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Radiated Spurious Emission Measurement Result: LTE-Band 17 (The Worst Case)

Operation Mode : Fundamental Frequency : Operation Band : EUT Pol. :	LTE B17 709.0 MHz Tx CH LOW E2 Plane	Test Date : Temp. / Humi. : Test Engineer : Measurement Antenna Pol. :	10/07/2016 21 deg_C / 62 RH Tin VERTICAL
0		DART 2	7 LTE(B17) 3M
-20			
[wgp] -40 -	8 ×		

Frequency [MHz]

6000

8000

10000

4000

Freq.	Note	Decetor	ERP	SG Output	Antenna	Cable	Limit	Margin
		Mode	Level	Level	Gain	Loss	@3m	
MHz	F/H/E/S	QP/AV/PK	dBm	dBm	dBd	dB	dBm	dB
41.64	S	Peak	-74.38	-60.54	-12.83	-1.00	-13.00	-61.38
95.96	S	Peak	-71.79	-69.40	-1.16	-1.23	-13.00	-58.79
233.70	S	Peak	-70.30	-71.74	3.18	-1.73	-13.00	-57.30
469.41	S	Peak	-67.98	-69.49	3.73	-2.22	-13.00	-54.98
505.30	S	Peak	-65.96	-67.46	3.83	-2.33	-13.00	-52.96
628.49	S	Peak	-62.54	-63.25	3.18	-2.47	-13.00	-49.54
1418.00	Н	Peak	-59.29	-63.72	8.35	-3.92	-13.00	-46.29
2127.00	Н	Peak	-47.69	-53.42	10.54	-4.81	-13.00	-34.69

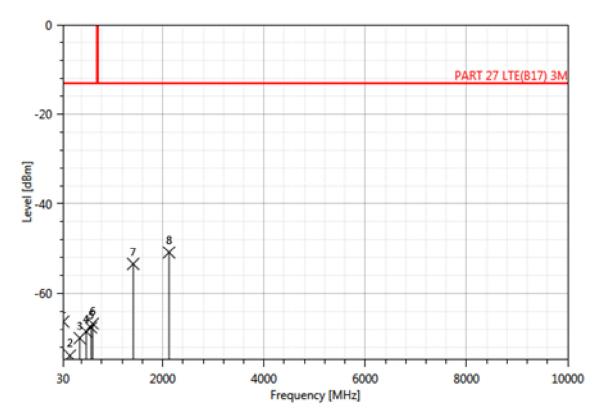
2000

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Operation Mode : LTE B17 Test Date : Temp. / Humi. : Fundamental Frequency: 709.0 MHz **Operation Band :** Tx CH LOW Test Engineer : EUT Pol.: E2 Plane

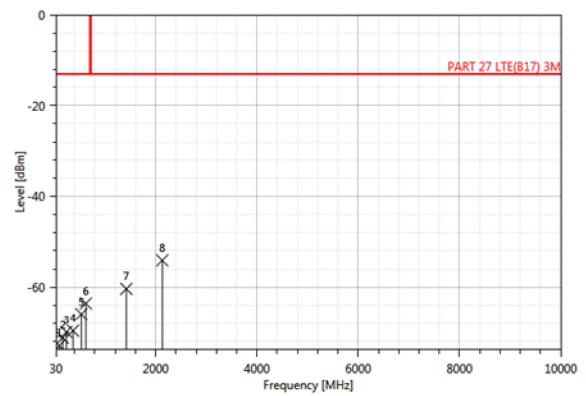
10/07/2016 21 deg_C / 62 RH Tin Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	ERP	SG Output	Antenna	Cable	Limit	Margin
		Mode	Level	Level	Gain	Loss	@3m	
MHz	F/H/E/S	QP/AV/PK	dBm	dBm	dBd	dB	dBm	dB
36.79	S	Peak	-66.26	-51.85	-13.43	-0.98	-13.00	-53.26
167.74	S	Peak	-73.90	-71.32	-1.07	-1.51	-13.00	-60.90
361.74	S	Peak	-70.02	-71.73	3.85	-2.14	-13.00	-57.02
488.81	S	Peak	-68.55	-70.10	3.81	-2.27	-13.00	-55.55
585.81	S	Peak	-67.65	-68.20	3.34	-2.79	-13.00	-54.65
619.76	S	Peak	-66.74	-67.39	3.20	-2.55	-13.00	-53.74
1418.00	Н	Peak	-53.42	-57.86	8.35	-3.92	-13.00	-40.42
2127.00	Н	Peak	-50.84	-56.57	10.54	-4.81	-13.00	-37.84



Operation Mode : LTE B17 Test Date : 10/07/2016 Temp. / Humi. : 21 deg_C / 62 RH Fundamental Frequency: 710.0 MHz **Operation Band :** Tx CH MID Test Engineer : Tin EUT Pol.: Measurement Antenna Pol. : VERTICAL E2 Plane

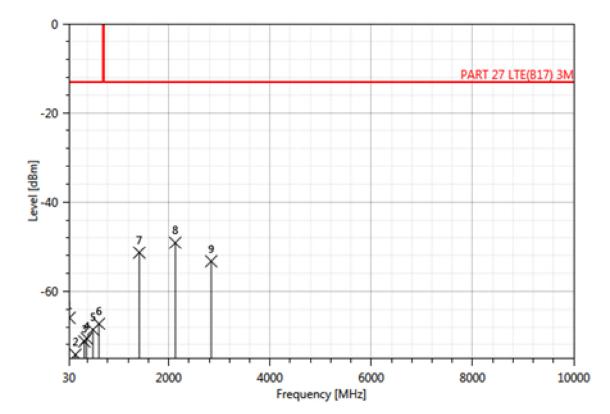


Freq.	Note	Decetor	ERP	SG Output	Antenna	Cable	Limit	Margin
		Mode	Level	Level	Gain	Loss	@3m	
MHz	F/H/E/S	QP/AV/PK	dBm	dBm	dBd	dB	dBm	dB
97.90	S	Peak	-72.90	-70.27	-1.38	-1.24	-13.00	-59.90
165.80	S	Peak	-71.17	-68.46	-1.21	-1.50	-13.00	-58.17
235.64	S	Peak	-69.90	-71.38	3.21	-1.73	-13.00	-56.90
367.56	S	Peak	-69.63	-71.30	3.85	-2.18	-13.00	-56.63
532.46	S	Peak	-65.95	-67.10	3.68	-2.52	-13.00	-52.95
621.70	S	Peak	-63.56	-64.22	3.20	-2.53	-13.00	-50.56
1420.00	Н	Peak	-60.36	-64.80	8.36	-3.92	-13.00	-47.36
2130.00	Н	Peak	-54.11	-59.84	10.54	-4.81	-13.00	-41.11



Operation Mode : LTE B17 Fundamental Frequency: 710.0 MHz **Operation Band :** Tx CH MID EUT Pol.: E2 Plane

Test Date : 10/07/2016 Temp. / Humi. : 21 deg_C / 62 RH Test Engineer : Tin Measurement Antenna Pol. : HORIZONTAL

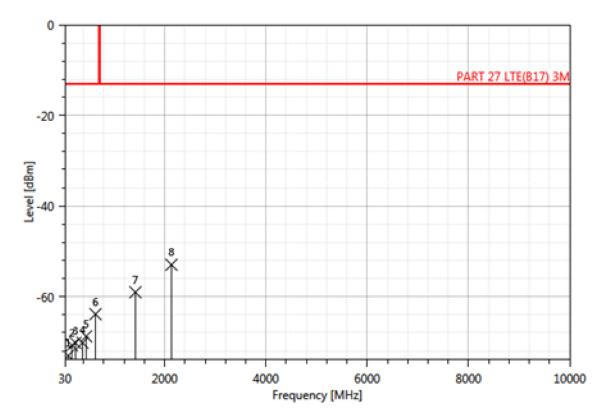


Freq.	Note	Decetor	ERP	SG Output	Antenna	Cable	Limit	Margin
		Mode	Level	Level	Gain	Loss	@3m	
MHz	F/H/E/S	QP/AV/PK	dBm	dBm	dBd	dB	dBm	dB
39.70	S	Peak	-65.89	-51.78	-13.11	-0.99	-13.00	-52.89
159.01	S	Peak	-74.18	-71.02	-1.68	-1.47	-13.00	-61.18
335.55	S	Peak	-71.25	-73.11	3.80	-1.93	-13.00	-58.25
381.14	S	Peak	-70.57	-72.13	3.84	-2.27	-13.00	-57.57
505.30	S	Peak	-68.62	-70.12	3.83	-2.33	-13.00	-55.62
623.64	S	Peak	-67.21	-67.89	3.19	-2.52	-13.00	-54.21
1420.00	Н	Peak	-51.30	-55.74	8.36	-3.92	-13.00	-38.30
2130.00	Н	Peak	-49.03	-54.76	10.54	-4.81	-13.00	-36.03
2840.00	Н	Peak	-53.24	-58.88	11.32	-5.68	-13.00	-40.24



Operation Mode : LTE B17 Fundamental Frequency: 711.0 MHz **Operation Band :** Tx CH HIGH EUT Pol.: E2 Plane

Test Date : 10/07/2016 Temp. / Humi. : 21 deg_C / 62 RH Test Engineer : Tin Measurement Antenna Pol. : VERTICAL

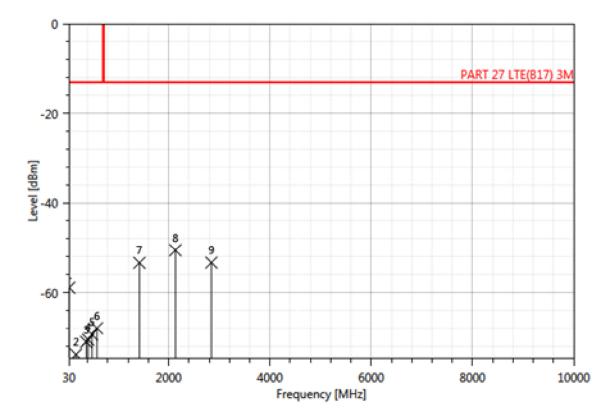


	Freq.	Note	Decetor	ERP	SG Output	Antenna	Cable	Limit	Margin
			Mode	Level	Level	Gain	Loss	@3m	
_	MHz	F/H/E/S	QP/AV/PK	dBm	dBm	dBd	dB	dBm	dB
_	95.96	S	Peak	-73.03	-70.64	-1.16	-1.23	-13.00	-60.03
	167.74	S	Peak	-70.80	-68.22	-1.07	-1.51	-13.00	-57.80
	238.55	S	Peak	-70.27	-71.79	3.26	-1.74	-13.00	-57.27
	379.20	S	Peak	-70.22	-71.80	3.84	-2.26	-13.00	-57.22
	449.04	S	Peak	-68.82	-70.28	3.65	-2.19	-13.00	-55.82
	633.34	S	Peak	-63.84	-64.56	3.17	-2.46	-13.00	-50.84
	1422.00	Н	Peak	-59.02	-63.47	8.37	-3.93	-13.00	-46.02
	2133.00	Н	Peak	-52.97	-58.71	10.54	-4.81	-13.00	-39.97



Operation Mode : LTE B17 Fundamental Frequency: 711.0 MHz **Operation Band :** Tx CH HIGH EUT Pol.: E2 Plane

Test Date : 10/07/2016 Temp. / Humi. : 21 deg_C / 62 RH Test Engineer : Tin Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	ERP	SG Output	Antenna	Cable	Limit	Margin
		Mode	Level	Level	Gain	Loss	@3m	
MHz	F/H/E/S	QP/AV/PK	dBm	dBm	dBd	dB	dBm	dB
34.85	S	Peak	-58.90	-44.26	-13.67	-0.97	-13.00	-45.90
168.71	S	Peak	-73.87	-71.35	-1.00	-1.51	-13.00	-60.87
372.41	S	Peak	-71.05	-72.68	3.84	-2.21	-13.00	-58.05
408.30	S	Peak	-70.55	-71.93	3.79	-2.41	-13.00	-57.55
483.96	S	Peak	-69.40	-70.94	3.79	-2.25	-13.00	-56.40
582.90	S	Peak	-67.97	-68.54	3.36	-2.79	-13.00	-54.97
1422.00	Н	Peak	-53.37	-57.82	8.37	-3.93	-13.00	-40.37
2133.00	Н	Peak	-50.53	-56.26	10.54	-4.81	-13.00	-37.53
2844.00	Н	Peak	-53.31	-58.94	11.32	-5.70	-13.00	-40.31



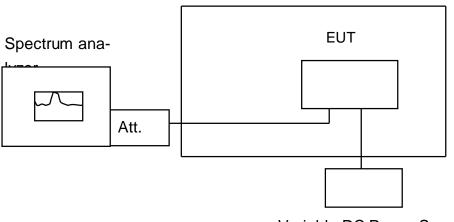
11. FREQUENCY STABILITY MEASUREMENT

11.1. Standard Applicable:

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

11.2. Test Set-up:

Temperature Chamber



Variable DC Power Supply

Note: Measurement setup for testing on Antenna connector

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sqs.com/terms_and_conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms</u> <u>and</u> <u>conductors</u> and <u>conductors</u> <u>and</u> <u>unitations</u> <u>and</u> <u>and</u> <u>unitations</u> <u>and</u> <u>and</u> <u>unitations</u> <u>and</u> <u>unitations</u> <u>and</u> <u>and</u> <u>and</u> <u>unitations</u> <u>and</u> <u>and</u> <u>unitations</u> <u>and</u> <u>and</u> <u>and</u> <u>unitations</u> <u>and</u> <u>and</u> <u>unitations</u> <u>and</u> <u>and</u> <u>unitations</u> <u>and</u> <u>an</u>



11.3. Measurement Procedure:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Set chamber temperature to 25° C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint as declared by the manufacturer, record the maximum frequency change.

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11.4. Measurement Equipment Used:

Conduc	Conducted Emission (measured at antenna port) Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.					
TYPE		NUMBER	NUMBER	CAL.						
Power Meter	Anritsu	ML2495A	1005007	12/09/2015	12/08/2016					
Power Sensor	Anritsu	MA2411B	917032	12/09/2015	12/08/2016					
EXA Spectrum										
Analyzer	Agilent	N9030A	MY53120760	02/26/2016	02/25/2017					
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017					
Coaxial Cable	HU-	SUCOFLEX	23670/2	01/02/2016	01/01/2017					
	BER+SUHNER	102	23010/2	01/02/2010	01/01/2017					
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2016	01/01/2017					
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017					
DC Power Supply	Agilent	E3640A	MY52410006	11/05/2015	11/04/2016					
Temperature Chamber	TERCHY	MHG-120LF	911009	05/17/2016	05/16/2017					
Radio Communication	R&S	CMU200	102189	02/11/2016	02/10/2017					
Analyzer	1100	01110200	102100	62,11,2616	02/10/2011					
Radio Communication	Anritsu	MT8820C	6200995019	09/25/2015	09/24/2016					
Analyzer										
Radio Communication Analyer	Anritsu	MT8820C	6201465317	12/10/2015	12/09/2016					

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11.5. Measurement Result:

FREQUENCY ERROR vs. VOLTAGE

Reference Frequency: WCDMA II Mid Channel 1880 MHz								
Limit: +/- 2.5 ppm								
Power Supply	Environment	Frequency						
Vdc	Temperature (℃)	(MHz)	Delta (Hz)	Limit (Hz)				
8.80	20	1880000006	-2	4700				
7.70	20	1880000008	0	4700				
6.50	20	1879999999	-9	4700				
6.0 (End point)	20	1879999998	-10	4700				

FREQUENCY ERROR vs. TEMPERATURE

R	Reference Frequency: WCDMA II Mid Channel 1880								
	Limit: +/- 2.5 ppm								
Power Supply	Environment	Frequency							
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)					
7.7	50	1880000006	-2	4700					
7.7	40	1880000001	-7	4700					
7.7	30	1880000003	-5	4700					
7.7	20	1880000008	0	4700					
7.7	10	1879999995	-13	4700					
7.7	0	1880000011	3	4700					
7.7	-10	1880000006	-2	4700					
7.7	-20	1879999992	-16	4700					
7.7	-30	1880000006	-2	4700					



Reference Frequency: WCDMA IV Mid Channel 1732.6 MHz								
	Limit: +/- 2.5 ppm							
Power Supply	Environment	Frequency						
Vdc	Temperature (℃)	(MHz)	Delta (Hz)	Limit (Hz)				
8.80	20	1732600005	6	4331				
7.70	20	1732599999	0	4331				
6.50	20	1732600003	4	4331				
6.0 (End point)	20	1732599995	-4	4331				

FREQUENCY ERROR vs. TEMPERATURE

Reference Frequency: WCDMA IV Mid Channel 1732.6 MHz									
	Limit: +/- 2.5 ppm								
Power Supply	Environment	Frequency							
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)					
7.7	50	1732600002	3	4331					
7.7	40	1732599995	-4	4331					
7.7	30	1732599999	0	4331					
7.7	20	1732599999	0	4331					
7.7	10	1732600006	7	4331					
7.7	0	1732600001	2	4331					
7.7	-10	1732600004	5	4331					
7.7	-20	1732599998	-1	4331					
7.7	-30	1732600003	4	4331					



	Reference Frequency: WCDMA V Mid Channel 836.6 MHz				
	Limit: +/- 2.5 ppm				
Power Supply	Environment	Frequency			
Vdc	Temperature (℃)	(MHz)	Delta (Hz)	Limit (Hz)	
8.80	20	836600006	-2	2091	
7.70	20	836600008	0	2091	
6.50	20	836599998	-10	2091	
6.0 (End Point)	20	836600003	-5	2091	

FREQUENCY ERROR vs. TEMPERATURE

	Reference Frequency: WCDMA V Mid Channel 836.6 MHz						
	Limit: +/- 2.5 ppm						
Power Supply	Environment	Frequency					
Vdc	Temperature (℃)	(MHz)	– Delta (Hz)	Limit (Hz)			
7.7	50	836600005	-3	2091			
7.7	40	836599994	-14	2091			
7.7	30	836599996	-12	2091			
7.7	20	836600008	0	2091			
7.7	10	836600002	-6	2091			
7.7	0	836599999	-9	2091			
7.7	-10	836599994	-14	2091			
7.7	-20	836599995	-13	2091			
7.7	-30	836600009	1	2091			



Reference Frequency:		LTE B2 Mid Channel	1880.0	MHz 10M QPSK CH 18900	
	Limit: +/- 2.5 ppm				
Power Supply	Environment	Frequency			
Vdc	Temperature (℃)	(MHz)	Delta (Hz)	Limit (Hz)	
8.86	25	1879.999990	2.10	4700	
7.7	25	1879.999988	0.00	4700	
6.54	25	1880.000000	12.50	4700	
6 (End Point)	25	1879.999991	3.20	4700	

FREQUENCY ERROR vs. TEMPERATURE

Reference	ce Frequency:	LTE B2 Mid Chan- nel	1880.0	MHz	10M QPSK CH 18900
		Limit: +/-	2.5 ppm		
Power Supply	Environment	Frequency	Delta (Hz)		Limit (Hz)
Vdc	Temperature (°C)	(MHz)			
7.7	-30	1880.000007	0.70		4700
7.7	-20	1879.999999	-7.00		4700
7.7	-10	1880.000000	-5.80		4700
7.7	0	1879.999993	-13.40		4700
7.7	10	1879.999992	-14.30		4700
7.7	20	1880.000006	0.00		4700
7.7	30	1880.000007	0.70		4700
7.7	40	1879.999995	-11.10		4700
7.7	50	1879.999992	-14.40		4700



Reference	Frequency:	LTE B4 Mid Channel	1732.5	MHz 10M QPSK CH 20175
		Limit: +/- 2	2.5 ppm	
Power Supply	Environment	Frequency		
Vdc	Temperature (℃)	(MHz)	Delta (Hz)	Limit (Hz)
8.86	25	1732.500004	0.70	4331
7.7	25	1732.500003	0.00	4331
6.54	25	1732.500013	9.50	4331
6 (End Point)	25	1732.499995	-8.50	4331

FREQUENCY ERROR vs. TEMPERATURE

Reference	ce Frequency:	LTE B4 Mid Channel	1732.5	MHz 10M QPSK CH 20175
		Limit: +/	- 2.5 ppm	
Power Supply	Environment	Frequency	Dolto (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	
7.7	-30	1732.500012	26.50	4331
7.7	-20	1732.500014	28.40	4331
7.7	-10	1732.499998	12.10	4331
7.7	0	1732.500007	22.00	4331
7.7	10	1732.500012	26.20	4331
7.7	20	1732.499985	0.00	4331
7.7	30	1732.500005	19.70	4331
7.7	40	1732.500011	25.50	4331
7.7	50	1732.499996	10.70	4331



Reference	Frequency:	LTE B5 Mid Channel	836.5	MHz 10M QPSK CH 20525
		Limit: +/- 2	2.5 ppm	
Power Supply	Environment	Frequency		
Vdc	Temperature (°∁)	(MHz)	Delta (Hz)	Limit (Hz)
8.86	25	836.500013	26.80	2091
7.7	25	836.499986	0.00	2091
6.54	25	836.499989	2.40	2091
6 (End Point)	25	836.500013	26.40	2091

FREQUENCY ERROR vs. TEMPERATURE

Reference	ce Frequency:	LTE B5 Mid Channel	836.5	MHz 10M QPSK CH 20525		
	Limit: +/- 2.5 ppm					
Power Supply	Environment	Frequency		Limit (Hz)		
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)		
7.7	-30	836.499987	-1.20	2091		
7.7	-20	836.499996	7.80	2091		
7.7	-10	836.500013	24.90	2091		
7.7	0	836.500005	17.10	2091		
7.7	10	836.500006	17.90	2091		
7.7	20	836.499988	0.00	2091		
7.7	30	836.499987	-1.00	2091		
7.7	40	836.500000	12.60	2091		
7.7	50	836.499990	2.00	2091		



Reference	Frequency:	LTE B7 Mid Channel	2535.0	MHz 10M QPSK CH 21100
		Limit: +/- 2	2.5 ppm	
Power Supply	Environment	Frequency		
Vdc	Temperature (℃)	(MHz)	Delta (Hz)	Limit (Hz)
8.86	25	2535.000009	12.00	6338
7.7	25	2534.999997	0.00	6338
6.54	25	2534.999993	-4.00	6338
6 (End Point)	25	2534.999991	-5.90	6338

FREQUENCY ERROR vs. TEMPERATURE

Reference	ce Frequency:	LTE B7 Mid Channel	2535.0	MHz 10M QPSK CH 21100		
	Limit: +/- 2.5 ppm					
Power Supply	Environment	Frequency				
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)		
7.7	-30	2535.000014	28.50	6338		
7.7	-20	2534.999995	9.00	6338		
7.7	-10	2534.999990	4.00	6338		
7.7	0	2535.000009	22.60	6338		
7.7	10	2535.000003	16.60	6338		
7.7	20	2534.999986	0.00	6338		
7.7	30	2535.000003	16.80	6338		
7.7	40	2535.000011	25.40	6338		
7.7	50	2535.000013	26.60	6338		



Reference	Frequency:	LTE B12 Mid Channel	707.5	MHz 10M QPSK CH 23095
		Limit: +/- 2	2.5 ppm	
Power Sup- ply	Environment	Frequency		
Vdc	Temperature (℃)	(MHz)	Delta (Hz)	Limit (Hz)
8.86	25	707.499986	-5.70	1769
7.7	25	707.499991	0.00	1769
6.54	25	707.499993	1.40	1769
6 (End Point)	25	707.500002	11.00	1769

FREQUENCY ERROR vs. TEMPERATURE

Reference	ce Frequency:	LTE B12 Mid Channel	707.5	MHz 10M QPSK CH 23095		
	Limit: +/- 2.5 ppm					
Power Supply	Environment	Frequency		Limit (Hz)		
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)		
7.7	-30	707.499990	3.00	1769		
7.7	-20	707.500015	28.40	1769		
7.7	-10	707.500012	25.50	1769		
7.7	0	707.500015	28.10	1769		
7.7	10	707.500002	15.70	1769		
7.7	20	707.499987	0.00	1769		
7.7	30	707.499995	8.60	1769		
7.7	40	707.500011	24.70	1769		
7.7	50	707.500006	19.40	1769		



Reference	Frequency:	LTE B17 Mid Channel	710.0	MHz 10M QPSK CH 23790				
	Limit: +/- 2.5 ppm							
Power Supply	Environment	Frequency						
Vdc	Temperature (℃)	(MHz)	Delta (Hz)	Limit (Hz)				
8.86	25	710.000008	0.60	1775				
7.7	25	710.000007	0.00	1775				
6.54	25	709.999995	-12.40	1775				
6 (End Point)	25	709.999985	-22.90	1775				

FREQUENCY ERROR vs. TEMPERATURE

Reference	ce Frequency:	LTE B17 Mid Channel	710.0	MHz 10M QPSK CH 23790					
	Limit: +/- 2.5 ppm								
Power Supply	Environment	Frequency							
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)					
7.7	-30	710.000002	-5.10	1775					
7.7	-20	709.999990	-16.70	1775					
7.7	-10	709.999998	-9.20	1775					
7.7	0	709.999993	-14.50	1775					
7.7	10	710.000009	2.30	1775					
7.7	20	710.000007	0.00	1775					
7.7	30	709.999996	-11.00	1775					
7.7	40	710.000014	6.80	1775					
7.7	50	709.999993	-14.30	1775					

Note: The battery is rated 7.7V dc.

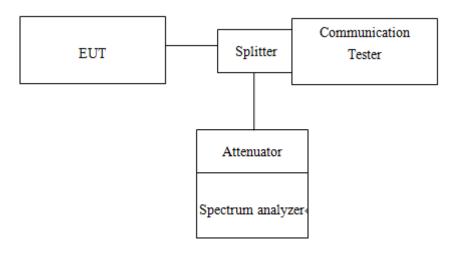


12. PEAK TO AVERAGE RATIO

12.1. Standard Applicable

The peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

12.2. Test SET-UP



12.3. Measurement Procedure

- 1. KDB 971168 D01 is employed as the following procedure is proper adjusted accordingly:
- 2. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth; & internal =1ms
- 3. Set the number of counts to a value that stabilizes the measured CCDF curve.

Conducted Emission (measured at antenna port) Test Site									
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.				
EXA Spectrum Ana- lyzer	Agilent	N9030A	MY53120760	02/26/2016	02/25/2017				
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017				
Coaxial Cable	HU- BER+SUHNER	SUCOFLEX 102	23670/2	01/02/2016	01/01/2017				
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2016	01/01/2017				
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017				
DC Power Supply	Agilent	E3640A	MY52410006	11/05/2015	11/04/2016				

12.4. Measurement Equipment Used

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12.5. Measurement Result

Tabular Results:

Freq.	СН	Patio (dB)			
(MHz)			HSDPA II	HSUPA II	
1850.2	9262	2.87	3.98	3.93	
1880.0	9400	3.14	3.91	3.95	
1909.8	9538	2.90	3.86	4.05	

Freq.	СН	Patio (dB)				
(MHz)	СП			NU NU NU		
1712.4	1312	2.70	3.66	3.79		
1732.6	1413	3.13	4.02	3.98		
1752.6	1513	2.81	3.90	3.84		

Freq.	СН		Patio (dR)	Ŭ		
(MHz)	СП	WCDMA		N		
826.4	4132	2.87	4.22	4.24		
836.6	4183	2.96	3.97	4.09		
846.6	4233	2.96	3.97	4.25		

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LTE BAND 2									
CI	Channel bandwidth: 1.4MHz				hannel ban	dwidth: 3MH	lz		
Freq.	СН		erage Ratio B)	Freq.	Peak-to-Ave CH (df		-		
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT		
1850.7	18607	5.18	13	1851.5	18615	5.56	13		
1880.0	18900	5.58	13	1880.0	18900	5.91	13		
1909.3	19193	4.82	13	1908.5	19185	5.44	13		

	LTE BAND 2								
C	hannel ban	dwidth: 5MH	z	C	nannel bandwidth: 10MHz				
Freq.	СН	Peak-to-Av (d	erage Ratio B)	Freq. CH Peak-to-Average		-			
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT		
1852.5	18625	5.35	13	1855.0	18650	5.57	13		
1880.0	18900	5.68	13	1880.0	18900	5.83	13		
1907.5	19175	5.28	13	1905.0	19150	5.59	13		

LTE BAND 2								
CI	hannel band	width: 15M	Hz	CI	hannel band	width: 20MI	Ηz	
Freq.	СН		erage Ratio B)	Freq. CH Peak-to-Average		•		
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT	
1857.5	18675	5.99	13	1860.0	18700	6.58	13	
1880.0	18900	6.08	13	1880.0	18900	6.66	13	
1902.5	19125	6.25	13	1900.0	19100	6.71	13	



LTE BAND 4									
Cł	Channel bandwidth: 1.4MHz				hannel ban	dwidth: 3MH	z		
Freq.	СН		erage Ratio B)	Freq. CH		Peak-to-Average Ratio (dB)			
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT		
1710.7	19957	6.20	13	1711.5	19965	6.41	13		
1732.5	20175	5.98	13	1732.5	20175	6.27	13		
1754.3	20393	6.23	13	1753.5	20385	6.50	13		

	LTE BAND 4									
C	hannel ban	dwidth: 5MH	z	C	hannel band	dwidth: 10MI	Ηz			
Freq.	СН	Peak-to-Av (d	erage Ratio B)	Freq. CH (dB)			•			
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT			
1712.5	19957	6.33	13	1715.0	20000	6.37	13			
1732.5	20175	5.95	13	1732.5	20175	6.08	13			
1752.5	20375	6.29	13	1750.0	20350	6.30	13			

LTE BAND 4									
C	Channel bandwidth: 15MHz			C	Channel bandwidth: 20MHz				
Freq.	СН		erage Ratio B)	Freq. CH			ak-to-Average Ratio (dB)		
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT		
1717.5	20025	6.35	13	1720.0	20050	6.81	13		
1732.5	20175	6.23	13	1732.5	20175	6.72	13		
1747.5	20325	6.26	13	1745.0	20300	6.88	13		



LTE BAND 5										
Cł	nannel band	width: 1.4M	Hz	Channel bandwidth: 3MHz						
Freq.	СН	Peak-to-Average Ratio (dB)		Freq.	СН	Peak-to-Average Ratio (dB)				
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT			
824.7	20407	5.56	13	825.5	20415	5.70	13			
836.5	20525	5.90	13	836.5	20525	6.17	13			
848.3	20643	5.47	13	847.5	20635	5.53	13			

LTE BAND 5										
C	hannel ban	dwidth: 5MF	z	CI	hannel band	width: 10MI	lz			
Freq.	Peak-to-Average Ratio CH (dB)		Freq.	СН	Peak-to-Average Ratio (dB)					
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT			
826.5	20425	5.31	13	829.0	20450	5.07	13			
836.5	20525	6.06	13	836.5	20525	5.96	13			
846.5	20625	5.46	13	844.0	20600	5.80	13			

LTE BAND 7										
C	hannel ban	dwidth: 5MH	z	Channel bandwidth: 10MHz						
Freq.	Peak-to-Average Ratio CH (dB)		Freq.	СН	Peak-to-Average Ratio (dB)					
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT			
2502.5	20775	6.30	13	2505.0	20800	6.33	13			
2535.0	21100	6.15	13	2535.0	21100	6.20	13			
2567.5	21425	5.68	13	2565.0	21400	5.84	13			

	LTE BAND 7									
C	hannel banc	width: 15MI	Hz	C	hannel band	width: 20M	Hz			
Freq.	СН	Peak-to-Av	erage Ratio	Freq.	СЦ	Peak-to-Average Rati				
(MHz)	СП	16QAM	LIMIT	(MHz)	СН	16QAM	LIMIT			
2507.5	20425	6.24	13	2510.0	20850	6.74	13			
2535.0	20525	6.34	13	2535.0	21100	6.76	13			
2562.5	20625	6.06	13	2560.0	21350	6.78	13			



LTE BAND 12									
Ch	annel band	width: 1.4M	Hz	Channel bandwidth: 3MHz					
Freq.	СН	Peak-to-Average Ratio (dB)		Freq.	СН	Peak-to-Average Ratio (dB)			
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT		
699.7	23017	6.07	13	700.5	23025	6.21	13		
707.5	23095	5.64	13	707.5	23095	5.70	13		
715.3	23173	4.87	13	714.5	23165	5.67	13		

LTE BAND 12										
C	hannel ban	dwidth: 5MH	lz	Channel bandwidth: 10MHz						
Freq.	СН	Peak-to-Average Ratio (dB)		- Fred	СН		Average (dB)			
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT			
701.5	23035	6.03	13	704.0	23060	6.14	13			
707.5	23095	5.50	13	707.5	23095	5.97	13			
713.5	23155	5.79	13	711.0	23130	5.74	13			

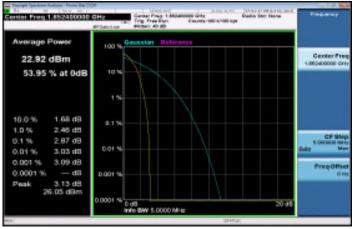
LTE BAND 17									
C	hannel ban	dwidth: 5MH	lz	C	nannel band	width: 10M	Hz		
Freq.	СН			Freq.	СН		Average		
(MHz)	СП	16QAM	LIMIT	(MHz)	СП	16QAM	LIMIT		
706.5	23755	5.13	13	709.0	23780	5.79	13		
710.0	23790	5.64	13	710.0	23790	5.66	13		
713.5	23825	5.85	13	711.0	23780	5.59	13		

Measurement Results:

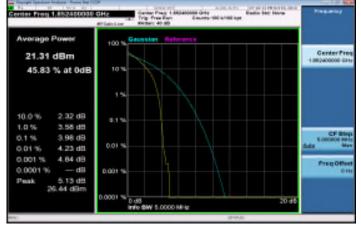
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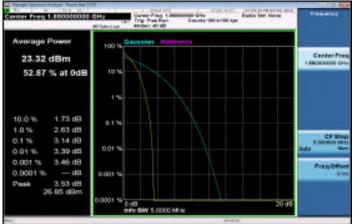
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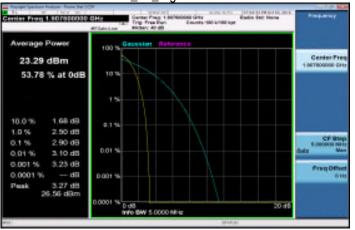
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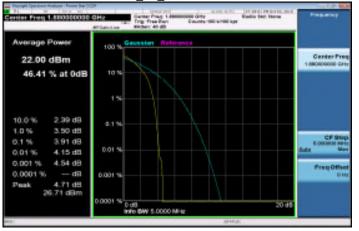
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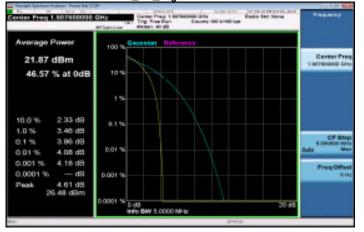
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HSDPA_B2_MidCH9400-1880



HSDPA_B2_HighCH9538-1907.6



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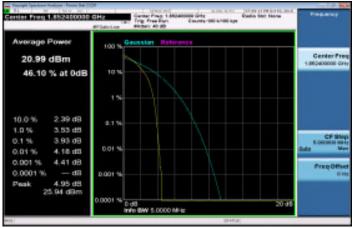
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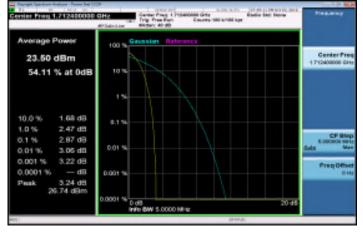
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HSUPA B2 LowCH9262-1852.4



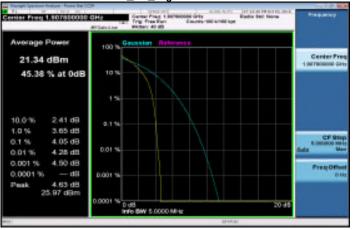
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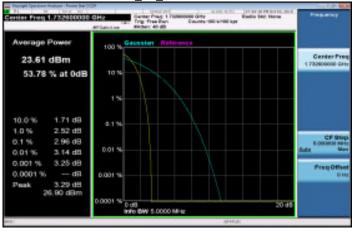
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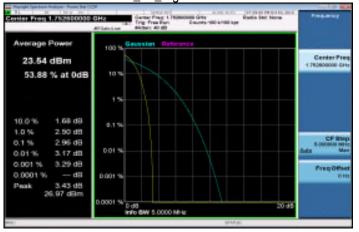
HSUPA_B2_HighCH9538-1907.6



WCDMA_B4_MidCH1413-1732.6



WCDMA_B4_HighCH1513-1752.6



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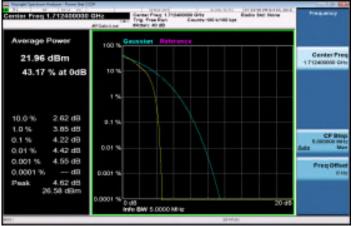
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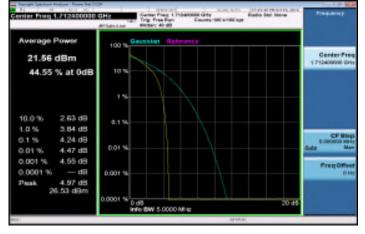
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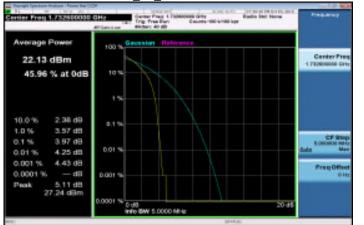
HSDPA B4 LowCH1312-1712.4



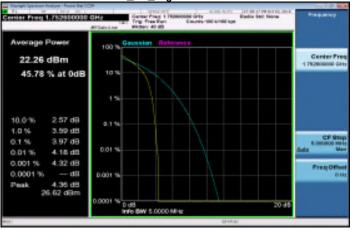
HSUPA B4 LowCH1312-1712.4



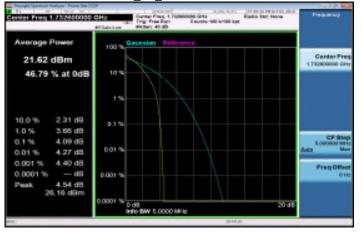
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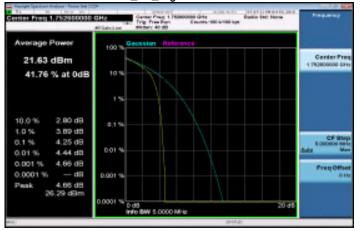
HSDPA_B4_HighCH1513-1752.6



HSUPA_B4_MidCH1413-1732.6



HSUPA_B4_HighCH1513-1752.6



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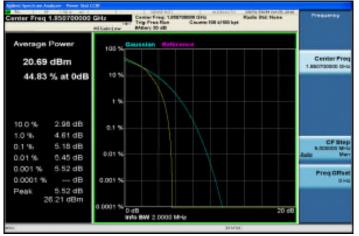
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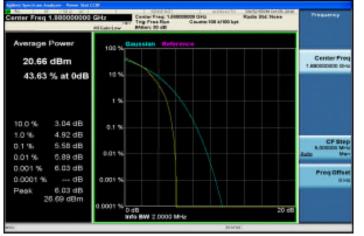
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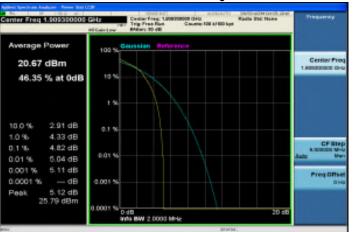
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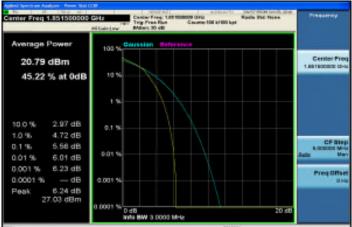


LTE_Band2 1.4MHz_16-QAM 6 0_MidCH18900-1880



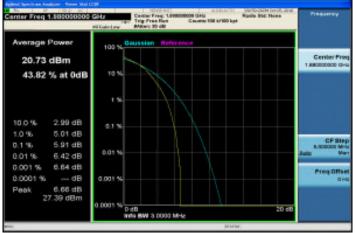
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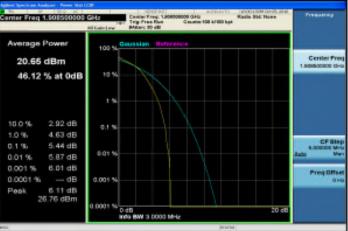


LTE_Band2 3MHz_16-QAM 15 0_LowCH18615-1851.5

LTE_Band2 3MHz_16-QAM 15 0_MidCH18900-1880



LTE_Band2 3MHz_16-QAM 15 0_HighCH19185-1908.5



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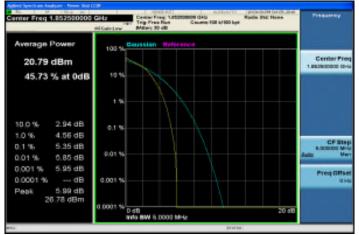
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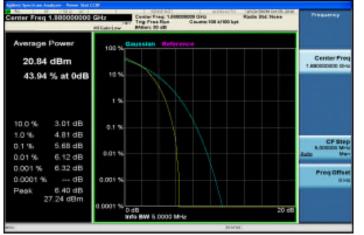
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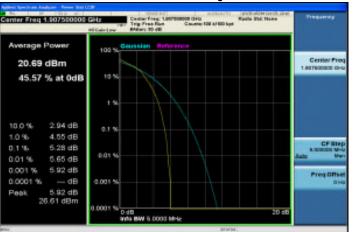
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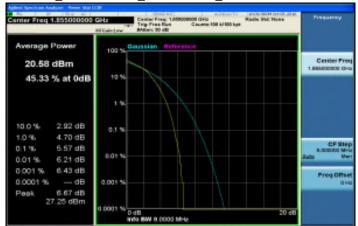


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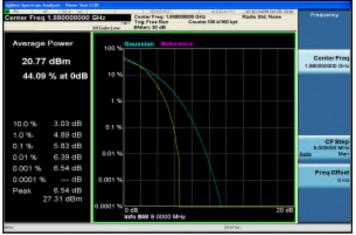
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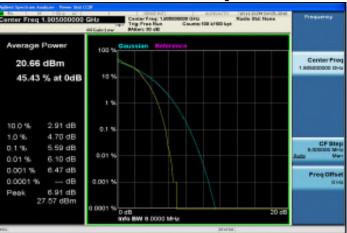


LTE Band2 10MHz 16-QAM 50 0 LowCH18650-1855

LTE_Band2 10MHz_16-QAM 50 0_MidCH18900-1880



LTE_Band2 10MHz_16-QAM 50 0_HighCH19150-1905



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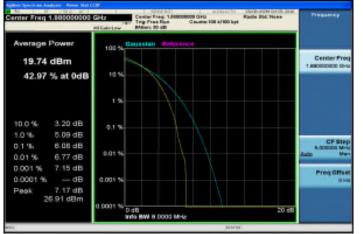
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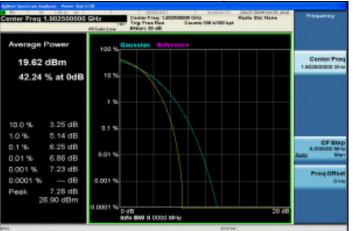
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LTE_Band2 15MHz_16-QAM 75 0_MidCH18900-1880



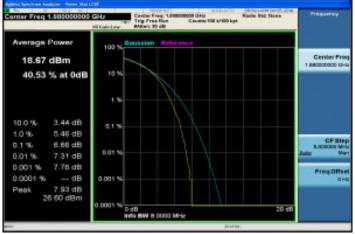
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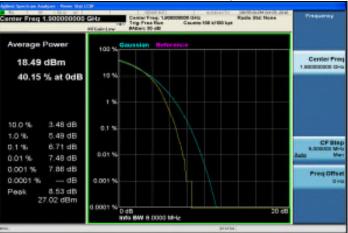


LTE_Band2 20MHz_16-QAM 100 0_LowCH18700-1860

LTE_Band2 20MHz_16-QAM 100 0_MidCH18900-1880



LTE_Band2 20MHz_16-QAM 100 0_HighCH19100-1900



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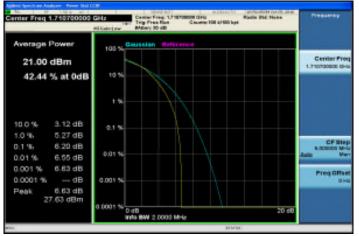
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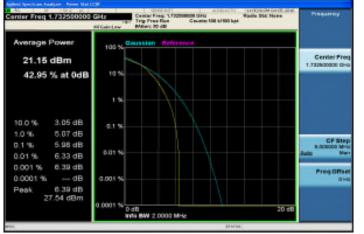
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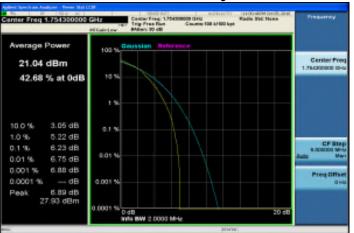
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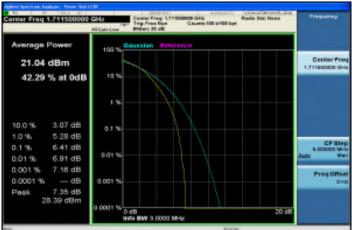


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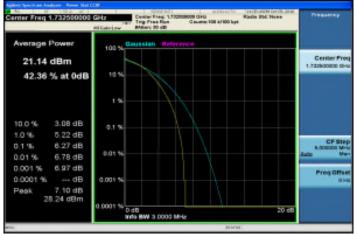
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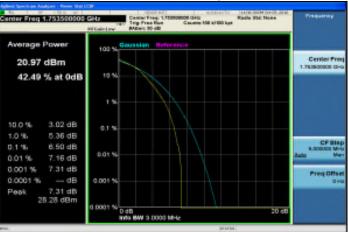


LTE_Band4 3MHz_16-QAM 15 0_LowCH19965-1711.5

LTE_Band4 3MHz_16-QAM 15 0_MidCH20175-1732.5



LTE_Band4 3MHz_16-QAM 15 0_HighCH20385-1753.5



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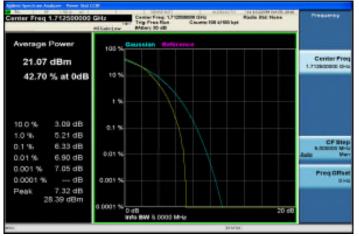
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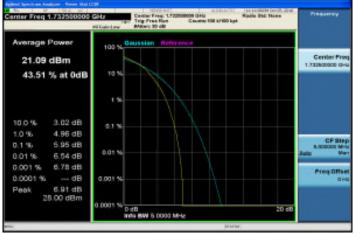
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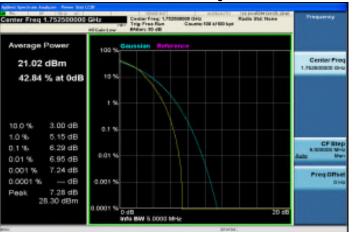
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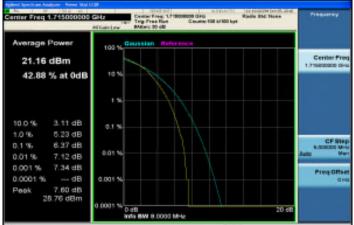


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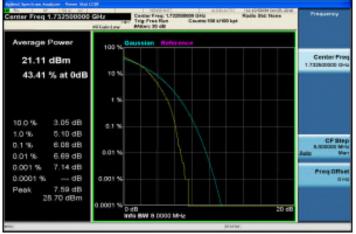
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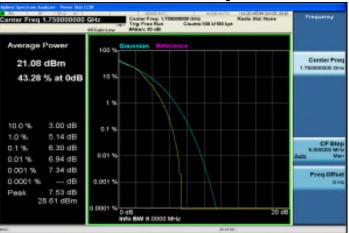


LTE Band4 10MHz 16-QAM 50 0 LowCH20000-1715

LTE_Band4 10MHz_16-QAM 50 0_MidCH20175-1732.5



LTE_Band4 10MHz_16-QAM 50 0_HighCH20350-1750



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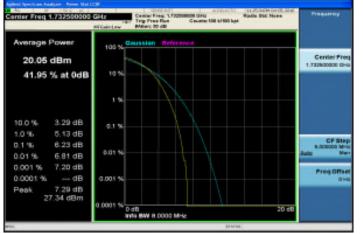
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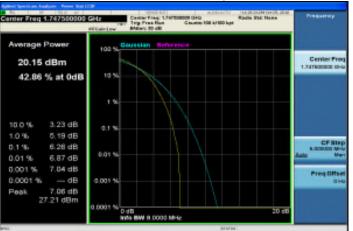
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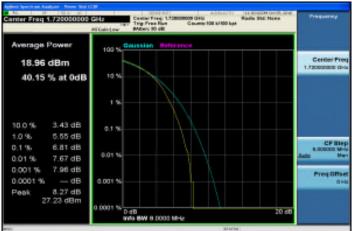


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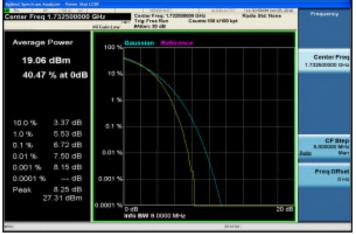
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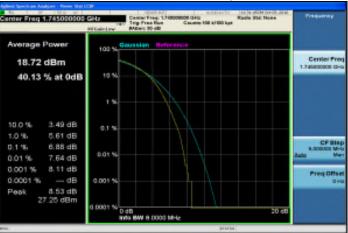


LTE_Band4 20MHz_16-QAM 100 0_LowCH20050-1720

LTE_Band4 20MHz_16-QAM 100 0_MidCH20175-1732.5



LTE_Band4 20MHz_16-QAM 100 0_HighCH20300-1745



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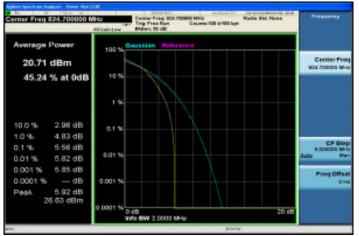
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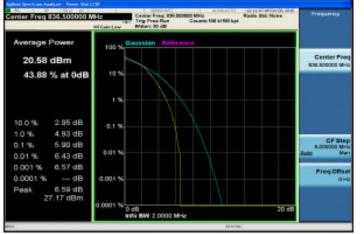
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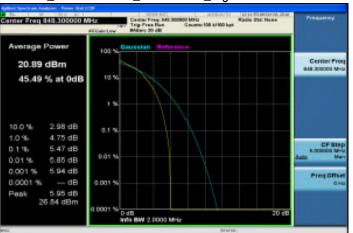
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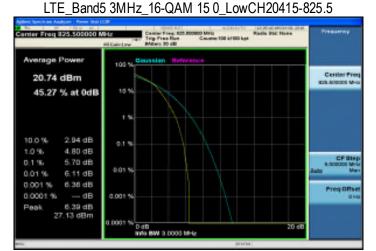


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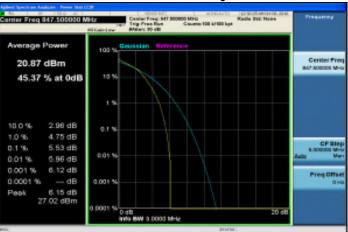




LTE_Band5 3MHz_16-QAM 15 0_MidCH20525-836.5



LTE_Band5 3MHz_16-QAM 15 0_HighCH20635-847.5



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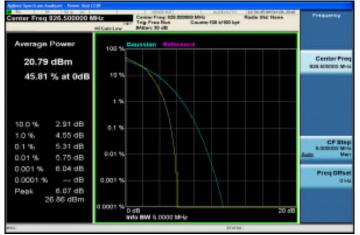
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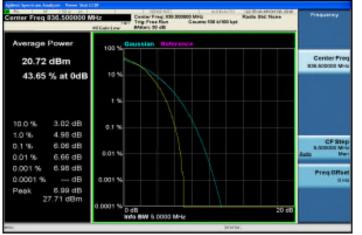
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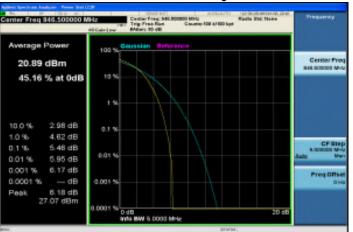
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LTE_Band5 5MHz_16-QAM 25 0_MidCH20525-836.5



LTE_Band5 5MHz_16-QAM 25 0_HighCH20625-846.5

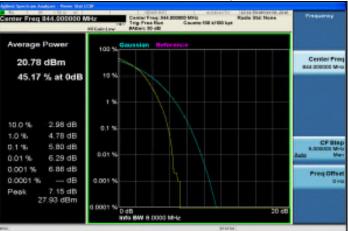




LTE_Band5 10MHz_16-QAM 50 0_MidCH20525-836.5



LTE_Band5 10MHz_16-QAM 50 0_HighCH20600-844



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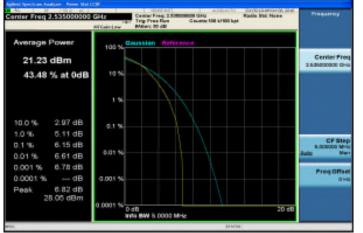
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LTE Band7 5MHz 16-QAM 25 0 LowCH20775-2502.5

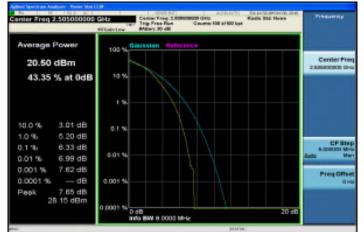


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LTE_Band7 5MHz_16-QAM 25 0_HighCH21425-2567.5



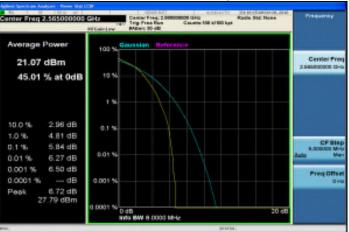


LTE Band7 10MHz 16-QAM 50 0 LowCH20800-2505

LTE_Band7 10MHz_16-QAM 50 0_MidCH21100-2535



LTE_Band7 10MHz_16-QAM 50 0_HighCH21400-2565



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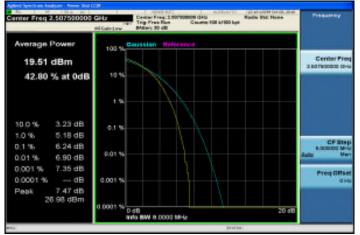
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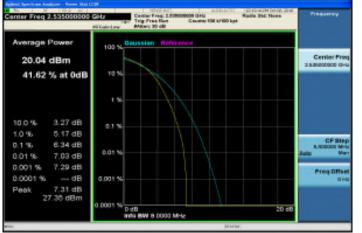
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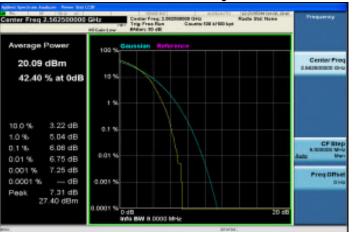
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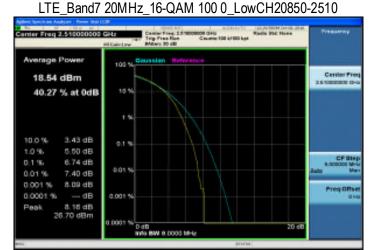


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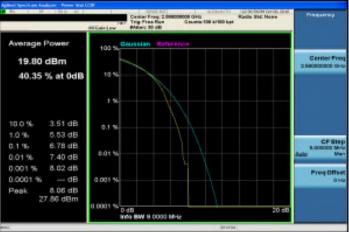
LTE_Band7 15MHz_16-QAM 75 0_HighCH21375-2562.5







LTE_Band7 20MHz_16-QAM 100 0_HighCH21350-2560



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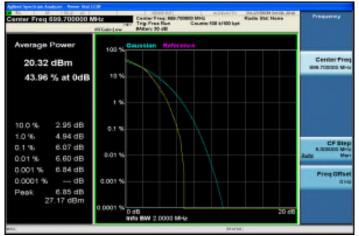
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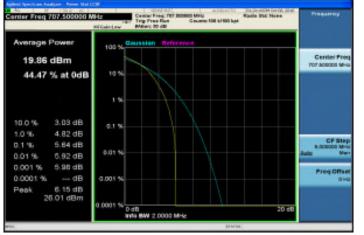
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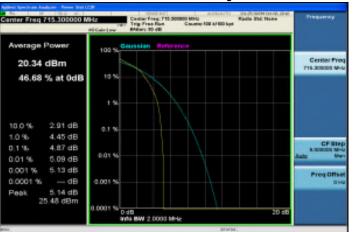
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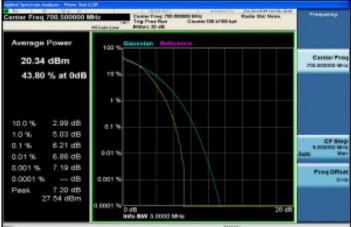


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LTE_Band12 1.4MHz_16-QAM 6 0_HighCH23173-715.3





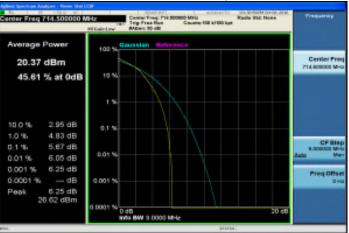
LTE Band12 3MHz 16-QAM 15 0 LowCH23025-700.5

MMM.

LTE_Band12 3MHz_16-QAM 15 0_MidCH23095-707.5



LTE_Band12 3MHz_16-QAM 15 0_HighCH23165-714.5



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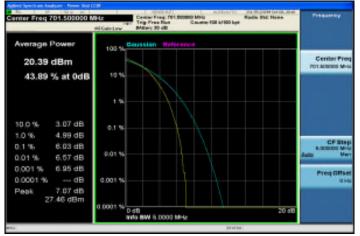
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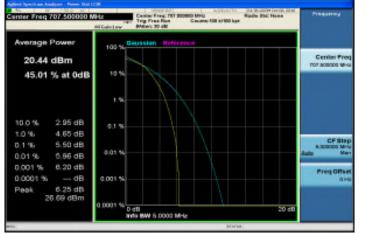
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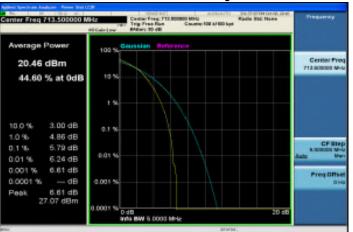
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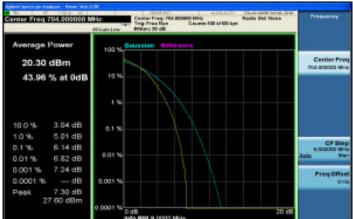


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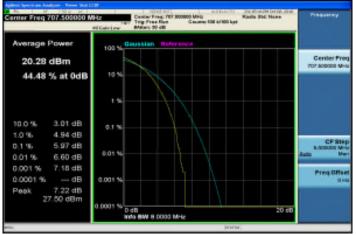
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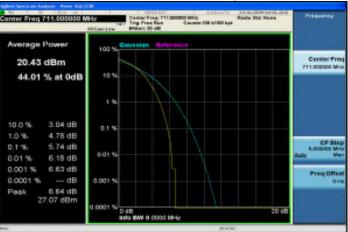


LTE_Band12 10MHz_16-QAM 50 0_LowCH23060-704

LTE_Band12 10MHz_16-QAM 50 0_MidCH23095-707.5



LTE_Band12 10MHz_16-QAM 50 0_HighCH23130-711



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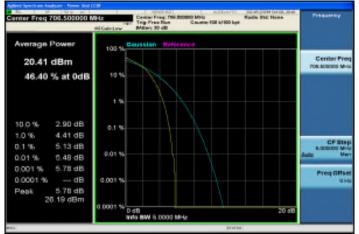
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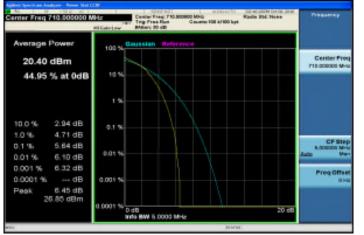
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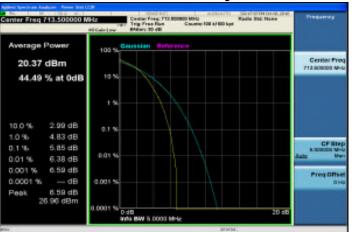
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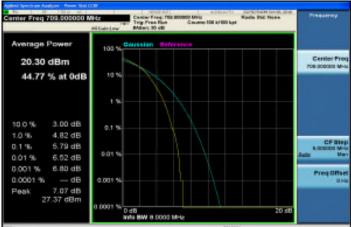


LTE_Band17 5MHz_16-QAM 25 0_MidCH23790-710



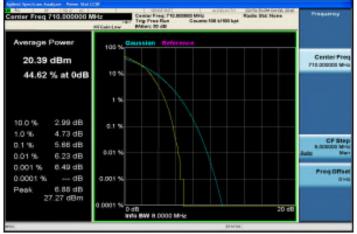
LTE_Band17 5MHz_16-QAM 25 0_HighCH23825-713.5



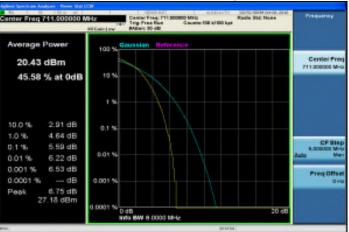


LTE_Band17 10MHz_16-QAM 50 0_LowCH23780-709

LTE_Band17 10MHz_16-QAM 50 0_MidCH23790-710



LTE_Band17 10MHz_16-QAM 50 0_HighCH23800-711



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~ End of Report ~