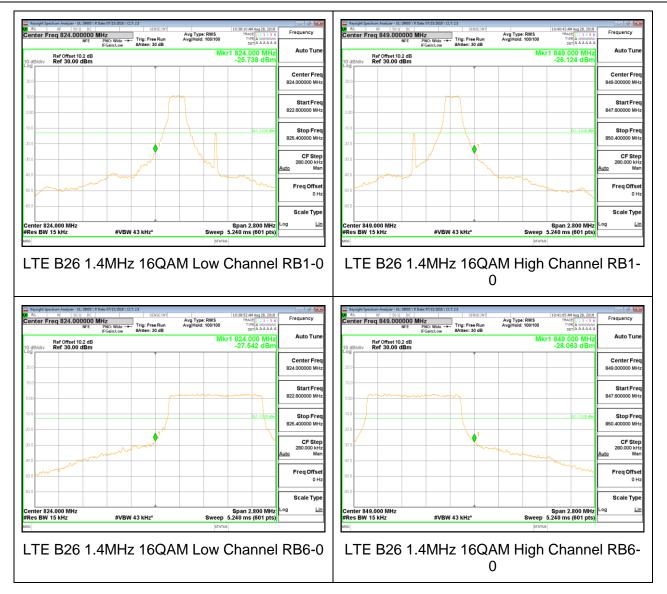
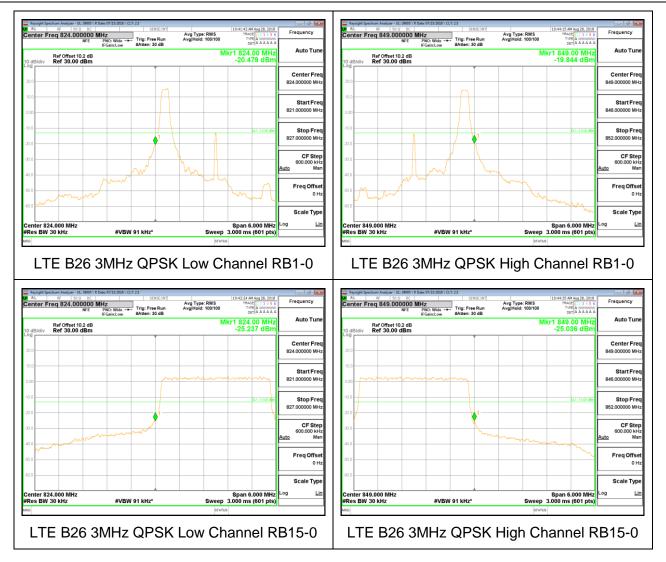


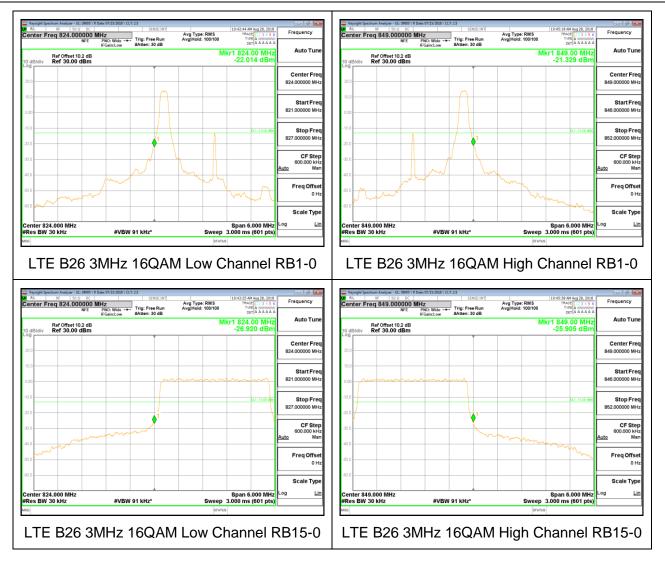
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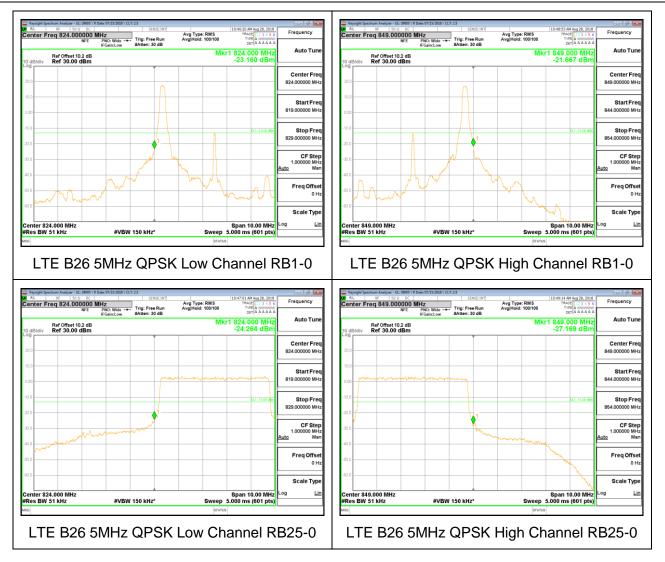
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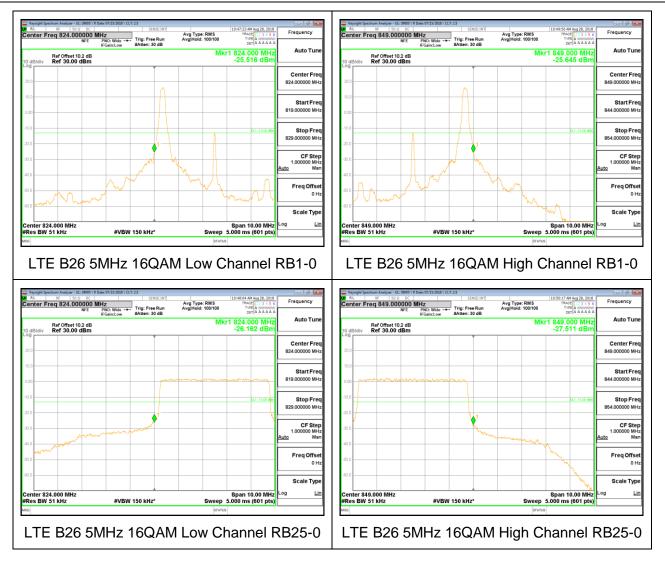
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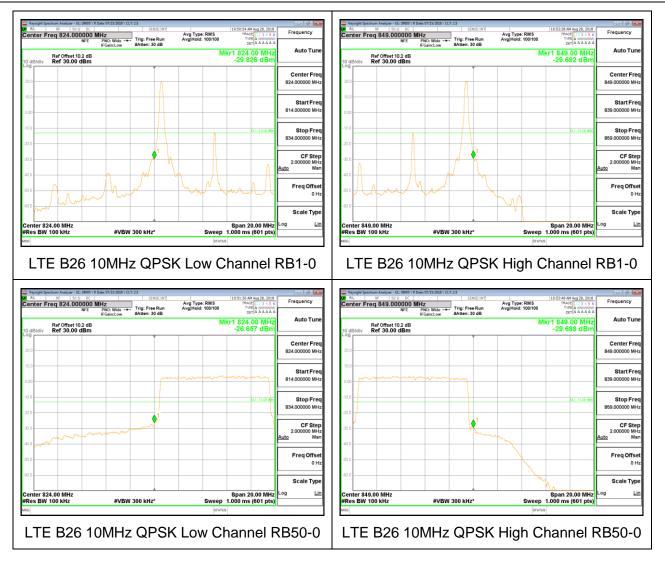
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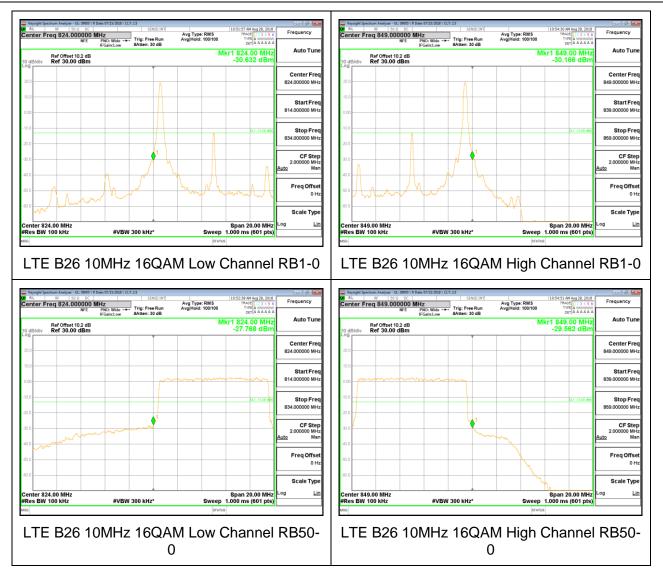
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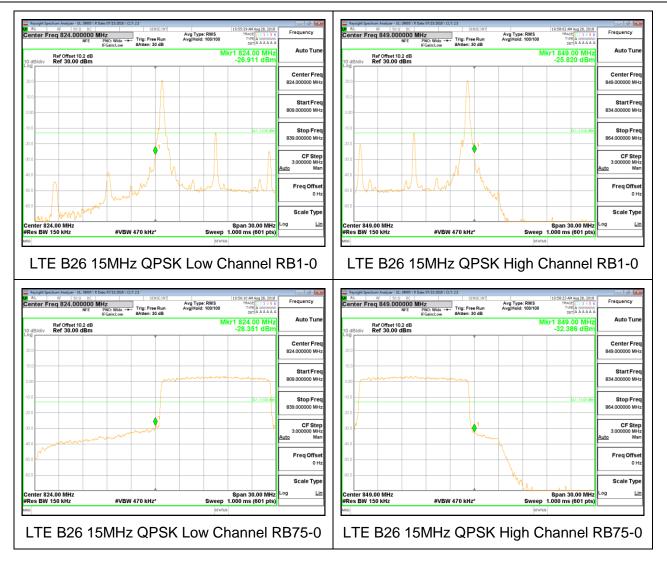
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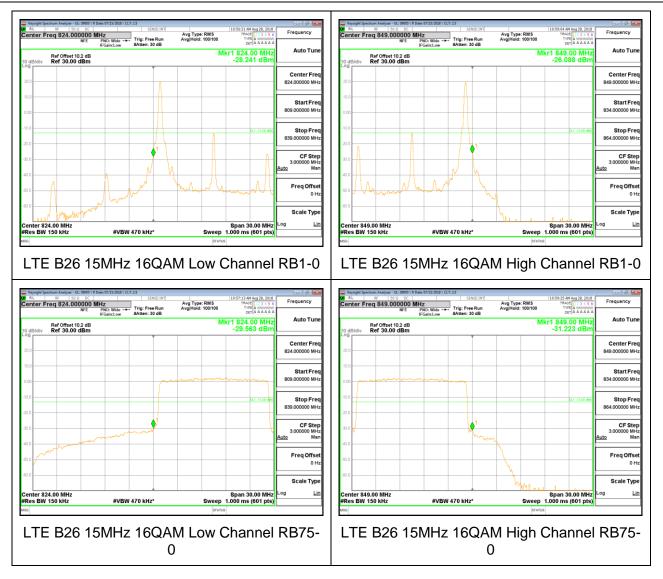
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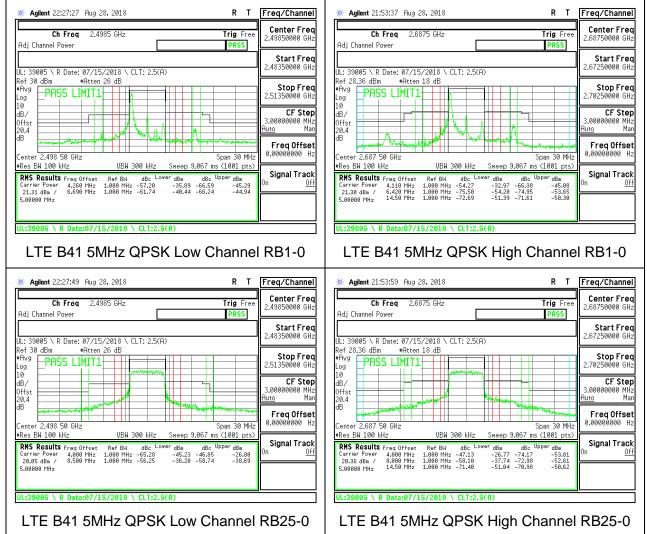


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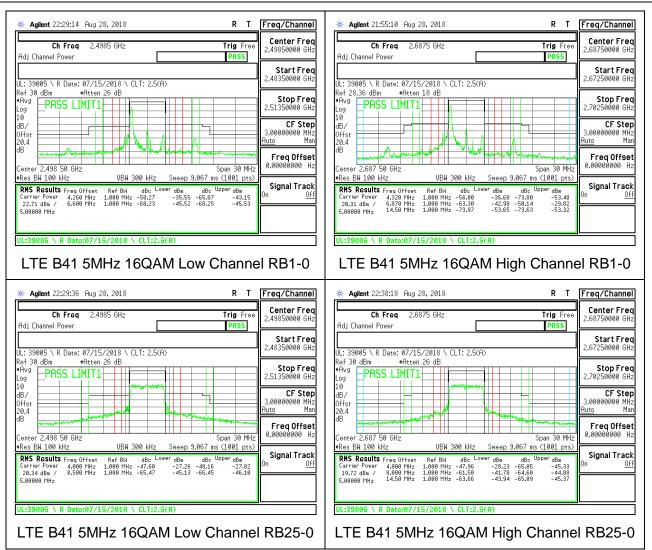


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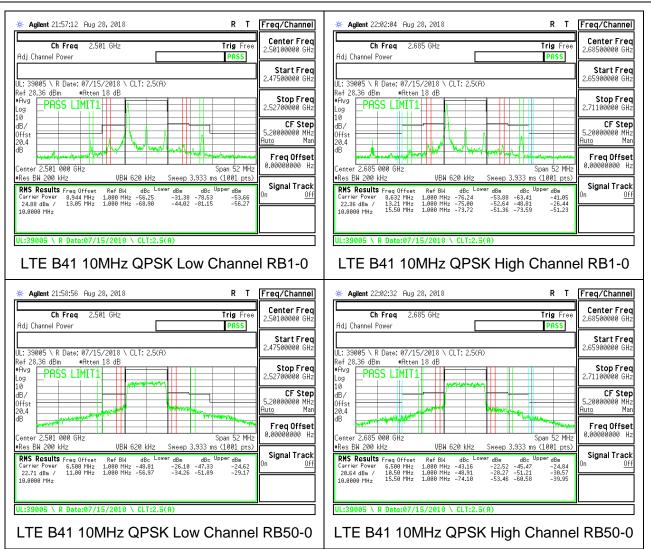
8.2.10. LTE BAND 41 ADJACENT CHANNEL POWER



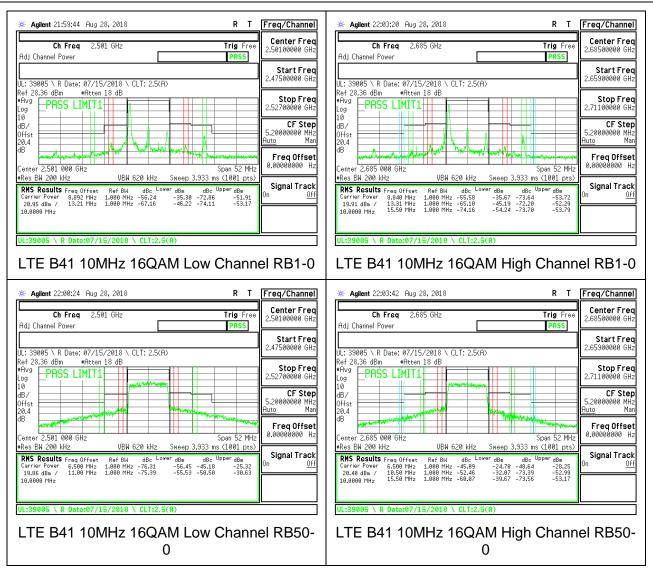
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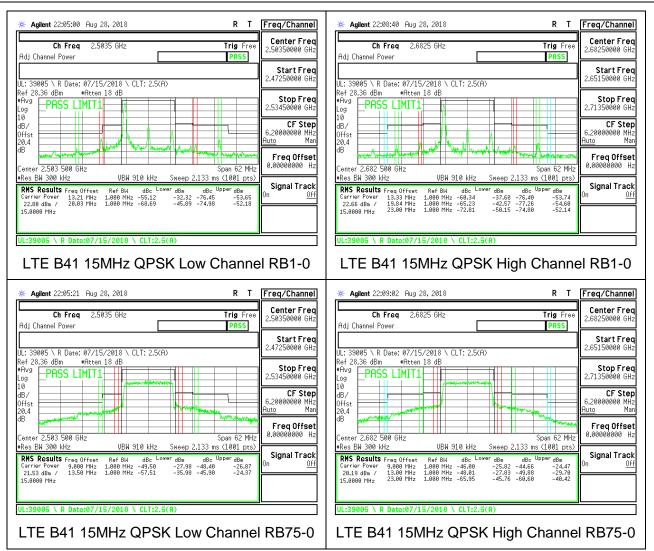
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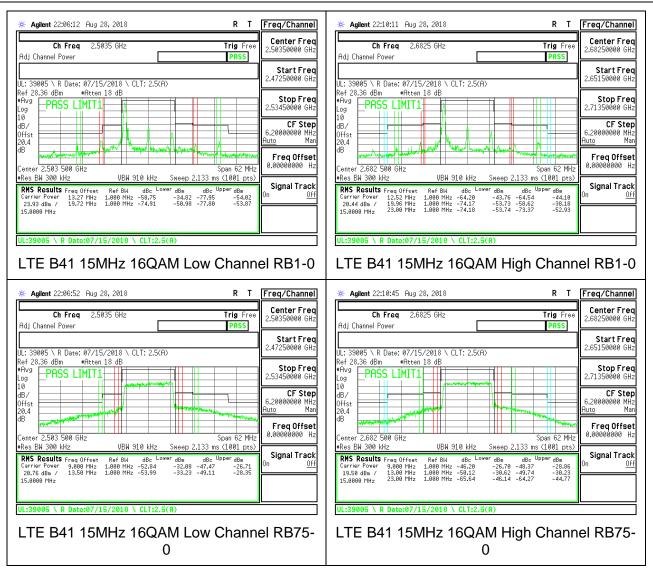
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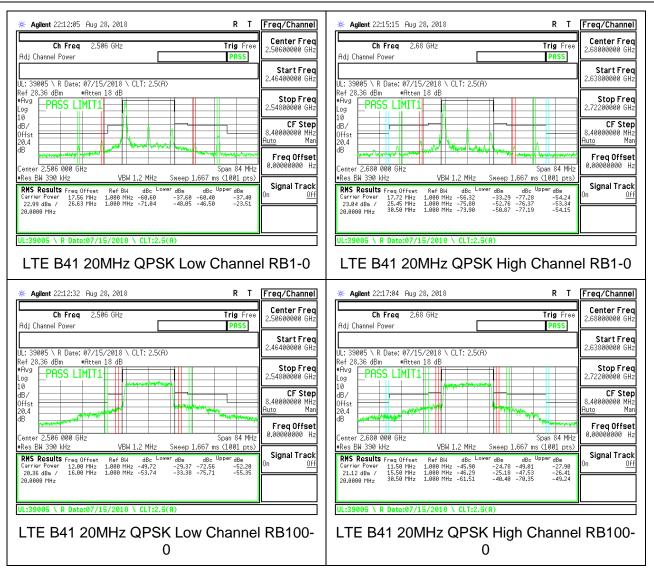
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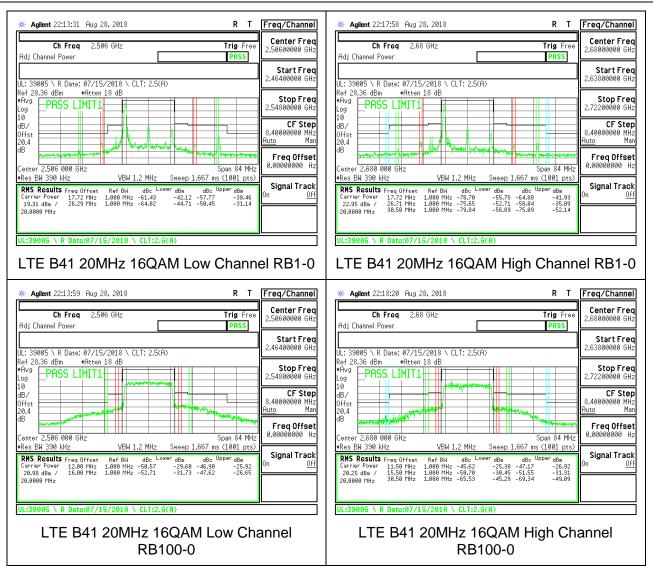
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8.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53, §90.691

<u>LIMITS</u>

FCC: §22.917, §24.238, §27.53 (c), (g), (h), §90.691

The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.

FCC: §27.53 (m) (Band 41)

The minimum permissible attenuation level of any spurious emissions is 55 + 10 log (P) dB where transmitting power (P) in Watts.

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- Set display line at -13 dBm, -25dBm and -40dBm according to the band Limit
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz. (NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

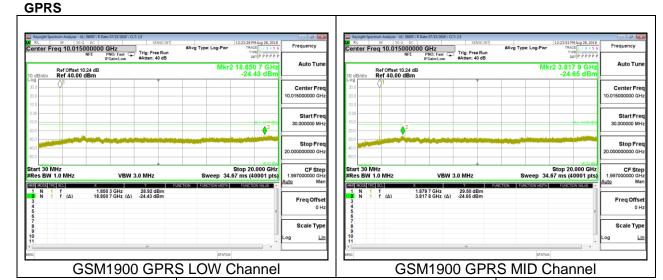
MODES TESTED

- GSM 1900
- WCDM Band 5
- WCDM Band 2
- WCDM Band 4
- LTE Band 4
- LTE Band 5
- LTE Band 17
- LTE Band 26
- LTE Band 41

RESULTS

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8.3.1. GSM GSM1900



	15000000 (PNO: Fast 😱	Trig: Free Run	#Avg Type: Lop	g-Pwr TF	ACE 1 2 3 4 5 6	Frequency
	t 10.24 dB	FGain:Low	#Atten: 40 dB		Mkr2 19.8	43 7 GHz	Auto Tun
01							Center Fre 10.015000000 GH
						Ek1-13.00 dBm	Start Fre 30.000000 MH
							Stop Fre 20.000000000 GH
		VBW 3	.0 MHz	Swee		0.000 GHz (40001 pts)	CF Ste 1.997000000 GH Auto Ma
RC SGL 1 f 1 f (Δ)			29.12 dBm -24.77 dBm	UNCTION FUNCTION	WIDTH FUNC	TION VALUE	Freq Offse 0 H
							Scale Typ
					STATUS	*	Log <u>Li</u>
	Ref 0.01	reg 10.015000000	req 10.015000000 GHz ME PRO: Fail (~) ME PRO: Fail (~) PRO: Fail (~) Ref 010.00 dBm 1 1 1 1 1 1 1 1 VIHz 1.00 MHz VBW 33 281221 1.909 7 GHz	reg 10.01500000 GHz HC Fat FGatClow Ref 40.00 dBm (1) (1) (1) (1) (1) (1) (1) (1)	reg 10.015000000 GHz Phili. Fast Trig: Pree Run #Atten: 40 dB Ravig Type: Log Prior Table: Log Trig: Pree Run #Atten: 40 dB Trig: Pree Run Trig: Pree Run Prior Table: Log Trig: Pree Run Trig: Pree Run Trig: Pree Run Prior Table: Log Trig: Pree Run Trig: Pree Run Trig: Pree Run Prior Table: Log Trig: Pree Run Trig: Pree Run Trig: Pree Run VIII Trig: Pree Run Trig: Pree Run Trig: Pree Run VIII Trig: Pree Run Trig: Pree Run Trig: Pree Run VIII Trig: Pree Run Trig: Pree Run Trig: Pree Run VIII Trig: Pree Run Trig: Pree Run Trig: Pree Run VIII Trig: Pree Run Trig: Pree Run Trig: Pree Run VIII Trig: Pree Run Trig: Pree Run Trig: Pree Run VIII Trig: Pree Run Trig: Pree Run Trig: Pree Run VIII Trig: Pree Run Trig: Pree Run Trig: Pree Run VIII Trig: Pree Run Trig: Pree Run Trig: Pree Run VIII	req 10.0150000000 GHZ PRO: Factor Trig: Free Run Ref 40.00 dBm Mkr2 19.8 Fer offsee 10.24 /B Mkr2 19.8 24.27 dBm -24.00 VHVZ VBW 3.0 MHZ Stop 2 1.00 mKz -24.00 VHVZ VBW 3.0 MHZ Stop 2 3.00 mKz -24.00 VHVZ VBW 3.0 MHZ Stop 2 3.00 mKz -24.00 VHVZ 1.0 MHZ VBW 3.0 MHZ Stop 2 3.00 mKz I 10 MHZ VBW 3.0 MHZ Stop 2 3.00 mKz -24.00 I 10 MHZ VBW 3.0 MHZ Stop 2 3.00 mKz -24.77 dBm -24.77 dBm	reg 10.015000000 CHz IFGG/mic.dow Trig: Free Run RArig Type: Log-Pwr Trig: Cree Run Public PwrPyr Trig: Cree Run Chi PwrPy

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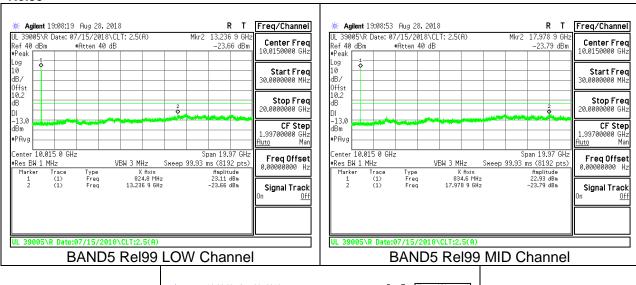
EGPRS

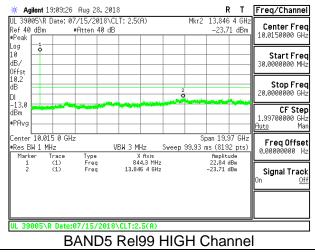


Keysight Sp RL		UL: 39005 \ R Date: 07	/15/2018 \ CL	T: 2.5 SENSE:INT		12:25:4	0 PM Aug 28, 2018	0 8 💌
		5000000 GH	IZ D: Fast	Trig: Free Run #Atten: 40 dB	#Avg Type: Log	-Pwr T	TYPE M WWWWWW DET P P P P P P	Frequency
0 dB/div	Ref Offset Ref 40.0	10.24 dB					39 8 GHz 5.08 dBm	Auto Tune
og 30.0 20.0	01							Center Free 10.015000000 GH:
		2					EL1-13.00 dBm	Start Free 30.000000 MH
								Stop Free 20.000000000 GH
	1.0 MHz		VBW :	3.0 MHz		p 34.67 ms	<u> </u>	CF Step 1.997000000 GH Auto Mar
00000000000000000000000000000000000000	nce set 1 f 1 f (Δ)	1.909 7 3.839 8	GHz GHz (Δ)	26.91 dBm -25.08 dBm	NCTION FUNCTION	WIDTH FUN		Freq Offse 0 H
6 7 8 9								Scale Type
1 a				m		STATUS	· · ·	
	G	SM19	900	EGPR	S HIG	H Ch	anne	

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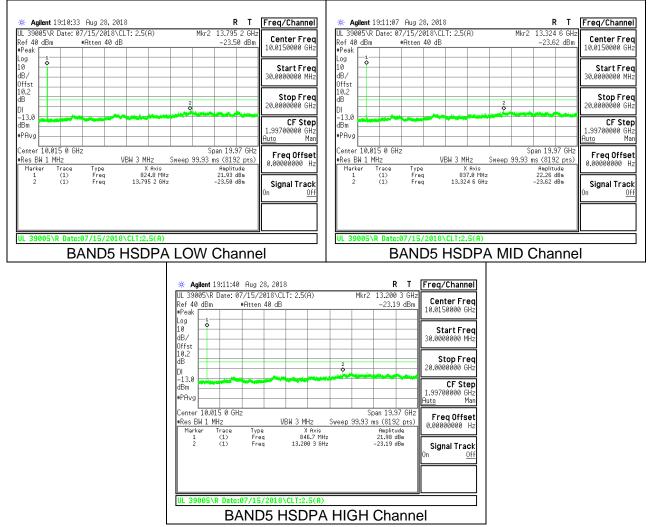
8.3.2. WCDMA BAND5 Rel99





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8.3.3. WCDMA BAND2

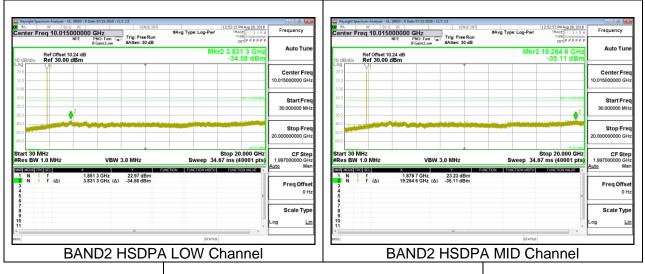
Rel99

Krysight Spectrum Analyzer - UL 39005 RL	SENSE:INT	12:49:39 FM Aug 28, 2018 #Avg Type: Log-Pwr TRACE Tries (10:34:56 Tries (10:00000000000000000000000000000000000	Frequency	Krysight Spectrum Analyser - UL 3005 1 R Date 07/15/2 R L	st C Trig: Free Run	12:50:21 PM Aug 28, 2018 Avg Type: Log-Pwr TRRCE TYPE DEIP PPP PF	Frequency
Ref Offset 10.24 dl	B	Mkr2 19.225 2 GHz -35.11 dBm	Auto Tune	Ref Offset 10.24 dB		Mkr2 18.508 7 GHz -34.62 dBm	Auto Tune
20.0			Center Freq 10.015000000 GHz				Center Freq 10.015000000 GHz
-10.0		DL1-1909-dDn	Start Freq 30.000000 MHz	-10.0		2	Start Freq 30.000000 MHz
-40.0 -50.0 -60.0			Stop Freq 20.000000000 GHz	-40.0 -60.0 -60.0			Stop Freq 20.00000000 GHz
Start 30 MHz #Res BW 1.0 MHz	VBW 3.0 MHz	Stop 20.000 GHz Sweep 34.67 ms (40001 pts)	CF Step 1.99700000 GHz Auto Man	Start 30 MHz #Res BW 1.0 MHz V	/BW 3.0 MHz	Stop 20.000 GHz Sweep 34.67 ms (40001 pts)	CF Step 1.99700000 GHz <u>Auto</u> Man
1 N 1 f	1.853 3 GHz 22.77 dBm 19.225 2 GHz (Δ) -35.11 dBm		Freq Offset 0 Hz	1 N 1 f 2 N 1 f (Δ) 18.508 7 GHz 3 4 5 6	23 17 dBm		Freq Offset 0 Hz
7 8 9 10 11			Scale Type	7 8 9 10 11			Scale Type
MSG		STATUS		∢ [status	
BA	AND2 Rel99	LOW Channel		BAND	02 Rel99 N	/ID Channel	

o on tor i	req 10.0	15000000 NFE	GHz PNO: Fast IFGain:Low	Trig: Free Run #Atten: 30 dB	#Avg Type: L	.og-Pwr	TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P P P P P P	Frequency
10 dB/div	Ref 30.	et 10.24 dB 00 dBm					.191 7 GHz -34.51 dBm	Auto Tun
20.0	01							Center Fre 10.015000000 GH
-10.0							DL1-10.00 dDm	Start Fre 30.000000 MH
-40.0 -50.0 -60.0								Stop Fre 20.000000000 GH
	1.0 MHz		VBW	3.0 MHz		ep 34.67 n	p 20.000 GHz ns (40001 pts)	CF Ste 1.997000000 GH Auto Ma
1 N 2 N 3 4 5	1 f 1 f (Δ)		8 2 GHz 1 7 GHz (Δ)	22.60 dBm -34.51 dBm	FUNCTION FUNCTION	ON WIDTH F		Freq Offse
6 7 8 9								Scale Typ
11							· · ·	Log <u>Li</u>

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HSDPA



enter	® Freq 10.0	50 Q DC 01500000 NFE	PNO: Fast	SENSE	#Avg Ty un	pe: Log-Pwr	12:53:37 PM Aug 28, 2 TRACE 1 2 3 4 TYPE M WWW DET P P P F	Frequency
10 dB/div		et 10.24 dB	IFGain:Low	#Atten: 30 d	В	Mkr	2 19.405 4 G -34.86 dE	Hz Auto Tune
20.0 10.0	01							Center Free 10.015000000 GH
20.0							0.1-10.00	2 Start Free 30.000000 MH
40.0								Stop Free 20.000000000 GH
tart 30 Res BV	MHz N 1.0 MHz	2	VBV	V 3.0 MHz	5	Sweep 34.	Stop 20.000 G 67 ms (40001 p	Hz CF Ste
1 N 2 N 3 4 5	TRC SCL 1 f 1 f (Δ)	× 1. 19.	906 7 GHz 405 4 GHz (/	22.95 dBm 34.86 dBm		NCTION WIDTH	FUNCTION VALUE	Freq Offse 0 H
6 7 8 9 10								Scale Type
						STATUS		
e line								

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8.3.4. WCDMA BAND4

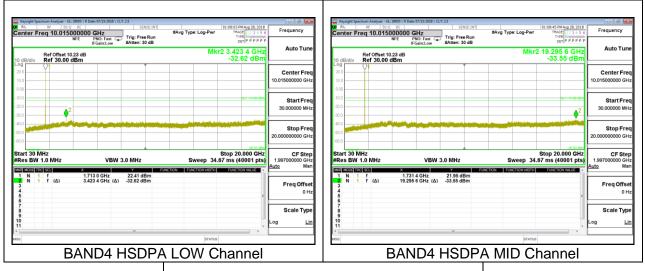
Rel99

Keysight Spectrum Analyser - 00, 3900 \ R Desc 07/15/2018 \ CUT.23 R L NF So 0 cc Schic Enrift Center Freq 10.0155000000 GHz Trig: Free Run NFE PNO: Fast Trig: Free Run	[01:05:18 PM Aug 28, 2018 [01:05:18 PM Aug 28, 2018 [01:05:18 PM Aug 28, 2018 [01:05:10 PM Aug 28, 2018 [Center Fred 10.015000000 G	SENSE:INT 01:86:02 PM Aug 28, 20 #Avg Type: Log-Pwr TRACE 12 3 4 4 Trig: Free Run Trig: Free Run	6 Frequency
IFGain:Low #Atten: 30 dB Ref Offset 10.23 dB 10 dB/div Ref 30.00 dBm		Ito Tune Ref Offset 10.23 dB 10 dB/div Ref 30.00 dBm	Gein:Low #Atten: 30 dB DETIP P P I Mkr2 18.490 8 GH -34.81 dBr	Z Auto Tune
	10.0150000	ter Freq 20.0 0000 GHz 10.0		Center Freq 10.015000000 GHz
100		1000 100 1000 1	Rt-John et	Start Free 30.000000 MH:
400	20.0000000	top Freq 0000 GHz		Stop Fre 20.000000000 GH
	Stop 20.000 GHz Sweep 34.67 ms (40001 pts) CITION FUNCTIONWARKE	CF Step 0000 GHz Man M	VBW 3.0 MHz Sweep 34.67 ms (40001 pt Y Parction Parktion worth Parktion value	
1 N 1 f 1.713 5 GHz 22.97 dBm 2 N 1 f (Δ) 18.708 9 GHz (Δ) -35.04 dBm 4 5	Freq	rq Offset 3 N 1 f (Δ) 18.4901 0 Hz 6 5	4 GHz 22.36 dBm 8 GHz (Δ) -34.81 dBm	Freq Offse
7 8 9 10 11	Log	ale Type 9 9 Lin 10		Scale Type
<	STATUS	MSG	m STATUS	
BAND4 Rel99	LOW Channel	BAN	ND4 Rel99 MID Channel	

Center F	req 10.	50 Q DC 01500000 NFE	PNO: Fast	Trig: Free Run #Atten: 30 dB	#Avg Type: Lo	j-Pwr	47 PM Aug 28, 2018 TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P P P P P P	Freque	
10 dB/div		set 10.23 dB).00 dBm					308 0 GHz 4.15 dBm	Aut	o Tun
20.0								Cent 10.0150000	er Fre 000 GH
-10.0							DL1-19.00 dDm	Sta 30.0000	rt Free
-40.0 -50.0 -60.0								Sto 20.0000000	pFre
Start 30 #Res BW	1.0 MH	z	VBW :	3.0 MHz	Swee	p 34.67 ms	20.000 GHz (40001 pts)	C 1.9970000 Auto	F Stej 000 GH Ma
1 N 2 N 3 4 5	1 f 1 f (Δ)	1.	761 9 GHz 308 0 GHz (Δ)	22.54 dBm -34.15 dBm				Freq	Offse
6 7 8 9								Scal	е Тур
10 11						STATUS		Log	Lis
150					HIGH				

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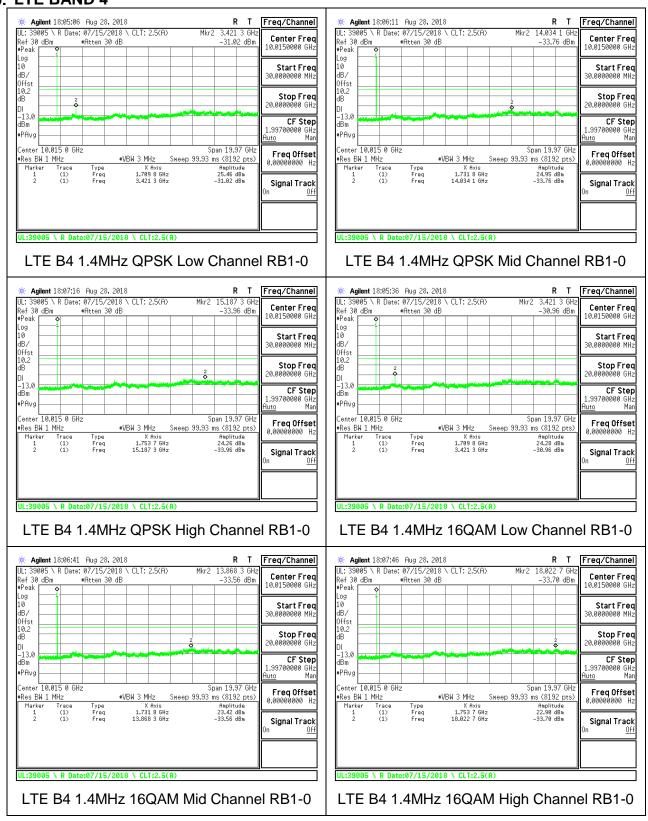
HSDPA



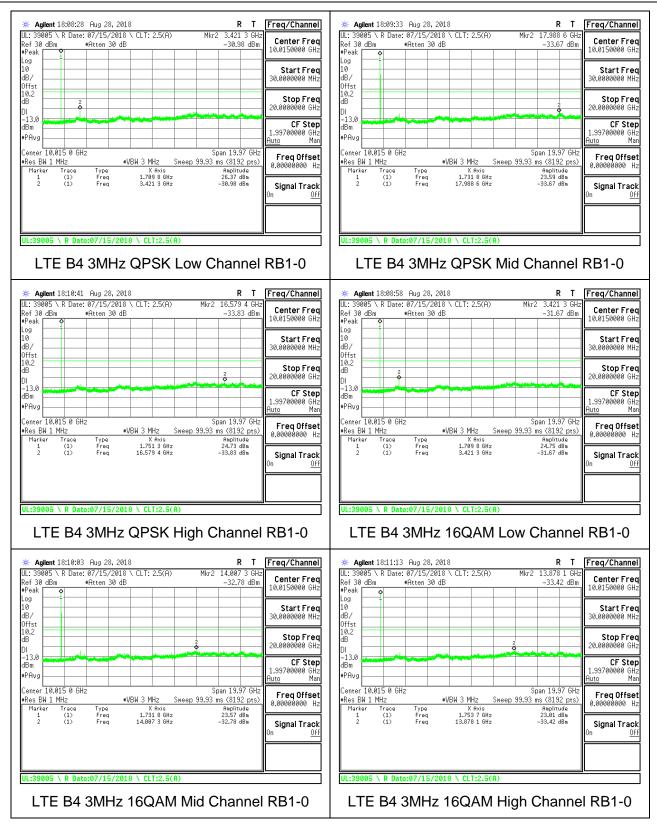
Center Fr	eq 10.015	000000 GHz	Trig: Free	Run	vg Type: L	.og-Pwr	01:09:29 PM Aug 2 TRACE 1 2 TYPE MW DET P P	3 4 5 6 Fred	quency
10 dB/div	Ref Offset 1 Ref 30.00		y #Atten: 30	00		Mkr2	19.171 2 0 -35.07 d	GHZ A	uto Tune
-09 20.0 10.0									enter Fred
20.0							DL1-10	- 1	Start Free
40.0 50.0								·	Stop Fre
start 30 M Res BW	1.0 MHz	VE	3W 3.0 MHz			ep 34.6	Stop 20.000 7 ms (40001	pts) 1.9970	CF Ste 00000 GH Ma
1 N 1 2 N 1 3 4 5	f f (Δ)	1.761 4 GHz 19.171 2 GHz	22.30 dE (Δ) -35.07 dB		FUNCTI	ON WIDTH	FUNCTION VALU		r eq Offse 0 Н
6 7 8 9 10								Log	cale Typ
sG			т.		-	STATUS		•	
	B	AND4	нор			10	hann		

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8.3.5. LTE BAND 4



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