

Report No.: SZEM180400321702 Page: 1 of 44

# Appendix B

LTE-NB1 BAND2



Report No.: SZEM180400321702 Page: 2 of 44

## CONTENT

1	EFFECTIVE (ISOTROPIC) RADIATED POWER OUTPUT DATA	3
2	PEAK-TO-AVERAGE RATIO	4
	2.1 For LTE-NB1	4
	2.1.1 Test Band = LTE-NB1 BAND2	4
3	MODULATION CHARACTERISTICS	9
	3.1 For LTE-NB1	9
	3.1.1 Test Band = LTE-NB1 BAND2	9
4	BANDWIDTH	11
	4.1 For LTE-NB1	11
	4.1.1 Test Band = LTE-NB1 BAND2	11
5	BAND EDGES COMPLIANCESS	15
	5.1 For LTE-NB1	15
	5.1.1 Test Band = LTE-NB1 BAND2	15
6	SPURIOUS EMISSION AT ANTENNA TERMINAL	21
	6.1 For LTE-NB1	21
	6.1.1 Test Band = LTE-NB1 BAND2	21
7	FIELD STRENGTH OF SPURIOUS RADIATION	40
	7.1 For LTE-NB1	40
	7.1.1 Test Band = LTE-NB1 BAND2	40
8		42
	8.1 FREQUENCY ERROR VS. VOLTAGE	42
	8.2 FREQUENCY ERROR VS. TEMPERATURE	43



Report No.: SZEM180400321702 Page: 3 of 44

## 1 Effective (Isotropic) Radiated Power Output Data

Test Band	Test Mode	Sub-carrier Spacing (kHz)	Test channel	Number of T	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
			LCH	1T0	22.13	23.23	33.00	PASS
			LCH	1T47	22.87	22.97	33.00	PASS
	TM1	3.75	МСН	1T0	22.45	23.55	33.00	PASS
	1 171 1	5.75	WICH	1T47	22.72	23.82	33.00	PASS
			НСН	1T0	22.41	23.51	33.00	PASS
BAND2			ПОП	1T47	22.36	23.46	33.00	PASS
DANDZ			LCH	1T0	22.63	23.73	33.00	PASS
			LOIT	1T47	22.85	23.95	33.00	PASS
	TM2	3.75	мсн	1T0	22.38	23.48	33.00	PASS
		5.75		1T47	22.43	23.53	33.00	PASS
			НСН	1T0	22.59	23.69	33.00	PASS
				1T47	22.31	23.41	33.00	PASS

...

Test Band	Test Mode	Sub-carrier Spacin (kHz)	Test channel	Number of T	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
				1T0	22.56	23.66	33.00	PASS
			LCH	1T11	22.45	23.55	33.00	PASS
	TM1	15	МСН	1T0	22.77	23.87	33.00	PASS
	1 171 1	15	WICH	1T11	22.76	23.86	33.00	PASS
			нсн	1T0	22.63	23.73	33.00	PASS
			поп	1T11	22.75	23.85	33.00	PASS
				1T0	21.61	22.71	33.00	PASS
BAND2			LCH	1T11	21.63	22.63	33.00	PASS
				12T0	20.34	21.44	33.00	PASS
				1T0	22.72	23.82	33.00	PASS
	TM2	15	MCH	1T11	22.79	23.89	33.00	PASS
				12T0	20.93	22.03	33.00	PASS
				1T0	22.61	23.71	33.00	PASS
			HCH	1T11	22.56	23.66	33.00	PASS
				12T0	20.75	21.85	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



Report No.: SZEM180400321702 Page: 4 of 44

## 2 Peak-to-Average Ratio

#### Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
		LCH	4.12	13	PASS
	TM1/1T	MCH	4.58	13	PASS
		НСН	4.55	13	PASS
		LCH	4.55	13	PASS
BAND2	TM2/1T	MCH	4.09	13	PASS
		НСН	4.67	13	PASS
		LCH	2.61	13	PASS
	TM2/Full T	MCH	2.35	13	PASS
		НСН	2.55	13	PASS

### Part II - Test Plots

### 2.1 For LTE-NB1

### 2.1.1 Test Band = LTE-NB1 BAND2

### 2.1.1.1 Test Mode = LTE-NB1/TM1.Sub-carrier spacing=15kHz.T size=1T0

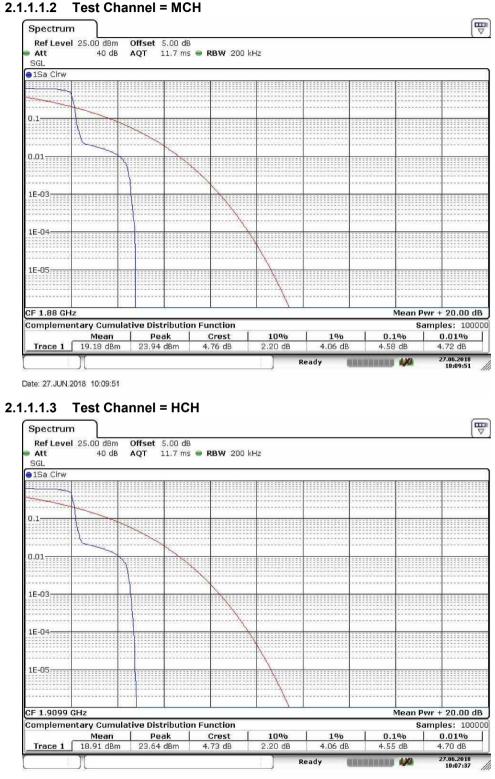
#### 2.1.1.1.1 Test Channel = LCH



Date: 22.JUN.2018 09:06:31



Report No.: SZEM180400321702 Page: 5 of 44



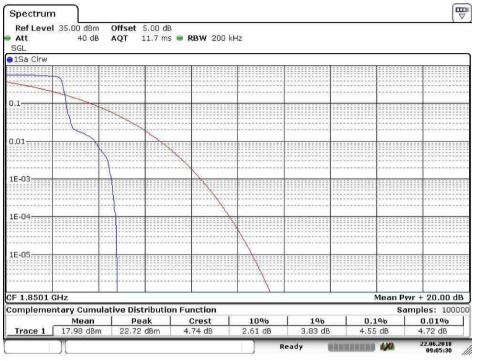
Date: 27.JUN.2018 10:07:37

### 2.1.1.2 Test Mode = LTE-NB1/TM2.Sub-carrier spacing=15kHz.T size=1T0



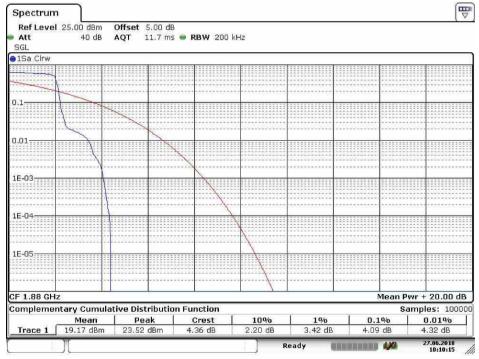
Report No.: SZEM180400321702 Page: 6 of 44

### 2.1.1.2.1 Test Channel = LCH



Date: 22.JUN.2018 09:05:30

#### 2.1.1.2.2 Test Channel = MCH

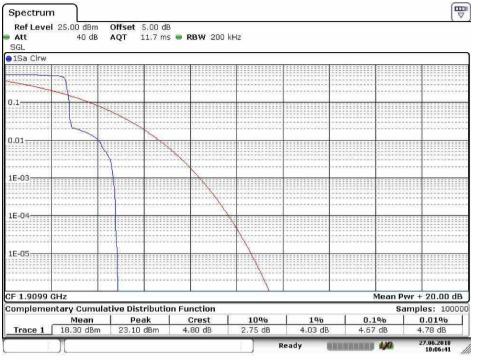


Date: 27.JUN.2018 10:10:15



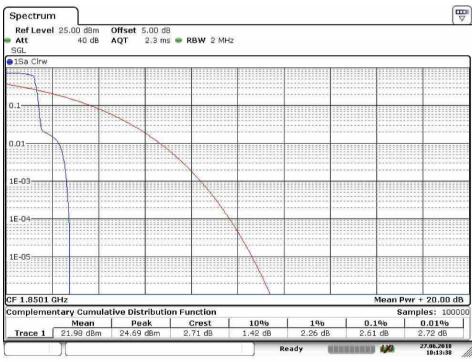
Report No.: SZEM180400321702 7 of 44 Page:

### 2.1.1.2.3 Test Channel = HCH



Date: 27.JUN.2018 10:06:41

### 2.1.1.3 Test Mode = LTE-NB1/TM2.Sub-carrier spacing=15kHz.T size=12T0



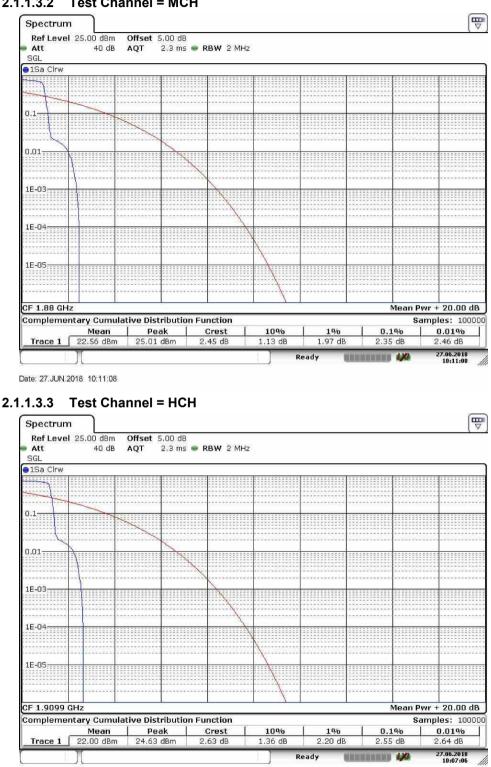
Date: 27.JUN.2018 10:13:38

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### 2.1.1.3.1 Test Channel = LCH



Report No.: SZEM180400321702 Page: 8 of 44



2.1.1.3.2 Test Channel = MCH

Date: 27.JUN.2018 10:07:06

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Report No.: SZEM180400321702 Page: 9 of 44

## 3 Modulation Characteristics

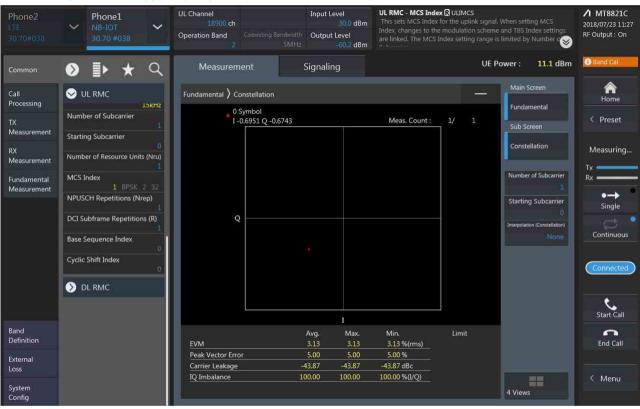
Part I - Test Plots

### 3.1 For LTE-NB1

### 3.1.1 Test Band = LTE-NB1 BAND2

### 3.1.1.1 Test Mode = LTE-NB1/TM1.Sub-carrier spacing=15kHz.T size=1T0

### 3.1.1.1.1 Test Channel = MCH





Report No.: SZEM180400321702 Page: 10 of 44

#### 3.1.1.2 Test Mode = LTE-NB1/TM2.Sub-carrier spacing=15kHz.T size=12T0 3.1.1.2.1 Test Channel = MCH

Phone2 LTE 30.70#038	V NB-	one1 IOT '0 #038	~	UL Channel 18900 ch Operation Band 2	Coexisting Ba	Ing andiwidth Ou SMHz	ut Level 30.0 dBn tput Level -60.2 dBn	This sets the subca 15 kHz.	of Subcarrier 🕄 UL mer number when S		cing is set to 🛞	MT8821C 2018/07/23 11:26 RF Output : On
Common	I	* *	ς	Measurem	ient	Sigr	aling		UE	Power :	8.7 dBm	Band Cal
Call Processing	😔 Level			Fundamental 🕽 C	onstellation				-	Main S		A Home
тх	AUX1		0 dB		Symbol ).6947 Q -0.7	101		Meas. Count :	1/ 1	Fundan Sub Scr		< Preset
Measurement RX	📎 Signal									Constel	lation	Measuring
Measurement	NPDCC									Number	of Subcarrier	Tx
Measurement	Subcarrier Sp	pacing								Starting	12 Subcarrier	•> Single
	Number of S		5kHz 12	ç	( <u> </u>				_	Interpolatio	0 n (Constellation)	Continuous
	Starting Sub	carrier	0								None	Continuous
		esource Units	(Nru)									Connected
	MCS Index	5 QPSK 5 petitions (Nre										•
-		e Repetitions	1				I					Start Call
Band Definition	Base Sequen		ů.	EVM		Avg. 4.36	4.36	Min. 4.36 %(rms)	Limit			End Call
External Loss	Cyclic Shift I	ndex	0	Peak Vector Erro Carrier Leakage		10.48 -42,23	-42.23	10.48 % -42.23 dBc		_		
System Config	📎 DL RM	с		IQ Imbalance		100.70	100.70	100.70 %(I/Q)		4 Views		< Menu



Report No.: SZEM180400321702 Page: 11 of 44

## 4 Bandwidth

#### Part I - Test Results

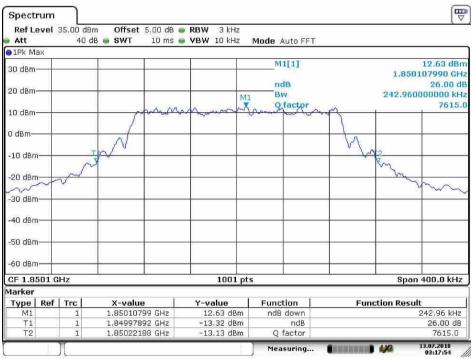
Test Band	Test Mode	Test Channel	Occupied Bandwidth [kHz]	Emission Bandwidth [kHz]	Verdict
		LCH	184.61	242.96	PASS
BAND2	TM2/15kHz	MCH	186.61	242.16	PASS
		HCH	186.61	242.16	PASS

### 4.1 For LTE-NB1

### 4.1.1 Test Band = LTE-NB1 BAND2

### 4.1.1.1 Test Mode = LTE-NB1/TM2.Sub-carrier spacing=15kHz.T size=12T0

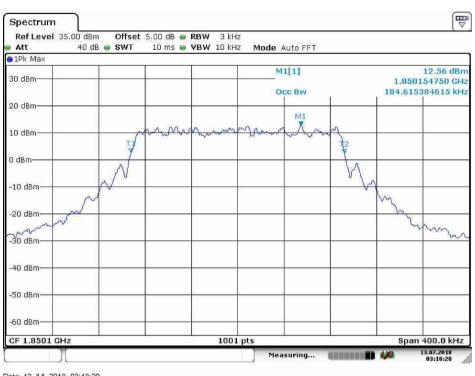
#### 4.1.1.1.1 Test Channel = LCH



Date: 13.JUL.2018 03:17:54



Report No.: SZEM180400321702 Page: 12 of 44



Date: 13.JUL.2018 03:18:20

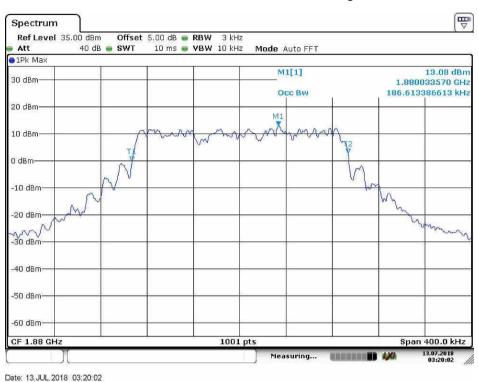
#### 4.1.1.1.2 Test Channel = MCH

Spectrum Ref Level Att	35.00 di 40			Mode Auto FFT		
1Pk Max						
30 dBm				M1[1]		13.03 dBi
0.0000000000				ndB		1.880033570 GH 26.00 d
20 dBm —		-		Maw		242.160000000 kH
				To factor	diance	7763.
10 dBm		- Annon	an mar	Con in march	Mr_	
104- <b>1</b> 240-201		{	~		1	
0 dBm		N			M	
-10 dBm		TAV			VL	0
-10 UBIII	٢	V .				tr.
-20 dBm	m					~
	C					money
-30 dBm		-				
-40 dBm		-	-			
-50 dBm			6	i c		
50 JD						
-60 dBm						
CF 1.88 GH:	z	- 13	1001 pts	5	N. 2	Span 400.0 kHz
larker						
Type Ref		X-value	Y-value	Function	Func	tion Result
M1 T1	1	1.88003357 GHz 1.87988012 GHz	13.03 dBm -12.75 dBm	ndB down ndB		242.16 kHz 26.00 dB
T2	1	1.88012228 GHz	-13.13 dBm	Q factor		7763.7

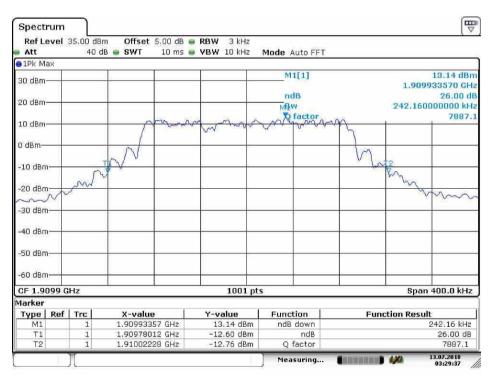
Date: 13.JUL.2018 03:20:17



Report No.: SZEM180400321702 Page: 13 of 44



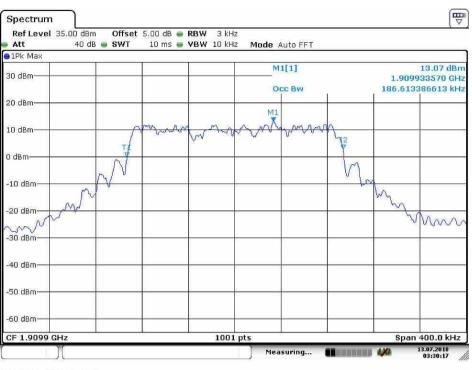
#### 4.1.1.1.3 Test Channel = HCH



Date: 13.JUL.2018 03:29:37



Report No.: SZEM180400321702 Page: 14 of 44



Date: 13.JUL.2018 03:30:18



Report No.: SZEM180400321702 Page: 15 of 44

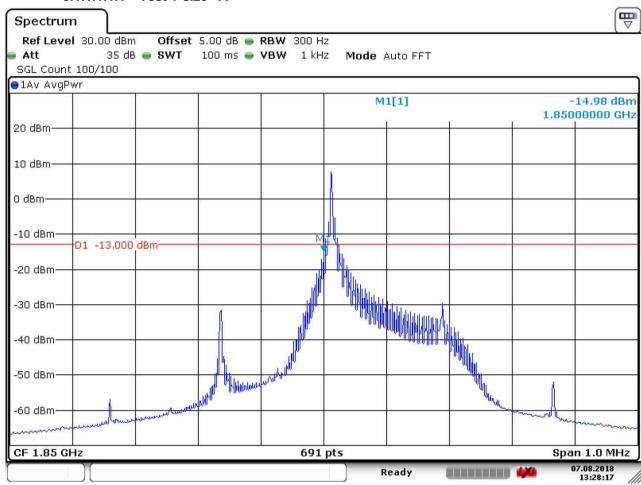
## 5 Band Edges Compliance

### 5.1 For LTE-NB1

### 5.1.1 Test Band = LTE-NB1 BAND2

### 5.1.1.1 Test Mode = LTE-NB1/TM1.Sub-carrier spacing=3.75kHz

5.1.1.1.1 Test Channel = LCH



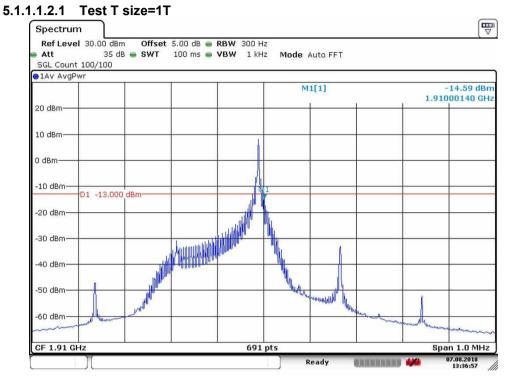
### 5.1.1.1.1.1 Test T size=1T

Date: 7.AUG.2018 13:28:17



Report No.: SZEM180400321702 Page: 16 of 44

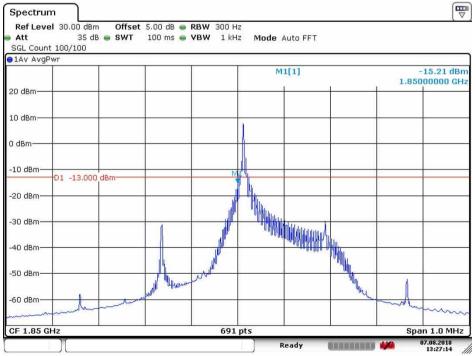
#### 5.1.1.1.2 Test Channel = HCH



Date: 7.AUG.2018 13:36:57

### 5.1.1.2 Test Mode = LTE-NB1/TM2.Sub-carrier spacing=3.75kHz 5.1.1.2.1 Test Channel = LCH

#### 5.1.1.2.1.1 Test T size=1T

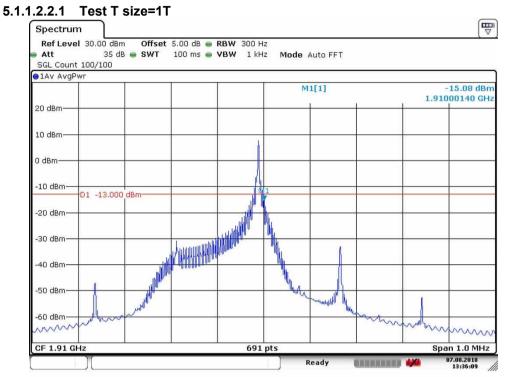


Date: 7.AUG.2018 13:27:14



Report No.: SZEM180400321702 Page: 17 of 44

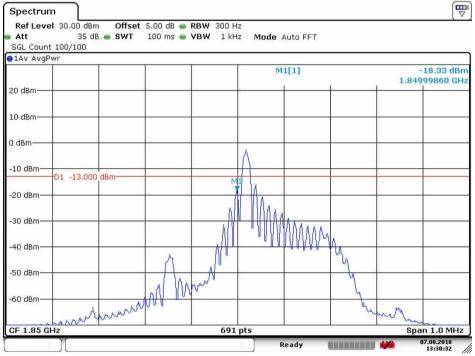
#### 5.1.1.2.2 Test Channel = HCH



Date: 7.AUG.2018 13:36:09

### 5.1.1.3 Test Mode = LTE-NB1/TM1.Sub-carrier spacing=15kHz 5.1.1.3.1 Test Channel = LCH

### 5.1.1.3.1.1 Test T size=1T

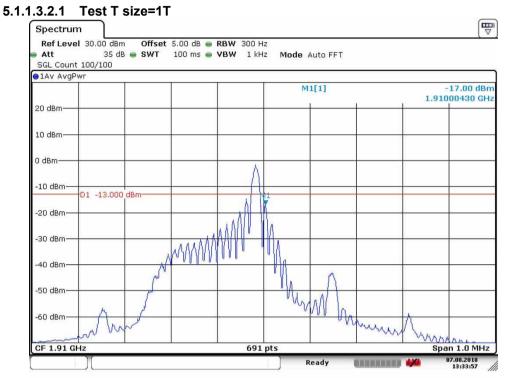


Date: 7.AUG.2018 13:30:32



Report No.: SZEM180400321702 Page: 18 of 44

#### 5.1.1.3.2 Test Channel = HCH



#### Date: 7.AUG.2018 13:33:58

### 5.1.1.4 Test Mode = LTE-NB1/TM2.Sub-carrier spacing=15kHz 5.1.1.4.1 Test Channel = LCH

### 5.1.1.4.1.1 Test T size=1T

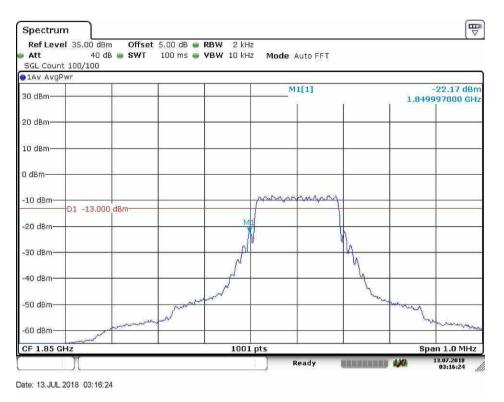


Date: 7.AUG.2018 13:29:46



Report No.: SZEM180400321702 Page: 19 of 44

#### 5.1.1.4.1.2 Test T size=Full T



#### 5.1.1.4.2 Test Channel = HCH





Date: 7.AUG.2018 13:33:21



Report No.: SZEM180400321702 Page: 20 of 44

#### 5.1.1.4.2.2 Test T size=Full T Spectrum 00 dBm Offset 5.00 dB e RBW 2 kHz 40 dB e SWT 100 ms e VBW 10 kHz Ref Level 35.00 dBm Mode Auto FFT Att SGL Count 100/100 1 Av AvgPwr M1[1] -20.89 dBm 30 dBm-1.910002900 GHz 20 dBm-10 dBm-0 dBmmound -10 dBm-D1 -13.000 dBm--20 dBm--30 dBm--40 dBm--50 dBm--60 dBm-Span 1.0 MHz CF 1,9099 GHz 1001 pts 13.07.2018 03:31:30 Ready 1.80

Date: 13.JUL.2018 03:31:31



Report No.: SZEM180400321702 Page: 21 of 44

## 6 Spurious Emission at Antenna Terminal

NOTE1: 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.

NOTE2: only the worst case data displayed in this report.

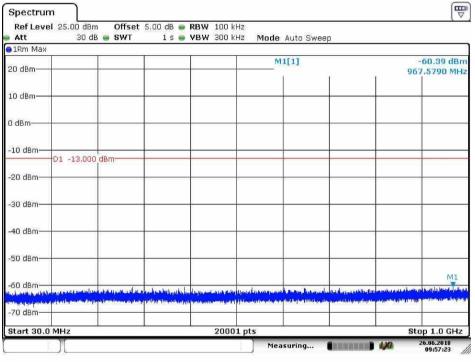
Part I - Test Plots

### 6.1 For LTE-NB1

### 6.1.1 Test Band = LTE-NB1 BAND2

#### 6.1.1.1 Test Mode = LTE-NB1/TM1.Sub-carrier spacing=3.75kHz

#### 6.1.1.1.1 Test Channel = LCH



Date: 26.JUN.2018 09:57:24



Report No.: SZEM180400321702 Page: 22 of 44

> Stop 20.0 GHz 26.06.2018 09:56:20

Spectrum Ref Level 25.00 dBm Offset 5.00 dB 📾 RBW 1 MHz 30 dB 🥃 SWT Att 1 s 👜 VBW 3 MHz Mode Auto Sweep ●1Rm Ma> M1[1] 40.34 dBm 20 dBm 3.700090 GHz 10 dBm-0 dBm--10 dBm--D1 -13.000 dBm -20 dBm--30 dBm -40 dBm--50 dBm -60 dBm· -70 dBm-20001 pts Start 1.0 GHz Stop 10.0 GHz 26.05.2018 Measuring... Date: 26.JUN.2018 09:56:51 Spectrum Ref Level 25.00 dBm Offset 5.00 dB 📾 RBW 1 MHz 1 s 👜 VBW 3 MHz Att 30 dB 👜 SWT Mode Auto Sweep ●1Rm Max M1[1] 47.63 dBn 20 dBm-19.949250 GHz 10 dBm· 0 dBm--10 dBm-D1 -13.000 dBm--20 dBm--30 dBm--40 dBm -50 dBm--60 dBm

Date: 26 JUN 2018 09:56:21

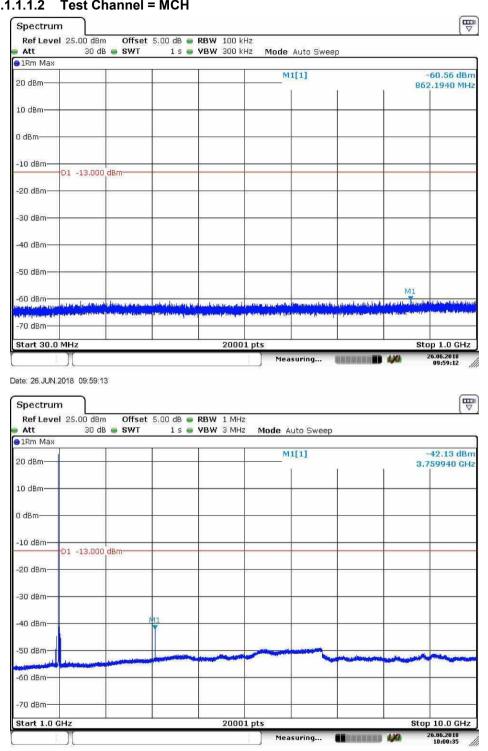
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20001 pts

Measuring...



Report No.: SZEM180400321702 Page: 23 of 44



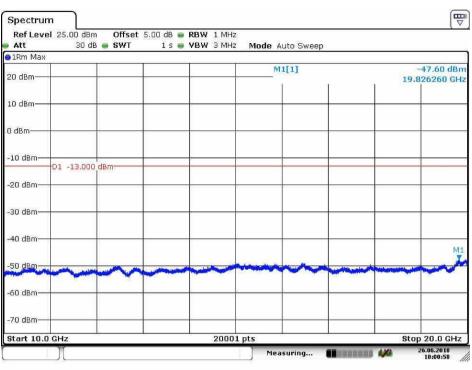
6.1.1.1.2 Test Channel = MCH

Date: 26.JUN.2018 10:00:35

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Report No.: SZEM180400321702 Page: 24 of 44



Date: 26.JUN.2018 10:00:58

#### 6.1.1.1.3 Test Channel = HCH

1[1] -60.15 dBn 987.7540 MH
M
a second reasons a reason of the second s
0

Date: 26.JUN.2018 10:18:05



Report No.: SZEM180400321702 Page: 25 of 44

Spectrum Ref Level 25.00 dBm Offset 5.00 dB 📾 RBW 1 MHz 30 dB 🥃 SWT Att 1 s 👜 VBW 3 MHz Mode Auto Sweep ●1Rm Ma> M1[1] 43.75 dBm 20 dBm 3.819780 GHz 10 dBm-0 dBm--10 dBm-01 -13.000 dBm -20 dBm--30 dBm -40 dBm--50 dBm -60 dBm· -70 dBm-20001 pts Start 1.0 GHz Stop 10.0 GHz Measuring... (incoment) 🚧 26.06.2018 10:16:35 Date: 26.JUN.2018 10:16:35 Spectrum Ref Level 25.00 dBm Offset 5.00 dB 📾 RBW 1 MHz Att 30 dB 🥃 SWT 1 s 👜 VBW 3 MHz Mode Auto Sweep ●1Rm Max -47.78 dBm M1[1] 20 dBm-19.823760 GHz 10 dBm· 0 dBm--10 dBm-01 -13.000 dBm--20 dBm -30 dBm--40 dBm M1 -50 dBm--60 dBm--70 dBm-20001 pts Stop 20.0 GHz Start 10.0 GHz 26.06.2018 10:16:09 Measuring... 

Date: 26.JUN.2018 10:16:09



Report No.: SZEM180400321702 Page: 26 of 44

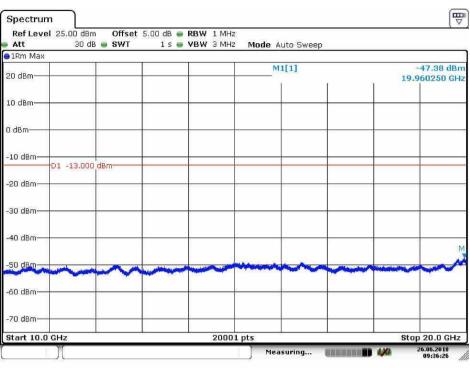
#### 6.1.1.2.1 Test Channel = LCH Spectrum Ref Level 25.00 dBm Offset 5.00 dB 📾 RBW 100 kHz 1 s 👜 VBW 300 kHz 30 dB 🥌 SWT Mode Auto Sweep Att 1Rm Max M1[1] -60 37 dBm 20 dBm 971.7990 MHz 10 dBm· 0 dBm--10 dBm-D1 -13.000 dBm--20 dBm--30 dBm--40 dBm--50 dBm-M1 -60 dBmentell and presented by a statist hitse A. William ILIELS R. -70 dBm-Start 30.0 MHz 20001 pts Stop 1.0 GHz 26.06.2018 09:34:53 Measuring... Date: 26.JUN.2018 09:34:54 Spectrum Ref Level 25.00 dBm Offset 5.00 dB 📾 RBW 1 MHz Att 30 dB 🥃 SWT 1 s 👜 VBW 3 MHz Mode Auto Sweep ●1Rm Max M1[1] -40.26 dBm 20 dBm-3.700540 GHz 10 dBm· 0 dBm--10 dBm-D1 13,000 dBm--20 dBm -30 dBm--40 dBm--50 dBm--60 dBm--70 dBm-Start 1.0 GHz 20001 pts Stop 10.0 GHz 26.06.2018 09:35:58 Measuring...

### 6.1.1.2 Test Mode = LTE-NB1/TM2.Sub-carrier spacing=3.75kHz

Date: 26.JUN.2018 09:35:59



Report No.: SZEM180400321702 Page: 27 of 44



Date: 26.JUN.2018 09:36:26

#### 6.1.1.2.2 Test Channel = MCH

Att		O dB 🍯 SW	1 15 🦷	<b>VBW</b> 300 k	Hz Mode	Auto Swee	p		
1Rm Max	1					12412			The second second
20 dBm				-	M	1[1]	1 1		60.38 dBm 2.1030 MHz
10 dBm						аг			
) d8m				-					
10 dBm—	-01 12	000 dBm				4			
20 dBm—	-01 -13.					9 73			
30 dBm—						-			
40 dBm—					, ,				
50 dBm—		15	5	5	5	č.			
60 dBm—	M		REAL ACTIVATION (IN				1		a contra da la deservação de
Numerican President 70 dBm-	naka mili sili bangai Mangalatan na maniki	an de sa la sua ser	equeration production of the second	na fast vistenti delte dada na princenta i bili stihunije;		legitori la tra professioner.	In the second second	All free and the state	ableater a second and

Date: 26.JUN.2018 09:59:38



Report No.: SZEM180400321702 Page: 28 of 44

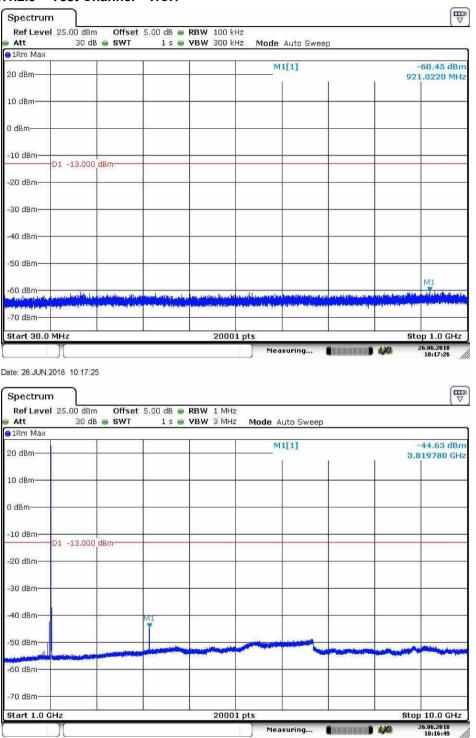
Spectru	m								
	el 25.00 dBn		et 5.00 dB 👜						1
Att 1Rm Max		B 👜 SWT	1 S 💮	VBW 3 MHz	Mode A	uto Sweep			
TRUI MOA					M	1[1]			41.91 dBm
20 dBm—	-		-	-			r i		59940 GHz
10 dBm—		-							
0 dBm									
-10 dBm—	lero de stat			2		r .a.			
-20 dBm—	-D1 -13.000	dBm				1			
-30 dBm—		-				3.0			
-40 dBm—			M11	0					
-50 dBm—									
- So doni	-	-	and the second distance	- Contraction of the second	-		- A COLORIDA COLORIDA	mark	and the second s
-60 dBm—		- <u>-</u>		<i>6</i> 1		(C.			
-70 dBm—		5		4		1 -			
Start 1.0	GHz			2000	L pts			Stop	10.0 GHz
Spectru Ref Lev	m el 25.00 dBn	n Offse	et 5.00 dB 👳	RBW 1 MHz	A.				
Att 1Rm Max		B 🍯 SWT	1 S 👜	VBW 3 MHz	Mode A	uto Sweep			
and the					M	1[1]			47.85 dBm
20 dBm	2					T			
10 dBm								19.9	77750 GHz
								19.9	///50 GHz
0 dBm								19.9	77750 GHZ
0 dBm	-D1 -13.000	I dBm						19.9	///50 GHz
	-D1 -13,000	dBm						19.9	///SU GH2
-10 dBm— -20 dBm—	D1 -13,000	dBm						19.9	///SU GH2
	D1 -13,000	dBm						19.9	
-10 dBm— -20 dBm— -30 dBm— -40 dBm—		dBm							
-10 dBm- -20 dBm- -30 dBm- -40 dBm- -50 dBm-		dBm						19.9	M
-10 dBm- -20 dBm- -30 dBm- -40 dBm- -50 dBm- -60 dBm-		dBm						19.9	
-10 dBm— -20 dBm— -30 dBm—		dBm		2000					20.0 GHz

Date: 26.JUN.2018 10:01:23



Report No.: SZEM180400321702 Page: 29 of 44

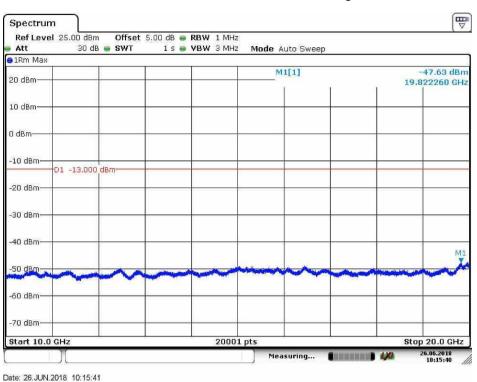
#### 6.1.1.2.3 Test Channel = HCH



Date: 26.JUN.2018 10:16:49

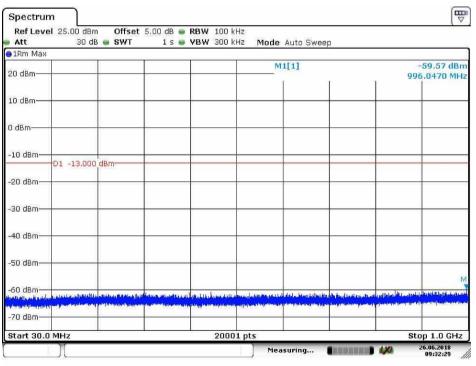


Report No.: SZEM180400321702 Page: 30 of 44



#### 6.1.1.3 Test Mode = LTE-NB1/TM1.Sub-carrier spacing=15kHz

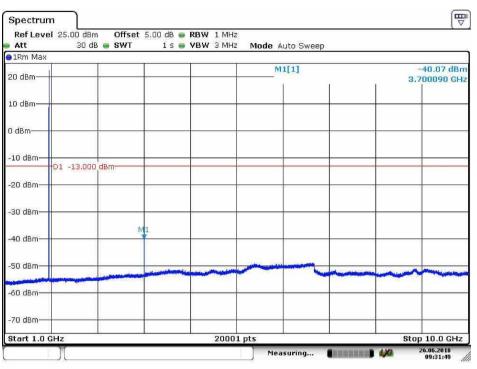
#### 6.1.1.3.1 Test Channel = LCH



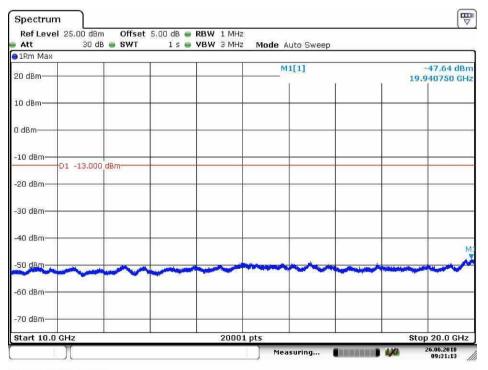
Date: 26.JUN.2018 09:32:30



Report No.: SZEM180400321702 Page: 31 of 44



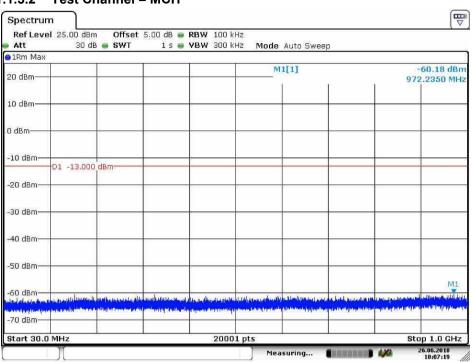
Date: 26.JUN.2018 09:31:49



Date: 26.JUN.2018 09:31:14

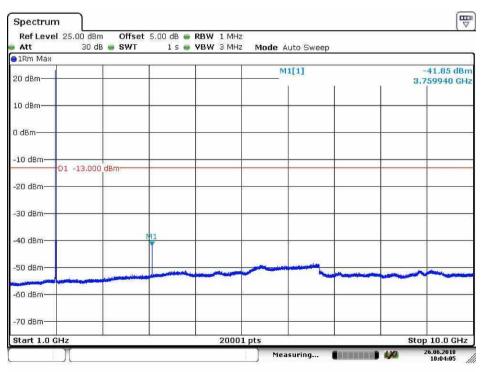


Report No.: SZEM180400321702 Page: 32 of 44



#### 6.1.1.3.2 Test Channel = MCH

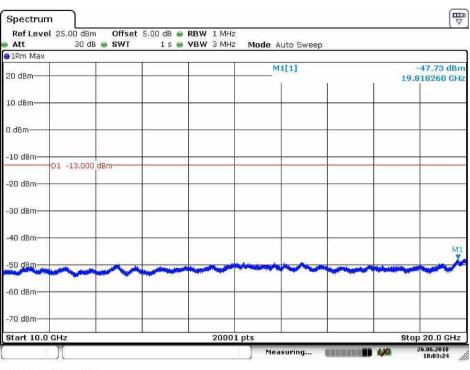
Date: 26.JUN.2018 10:07:20



Date: 26.JUN.2018 10:04:05

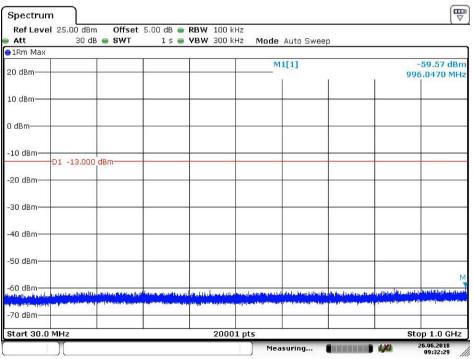


Report No.: SZEM180400321702 Page: 33 of 44



Date: 26.JUN.2018 10:03:25

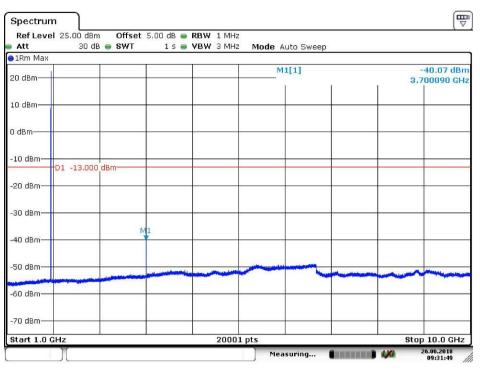




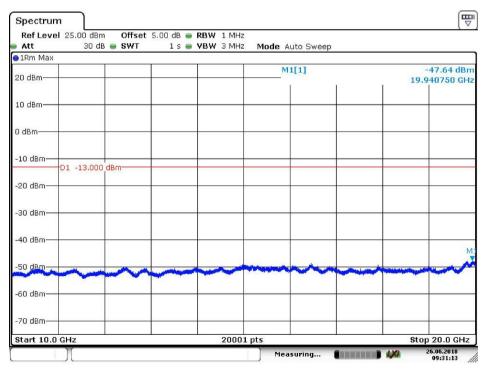
Date: 26.JUN.2018 09:32:30



Report No.: SZEM180400321702 Page: 34 of 44



Date: 26.JUN.2018 09:31:49



Date: 26.JUN.2018 09:31:14



Report No.: SZEM180400321702 Page: 35 of 44

#### Spectrum Ref Level 25.00 dBm Offset 5.00 dB 📾 RBW 100 kHz 1 s 👜 VBW 300 kHz 30 dB 🥌 SWT Mode Auto Sweep Att 1Rm Max M1[1] -60,60 dBm 20 dBm 266,2560 MHz 10 dBm· 0 dBm--10 dBm-D1 -13.000 dBm--20 dBm--30 dBm--40 dBm--50 dBm-M1 -60 dBm-.... a million development and a state he belief and A selled by -70 dBm-Start 30.0 MHz 20001 pts Stop 1.0 GHz alaninan 🖬 🤐 26.06.2018 09:28:33 Measuring...

### 6.1.1.4 Test Mode = LTE-NB1/TM2.Sub-carrier spacing=15kHz

6.1.1.4.1 Test Channel = LCH

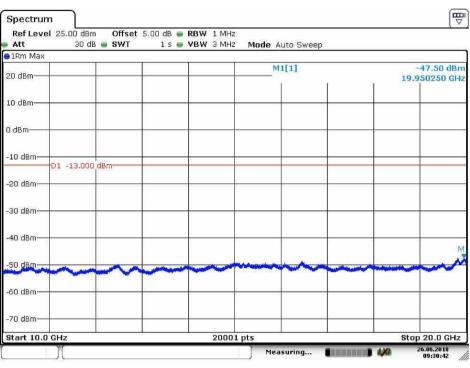
Date: 26.JUN.2018 09:28:34

 -40.27 dBn 3.700090 GH

Date: 26.JUN.2018 09:30:03



Report No.: SZEM180400321702 Page: 36 of 44



Date: 26.JUN.2018 09:30:42

#### 6.1.1.4.2 Test Channel = MCH

Att		30 dB	🧉 SV	<i>l</i> T	1	5 🛞	VBW	300 kł	IZ M	ode	Auto Sw	eep				
1Rm Max											1.1.1					.46 dBm
20 dBm	-		ĉ.								1[1]	T		1		270 MHz
10 dBm			1	_			-		2		2 				_	
) d8m											-				_	
10 dBm	-D1 -1	13.000	dBm								8					
20 dBm					-						1	_				
-30 dBm			12		-		-		-	;	1 1 1				_	
40 dBm	2		v	_							1	_			_	
50 dBm	1		5	_							č	_				
60 dBm	و المنابع الم	وراجالهما	u, l- Norma	offa.Lef	R. E. Martin	Note Scale	and a fe	L. L. harr	n Lastas	The state	Verone and a state of the Local	ALS INCOMENTS	Landmann	. Alternationalis	a lamon al stal	M1
70 dBm	-	n daya ba	510000 CO.	1.000	aller de la de la	und all free free		- Harney I	No COLOMBIA	Manaka		Tention particular		and the state and	T SANAGA TANA I	A Manufacture of the Add

Date: 26.JUN.2018 10:06:26



Report No.: SZEM180400321702 Page: 37 of 44

Spectrum Ref Level 25.00 dBm Offset 5.00 dB 📾 RBW 1 MHz 30 dB 🥃 SWT Att 1 s 👜 VBW 3 MHz Mode Auto Sweep ●1Rm Max M1[1] 41.49 dBm 20 dBm 3.759940 GHz 10 dBm-0 dBm--10 dBm-D1 -13.000 dBm -20 dBm--30 dBm -40 dBm--50 dBm -60 dBm· -70 dBm-20001 pts Start 1.0 GHz Stop 10.0 GHz Measuring... (in a second sec 26.06.2018 10:05:43 Date: 26.JUN.2018 10:05:44 Spectrum Ref Level 25.00 dBm Offset 5.00 dB 📾 RBW 1 MHz Att 30 dB 🥃 SWT 1 s 👜 VBW 3 MHz Mode Auto Sweep ●1Rm Max M1[1] -47.34 dBm 20 dBm-19.824760 GHz 10 dBm· 0 dBm--10 dBm-01 -13.000 dBm--20 dBm -30 dBm--40 dBm M1 -50 dBm--60 dBm--70 dBm-20001 pts Stop 20.0 GHz Start 10.0 GHz 26.06.2018 10:02:54 Measuring...

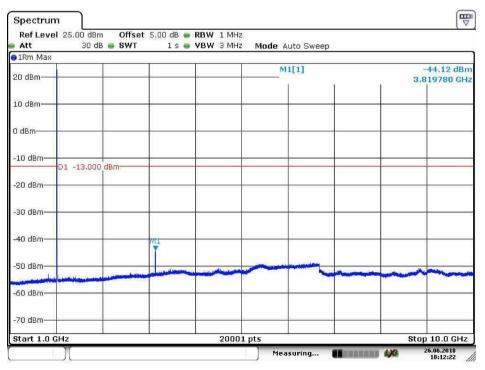
Date: 26.JUN.2018 10:02:55



Report No.: SZEM180400321702 Page: 38 of 44

#### 6.1.1.4.3 Test Channel = HCH Spectrum Offset 5.00 dB 👜 RBW 100 kHz Ref Level 25.00 dBm 30 dB 🥃 SWT 1 s 👜 VBW 300 kHz Mode Auto Sweep Att ●1Rm Max M1[1] -60,10 dBm 20 dBm 995.7560 MHz 10 dBm-0 dBm--10 dBm-D1 -13,000 dBm\* -20 dBm--30 dBm--40 dBm--50 dBm--60 dBm--70 dBm-Start 30.0 MHz 20001 pts Stop 1.0 GHz 26.06.2018 10:09:40 Measuring...

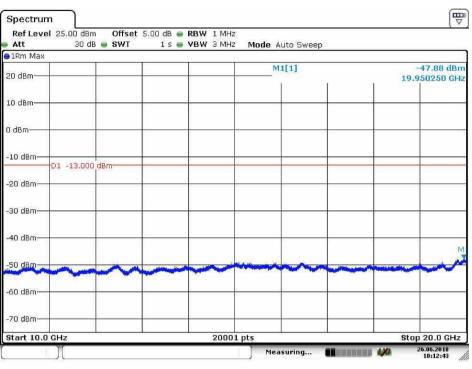
Date: 26.JUN.2018 10:09:41



Date: 26.JUN.2018 10:12:23



Report No.: SZEM180400321702 Page: 39 of 44



Date: 26.JUN.2018 10:12:43



Report No.: SZEM180400321702 Page: 40 of 44

## 7 Field Strength of Spurious Radiation

## 7.1 For LTE-NB1

### 7.1.1 Test Band = LTE-NB1 BAND2

### 7.1.1.1 Test Mode =LTE-NB1/ Sub-carrier spacing=3.75kHz

7.1.1.1.1	Test Channel = LC	Н		
Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.950000	-81.79	-13.00	-68.79	Vertical
104.250000	-85.64	-13.00	-72.64	Vertical
780.595833	-80.81	-13.00	-67.81	Vertical
1236.000000	-66.66	-13.00	-53.66	Vertical
3704.600000	-44.85	-13.00	-31.85	Vertical
8632.250000	-63.90	-13.00	-50.90	Vertical
62.350000	-77.67	-13.00	-64.67	Horizontal
104.300000	-85.10	-13.00	-72.10	Horizontal
798.929167	-80.55	-13.00	-67.55	Horizontal
1213.000000	-67.23	-13.00	-54.23	Horizontal
3705.575000	-52.19	-13.00	-39.19	Horizontal
7843.150000	-64.25	-13.00	-51.25	Horizontal

7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization		
55.100000	-83.13	-13.00	-70.13	Vertical		
104.250000	-84.18	-13.00	-71.18	Vertical		
1271.000000	-66.53	-13.00	-53.53	Vertical		
3759.525000	-53.10	-13.00	-40.10	Vertical		
5639.650000	-52.76	-13.00	-39.76	Vertical		
7520.100000	-53.09	-13.00	-40.09	Vertical		
63.150000	-77.86	-13.00	-64.86	Horizontal		
104.300000	-85.02	-13.00	-72.02	Horizontal		
1234.000000	-62.55	-13.00	-49.55	Horizontal		
3759.200000	-44.70	-13.00	-31.70	Horizontal		
5639.975000	-53.18	-13.00	-40.18	Horizontal		
9242.275000	-63.95	-13.00	-50.95	Horizontal		



Report No.: SZEM180400321702 Page: 41 of 44

7.1.1.1.3	Test Channel = HC	Н		
Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.150000	-81.81	-13.00	-68.81	Vertical
104.250000	-77.76	-13.00	-64.76	Vertical
1194.000000	-66.69	-13.00	-53.69	Vertical
3814.775000	-50.55	-13.00	-37.55	Vertical
5722.525000	-64.88	-13.00	-51.88	Vertical
9235.775000	-64.30	-13.00	-51.30	Vertical
62.350000	-77.89	-13.00	-64.89	Horizontal
104.300000	-83.83	-13.00	-70.83	Horizontal
1258.500000	-62.56	-13.00	-49.56	Horizontal
3814.450000	-44.53	-13.00	-31.53	Horizontal
5722.200000	-64.94	-13.00	-51.94	Horizontal
7629.950000	-60.20	-13.00	-47.20	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.

2) We have tested all modulation and all bandwidth, but only the worst case data presented in this report.



Report No.: SZEM180400321702 Page: 42 of 44

## 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
		LCH	TN	VL	5.44	0.002941	PASS
				VN	6.92	0.003741	PASS
				VH	1.02	0.000550	PASS
			TN	VL	-0.60	-0.000319	PASS
	TM1/15k	МСН		VN	-2.46	-0.001310	PASS
				VH	-2.61	-0.001388	PASS
BAND2		НСН	TN	VL	-1.39	-0.000730	PASS
				VN	-4.62	-0.002418	PASS
				VH	-5.36	-0.002809	PASS
DANDZ	TM2/15k	LCH	TN	VL	7.41	0.004006	PASS
				VN	7.01	0.003790	PASS
				VH	-9.63	-0.005206	PASS
		МСН	TN	VL	-5.24	-0.002787	PASS
				VN	-7.01	-0.003730	PASS
				VH	-0.46	-0.000246	PASS
		HCH TN	TN	VL	-6.77	-0.003548	PASS
				VN	-3.29	-0.001724	PASS
				VH	8.84	0.004630	PASS



Report No.: SZEM180400321702 Page: 43 of 44

## 8.2 Frequency Error VS. Temperature

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
			VN	-30	-6.60	-0.003566	PASS
				-20	-7.12	-0.003850	PASS
				-10	-0.43	-0.000232	PASS
					0	-8.41	-0.004545
		LCH		10	4.12	0.002228	PASS
				20	-1.39	-0.000751	PASS
				30	-8.78	-0.004748	PASS
				40	1.80	0.000971	PASS
				50	-5.79	-0.003131	PASS
	TM1 15kHz		VN	-30	-8.85	-0.004707	PASS
				-20	-5.37	-0.002857	PASS
		МСН		-10	-3.42	-0.001818	PASS
				0	0.06	0.000034	PASS
BAND2				10	-9.04	-0.004808	PASS
				20	-6.17	-0.003281	PASS
				30	-9.81	-0.005217	PASS
				40	-5.61	-0.002986	PASS
				50	6.98	0.003711	PASS
				-30	-4.20	-0.002201	PASS
				-20	-8.66	-0.004539	PASS
				-10	-9.94	-0.005207	PASS
				0	5.11	0.002678	PASS
		HCH	VN	10	-4.47	-0.002341	PASS
				20	5.16	0.002703	PASS
				30	5.73	0.003001	PASS
				40	3.77	0.001974	PASS
				50	-9.63	-0.005044	PASS



Report No.: SZEM180400321702 Page: 44 of 44

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict		
				-30	-6.13	-0.003313	PASS		
				-20	1.21	0.000653	PASS		
				-1		-10	7.86	0.004248	PASS
			VN	0	-1.28	-0.000693	PASS		
		LCH		10	2.02	0.001093	PASS		
				20	-4.42	-0.002391	PASS		
				30	-0.46	-0.000248	PASS		
				40	-9.72	-0.005255	PASS		
				50	-2.52	-0.001362	PASS		
	TM2 15kHz		VN	-30	9.34	0.004970	PASS		
				-20	-4.10	-0.002181	PASS		
		МСН		-10	-2.15	-0.001143	PASS		
				0	3.32	0.001766	PASS		
BAND2				10	-5.85	-0.003112	PASS		
				20	3.37	0.001794	PASS		
				30	4.87	0.002589	PASS		
				40	9.31	0.004950	PASS		
				50	-7.32	-0.003894	PASS		
				-30	-2.32	-0.001216	PASS		
				-20	-6.07	-0.003182	PASS		
				-10	5.19	0.002721	PASS		
				0	2.69	0.001410	PASS		
		HCH	VN	10	-5.15	-0.002699	PASS		
				20	6.54	0.003428	PASS		
				30	3.09	0.001621	PASS		
				40	-1.70	-0.000889	PASS		
				50	-5.86	-0.003068	PASS		

The End