43:32

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#### 5.1.1.5.2.2 Test RB=75RB

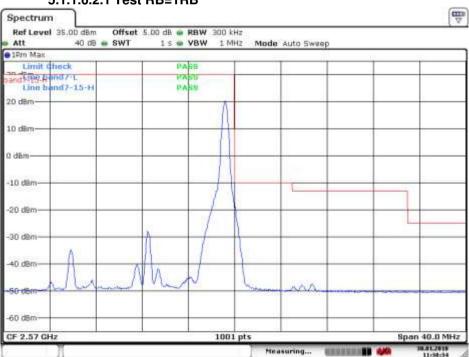


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#### -Spectrum Ref Level 35.00 dBm Offset 5.00 dB 👜 RBW 300 kHz Att 40 dB 🐽 SWT 1 5 . VBW 1 MHz Mode Auto Sweep a 19m Max Limit Check PARE 30 deme band / L band7-15-Line bend7-15-H PASS 20 dBm 10 dBm 0 dBm -10 d9m -20 d9m--30 dBm 40 d8m -50 dBm -60 d8m 1001 pts Span 40.0 MHz CF 2.5 GHz 10.01.2018 11:42:46 Measuring... Excelosion and a second

Date: 30 JAN 2018 11:42:46

### 5.1.1.6.2 Test Channel = HCH



5.1.1.6.2.1 Test RB=1RB

Date: 30 JAN 2018 11:38:34

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#### 5.1.1.6.1.2 Test RB=75RB



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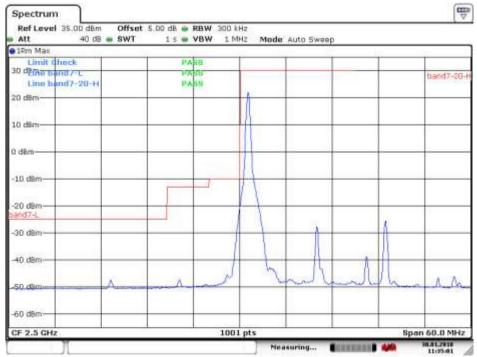
#### -Spectrum Ref Level 35.00 dBm Offset 5.00 dB 👜 RBW 300 kHz Att 40 dB 🐽 SWT 1 5 . VBW 1 MHz Mode Auto Sweep a 19m Max Limit Check PASS Line bend7-15-H PASS 20 dBm 10 dBm 0 dBm -10 d9m -20 dBm--30 dBm 10:08m -50 d8m -60 d8m-1001 pts Span 40.0 MHz CF 2.57 GHz 10.01.2018 Measuring... CONTRACTOR OF A

5.1.1.6.2.2 Test RB=75RB

Date: 30 JAN 2018 11:39 36

### 5.1.1.7 Test Mode = LTE/TM1 20MHz 5.1.1.7.1 Test Channel = LCH

### 5.1.1.7.1.1 Test RB=1RB



Date: 30 JAN 2018 11:35:01



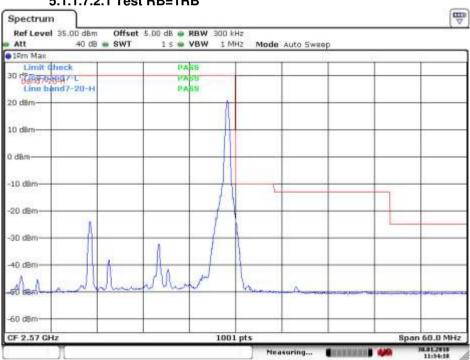
Report No.: SZEM180100071902 Page: 44 of 59



5.1.1.7.1.2 Test RB=100RB

Date: 30.JAN 2018 11:35:39

### 5.1.1.7.2 Test Channel = HCH

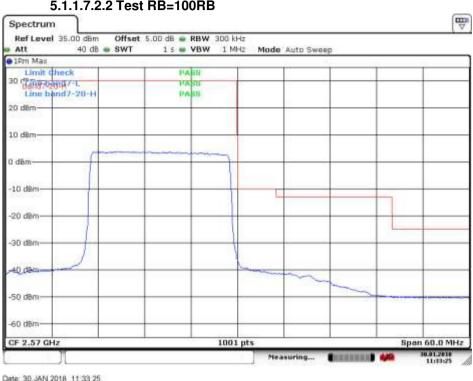


5.1.1.7.2.1 Test RB=1RB

Date: 30 JAN 2018 11:34:18



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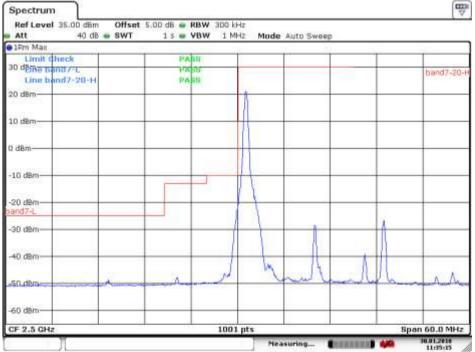


### 5.1.1.7.2.2 Test RB=100RB

### 5.1.1.8 Test Mode = LTE/TM2 20MHz

#### 5.1.1.8.1 Test Channel = LCH

### 5.1.1.8.1.1 Test RB=1RB



Date: 30.JAN 2018 11:35:15

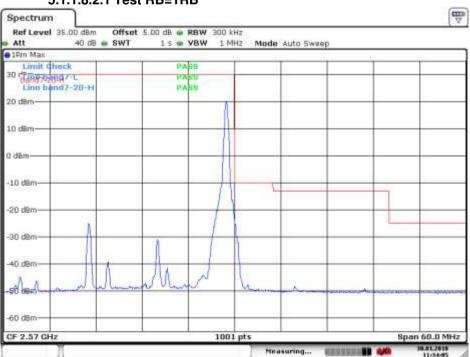


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#### -Spectrum Ref Level 35.00 dBm Offset 5.00 dB 👜 RBW 300 kHz Att 40 dB 🐽 SWT 1 5 . VBW 1 MHz Mode Auto Sweep a 19m Max Limit Check PARE 30 deme band / -C band7-20-Line bend7-20-H PASS 20 dBm 10 dBm 0 dBm -10 d9m -20 dBm -30 dBm -40.d8m SB dBma -60 d8m 1001 pts Span 60.0 MHz CF 2.5 GHz 10.01.2018 11:35:27 Measuring... Excelosion and a second

Date: 30 JAN 2018 11:35 27

### 5.1.1.8.2 Test Channel = HCH



5.1.1.8.2.1 Test RB=1RB

Date: 30 JAN 2018 11:34:05

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#### 5.1.1.8.1.2 Test RB=100RB



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#### -Spectrum Ref Level 35.00 dBm Offset 5.00 dB 👜 RBW 300 kHz Att 40 dB 🐽 SWT 1 5 . VBW 1 MHz Mode Auto Sweep a 19m Max Limit Check 30 dp. by the check Line band7-20-H PASS PASS 20 dBm 10 dBm 0 dBm -10 d9m -20 dBm--30 dBm 40.00 -50 d8m -60 d8m 1001 pts Span 60.0 MHz CF 2.57 GHz 10.01.2018 Measuring... STATUTE VALUE AND IN COLUMN

5.1.1.8.2.2 Test RB=100RB

Date: 30 JAN 2018 11:33:52



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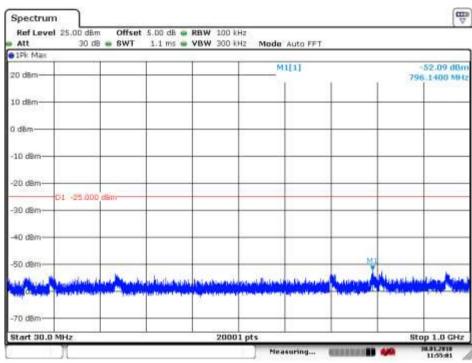
## 6 Spurious Emission at Antenna Terminal

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 L - Test Plots

### 6.1 For LTE

### 6.1.1 Test Band = LTE band7

### 6.1.1.1 Test Mode = LTE / TM1 20MHz RB1#0



6.1.1.1.1 Test Channel = LCH

Date: 30 JAN 2018 11:55 02



George										eport No age:	.: SZEM180100071902 49 of 59
Spectrun Ref Leve	25.00	iBm dB 🚥 1			RBW 1 MH		luto Sweep	1			
1Pk Mait		1.11			72		1				
20 d8m					-	M	11[1]	1 7		38.46 dBm 74130 GHz	
10 d8m		-	-		2	-				-	
0 dBm			-+		<u>.</u>	1				7	
-10 dBm		-	-		-	-					
-20 dBm	01 -25.0	00 dam								<u>.</u>	
-30 d9m			_		-		ML			5	
-40 dBm		d. met	h h h h h h h h	up dista	-	-	and the second second	-		-	
-50 dam				-1	a server of the			1. 2 mm			
-60 d8m		+	-								
-70 d8m											
Start 1.0 G	Hz				2000	01 pts		a - 20		10.0 GHz	
2	1					Hea	isuring	CARACTER D	440 3	11:56:13	

Date: 30 JAN 2018 11:56 14

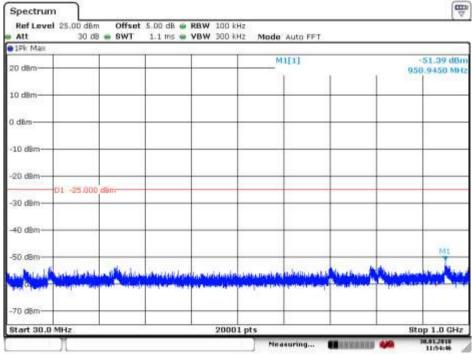
A REAL PROPERTY AND A REAL	30 dB 🖷 SWT 🛛 30	ms 🖷 VBW 3 MHz	Mode Auto Sweep	
20 dBm			M1[1]	-38.09 dBn 19.952250 GH
10 dBm				
0 dBm-				
10 dBm				
20 dBm	5.000 d8m			
30 d9m-	S.OOD OBM			
40 dBg	and the second	In the second second second	and the state of the	Manufer Malifederic Land States
50 d8m				
60 d8m	_			
70 d8m-				

Date: 30 JAN 2018 11:58 16



Att         30 db         SWT         30 ms         VBW 3 MHz         Mode Auto Sweep           15k Max         0 dbm         0.00750 GHz         38.74 dbm           20 dbm         0.000750 GHz         20.000750 GHz         0.000750 GHz           10 dbm         0.000         0.000750 GHz         0.000750 GHz           -10 dbm         0.000         0.000         0.000         0.000           -20 dbm         0.000         0.000         0.000         0.000           -30 dbm         0.000         0.000         0.000         0.000           -50 dbm		1 25.00 dBn		5.00 dB 🖷						eport No age:	.: SZEM180100071902 50 of 59
20 dBm     M1[1]     38.74 dBm       10 dBm     20.000750 GHz       10 dBm     10 dBm       0 dBm     10 dBm       -10 dBm     10 dBm       -20 dBm     11 dBm <t< th=""><th>Att</th><th>30 M</th><th>s 🖷 SWI</th><th>30 ms 🖷</th><th>ARM 3 WH</th><th>Mode )</th><th>Auto Sweep</th><th></th><th></th><th></th><th></th></t<>	Att	30 M	s 🖷 SWI	30 ms 🖷	ARM 3 WH	Mode )	Auto Sweep				
0 dBm -10 dBm -20 dBm -20 dBm -20 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -40 dBm -40 dBm -40 dBm -40 dBm -40 dBm -50 d		-		-		N	11[1]				
-10 dBm -20 dBm -20 dBm -20 dBm -30	10 dBm										
-20 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm         -30 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm         -30 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm         -30 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm         -50 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm         -50 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm         -50 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm         -60 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm         -60 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm         -70 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm         -70 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm         -70 dBm       G1 -25.000 dBm       G1 -25.000 dBm       G1 -25.000 dBm	0 dBm	0 0					-				
O1     -25.000 d8m     and     and     and     and       -30 d8m     -30 d8m     -30 d8m     -30 d8m     -30 d8m       1     -10 d8m     -10 d8m     -10 d8m     -10 d8m       -50 d8m     -10 d8m     -10 d8m     -10 d8m     -10 d8m       -50 d8m     -10 d8m     -10 d8m     -10 d8m     -10 d8m       -60 d8m     -10 d8m     -10 d8m     -10 d8m     -10 d8m       -70 d8m     -10 d8m     -10 d8m     -10 d8m     -10 d8m	-10 dBm	-	-				-				
-30 dBm	-20 dBm	151 -24 000	dam								
-50 dBm	-30 dBm									-	
-60 d8m -70 d8m Start 20.0 GHz 20001 pts Stop 30.0 GHz	-10 ctBm-	des la de la	and Reality	ing all the second	un tille in	d di stara di Bar	hundrent	-	an all maps	-	
-70 dBm Start 20.0 GHz 20001 pts Stop 30.0 GHz	-50 d8m										
Start 20.0 GHz 20001 pts Stop 30.0 GHz	-60 d8m										
	Start 20.0	GHz			2000	and so the second s	Auring	Concession in the local division in the loca			

Date: 30.JAN 2018 11:58:40



### 6.1.1.1.2 Test Channel = MCH

Date: 30 JAN 2018 11:54:46



									age:	: SZEM18 51 of 59	0100071902
Spectrui Ref Leve	el 25.00	dBm Offse ) dB 👜 SWT	nt 5.00 dB 30 ms w	RBW 1 M		Auto Sweep			(CTTS) ▽		
• 1Pk Main	-	WARY.		10							
20 dBm	-				N	11[1]	1		08.83 dBm 01230 GHz		
10 dBm	-		-	-	-	-					
0 dBm	-	100			7						
-10 dBm	-		-	-	-						
-20 dBm	01 -25)	000 d8m									
-30 d9m				-	-	141					
-40 dBm	and a monthly	STR. S. M. M.	, data and have	ALL AND DESIGNATION	-	and a	- Addates	الاندروية	All down		
-so aani-											
-60 d8m											
-70 d8m											
Start 1.0	GHz			200	01 pts			Contraction of the local division of the loc	10.0 GHz		
2					He	asuring	CHARLES A	10 1	11:59:53		

Date: 30 JAN 2018 11:56 54

Pk Max					Sweep			
20 d8m-			-	M1[1]	27	19.9		
10 dBm-	2	_						
0 dBm-	10	-						
1D dBm								
20 dBm	-25.000 dBm					-		
-30 dBm	-25.000 6840					_		
40 d8m	Ale plate and	a data a se altara y	(Bases Merch	MANNA MAL	he of the state	In the second second	-	
50 dBm								
60 d8m		_						
70 d8m			-					

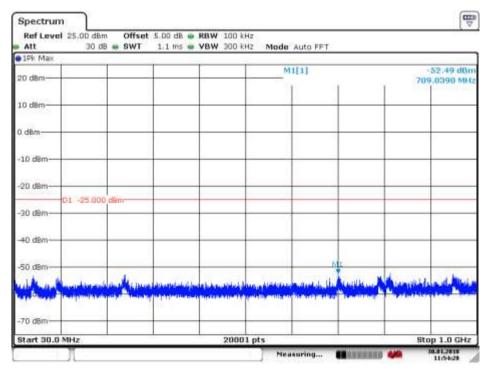
Date: 30 JAN 2018 11:58:01



									eport No. age:	: SZEM180100071902 52 of 59
Spectrur Ref Leve	1 25.00 dBn	Offset		RBW 1 MH		luto Sweep	8			
• 1Pk Max	945 - Y				7.1					
20 d8m					M	1[1]	n s		38.32 dBm 51230 GHz	
10 dBm										
0 dBm-						9				
-10 dBm	-	-								
-20 dBm	01 -25.000	dam								
-30 dBm						-				
-40 dBm-	and a share	Masterie	-	tine in the state			- Sure Marine Ma	THE STREET	agent law o	
-50 dBm			( Lundburd b				Contraction of the			
-60 d8m										
-70 d8m										
Start 20.0	) GHz	-		2000	1 pts	10	10		30.0 GHz	
2	1				Mei	suring		440	11:59:10	

Date: 30.JAN 2018 11:59 11

6.1.1.1.3 Test Channel = HCH



Date: 30 JAN 2018 11:54:29



								R	eport No.	.: SZEM180100071902
								Pa	age:	53 of 59
	el 25.00 e			RBW 1 MH						
<ul> <li>Att</li> <li>1Pk Max</li> </ul>	30	dB 🖷 SW	F 30 ms	VBW 3 MH	2 Mode	Auto Sweep	8			
20 d8m-			-	-	0	M1[1]	n a		39.18 dBm 59380 GHz	
10 dBm	-		-	-						
0 dBm-						9				
-10 dBm	-									
-20 dBm	61 -25.0	ngp 00	-	-						
-30 dBm				-		MI				
-40 dBm	. A. B. St	a hairesta	-	ite in stillet	-		ALPRIM	MAN WAL		
*90 08ni-										
-60 d8m	-					-				
-70 d8m								india		
Start 1.0	GHz			2000	11 pts				10.0 GHz	
2					Me	asuring	<b>H</b> ERREN AND	-	8.81.2018 11:57:22	

Date: 30 JAN 2018 11:57:22

1 Pk Mair				VBW 3 MH		Auto Sweep			
20 d8m-	-		-	-	M	11[1]	-37.86 dBn 19.801760 GH		
10 d8m	<u>n e</u>			-			-		
0 dBm				-			-		
-10 dBm					-	-			
-20 dBm	61 -25.000	(ASIA)							
-30 d9m	101 -23.000	LIDIN		-	-	-			MI
40 dBm	Line and	- che	a la junt da ser		ANA DEL	and the second	a differenter	Halingson	No.
-50 d8m				Chine Manual					
-60 d8m									
-70 d8m									

Date: 30 JAN 2018 11:57:44



Spectrun Ref Leve	n 1 25.00 dBm 30 dB		5.00 dB	RBW 1 MH		Auto Swee	0		leport No. age:	: SZEM180100071902 54 of 59
• 1Pk Max	ab 20									
20 dBm					N	11[1]	14 P	20.	-39.13 dBm 027750 GHz	
10 dBm						-	-			
0 dBm						-				
-10 dBm	-					-				
-20 dBm										
-30 dBm	01 -25.000	dBm							-	
-sCadBm	and the set of the local	and the second	a Londer and Area	and the second	and the factor	Ma Lubian	-	Latte alle par	And a state of the second second	
-50 dBm				and the second	Maria Maria					
-60 d8m						-				
-70 d8m									-	
Start 20.0	GHz		-	2000	1 pts			Sto	p 30.0 GHz	
	Л				Me	asuring	VIER AND	440	38.01.2010	

Date: 30 JAN 2018 11:59 33



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## 7 Field Strength of Spurious Radiation

## 7.1 For LTE

### 7.1.1 Test Band = LTE band7

### 7.1.1.1 Test Mode =LTE/TM1 20MHz RB1#0

7.1.1.1.1	Test Channel = LC	Н		
Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
829.133	-80.14	-13.00	67.14	Vertical
1163.000	-66.72	-13.00	53.72	Vertical
1465.500	-65.97	-13.00	52.97	Vertical
2580.000	-57.75	-13.00	44.75	Vertical
4710.475	-65.95	-13.00	52.95	Vertical
6471.650	-64.08	-13.00	51.08	Vertical
1308.500	-67.08	-13.00	54.08	Horizontal
2680.500	-56.99	-13.00	43.99	Horizontal
3785.525	-67.40	-13.00	54.40	Horizontal
4581.450	-66.28	-13.00	53.28	Horizontal
7239.950	-64.10	-13.00	51.10	Horizontal
9246.500	-62.59	-13.00	49.59	Horizontal

7.1.1.1.1 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1213.000	-65.60	-13.00	52.60	Vertical
1714.500	-63.69	-13.00	50.69	Vertical
2494.000	-58.12	-13.00	45.12	Vertical
4417.000	-66.30	-13.00	53.30	Vertical
5730.325	-65.92	-13.00	52.92	Vertical
7823.000	-63.26	-13.00	50.26	Vertical
1200.000	-66.33	-13.00	53.33	Horizontal
1533.000	-65.53	-13.00	52.53	Horizontal
4197.300	-66.34	-13.00	53.34	Horizontal
5908.100	-65.20	-13.00	52.20	Horizontal
7800.250	-63.34	-13.00	50.34	Horizontal
9194.500	-62.94	-13.00	49.94	Horizontal



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7.1.1.1.1	Test Channel = HC	СН	5	
Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1283.500	-66.06	-13.00	53.06	Vertical
1623.500	-64.81	-13.00	51.81	Vertical
2395.000	-58.46	-13.00	45.46	Vertical
2799.000	-56.99	-13.00	43.99	Vertical
4493.375	-66.63	-13.00	53.63	Vertical
6835.325	-64.10	-13.00	51.10	Vertical
1126.500	-66.68	-13.00	53.68	Horizontal
1432.500	-66.35	-13.00	53.35	Horizontal
1747.000	-63.54	-13.00	50.54	Horizontal
2651.500	-57.35	-13.00	44.35	Horizontal
4461.850	-66.34	-13.00	53.34	Horizontal
5643.550	-65.96	-13.00	52.96	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.



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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/TM1 20MHz	LCH	TN	VL	-4.53	-0.00180	PASS
				VN	0.47	0.00019	PASS
				VH	-7.77	-0.00310	PASS
		МСН	TN	VL	1.43	0.00056	PASS
				VN	-2.88	-0.00114	PASS
				VH	2.68	0.00106	PASS
		нсн	TN	VL	-6.55	-0.00256	PASS
LTEband7				VN	-5.13	-0.00200	PASS
				VH	-0.71	-0.00028	PASS
	LTE/TM2 20MHz	LCH	TN	VL	-4.22	-0.00168	PASS
				VN	-2.90	-0.00116	PASS
				VH	-5.18	-0.00206	PASS
		МСН	TN	VL	1.54	0.00061	PASS
				VN	-2.88	-0.00114	PASS
				VH	2.53	0.00100	PASS
		НСН	TN	VL	-3.01	-0.00118	PASS
				VN	-8.09	-0.00316	PASS
				VH	0.46	0.00018	PASS



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### 8.2 Frequency Error VS. Temperature

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband7	LTE/TM1 20MHz	LCH	VN	-30	-0.45	-0.00018	PASS
				-20	-1.32	-0.00053	PASS
				-10	2.37	0.00094	PASS
				0	1.76	0.00070	PASS
				10	1.63	0.00065	PASS
				20	0.17	0.00007	PASS
				30	-0.32	-0.00013	PASS
				40	-0.17	-0.00007	PASS
				50	0.55	0.00022	PASS
		МСН	VN	-30	-7.83	-0.00309	PASS
				-20	-5.97	-0.00236	PASS
				-10	-7.43	-0.00293	PASS
				0	-5.67	-0.00224	PASS
				10	-4.09	-0.00161	PASS
				20	-9.97	-0.00393	PASS
				30	-5.62	-0.00222	PASS
				40	-4.67	-0.00184	PASS
				50	-6.93	-0.00273	PASS
		НСН	VN	-30	0.58	0.00023	PASS
				-20	-1.49	-0.00058	PASS
				-10	1.52	0.00059	PASS
				0	-2.89	-0.00113	PASS
				10	2.63	0.00103	PASS
				20	-0.55	-0.00021	PASS
				30	-2.68	-0.00105	PASS
				40	-5.42	-0.00212	PASS
				50	-8.98	-0.00351	PASS



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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
	LTE/TM2 20MHz	LCH	VN	-30	-0.60	-0.00024	PASS
				-20	-2.45	-0.00098	PASS
				-10	3.18	0.00127	PASS
				0	2.74	0.00109	PASS
				10	1.80	0.00072	PASS
				20	-0.03	-0.00001	PASS
				30	-0.24	-0.00010	PASS
				40	5.94	0.00237	PASS
				50	0.79	0.00031	PASS
		МСН	VN	-30	-3.40	-0.00134	PASS
LTEband7				-20	-5.18	-0.00204	PASS
				-10	-7.59	-0.00299	PASS
				0	-4.72	-0.00186	PASS
				10	-0.84	-0.00033	PASS
				20	1.94	0.00077	PASS
				30	-3.34	-0.00132	PASS
				40	-2.62	-0.00103	PASS
				50	-3.21	-0.00127	PASS
				-30	1.74	0.00068	PASS
		НСН	VN	-20	-2.25	-0.00088	PASS
				-10	1.79	0.00070	PASS
				0	-3.23	-0.00126	PASS
				10	2.88	0.00113	PASS
				20	-1.27	-0.00050	PASS
				30	-2.99	-0.00117	PASS
				40	-4.23	-0.00165	PASS
				50	-7.70	-0.00301	PASS

The End