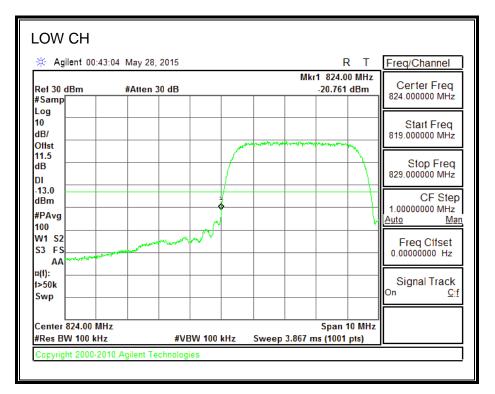
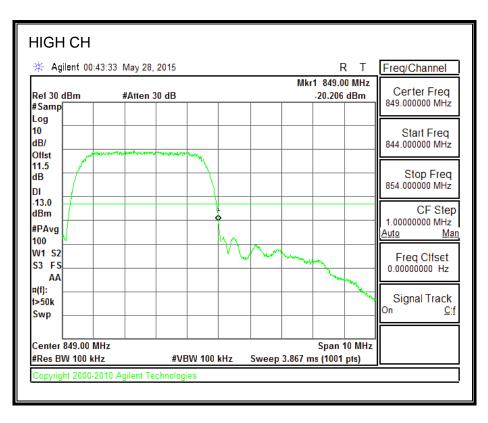
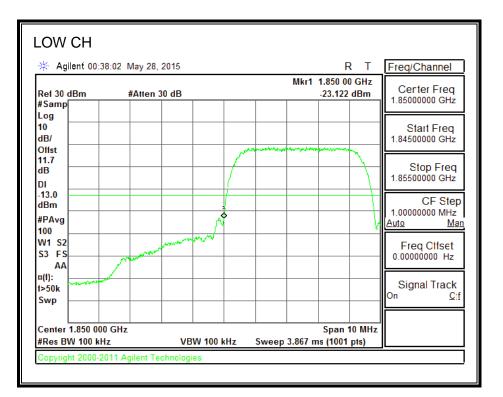
8.4.8. UMTS HSDPA

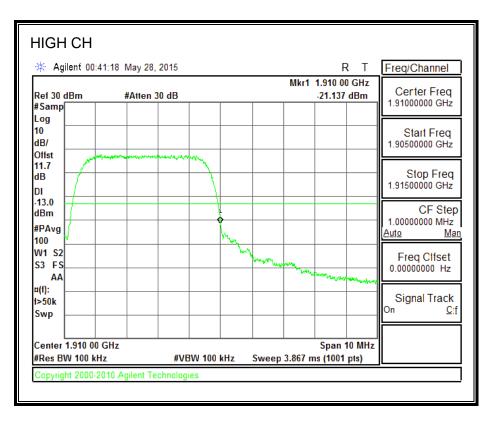
850MHz BAND



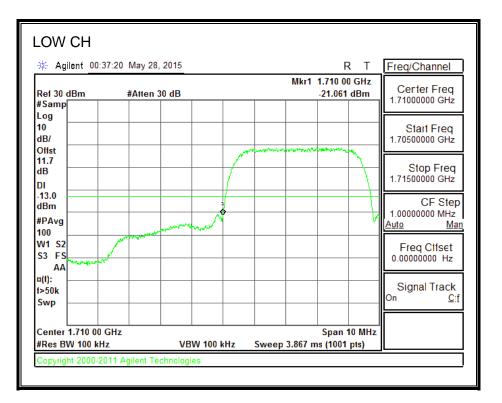


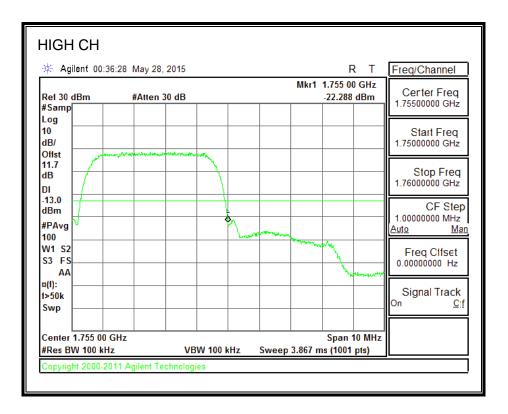
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8.5. OUT OF BAND EMISSIONS (MODEL: A1633)

RULE PART(S)

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

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

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:

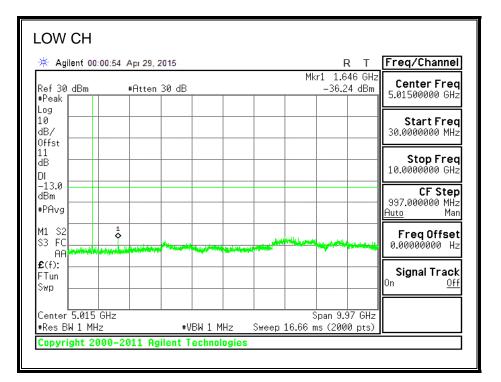
- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

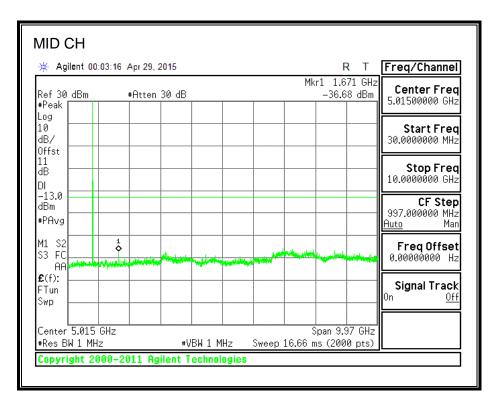
RESULTS

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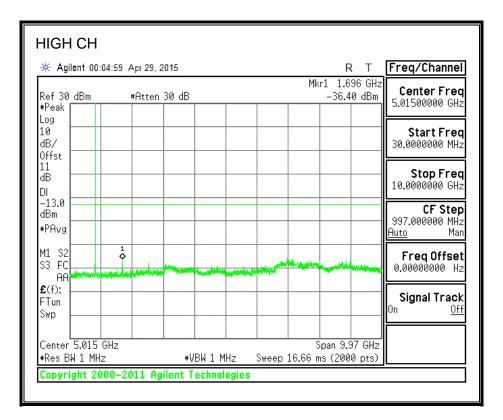
8.5.1. GSM-GPRS

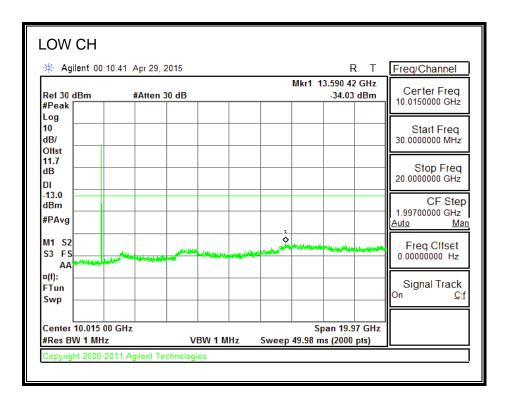
850MHz BAND





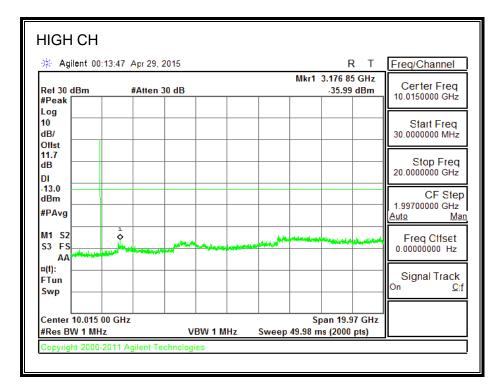
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🔆 Agi	ilent 00:	12:14	Apr 29, 3	2015					F	Т	Freq/Channel
Ref 30 (#Peak	dBm	i	#Atten 3	30 dB		1	1	Mkr1 13	3.260 75 -33.88		Center Freq 10.0150000 GHz
Log 10 dB/ Offst											Start Freq 30.0000000 MHz
11.7 dB											Stop Freq 20.000000 GHz
DI -13.0 dBm #PAvg											CF Step 1.99700000 GHz Auto Man
M1 S2 S3 FS AA		we have		a states		ماينطانيني دفي	and whether		hannagairtaith	بحلواهواوسان	Freq Clfset 0.00000000 Hz
¤(f): FTun Swp											Signal Track ^{On <u>C</u>!f}
	10.015 0 W 1 MHz			v	BW 1 M	IHz	Sweep	Sp 49.98 m	an 19.9 s (2000		

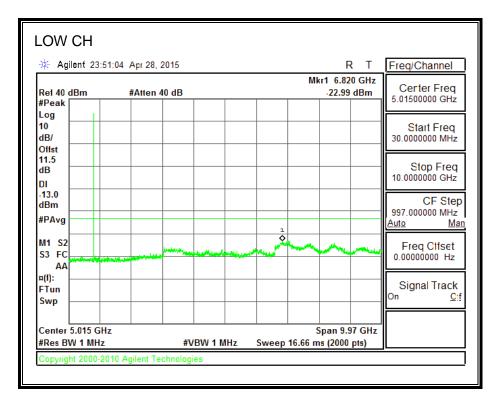


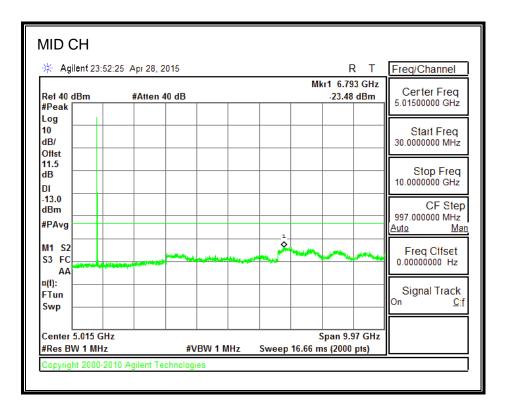
UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. FORM NO: CCSUP4701i TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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8.5.2. GSM-EGPRS

850MHz BAND



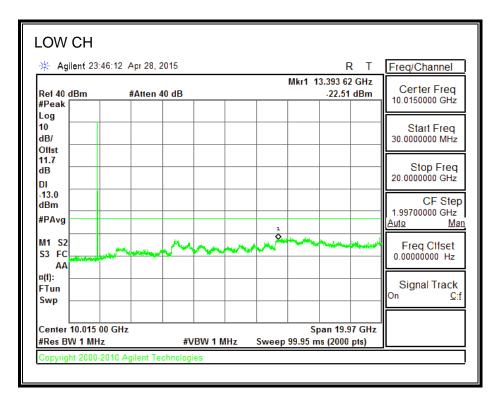


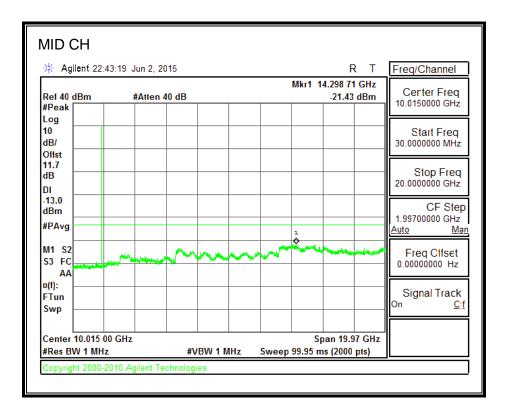
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🔆 Agilent 23:5	3:57 Apr 28, 2015		R T Freq/Channel
Ref 40 dBm #Peak	#Atten 40 dB		5.973 GHz Certer Freq 5.01500000 GHz
Log 10 dB/			Start Freq 30.0000000 MHz
Offst 11.5 dB DI			Stop Fred 10.0000000 GHz
-13.0 dBm #PAvg			CF Ste 997.000000 MHz <u>Auto M</u>
M1 S2 S3 FC	www.www.www.www.	and the second s	Freq Cifset 0.00000000 Hz
¤(f): FTun Swp			Signal Track
Center 5.015 GH #Res BW 1 MHz	-	Span 1 MHz Sweep 16.66 ms (20	9.97 GHz

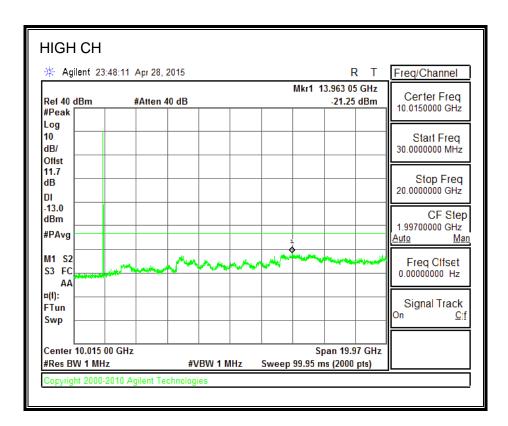
UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. FORM NO: CCSUP4701i

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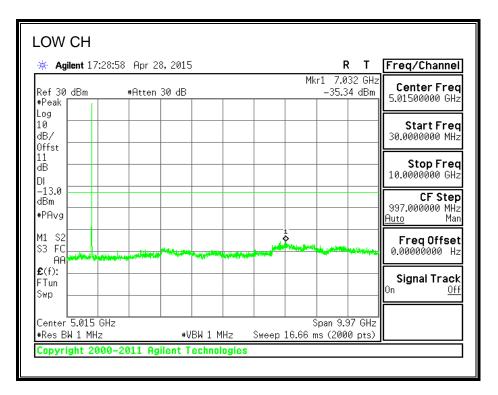
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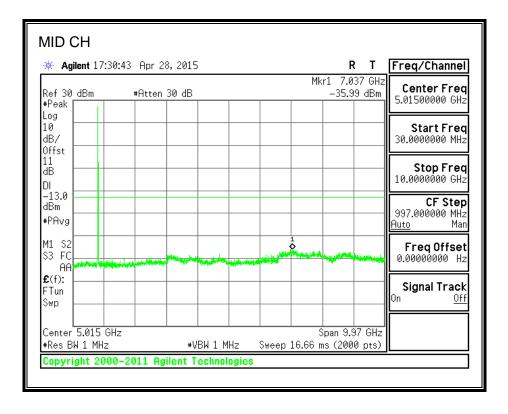


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8.5.3. CDMA2000 1xRTT

850MHz BAND



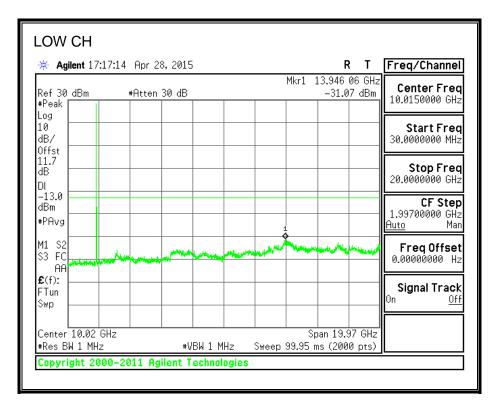


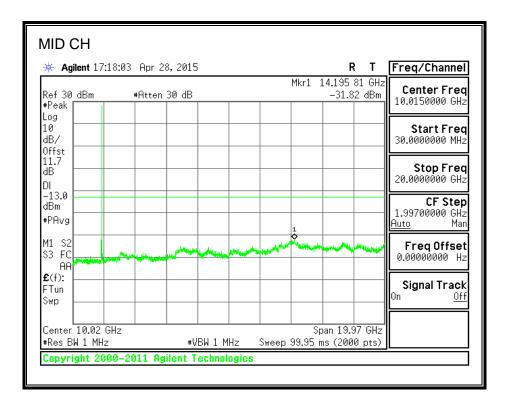
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🔆 Agilent 17:30:	00 Apr 28, 2015			R		eq/Channel
Ref 30 dBm #Peak	#Atten 30 dB			Mkr1 7.137 -35.71	dBm (Center Freq 01500000 GHz
Log 10 dB/ Offst					30	Start Freq 0.0000000 MHz
11 dB DI					10	Stop Freq 0.0000000 GHz
-13.0 dBm #PAvg					99 Aut	CF Step 17.000000 MHz 1 <u>0</u> Man
M1 S2 S3 FC	(Last Star Last Last Last Last Last Last Last Last			and a grant of the state		FreqOffset 00000000 Hz
£(f): FTun Swp					On	Signal Track Off
Center 5.015 GHz #Res BW 1 MHz		BW 1 MHz	Sweep 16.66	Span 9.97 6 ms (2000)		

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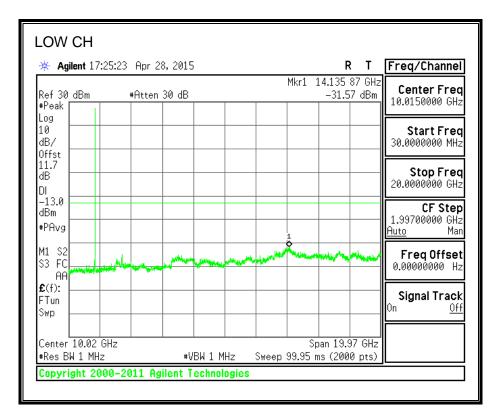


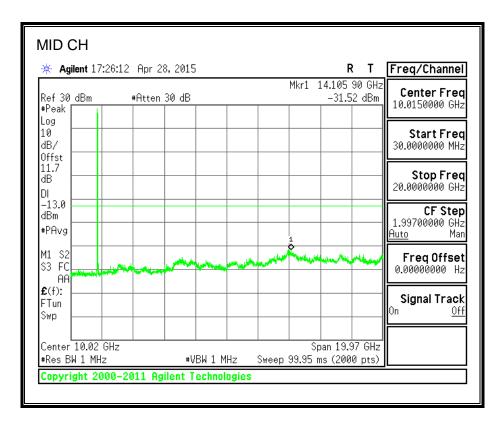


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🖈 Ag	ilent 17:	19:48	Hpr 2	8,2015)				R		Freq/Channel
Ref 30 #Peak I	dBm		#Atten	30 dB				Mkr1 1	.4.205 -31.6	80 GHz 7 dBm	Center Fred 10.0150000 GHz
Log 10 dB/ Offst											Start Frec 30.0000000 MHz
11.7 dB DI											Stop Fred 20.0000000 GHz
-13.0 dBm #PAvg								1			CF Step 1.99700000 GHz <u>Auto</u> Mar
M1 S2 S3 FC AA	an the state of the	tal freque	-		Linger and the second	all and the second			-	~~~	Freq Offset 0.00000000 Hz
€(f): FTun Swp											Signal Track On <u>Of</u> i
	10.02 G W 1 MHz			#1/	BW 1 M	H7	Sween	Sp 99.95 m	an 19.9 Is (200		

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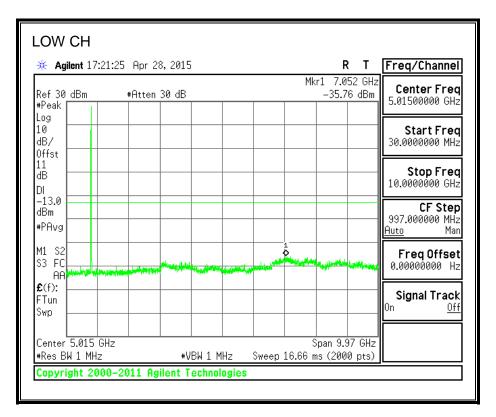


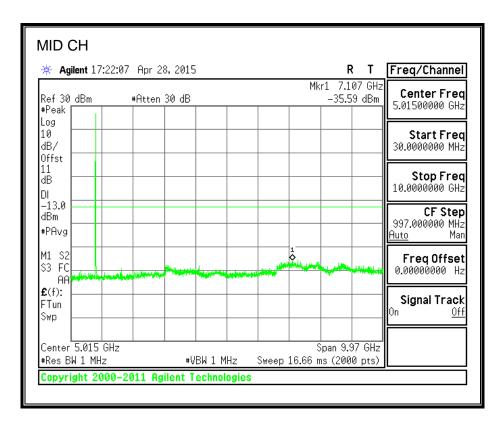
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🔆 Agi	lent 17	:27:54	Hpr 2	8,2015					R		Freq/Channel
Ref 30 #Peak [dBm		#Atten	30 dB				Mkr1 1		09 GHz 2 dBm	Center Freq 10.0150000 GHz
Log 10 dB/ Offst											Start Freq 30.0000000 MHz
11.7 dB DI											Stop Freq 20.0000000 GHz
-13.0 dBm #PAvg							1				CF Step 1.99700000 GHz <u>Auto</u> Man
M1 S2 S3 FC AA	foto and a start of	anter the second	lage ^{art} topical pe	and the second second	a strain a straight a	يەر _{ئەل} ىنى ئەر			~~~~	down a start	Freq Offset 0.00000000 Hz
£ (f): - FTun Swp -											Signal Track ^{On <u>Off</u>}
L Center ≢Res B∤				#1/	BW 1 M	H7	Sween	Sp 99.95 m	an 19.9 Is (200		

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800MHz SECONDARY BAND





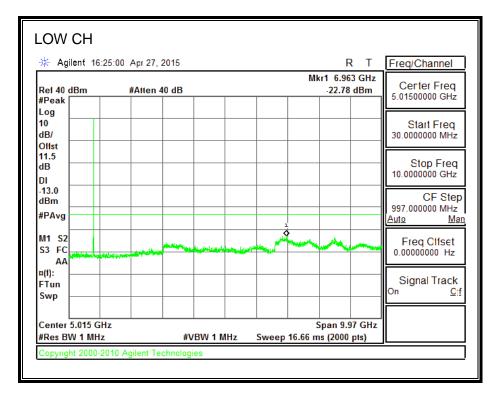
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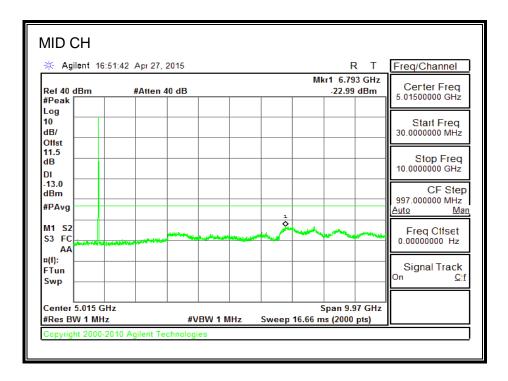
A righter 17.12	3:41 Apr 28, 20	,15				Freq/Channel
Ref 30 dBm #Peak	#Atten 30 c	B		7.581 (-35.66 dl	Rm II	Center Fred 5.01500000 GHz
#Peak Log						
10 dB/						Start Fred 30.0000000 MHz
Offst					─╟╴	
11 dB						Stop Fred 10.000000 GHz
DI					_ L	10.00000000 0112
dBm						CF Step
#PAvg						997.000000 MHz <u>luto</u> Mar
M1 S2 S3 FC						Freq Offset
AB HARANA	Printed and the state of the st	AND THE R. LOW CO.		Property of the second		0.00000000 Hz
£(f):						
FTun						Signal Track
Swp					—∥Ľ	In <u>Of</u>
Center 5.015 G	17		Sna	an 9.97 G	iHz	

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8.5.4. CDMA2000 REV A

850MHz BAND

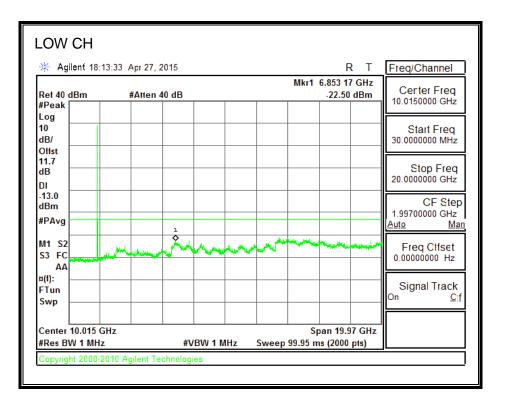


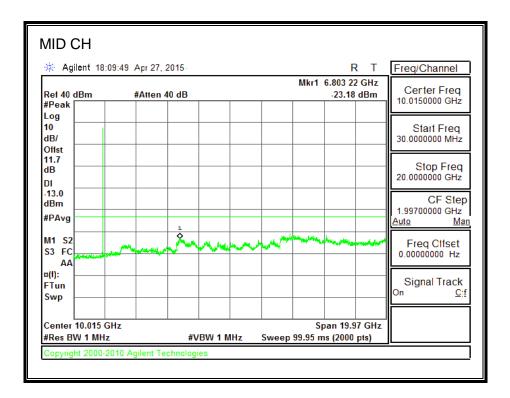


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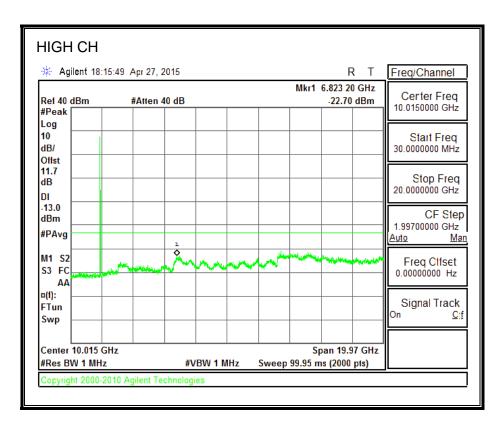
🔆 Agilent 16:5	1:07 Apr 27, 2015		F	X T	Freq/Channel
Ref 40 dBm	#Atten 40 dB		Mkr1 6.82 -22.85	3 GHz dBm	Certer Freq 5.01500000 GHz
#Peak Log					
10 dB/					Start Freq 30.0000000 MHz
Offst 11.5 dB					Stop Freq 10.000000 GHz
					10.000000 GH2
-13.0 dBm					CF Step
#PAvg			1		997.000000 MHz <u>Auto Ma</u>
M1 S2 S3 FC	here a large to the state of the	and a sumplify and a sub-	Real pulled and an and the second	-	Freq Clfset 0.00000000 Hz
AA ¤(i):					
FTun					Signal Track
Swp					On <u>C</u> tt
Center 5.015 GI	Hz	1 MHz Swee	Span 9.9		

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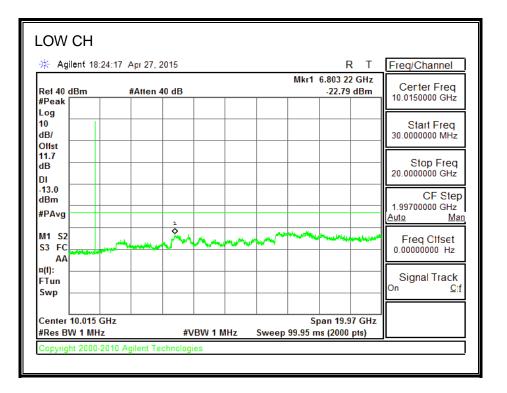


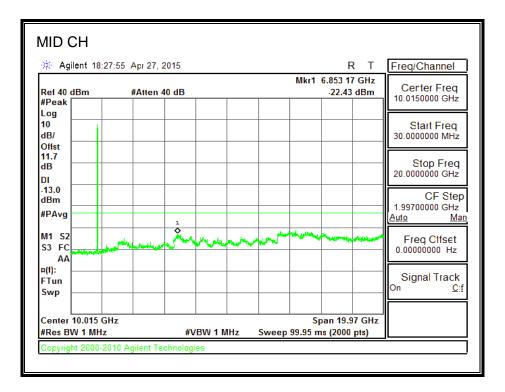


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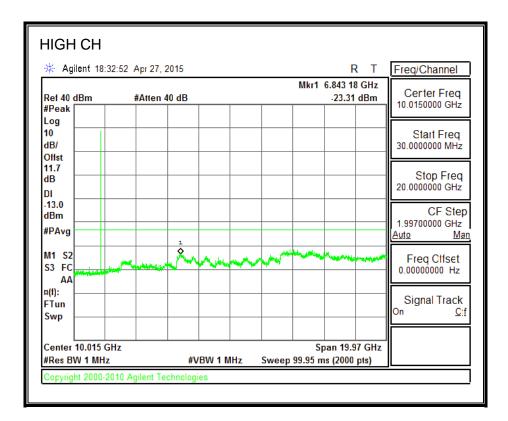


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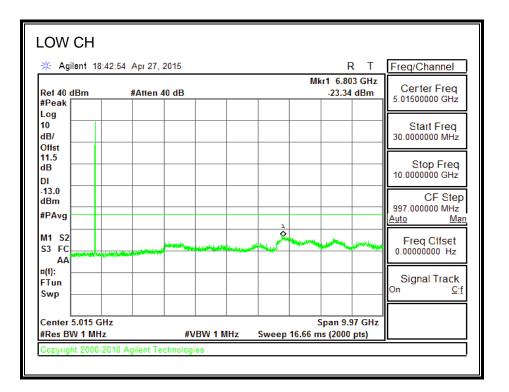


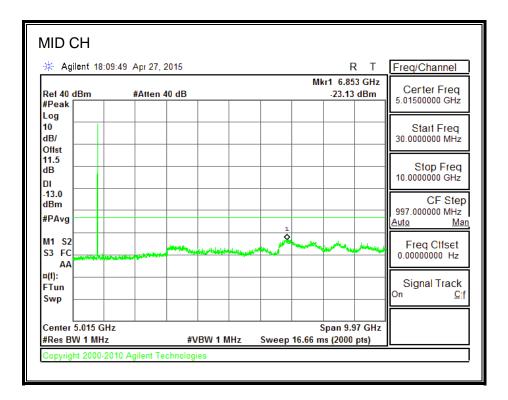
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800MHz SECONDARY BAND





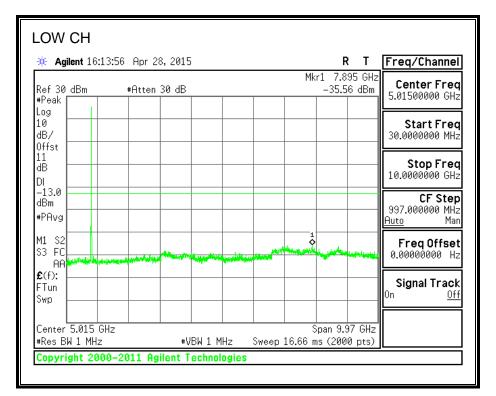
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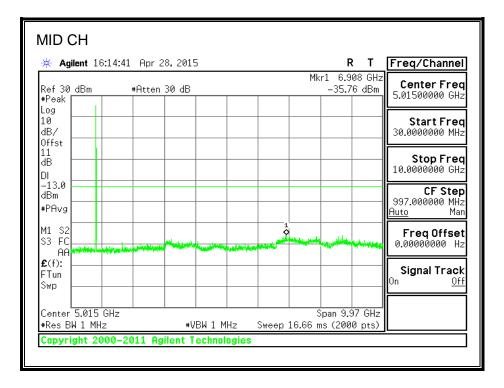
🔆 Agilent 18	:48:39 A	pr 27, 20	15					F	₹ T	Freq/Char	nel
Ref 40 dBm #Peak	#	Atten 40	dB		1		Mk	r1 7.11 -23.47		Certer F 5.01500000	
Log 10 dB/ Offst										Start F 30.0000000	
dB										Stop 10.0000000	Freq GHz
-13.0 dBm #PAvg										997.000000	
M1 S2 S3 FC	***			hugt-shall	-	un and the second	1 \$		us ^{teren} titense	<u>Auto</u> Freq C1 0.00000000	<u>Ma</u> fset) Hz
AA ¤(f): FTun Swp										Signal T ^{On}	rack <u>Ci</u> f
Center 5.015 G #Res BW 1 MH			#V	BW 1 N	ЛНz	Sween	S 16.66 m	5pan 9.9			

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8.5.5. UMTS REL 99

850MHz BAND

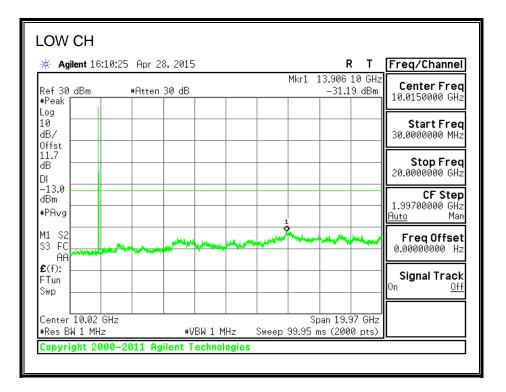


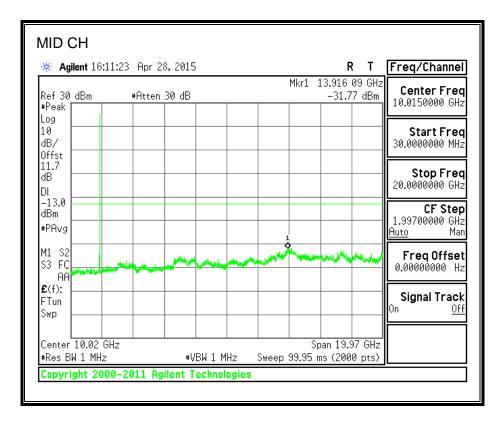


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🔆 Agilent 16:	15:53 Hpr	28,2015					<u>₹</u>	Freq/Channel
Ref 30 dBm #Peak □ □ □	#Atte	n 30 dB			Mk		68 GHz 16 dBm	Center Fred 5.01500000 GHz
Freak								
10 dB/ Offst								Start Fred 30.0000000 MH2
11 dB								Stop Fred 10.0000000 GHz
DI								
dBm #PAvg								CF Step 997.000000 MH2 <u>Auto</u> Mar
M1 S2 S3 FC	AP Marine and a strategy being the same	ner Welnerstern			****	hayyihan diba	yder oan de la gerege	Freq Offset 0.00000000 Hz
£(f): FTun Swp								Signal Track
- un								
Center 5.015 (#Res BW 1 MHz			ВШ 1 М	Sweep 1			97 GHz	

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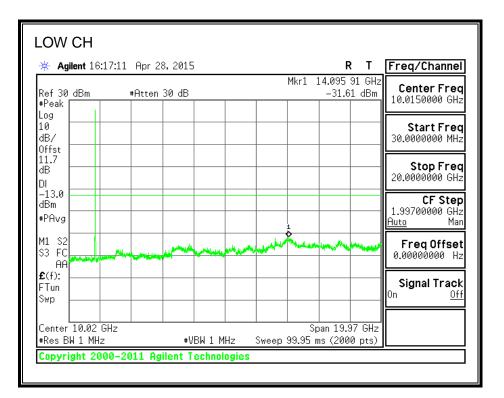


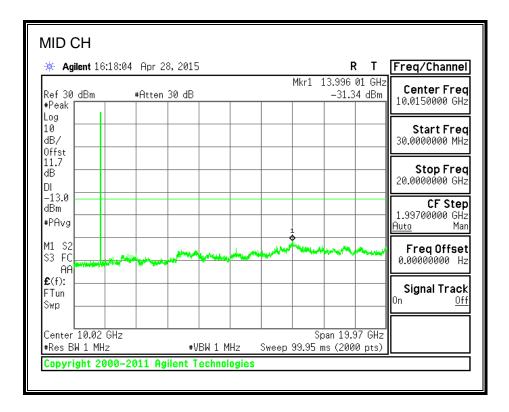


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🔆 Agi	lent 16	12:43	Hpr 2	3,2015					R		Freq/Channel
Ref 30 #Peak	dBm		#Atten	30 dB				Mkr1 1	L4.185 3 -31.6		Center Freq 10.0150000 GHz
Log 10 dB/ Offst											Start Freq 30.0000000 MHz
11.7 dB DI											Stop Freq 20.0000000 GHz
-13.0 dBm #PAvg								1			CF Step 1.99700000 GHz <u>Auto</u> Man
M1 S2 S3 FC AA	ر. بيناية الأقرم	intern Photos	- and a section	and such a post	where	1. And the second second	and the second	Š.	www	the second shall	FreqOffset 0.00000000 Hz
€(f): FTun Swp											Signal Track ^{On <u>Off</u>}
Center #Roo Pi	10.02 W 1 MH:				BW 1 M	U-7	Sucon)an 19.9 1s (2001		

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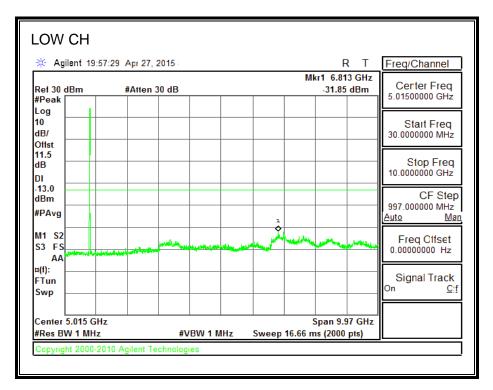
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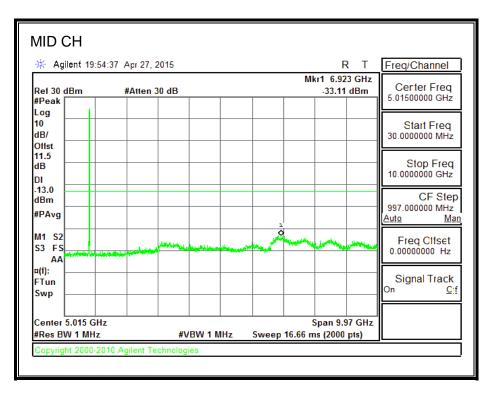
🔆 Agilent 16:19):22 Apr 2	28,2015					F		Freq/Channel
Ref 30 dBm #Peak	#Atten	30 dB				Mkr1 1		98 GHz 12 dBm	Center Fred 10.0150000 GHz
Log 10 dB/ 0ffst									Start Frec 30.0000000 MHz
11.7 dB DI									Stop Frec 20.0000000 GHz
-13.0 dBm #PAvg						1			CF Step 1.99700000 GHz <u>Auto</u> Mar
M1 S2 S3 FC AA	with the state of	and the second		-	and the second	and the second	white the	May Mary Mary	Freq Offset 0.00000000 Hz
£(f): FTun Swp									Signal Track On <u>Off</u>
Center 10.02 GH #Res BW 1 MHz	z	#V	BW 1 M	Hz	Sweep	Sp 99.95 n		97 GHz 0 pts)	

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8.5.6. UMTS HSDPA

850MHz BAND

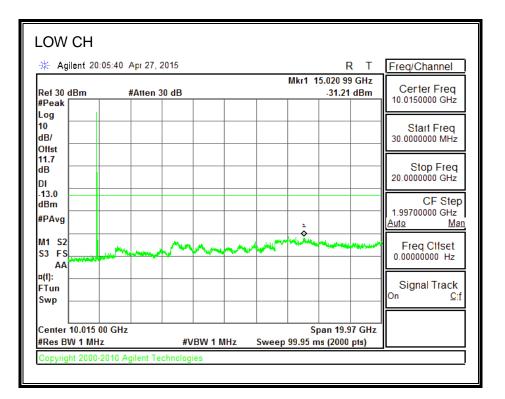


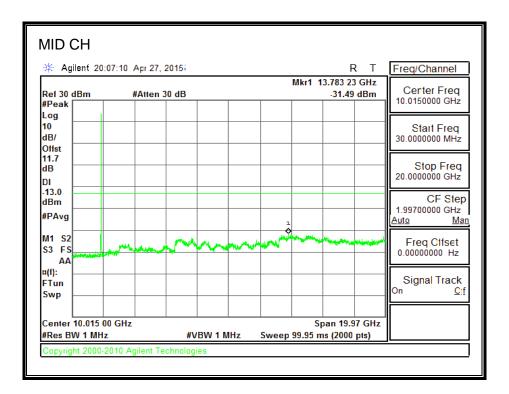


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🔆 Agile	10.00.4	н лрг2т,	2013					r1 7.64		Freq/Char	IIICI
Ref 30 dB	m	#Atten	30 dB				IVIP		dBm	Certer F	
#Peak										5.01500000	GHz
Log											
10 dB/										Start F	
Offst										30.000000	MHZ
11.5											_
dB										Stop 10.0000000	
										10.0000000	GHZ
.13.0 – dBm										CF	Step
#PAvg										997.000000	MHz
#PAVg							1			<u>Auto</u>	<u>Ma</u>
M1 S2						~				Freq Of	feet
S3 FS		-	Strate Barrow	and the second	المنيعينات	the second se		the second second	- And the second second	0.0000000	
AA											
¤(f):										Signal T	rack
FTun Swp –										On	C
Center 5. #Res BW				/BW 1 N		C	: 16.66 m	Span 9.9			

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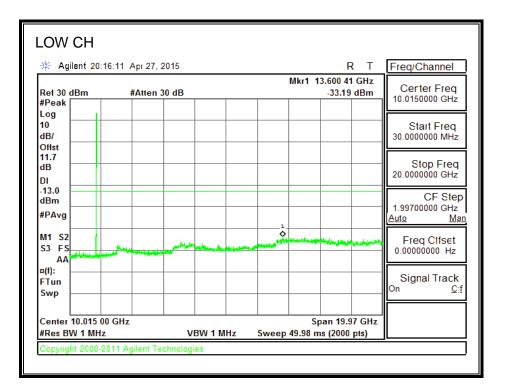


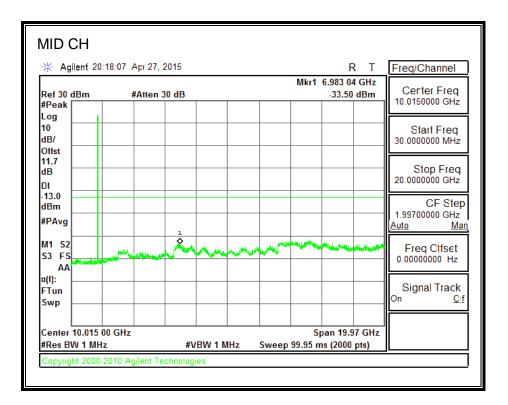


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🔆 Agi	ient 20	:13:25 /	Apr 27, 1	2015				Mkr1 1		λ T	Freq/Channel
Ref30d #Peak [IBm	i	#Atten 3	30 dB					4.299 7 -31.67		Center Freq 10.0150000 GHz
Log 10 dB/ Offst											Start Freq 30.0000000 MHz
11.7 dB											Stop Freq 20.000000 GHz
DI -13.0 dBm #PAvg											CF Step 1.99700000 GHz <u>Auto Man</u>
M1 S2 S3 FS AA		, market and a start and a start	a shailintaa a	\sim	m			÷.,	Neisenstrings		Freq Ctfset
¤(f): FTun Swp											Signal Track ^{On <u>C</u>!f}
Center 1 #Res BV				#V	BW 1 N		Sween	Sp 99.95 m	oan 19.9 1s (2000		

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🔆 Agilent 20	:19:33 Apr 27	, 2015					F	R T	Freq/Channel
Ref 30 dBm	#Atter	n 30 dB				Mkr1	6.833 1 -33.32		Center Free 10.0150000 GHz
#Peak Log 10 dB/									Start Freq
Offst 11.7 dB									30.0000000 MH
DI									20.0000000 GH
#PAvg		1							1.99700000 GHz Auto M
M1 S2 S3 FS AA	and the second	~~~	and the second	a	~~~		Marine Marine		Freq Offset 0.00000000 Hz
¤(1): FTun Swp									Signal Tracl On <u>C</u>
Center 10.015	00 GHz					Sp	oan 19.9	97 GHz	

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8.6. OUT OF BAND EMISSIONS (MODEL: A1688)

RULE PART(S)

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

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

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:

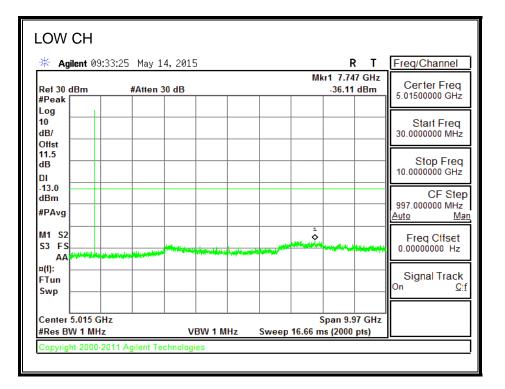
- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

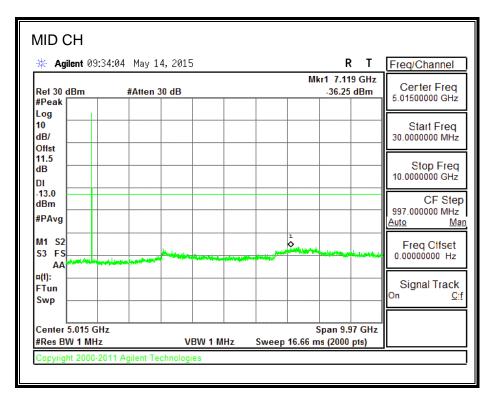
RESULTS

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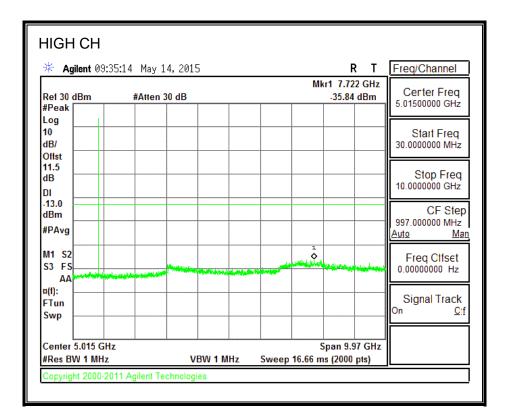
8.6.1. GSM-GPRS

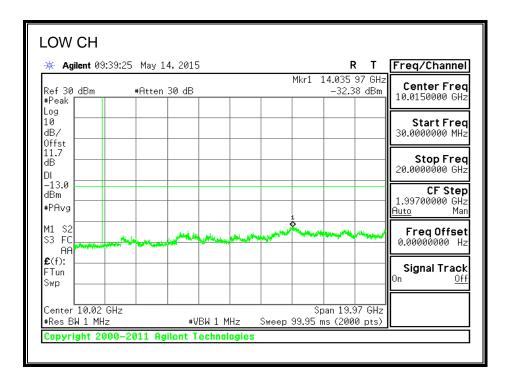
850MHz BAND



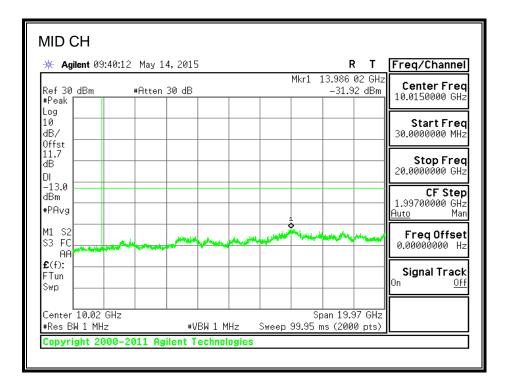


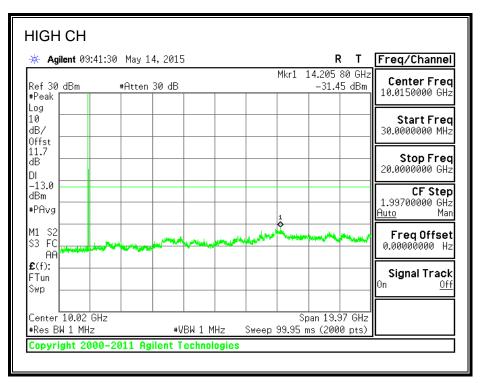
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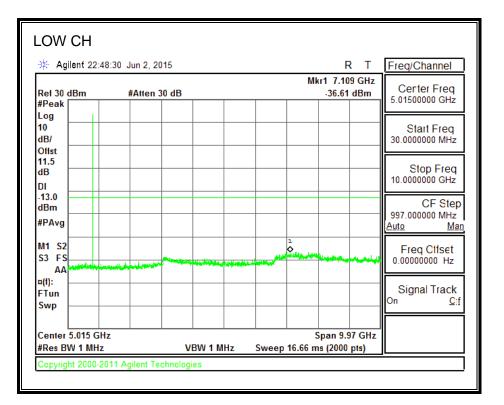


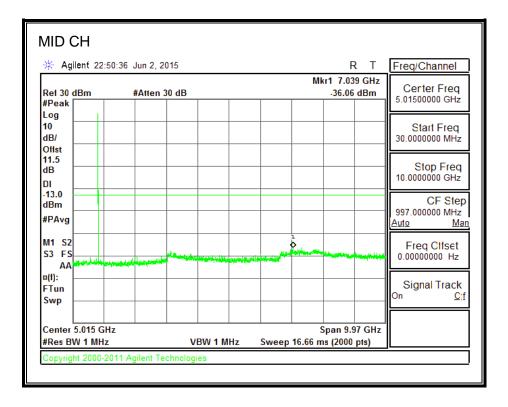
UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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8.6.2. GSM-EGPRS

850MHz BAND

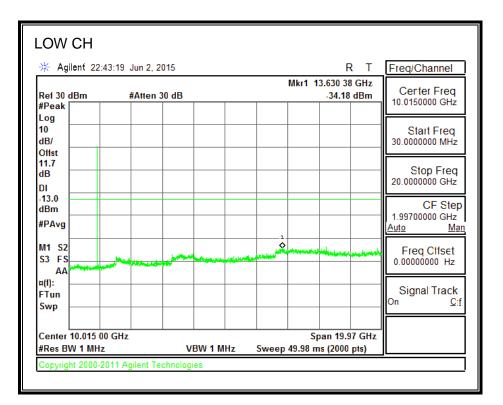


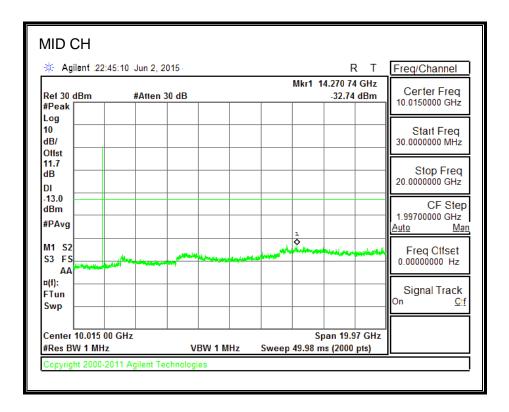


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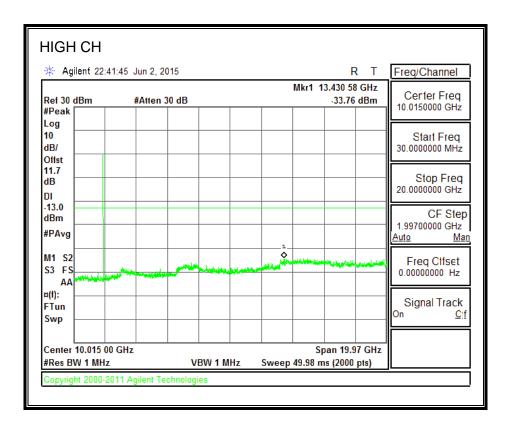
🔆 Agilent 22	2:52:05 Jun 2, 20	15				F	R T	Freq/Channel
Ref 30 dBm #Peak	#Atten 30) dB			Mk	r1 7.30 -36.35	3 GHz dBm	Certer Freq 5.01500000 GHz
#Peak Log 10 dB/								Start Freq
Offst 11.5 dB								Stop Freq
DI -13.0 dBm								CF Step 997.000000 MHz
#PAvg								Auto Ma
M1 S2 S3 FS		the location of the location of the	41, 0, 44, Marti	and the second second			ald a strict	Freq Clfset 0.00000000 Hz
¤(f): FTun Swp								Signal Track ^{On <u>O</u>r}
Center 5.015 (#Res BW 1 Mi		VBW 1			S 16.66 m		97 GHz	

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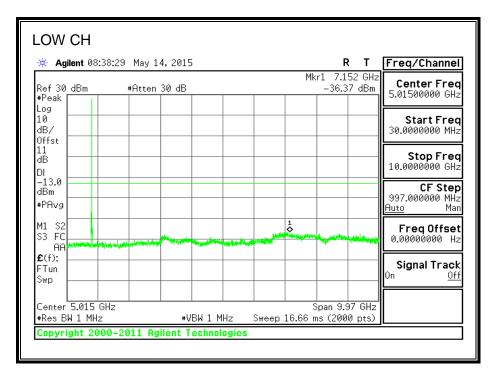
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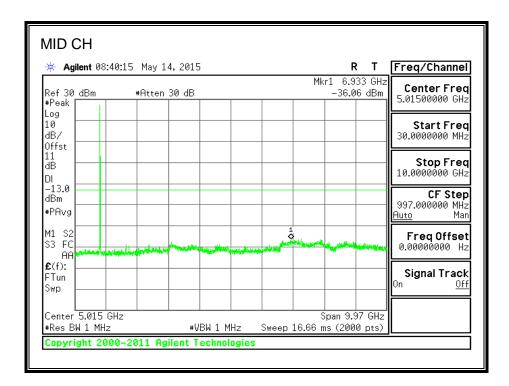


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8.6.3. CDMA2000 1xRTT

850MHz BAND

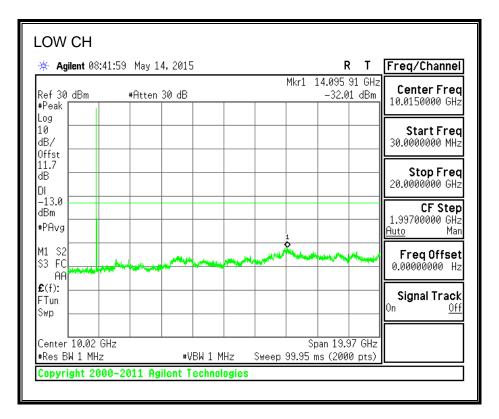


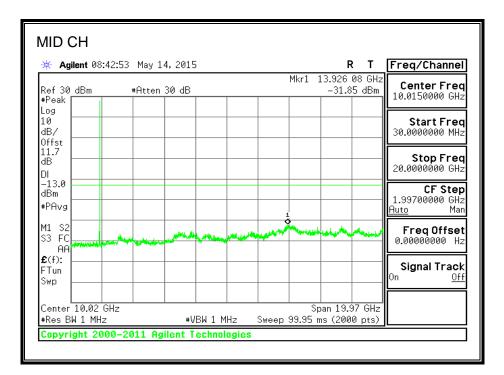


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🔆 Agilent 08:3	39:32 May 14, 201	5		RT	Freq/Channel
Ref 30 dBm #Peak	#Atten 30 dB		Mk	r1 6.983 GHz -36.25 dBm	Center Fred 5.01500000 GHz
Log 10 dB/ Offst					Start Frec 30.0000000 MHz
11 dB DI					Stop Frec 10.0000000 GHz
-13.0 dBm #PAvg					CF Step 997.000000 MHz <u>Auto</u> Mar
M1 S2 S3 FC	a suc lassifie to be the second second			and the second second	Freq Offset 0.00000000 Hz
ff(f): FTun Swp					Signal Track ^{On <u>Off</u>}
Center 5.015 G #Res BW 1 MHz		/BW 1 MHz) Span 9.97 GHz 15 (2000 nts)	

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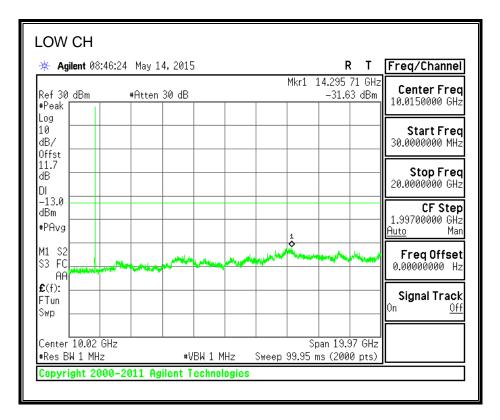


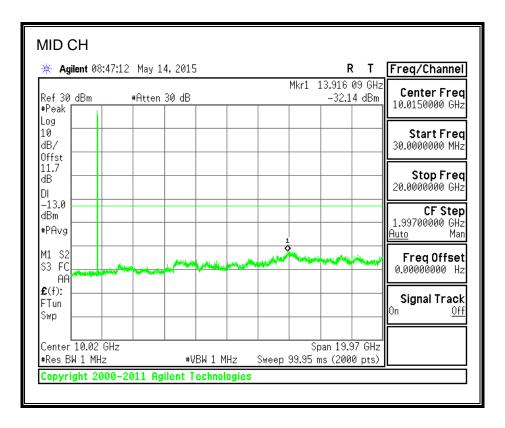


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🔆 Agi	lent 08:	44:39	May 1	4, 2015)				R		Freq/Channel
Ref 30 #Peak ∥	dBm		ŧAtten	30 dB				Mkr1	5.726 -40.6	25 GHz 7 dBm	Center Fred 10.0150000 GHz
Log 10 dB/ Offst											Start Frec 30.0000000 MHz
11.7 dB DI											Stop Frec 20.0000000 GHz
-13.0 dBm #PAvg											CF Step 1.99700000 GHz <u>Auto</u> Mar
M1 S2 S3 FC AA			1	and the second second	the states	distant and the second	لمطلحهما	and a start of the	ngh shi ^{lle} ng	-	Freq Offset 0.00000000 Hz
£ (f): FTun Swp											Signal Track On <u>Off</u>
	10.02 0 1 1 MHz			#V	BW 1 M	Hz	Sween	Sp 99.95 m	an 19.9 Is (2001		

Page 251 of 476



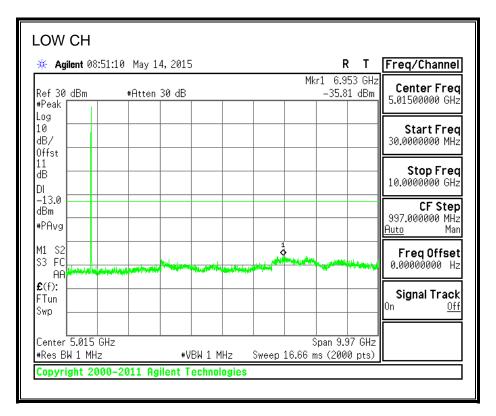


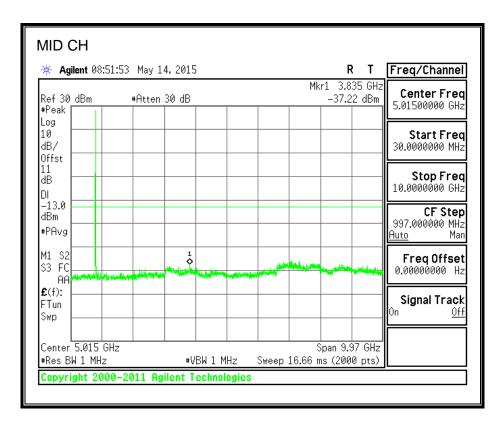
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💥 Agile	nt 08:48:5	5 May 1	4,2015					R		Freq/Channel
Ref 30 d ≢Peak [Bm	#Atten	30 dB				Mkr1 1		76 GHz 7 dBm	Center Freq 10.0150000 GHz
Log 10 dB/ Offst										Start Freq 30.0000000 MHz
11.7 dB DI										Stop Freq 20.0000000 GHz
-13.0 dBm #PAvg							1			CF Step 1.99700000 GHz <u>Auto</u> Man
M1 S2 S3 FC AA	+****	w water	-	4, ⁶⁴⁴ 44444	all and a	a the second		manahi	, Net Alasan an P	FreqOffset 0.00000000 Hz
£(f): FTun Swp										Signal Track ^{On <u>Off</u>}
Center 1 #Res BW	0.02 GHz 1 MHz		+V	BW 1 M	Hz	Sween	Sp 99.95 m)an 19.9 Na (200		

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800MHz SECONDARY BAND





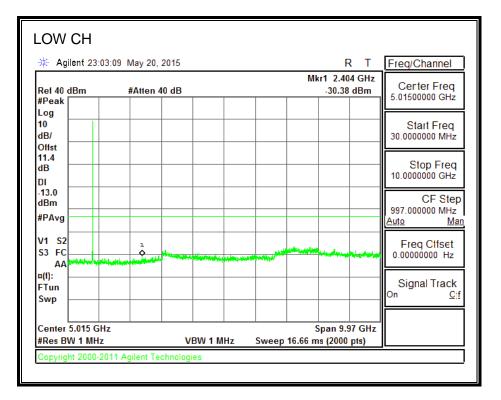
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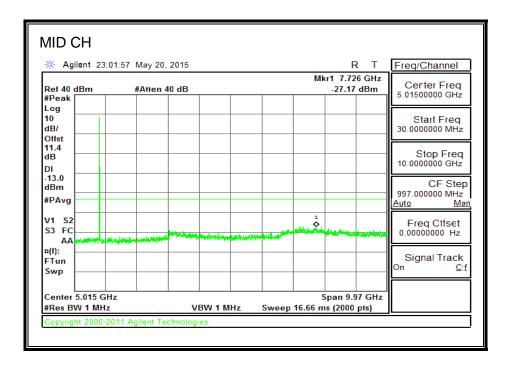
			M	4kr1 7.062 GH:	Freq/Channe
Ref 30 dBm	#Atten 30 c	B		-35.70 dBm	CenterFred
#Peak					5.01500000 GHz
Log					
10 dB/					Start Fred 30.0000000 MHz
Offst					- S0.0000000 MH2
11					Stop Fred
dB					10.0000000 GHz
DI					_
dBm					CF Step
#PAva					997.000000 MHz Auto Mar
					Auto Mar
M1 S2					Freq Offset
S3 FC	Lidester Harbert Hard	and the state of the state state	Apple 1 which is a second s	and the state of t	0.00000000 Hz
£ (f):					
FTun					Signal Track
Swp					0n <u>0f</u>
				Span 9.97 GHz	-11

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8.6.4. CDMA2000 REV A

850MHz BAND

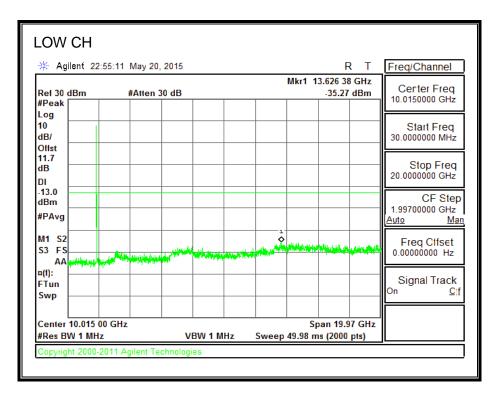


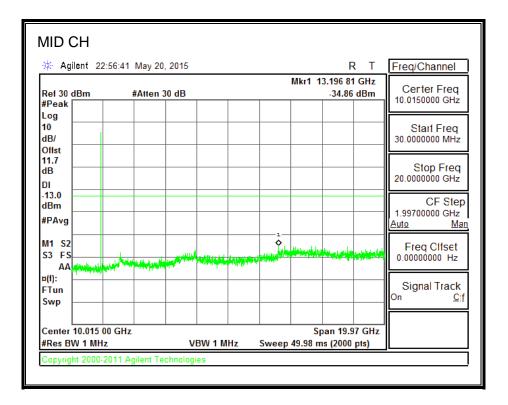


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🔆 Agilent	23:04:14	May 20	, 2015					-	ξ Τ	Freq/Channel
Ref 40 dBm #Peak		#Atten	40 dB	1	1		Mk	r1 9.56 -27.61		Certer Freq 5.01500000 GHz
Log 10 dB/										Start Freq 30.0000000 MHz
Offst 11.4 dB DI										Stop Freq 10.000000 GHz
-13.0 dBm #PAvg										CF Step 997.000000 MHz
V1 S2 S3 EC							And In links	White Marcal of	1 \$	<u>Auto Ma</u> Freq Clfset 0.00000000 Hz
AA 44444	utaly density a	laid too in the sector								0.0000000 112
FTun Swp										Signal Track ^{On <u>Cif</u>}
Center 5.015 #Res BW 1 I				BW 1 M		Swoon	S 16.66 m	pan 9.9		

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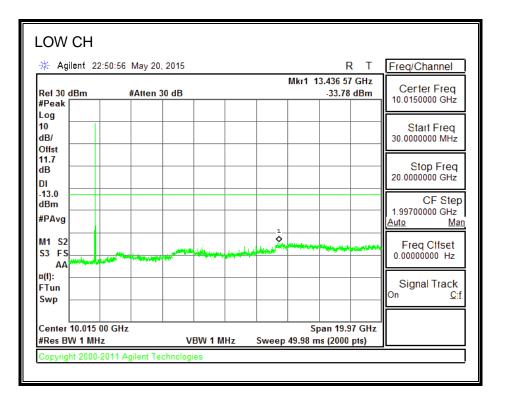


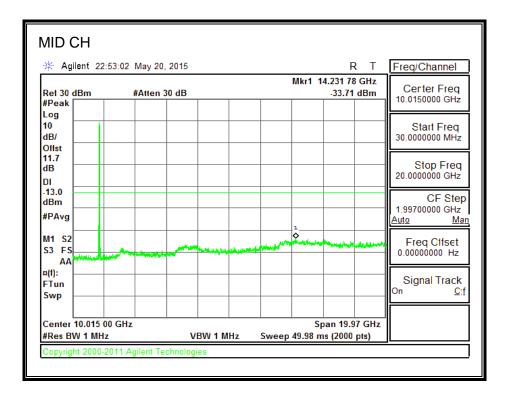


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🔆 Agile	ent 22	:58:08	May 20	, 2015					F	₹	Freq/Channel
Ref 30 d #Peak Γ	Bm		#Atten 3	30 dB				Mkr1 1	3.856 14 -34.99		Certer Free 10.0150000 GH
HPeak Log 10 dB/											Start Free
Offst 11.7 dB											Stop Fre
DI .13.0 - dBm											20.0000000 GH
#PAvg											1.99700000 GH <u>Auto</u>
M1 S2 S3 FS			-		****			a su an	Kili Ling Hitter	and a loss of the	Freq Offse
¤(f): - FTun Swp -											Signal Trac
Center 1	0 015	10 GHz						Sr	an 19.9	7 GHz	
#Res BW				v	BW 1 M	IHz	Sweep	49.98 m			

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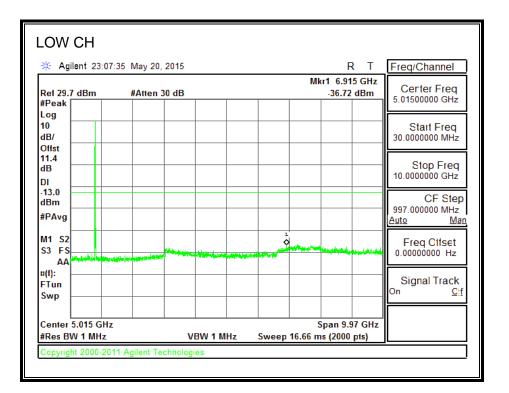


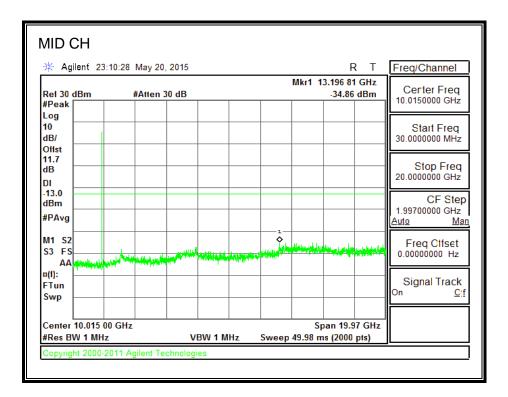
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🔆 Agilent 22	2:49:26 May	20, 2015				R		Freq/Channel
Ref 30 dBm #Peak	#Att	en 30 dB			Mkr1 13	.381 35 -33.85		Certer Freq 10.0150000 GHz
Log 10 dB/ Offst								Start Freq 30.0000000 MHz
11.7 dB								Stop Freq 20.000000 GHz
DI								CF Step 1.99700000 GHz
#PAvg M1 S2				1	erbothan ciribeet		مقابر م	Auto Mar Freq Clifset
	all and a local day of the second	the second s		and a second				0.00000000 Hz
¤(f): FTun Swp								Signal Track ^{On <u>C</u>if}
Center 10.015 #Res BW 1 MH			BW 1 MHz	Sween	Spa 49.98 ms	an 19.9 s (2000		

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800MHz SECONDARY BAND





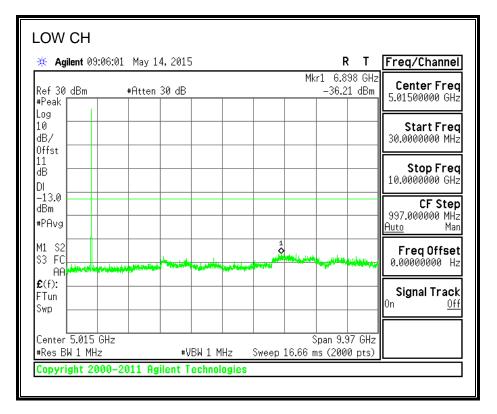
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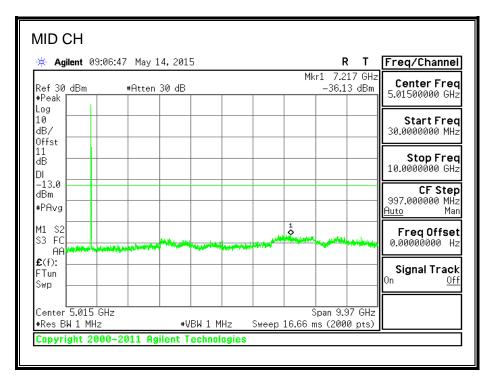
🔆 Agilent 23:	11:36 May 20, 2018	5			RT	Freq/Channel
Ref 29.7 dBm #Peak	#Atten 30 dB				6.655 GHz 36.69 dBm	Certer Freq
#Peak Log						
10 dB/						Start Freq 30.0000000 MHz
Offst 11.4						Stop Frog
dB DI						Stop Freq 10.000000 GHz
-13.0 dBm						CF Step
#PAvg						997.000000 MHz <u>Auto Ma</u>
M1 S2 S3 FS					a strange of the second second	Freq Clfset
AA	And an an an an and a state of the state of		Production and the			0.0000000 H2
¤(f): FTun						Signal Track
Swp						
Center 5.015 Gł	lz			Spa	an 9.97 GHz	

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8.6.5. UMTS REL 99

850MHz BAND

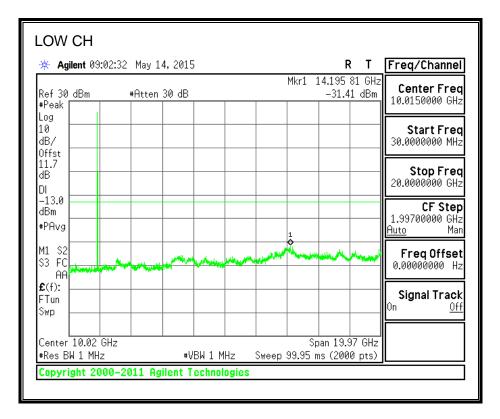


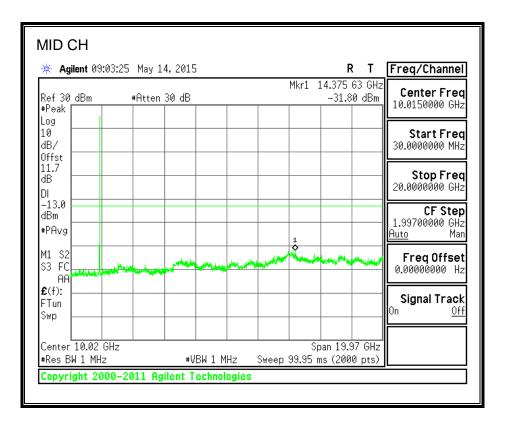


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🔆 Agilent 09:	00.02 May	14, 201.	,			R	· ·	Freq/Channel
Ref 30 <u>dBm</u>	#Atte	n 30 dB			PIK		08 GHz 6 dBm	Center Frec 5.01500000 GHz
#Peak								3.01300000 012
Log 10								Start Fred
dB/ Offst								30.0000000 MHz
11 dB								Stop Fred
DI								10.0000000 GHz
-13.0								CF Step
#PAvg								997.000000 MHz <u>Auto</u> Mar
M1 S2								Freq Offset
\$3 FC	\$1		No. of the	MARK AND		with the second	-	0.00000000 Hz
AA £(f):	• • • • • • • • • • • • • • • • • • •							
FTun								Signal Track
Swp		_						011 <u>011</u>
Center 5.015 (#Res BW 1 MHz			/BW 1 M	 <u>,</u>	S 16.66 m	pan 9.9		

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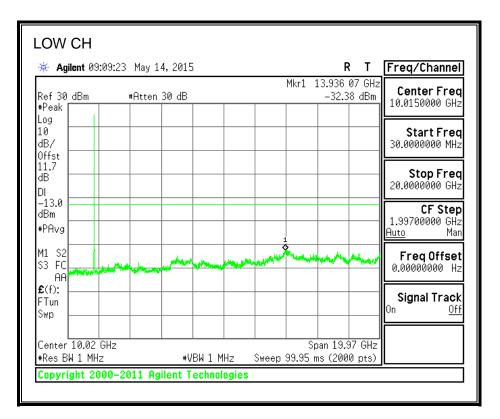


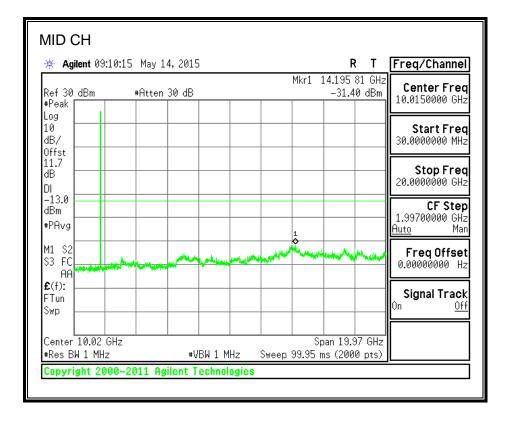


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		0 11 10	1103 1	4,2015				ML1 1	R	· ·	Freq/Channel
Ref 30 #Peak	dBm		#Atten	30 dB				Mkr1 1		04 GHz 9 dBm	Center Freq 10.0150000 GHz
Log 10 dB/ Offst											Start Freq 30.0000000 MHz
11.7 dB DI											Stop Freq 20.0000000 GHz
-13.0 dBm #PAvg											CF Step 1.99700000 GHz <u>Auto</u> Mar
M1 S2 S3 FC AA	****			and the second second	Ly My sure	and the second	and the second	al and another		marked	Freq Offset 0.00000000 Hz
€(f): FTun Swp											Signal Track On <u>Off</u>
Center	10.02 W 1 MH:				BW 1 M			Sp 99.95 m	ian 19.9		

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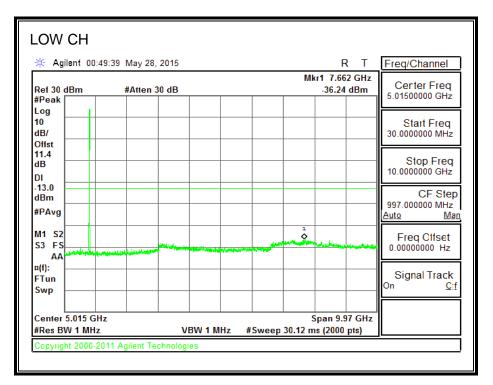
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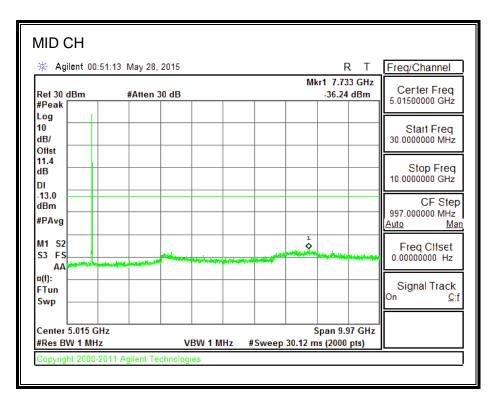
🔆 Agilent 09:11	:36 May 14,2	2015				R		Freq/Channe
Ref 30 dBm #Peak	#Atten 30	dB			Mkr1		09 GHz 7 dBm	Center Fred 10.0150000 GHz
Log 10 dB/ 0ffst								Start Frec 30.0000000 MHz
11.7 dB DI -13.0								Stop Fred 20.0000000 GHz
HPAVg								CF Step 1.99700000 GHz <u>Auto</u> Mar
M1 S2 S3 FC AA	And a series for		a and the second second	N. Marker	Name and Andrewson			Freq Offset 0.00000000 Hz
£(f): FTun Swp								Signal Track ^{On <u>Of</u>i}
Center 10.02 GH #Res BW 1 MHz	z	+VBW 1 M	4Hz :	Sweep 9		an 19.9 s (200		

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8.6.6. UMTS HSDPA

850MHz BAND

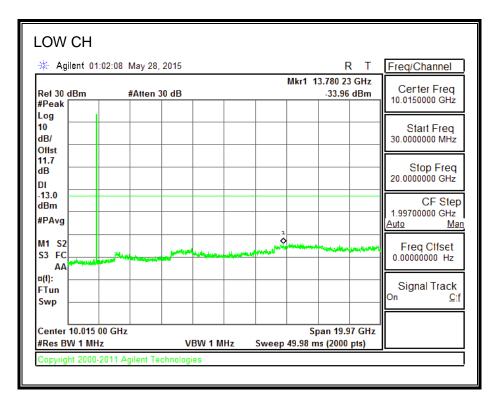


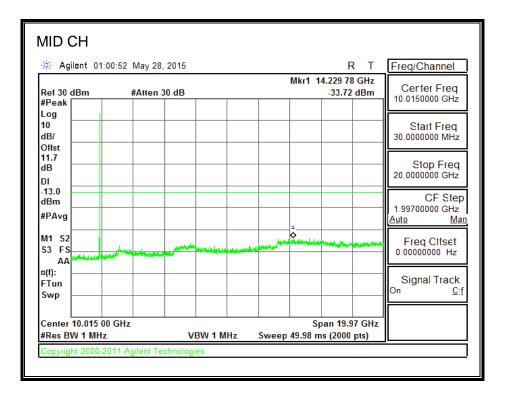


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🔆 Agilent 00:	:47:57 May 28, 2015		RΤ	Freq/Channel			
Ref 30 dBm #Peak	#Atten 30 dB		Mkr1 7.213 GHz -36.02 dBm				
#Реак Log				5.01500000 GHz			
10 dB/				Start Freq 30.0000000 MHz			
Offst 11.4 dB				Stop Freq 10.000000 GHz			
DI .13.0				<u> </u>			
dBm				CF Step 997.000000 MHz			
#PAvg				Auto Ma			
V1 S2 S3 FC			here any march	Freq Clfset			
	desardari de lan desarde de districtiones						
¤(f): FTun Swp				Signal Track ^{On <u>C</u>r}			
Swb							
Center 5.015 G #Res BW 1 MH;		MHz #Sweep 30.12 ms (2	n 9.97 GHz				

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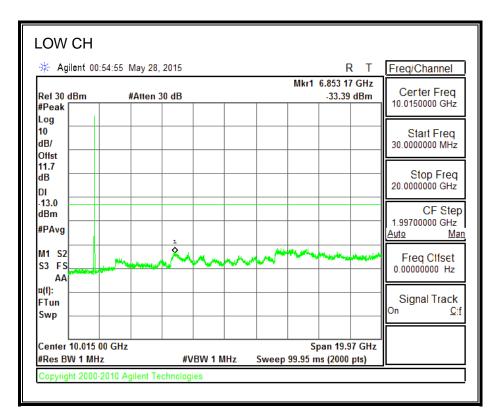


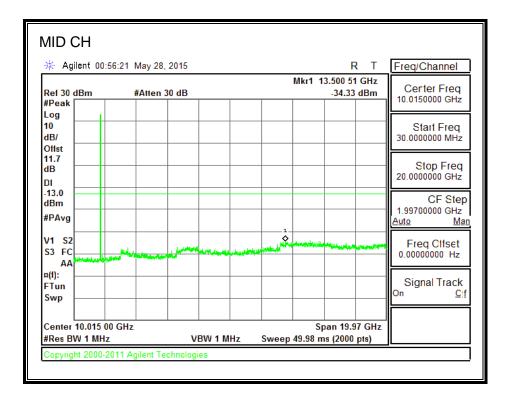
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🔆 Agi	lent 00:	59:10	May 28,	2015					F	 Freq/Channel
Ref 30 o #Peak	lBm		#Atten 3	30 dB				Mkr1 1:	3.630 38 -33.31	 Certer Freq 10.0150000 GHz
Log 10 dB/ Offst										 Start Freq 30.0000000 MHz
11.7 dB										 Stop Freq 20.000000 GHz
DI -13.0 dBm										 CF Step 1.99700000 GHz
#PAvg							1			<u>Auto Mar</u>
M1 S2 S3 FS AA		week and the second	1+"1+saggrout/		-	م ار بالغايد بارال	and the second second		Malanaa Ingoo	 Freq Clfset 0.00000000 Hz
аа ¤(f): FTun Swp										 Signal Track ^{On <u>C</u>:f}
Center #Res Bl	10.015 (// 1 MH			<u> </u>	BW 1 M	H7	Sween	Sp 49.98 m	an 19.9 s (2000	

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1700MHz BAND





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🔆 Agilent 00:	57:24 May 28,	2015				F	R T	Freq/Channel
Ref 30 dBm	#Atten	30 dB			Mkr1 13	3.250 76 -34.62		Certer Freq
#Peak								10.0130000 0112
10 dB/								Start Freq 30.0000000 MHz
Offst 11.7 dB								Stop Freq
DI								20.0000000 GHz
-13.0 dBm								CF Step
#PAvg								1.99700000 GHz Auto Ma
M1 S2 S3 FS			all and here of		a nga kula ay ng	فللتعظيم المرياط	ingn too the	Freq Offset 0.00000000 Hz
¤(f):								Signal Track
Swp								On <u>O</u> t
Center 10.015 0 #Res BW 1 MHz		VBW 1	MHz	Sweep 4		an 19.9 c /2000		

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9. FREQUENCY STABILITY

9.1. MODEL: A1633

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54.and §90.213

<u>LIMITS</u>

22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 & §27.54 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

90.213 - The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30° to +50°C
- Voltage = (85% 115%)

Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50°C is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

RESULTS

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GPRS 850

Limit	Limit		849		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		824.0204	848.9816		
Extreme (50C)		824.0204	848.9816	28.2	0.03
Extreme (40C)		824.0204	848.9816	24.5	0.03
Extreme (30C)	Normal	824.0204	848.9816	19.7	0.02
Extreme (10C)		824.0204	848.9816	20.3	0.02
Extreme (0C)		824.0204	848.9816	17.8	0.02
Extreme (-10C)		824.0204	848.9816	20.3	0.02
Extreme (-20C)		824.0204	848.9816	20.9	0.02
Extreme (-30C)		824.0204	848.9816	17.5	0.02
	10%	824.0221	848.9737	27.7	0.03
25C	-10%	824.0204	848.9816	26.1	0.03
	End Point	824.0204	848.9816	20.4	0.02

EGPRS 850

Limit		824	849		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		824.0222	848.9684		
Extreme (50C)		824.0223	848.9684	40.7	0.05
Extreme (40C)		824.0222	848.9684	27.5	0.03
Extreme (30C)		824.0222	848.9684	26.5	0.03
Extreme (10C)	Normal	824.0222	848.9684	27.3	0.03
Extreme (0C)		824.0222	848.9684	27.7	0.03
Extreme (-10C)		824.0222	848.9684	31.3	0.04
Extreme (-20C)		824.0222	848.9684	31.6	0.04
Extreme (-30C)		824.0222	848.9684	33.0	0.04
	10%	824.0335	848.9725	42.6	0.05
25C	-10%	824.0223	848.9684	43.5	0.05
	End Point	824.0222	848.9684	39.6	0.05

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GPRS 1900

Limit		1850	1910		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		1850.0016	1909.9668		
Extreme (50C)		1850.0017	1909.9669	37.5	0.02
Extreme (40C)		1850.0017	1909.9668	25.6	0.01
Extreme (30C)		1850.0017	1909.9669	40.5	0.02
Extreme (10C)	Normal	1850.0017	1909.9669	35.4	0.02
Extreme (0C)		1850.0017	1909.9669	32.2	0.02
Extreme (-10C)		1850.0017	1909.9669	33.0	0.02
Extreme (-20C)		1850.0017	1909.9669	43.4	0.02
Extreme (-30C)		1850.0017	1909.9669	35.7	0.02
	10%	1850.0308	1909.9655	34.0	0.02
25C	-10%	1850.0017	1909.9668	28.4	0.02
	End Point	1850.0017	1909.9668	25.7	0.01

EGPRS 1900

Limit		1850	1910		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		1850.0451	1909.9397		
Extreme (50C)		1850.0452	1909.9398	38.8	0.02
Extreme (40C)		1850.0452	1909.9398	32.5	0.02
Extreme (30C)		1850.0452	1909.9398	31.9	0.02
Extreme (10C)	Normal	1850.0452	1909.9398	53.4	0.03
Extreme (0C)		1850.0452	1909.9398	51.2	0.03
Extreme (-10C)		1850.0452	1909.9398	60.4	0.03
Extreme (-20C)		1850.0452	1909.9398	41.6	0.02
Extreme (-30C)		1850.0452	1909.9398	43.2	0.02
			-		
	10%	1850.0452	1909.9398	33.6	0.02
25C	-10%	1850.0452	1909.9398	28.0	0.01
	End Point	1850.0452	1909.9398	24.4	0.01

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CDMA 1xRTT BC0

Limit		824	849		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		824.0084	849.0000		
Extreme (50C)		824.0084	849.0000	-5.6	-0.01
Extreme (40C)		824.0084	849.0000	-4.1	0.00
Extreme (30C)		824.0084	849.0000	-5.3	-0.01
Extreme (10C)	Normal	824.0084	849.0000	-4.6	-0.01
Extreme (0C)	1	824.0084	849.0000	-3.6	0.00
Extreme (-10C)		824.0084	849.0000	-1.1	0.00
Extreme (-20C)	1	824.0084	849.0000	2.4	0.00
Extreme (-30C)	1	824.0084	849.0000	3.0	0.00
	10%	824.0084	849.0000	-4.5	-0.01
25C	-10%	824.0084	849.0000	-2.4	0.00
	End Point	824.0084	849.0000	-2.6	0.00

CDMA 1x RTT BC1

Limit		1850	1910		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		1850.5534	1909.4428		
Extreme (50C)		1850.5533	1909.4428	-8.6	0.00
Extreme (40C)		1850.5533	1909.4428	-10.2	-0.01
Extreme (30C)		1850.5533	1909.4428	-10.5	-0.01
Extreme (10C)	Normal	1850.5533	1909.4428	-8.1	0.00
Extreme (0C)		1850.5534	1909.4428	-3.3	0.00
Extreme (-10C)		1850.5534	1909.4428	3.2	0.00
Extreme (-20C)		1850.5534	1909.4428	5.8	0.00
Extreme (-30C)		1850.5534	1909.4428	6.7	0.00
			-		
	10%	1850.5534	1909.4428	2.4	0.00
25C	-10%	1850.5534	1909.4428	-2.5	0.00
	End Point	1850.5534	1909.4428	-4.1	0.00

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Limit		1710	1755		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	(112)	(ppm)
Normal (25C)		1710.5571	1754.4417		
Extreme (50C)		1710.5570	1754.4417	-6.3	0.00
Extreme (40C)		1710.5570	1754.4417	-8.0	0.00
Extreme (30C)		1710.5570	1754.4417	-7.7	0.00
Extreme (10C)	Normal	1710.5570	1754.4417	-5.9	0.00
Extreme (0C)		1710.5570	1754.4417	-4.2	0.00
Extreme (-10C)		1710.5571	1754.4417	-3.8	0.00
Extreme (-20C)		1710.5571	1754.4417	3.2	0.00
Extreme (-30C)	Ī	1710.5571	1754.4417	5.1	0.00
	10%	1710.5571	1754.4417	5.0	0.00
25C	-10%	1710.5571	1754.4417	2.7	0.00
	End Point	1710.5571	1754.4417	-3.2	0.00

CDMA 1xRTT BC15

CDMA 1xRTT BC10

Limit		816.35	823.65		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		816.5582	823.4419		
Extreme (50C)		816.5582	823.4419	-5.3	-0.01
Extreme (40C)		816.5582	823.4419	-5.1	-0.01
Extreme (30C)		816.5582	823.4419	-4.9	-0.01
Extreme (10C)	Normal	816.5582	823.4419	-4.0	0.00
Extreme (0C)		816.5582	823.4419	-1.4	0.00
Extreme (-10C)		816.5582	823.4419	2.2	0.00
Extreme (-20C)		816.5582	823.4419	3.1	0.00
Extreme (-30C)		816.5582	823.4419	4.1	0.00
		-	-		
	10%	816.5582	823.4419	-3.7	0.00
25C	-10%	816.5582	823.4419	-3.3	0.00
	End Point	816.5582	823.4419	-2.4	0.00

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UMTS REL99 BAND 5

Limit		824	849		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	(112)	(ppm)
Normal (25C)		824.1283	848.8772		
Extreme (50C)		824.1283	848.8772	-1.0	0.00
Extreme (40C)		824.1283	848.8772	-0.5	0.00
Extreme (30C)		824.1283	848.8772	1.0	0.00
Extreme (10C)	Normal	824.1283	848.8772	-0.7	0.00
Extreme (0C)		824.1283	848.8772	-0.6	0.00
Extreme (-10C)		824.1283	848.8772	-0.7	0.00
Extreme (-20C)		824.1283	848.8772	-0.4	0.00
Extreme (-30C)		824.1283	848.8772	-0.6	0.00
	•		•		
	10%	824.1283	848.8772	0.9	0.00
25C	-10%	824.1283	848.8772	0.9	0.00
	End Point	824.1283	848.8772	-1.0	0.00

UMTS REL99 BAND 2

Limit		1850	1910		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	(112)	(ppm)
Normal (25C)		1850.1005	1909.9253		
Extreme (50C)		1850.1005	1909.9253	-1.9	0.00
Extreme (40C)		1850.1005	1909.9253	-1.3	0.00
Extreme (30C)		1850.1005	1909.9253	-1.0	0.00
Extreme (10C)	Normal	1850.1005	1909.9253	0.5	0.00
Extreme (0C)		1850.1005	1909.9253	-0.5	0.00
Extreme (-10C)		1850.1005	1909.9253	-1.2	0.00
Extreme (-20C)		1850.1005	1909.9253	-0.7	0.00
Extreme (-30C)		1850.1005	1909.9253	-0.6	0.00
	10%	1850.1005	1909.9253	-1.2	0.00
25C	-10%	1850.1005	1909.9253	-1.2	0.00
	End Point	1850.1005	1909.9253	-1.6	0.00

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UMTS REL99 BAND 4

Limit	Limit		1755		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	(112)	(ppm)
Normal (25C)		1710.1062	1754.9462		
Extreme (50C)		1710.1062	1754.9462	7.6	0.00
Extreme (40C)		1710.1063	1754.9462	19.3	0.01
Extreme (30C)		1710.1062	1754.9462	7.2	0.00
Extreme (10C)	Normal	1710.1062	1754.9462	-2.5	0.00
Extreme (0C)		1710.1062	1754.9462	-0.9	0.00
Extreme (-10C)		1710.1062	1754.9462	-0.5	0.00
Extreme (-20C)		1710.1062	1754.9462	-0.9	0.00
Extreme (-30C)		1710.1062	1754.9462	-1.7	0.00
	10%	1710.1062	1754.9462	7.6	0.00
25C	-10%	1710.1062	1754.9462	13.0	0.01
	End Point	1710.1062	1754.9462	13.6	0.01

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9.2. MODEL: A1688

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54.and §90.213

<u>LIMITS</u>

22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 & §27.54 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

90.213 - The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30° to +50°C
- Voltage = (85% 115%)

Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50°C is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

RESULTS

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GPRS 850

Limit		824	849		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		824.0263	848.9783		
Extreme (50C)		824.0263	848.9783	14.7	0.02
Extreme (40C)		824.0263	848.9783	15.7	0.02
Extreme (30C)		824.0263	848.9783	21.8	0.03
Extreme (10C)	Normal	824.0263	848.9783	21.5	0.03
Extreme (0C)		824.0263	848.9783	24.4	0.03
Extreme (-10C)		824.0263	848.9783	24.6	0.03
Extreme (-20C)]	824.0263	848.9783	22.4	0.03
Extreme (-30C)		824.0263	848.9783	21.4	0.03
	-				
	10%	824.0221	848.9737	19.0	0.02
25C	-10%	824.0263	848.9783	16.1	0.02
	End Point	824.0263	848.9783	20.5	0.02

EGPRS 850

Limit		824	849		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	(11-)	(ppm)
Normal (25C)		824.0318	848.9690		
Extreme (50C)		824.0318	848.9690	26.4	0.03
Extreme (40C)		824.0318	848.9690	24.6	0.03
Extreme (30C)		824.0318	848.9690	27.9	0.03
Extreme (10C)	Normal	824.0318	848.9690	32.4	0.04
Extreme (0C)		824.0318	848.9690	23.5	0.03
Extreme (-10C)		824.0318	848.9690	21.5	0.03
Extreme (-20C)		824.0318	848.9690	27.5	0.03
Extreme (-30C)		824.0318	848.9690	25.3	0.03
	-				
	10%	824.0335	848.9725	29.1	0.03
25C	-10%	824.0318	848.9690	27.4	0.03
	End Point	824.0318	848.9690	26.2	0.03

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GPRS 1900

Limit		1850	1910		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		1850.0247	1909.9625		
Extreme (50C)		1850.0247	1909.9625	43.0	0.02
Extreme (40C)		1850.0247	1909.9625	27.2	0.01
Extreme (30C)		1850.0247	1909.9625	25.8	0.01
Extreme (10C)	Normal	1850.0247	1909.9625	41.5	0.02
Extreme (0C)		1850.0247	1909.9625	39.0	0.02
Extreme (-10C)		1850.0247	1909.9625	37.9	0.02
Extreme (-20C)		1850.0247	1909.9625	41.3	0.02
Extreme (-30C)		1850.0247	1909.9625	45.1	0.02
	-				
	10%	1850.0247	1909.9625	35.8	0.02
25C	-10%	1850.0247	1909.9625	42.2	0.02
	End Point	1850.0247	1909.9625	43.3	0.02

EGPRS 1900

Limit	Limit		1910		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	(112)	(ppm)
Normal (25C)		1850.0375	1909.9565		
Extreme (50C)		1850.0375	1909.9566	41.3	0.02
Extreme (40C)		1850.0375	1909.9566	34.6	0.02
Extreme (30C)		1850.0375	1909.9566	37.4	0.02
Extreme (10C)	Normal	1850.0375	1909.9566	51.4	0.03
Extreme (0C)		1850.0375	1909.9566	38.5	0.02
Extreme (-10C)		1850.0375	1909.9566	40.2	0.02
Extreme (-20C)		1850.0375	1909.9566	39.0	0.02
Extreme (-30C)		1850.0375	1909.9566	42.7	0.02
	10%	1850.0375	1909.9566	43.0	0.02
25C	-10%	1850.0375	1909.9566	42.7	0.02
	End Point	1850.0375	1909.9566	42.0	0.02

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CDMA 1xRTT BC0

Limit		824	849		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	(112)	(ppm)
Normal (25C)		824.0032	849.0000		
Extreme (50C)		824.0031	849.0000	-6.2	-0.01
Extreme (40C)		824.0031	849.0000	-5.6	-0.01
Extreme (30C)		824.0032	849.0000	-4.1	0.00
Extreme (10C)	Normal	824.0032	849.0000	-3.3	0.00
Extreme (0C)		824.0032	849.0000	1.4	0.00
Extreme (-10C)	1	824.0032	849.0000	3.0	0.00
Extreme (-20C)		824.0032	849.0000	3.4	0.00
Extreme (-30C)	1	824.0032	849.0000	2.5	0.00
	-				
	10%	824.0031	849.0000	-5.4	-0.01
25C	-10%	824.0031	849.0000	-5.9	-0.01
	End Point	824.0032	849.0000	-5.3	-0.01

CDMA 1x RTT BC1

Limit		1850	1910		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	(112)	(ppm)
Normal (25C)		1850.5539	1909.4548		
Extreme (50C)		1850.5539	1909.4547	-10.4	-0.01
Extreme (40C)		1850.5539	1909.4547	-11.5	-0.01
Extreme (30C)		1850.5539	1909.4547	-10.9	-0.01
Extreme (10C)	Normal	1850.5539	1909.4548	-3.3	0.00
Extreme (0C)		1850.5539	1909.4548	3.1	0.00
Extreme (-10C)		1850.5539	1909.4548	6.2	0.00
Extreme (-20C)		1850.5539	1909.4548	10.4	0.01
Extreme (-30C)		1850.5539	1909.4548	6.2	0.00
	-				
	10%	1850.5539	1909.4547	-10.9	-0.01
25C	-10%	1850.5539	1909.4547	-11.0	-0.01
	End Point	1850.5539	1909.4547	-10.1	-0.01

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CDMA 1xRTT BC10

Limit		816.35	823.65		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		816.5472	823.4459		
Extreme (50C)		816.5472	823.4459	-4.7	-0.01
Extreme (40C)		816.5472	823.4459	-4.9	-0.01
Extreme (30C)		816.5472	823.4459	-3.7	0.00
Extreme (10C)	Normal	816.5472	823.4459	-0.3	0.00
Extreme (0C)		816.5472	823.4459	1.1	0.00
Extreme (-10C)		816.5472	823.4459	2.0	0.00
Extreme (-20C)		816.5472	823.4459	2.2	0.00
Extreme (-30C)		816.5472	823.4459	1.3	0.00
	10%	816.5472	823.4459	-3.3	0.00
25C	-10%	816.5472	823.4459	-3.3	0.00
	End Point	816.5472	823.4459	-3.2	0.00

CDMA 1xRTT BC15

Limit		1710	1755		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		1710.5569	1754.4458		
Extreme (50C)		1710.5569	1754.4458	-7.9	0.00
Extreme (40C)		1710.5569	1754.4458	-8.8	-0.01
Extreme (30C)		1710.5569	1754.4458	-3.6	0.00
Extreme (10C)	Normal	1710.5569	1754.4458	0.3	0.00
Extreme (0C)		1710.5569	1754.4458	3.2	0.00
Extreme (-10C)		1710.5569	1754.4458	4.8	0.00
Extreme (-20C)		1710.5569	1754.4458	2.5	0.00
Extreme (-30C)		1710.5569	1754.4458	2.1	0.00
	10%	1710.5569	1754.4458	-6.0	0.00
25C	-10%	1710.5569	1754.4458	-6.5	0.00
	End Point	1710.5569	1754.4458	-5.8	0.00

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UMTS REL99 BAND 5

Limit		824	849		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		824.0992	848.8961		
Extreme (50C)		824.0992	848.8961	-1.2	0.00
Extreme (40C)		824.0992	848.8961	-1.4	0.00
Extreme (30C)		824.0992	848.8961	-1.2	0.00
Extreme (10C)	Normal	824.0992	848.8961	-0.8	0.00
Extreme (0C)		824.0992	848.8961	-0.8	0.00
Extreme (-10C)		824.0992	848.8961	-0.1	0.00
Extreme (-20C)		824.0992	848.8961	-0.5	0.00
Extreme (-30C)		824.0992	848.8961	-0.7	0.00
	-				
	10%	824.0992	848.8961	-0.9	0.00
25C	-10%	824.0992	848.8961	-1.0	0.00
	End Point	824.0992	848.8961	-0.9	0.00

UMTSREL99 BAND 2

Limit		1850	1910		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	(112)	(ppm)
Normal (25C)		1850.0931	1909.8991		
Extreme (50C)		1850.0931	1909.8991	-1.8	0.00
Extreme (40C)		1850.0931	1909.8991	-1.6	0.00
Extreme (30C)		1850.0931	1909.8991	-1.7	0.00
Extreme (10C)	Normal	1850.0931	1909.8991	-1.2	0.00
Extreme (0C)		1850.0931	1909.8991	-0.8	0.00
Extreme (-10C)	1	1850.0931	1909.8991	-0.7	0.00
Extreme (-20C)		1850.0931	1909.8991	-0.6	0.00
Extreme (-30C)		1850.0931	1909.8991	-0.9	0.00
			-		
	10%	1850.0931	1909.8991	-1.1	0.00
25C	-10%	1850.0931	1909.8991	-1.0	0.00
	End Point	1850.0931	1909.8991	-1.1	0.00

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UMTS REL99 BAND 4

Limit		1710	1755		
Condition		F low @ -13dBm	F high @ -13dBm	Delta (Hz)	Frequency Stability
Temperature	Voltage	(MHz)	(MHz)	()	(ppm)
Normal (25C)		1710.1044	1754.8997		
Extreme (50C)		1710.1044	1754.8997	18.5	0.01
Extreme (40C)		1710.1044	1754.8997	20.1	0.01
Extreme (30C)		1710.1044	1754.8997	17.9	0.01
Extreme (10C)	Normal	1710.1044	1754.8997	1.5	0.00
Extreme (0C)		1710.1044	1754.8997	-7.2	0.00
Extreme (-10C)		1710.1043	1754.8997	-13.7	-0.01
Extreme (-20C)		1710.1043	1754.8997	-14.7	-0.01
Extreme (-30C)		1710.1044	1754.8997	-8.1	0.00
	10%	1710.1044	1754.8997	13.3	0.01
25C	-10%	1710.1044	1754.8997	13.1	0.01
	End Point	1710.1044	1754.8997	12.9	0.01

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10. RADIATED TEST RESULTS

10.1. RADIATED POWER (ERP & EIRP), MODEL: A1633 (LAT)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27.50 and §90.635

<u>LIMITS</u>

§22.913(a)(2) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

§24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

§27.50(d) (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band are limited to 1 watt EIRP. Fixed stations operating in this band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in this band must employ a means for limiting power to the minimum necessary for successful communications

§90.635 Limitations on power and antenna height.

(a) The effective radiated power and antenna height for base stations may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.

(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

Table—Equivalent Power and Antenna Heights for Base Stations in the 851–869 MHz and 935–940 MHz Bands Which Have a Requirement for a 32 km (20 mi) Service Area Radius

Antenna height (ATT) meters (feet)	Effective radiated power (watts) ^{1,2,4}
Above 1,372 (4,500)	65
Above 1,220 (4,000) to 1,372 (4,500)	70
Above 1,067 (3,500) to 1,220 (4,000)	75
Above 915 (3,000) to 1,067 (3,500)	100
Above 763 (2,500) to 915 (3,000)	140
Above 610 (2,000) to 763 (2,500)	200
Above 458 (1,500) to 610 (2,000)	350
Above 305 (1,000) to 458 (1,500)	600
Up to 305 (1,000)	31,000

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2 Applicants in the Los Angeles, CA, area who demonstrate a need to serve both the downtown and fringe areas will be permitted to utilize an ERP of 1 kw at the following mountaintop sites: Santiago Park, Sierra Peak, Mount Lukens, and Mount Wilson.

3 Stations with antennas below 305 m (1,000 ft) (AAT) will be restricted to a maximum power of 1 kw (ERP).

In addition, when the transmitter power is measured in terms of average value, the peak-toaverage ratio of the power shall not exceed 13 dB.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17

KDB 971168 D01RF Power output using broadband peak and average power meter method

MODES TESTED

- GPRS/EGPRS
- UMTS, REL 99 and HSDPA
- CDMA2000, 1xRTT and EVDO Rev A

RESULTS

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10.1.1. GSM

Part 22 / RSS 132 850MHz Band

Band	Mode	Channel	f (MHz)	ERP (Average)		
Dariu	woue	Channel		dBm	mW	
		128	824.2	30.62	1153.45	
	GPRS	190	836.6	30.55	1135.01	
CELL		251	848.8	30.81	1205.04	
UELL		128	824.2	25.62	364.75	
	EGPRS	190	836.6	25.64	366.44	
		251	848.8	25.71	372.39	

Part 24 / RSS 133 1900MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)		
Dariu	Nidde	Channel		dBm	mW	
		512	1850.2	29.88	972.75	
	GPRS	661	1880.0	30.10	1023.29	
PCS		810	1909.8	30.07	1016.25	
FUS		512	1850.2	28.87	770.90	
	EGPRS	661	1880.0	28.19	659.17	
		810	1909.8	28.44	698.23	

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10.1.2. CDMA2000

Part 90 800MHz Band

Band	Mode	Channel	f (MHz)	ERP (Average)		
Danu	would			dBm	mW	
	BC10, 1xRTT	450	817.3	20.25	105.93	
		560	820.0	20.28	106.66	
CELL		670	822.8	20.48	111.69	
		450	817.3	20.45	110.92	
	BC10, EVDO A	560	820.0	20.41	109.90	
		670	822.8	20.52	112.72	

Part 22 / RSS 132 850MHz Band

Band	Mode	Mode Channel	f (MHz)	ERP (Average)		
Danu	Mode	Channel	1 (IVII 12)	dBm	mW	
		1013	824.7	21.43	139.00	
	BC 0, 1xRTT	384	836.5	22.06	160.69	
CELL		777	848.3	22.25	167.88	
ULL	BC 0, EVDO Rev	1013	824.7	21.60	144.54	
		384	836.5	22.04	159.96	
	A	777	848.3	22.20	165.96	

Part 24 / RSS 133 1900MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)		
Danu	NIOUE	Channel	1 (IVII 12)	dBm	mW	
		25	1851.3	25.24	334.20	
	BC1, 1xRTT	600	1880.0	25.64	366.44	
PCS		1175	1908.8	25.84	383.71	
FUS	BC1, EVDO REV	25	1851.3	25.36	343.56	
		600	1880.0	25.97	395.37	
	A	1175	1908.8	26.04	401.79	

Part 27 / RSS 139 1700MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)		
Danu	NIUGE	Channel	1 (IVII 12)	dBm	mW	
		25	1711.3	23.51	224.39	
	BC15, 1xRTT	450	1732.5	23.73	236.05	
AWS		875	1753.8	23.86	243.22	
AWS	BC15, EVDO, REV A	25	1711.3	23.55	226.46	
		450	1732.5	23.83	241.55	
		875	1753.8	23.96	248.89	

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10.1.3. UMTS

Part 22 / RSS 132 850MHz Band

Band	Mode	Channel	f (MHz)	ERP (Average)		
Danu	NIUUE	Channel	1 (1V11 12)	dBm	mW	
		4132	826.4	23.35	216.27	
	UMTS,REL 99	4183	836.6	23.11	204.64	
CELL		4233	846.6	23.27	212.32	
UELL		4132	826.4	22.47	176.60	
	UMTS, HSDPA	4183	836.6	22.36	172.19	
		4233	846.6	22.38	172.98	

Part 24 / RSS 133 1900MHz Band

Band	Mode	Mode Channel		EIRP (Average)		
Danu	Widde	Channel	f (MHz)	dBm	mW	
			1852.4	26.88	487.53	
	UMTS,REL 99	9800	1880.0	26.38	434.51	
PCS		9938	1907.6	26.82	480.84	
FC3		9662	1852.4	25.88	387.26	
	UMTS, HSDPA	9800	1880.0	25.55	358.92	
		9938	1907.6	25.77	377.57	

Part 27 / RSS 139 1700MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)		
Danu	NIUGE	Channel	1 (IVII 12)	dBm	mW	
		1537	1712.4	24.66	292.42	
	UMTS,REL 99	1638	1732.6	24.46	279.25	
PCS		1738	1752.5	24.26	266.69	
FUS		1537	1712.4	23.83	241.55	
	UMTS, HSDPA	1638	1732.6	23.66	232.27	
		1738	1752.5	23.36	216.77	

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10.1.4. GSM

GPRS, 850MHz BAND 5

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

OE Fremont Radiated Chamb

Company:	
Project #:	15U20164
Date:	06/04/15
Test Engineer:	K. Huynh
Configuration:	EUT Only
Mode:	GPRS 850MHz

Test Equipment:

Receiving: Sunol T408, and Chamber E Cable Substitution: Dipole T416, 8ft SMA Cable

MHz	SG reading (dBm)	Ant. Pol. (H/V)	(dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	(dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
824.20	31.2	V	0.6	0.0	30.62	32.77	38.45	40.60	-7.8	
824.20	13.2	Н	0.6	0.0	12.61	14.76	38.45	40.60	-25.8	
Mid Ch										
836.60	31.2	V	0.6	0.0	30.55	32.70	38.45	40.60	-7.9	
836.60	12.4	Н	0.6	0.0	11.78	13.93	38.45	40.60	-26.7	
High Ch					[
848.80	31.4	V	0.6	0.0	30.81	32.96	38.45	40.60	-7.6	
848.80	12.6	Н	0.6	0.0	12.02	14.17	38.45	40.60	-26.4	

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EGPRS, 850MHz BAND 5

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

 Company:

 Project #:
 15U20164

 Date:
 06/04/15

 Test Engineer:
 K. Huynh

 Configuration:
 EUT Only

 Mode:
 EDGE 850MHz

Test Equipment:

Receiving: Sunol T408, and Chamber E Cable Substitution: Dipole T416, 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	(dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
824.20	26.2	V	0.6	0.0	25.62	27.77	38.45	40.60	-12.8	•
824.20	5.9	Н	0.6	0.0	5.31	7.46	38.45	40.60	-33.1	
Mid Ch										
836.60	26.3	V	0.6	0.0	25.64	27.79	38.45	40.60	-12.8	•
836.60	7.1	Н	0.6	0.0	6.44	8.59	38.45	40.60	-32.0	
High Ch										
848.80	26.3	V	0.6	0.0	25.71	27.86	38.45	40.60	-12.7	•
848.80	7.0	Н	0.6	0.0	6.36	8.51	38.45	40.60	-32.1	

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GPRS, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

Company:	
Project #:	15U20164
Date:	06/04/15
Test Engineer:	K. Huynh
Configuration:	EUT Only
Mode:	GPRS 1900MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 8ft SMA Cable

GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	(dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch								
1.851	22.4	V	0.98	8.05	29.48	33.0	-3.5	
1.851	22.8	Н	0.98	8.05	29.88	33.0	-3.1	
/lid Ch								
1.880	21.4	V	0.98	8.03	28.41	33.0	-4.6	
1.880	23.0	Н	0.98	8.03	30.10	33.0	-2.9	
igh Ch								
1.910	21.3	V	0.98	8.05	28.38	33.0	-4.6	
1.910	23.0	Н	0.98	8.05	30.07	33.0	-2.9	

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EGPRS, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

Company: Project #: 15U20164 Date: 06/04/15 Test Engineer: K. Huynh Configuration: EUT Only Mode: EDGE 1900MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.851	21.2	V	0.98	8.05	28.28	33.0	-4.7	
1.851	21.8	Н	0.98	8.05	28.87	33.0	-4.1	
Mid Ch								
1.880	20.4	V	0.98	8.03	27.45	33.0	-5.6	
1.880	21.1	Н	0.98	8.03	28.19	33.0	-4.8	
High Ch								
1.910	20.0	V	0.98	8.05	27.06	33.0	-5.9	
1.910	21.4	Н	0.98	8.05	28.44	33.0	-4.6	

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10.1.5. CDMA2000

CDMA2000 1xRTT, 800MHz BC10

High Frequency Substitution Measurement
UL Fremont Radiated Chamber D

Company:	
Project #:	15U20164
Date:	06/24/15
Test Engineer:	J. Liu
Configuration:	EUT Only
Mode:	CDMA 1XRTT 800MHz

Test Equipment:

Receiving: Sunol T407, and Chamber D Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch	(()	()	()	((()	
817.25	20.87	V	0.6	0.0	20.25	50.00	-29.7	•
817.25	5.28	Н	0.6	<mark>0.0</mark>	4.66	50.00	-45.3	
Mid Ch								
820.00	20.90	V	0.6	0.0	20.28	50.00	-29.7	¢
820.00	5.18	Н	0.6	0.0	4.56	50.00	-45.4	
High Ch								
822.75	21.10	V	0.6	0.0	20.48	50.00	-29.5	•
822.75	5.36	Н	0.6	0.0	4.74	50.00	-45.3	

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EVDO-Rev A, 800MHz BC10

High Frequency Substitution Measurement UL Fremont Radiated Chamber G

Company: Project #: 15U20164 Date: 07/06/15 Test Engineer: T Wang Configuration: EUT only Mode: CDMA Rev A 800MHz

Test Equipment:

Receiving: Sunol T899, and Chamber G Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch				. ,		. ,	. ,	
817.25	21.07	V	0.6	0.0	20.45	50.00	-29.5	
817.25	5.43	Н	0.6	0.0	4.81	50.00	-45.2	
Mid Ch								
820.00	21.03	V	0.6	0.0	20.41	50.00	-29.6	
820.00	5.45	Н	0.6	0.0	4.83	50.00	-45.2	
High Ch								
822.75	21.14	V	0.6	0.0	20.52	50.00	-29.5	
822.75	5.68	Н	0.6	0.0	5.06	50.00	-44.9	

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CDMA2000 1xRTT, 850MHz BC0

ompany:										
roject #:		15U20164								
ate:		06/29/15								
est Engi		T Wang								
onfigura		EUT only								
lode:		CDMA 1XRTT								
ubstituti	on. Dipole 3/1		on only out	-						
f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP (dBm)	EIRP		EIRP Limit	Margin	Notes
f MHz	•				ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
f MHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	Notes
f MHz	SG reading	Ant. Pol.	Cable Loss	Antenna Gain					-	Notes
f MHz Low Ch 824.70 824.70	SG reading (dBm) 22.1	Ant. Pol. (H/V) V	Cable Loss (dB)	Antenna Gain (dBd) _{0.0}	(dBm) 21.43	(dBm) 23.58	(dBm) 38.45	(dBm) 40.60	(dB) -17.0	Notes
f MHz Low Ch 824.70 824.70 Mid Ch	SG reading (dBm) 22.1 5.0	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0	(dBm) 21.43 4.35	(dBm) 23.58 6.50	(dBm) 38.45 38.45	(dBm) 40.60 40.60	(dB) -17.0 -34.1	Notes
f MHz Low Ch 824.70 824.70 Mid Ch 836.52	SG reading (dBm) 22.1 5.0 22.7	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 21.43 4.35 22.06	(dBm) 23.58 6.50 24.21	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -17.0 -34.1 -16.4	Notes
f MHz Low Ch 824.70 824.70 Mid Ch	SG reading (dBm) 22.1 5.0	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0	(dBm) 21.43 4.35	(dBm) 23.58 6.50	(dBm) 38.45 38.45	(dBm) 40.60 40.60	(dB) -17.0 -34.1	Notes
f MHz Low Ch 824.70 824.70 Mid Ch 836.52 836.52	SG reading (dBm) 22.1 5.0 22.7	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 21.43 4.35 22.06	(dBm) 23.58 6.50 24.21	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -17.0 -34.1 -16.4	Notes
f MHz Low Ch 824.70 824.70 Mid Ch 836.52	SG reading (dBm) 22.1 5.0 22.7	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 21.43 4.35 22.06	(dBm) 23.58 6.50 24.21	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -17.0 -34.1 -16.4	Notes

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EVDO-Rev A, 850MHz BC0

High Frequency	Substitution Measurement
LIL Examont	Dedicted Chember C

UL Fremont Radiated Chamber G

 Company:

 Project #:
 15U20164

 Date:
 07/06/15

 Test Engineer:
 T Wang

 Configuration:
 EUT only

 Mode:
 CDMA Rev

07/06/15 T Wang EUT only CDMA Rev A 850MHz

Test Equipment:

Receiving: Sunol T899, and Chamber G Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch							1			
824.70	22.2	V	0.6	0.0	21.60	23.75	38.45	40.60	-16.8	•
824.70	5.3	H	0.6	0.0	4.65	6.80	38.45	40.60	-33.8	
Mid Ch										
836.52	22.7	V	0.6	0.0	22.04	24.19	38.45	40.60	-16.4	*
836.52	5.2	Н	0.6	0.0	4.61	6.76	38.45	40.60	-33.8	
High Ch										
848.31	22.8	V	0.6	0.0	22.20	24.35	38.45	40.60	-16.2	•
848.31	5.8	H	0.6	0.0	5.18	7.33	38.45	40.60	-33.3	

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CDMA2000 1xRTT, 1900MHz BC1

Company								
Project #:		15U20164						
Date:		06/29/15						
Test Engi	neer:	T Wang						
Configura		EUT only						
Node:		CDMA 1XRTT 1	900MHz					
•	1							
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.8510	(dBm) 17.5	(H/V) V	(dB) 0.98	(dBi) 8.05	(dBm) 24.61	(dBm) 33.0	(dB) -8.4	Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch	(dBm) 17.5 18.2	(H/V) V H	(dB) 0.98 0.98	(dBi) 8.05 8.05	(dBm) 24.61 25.24	(dBm) 33.0 33.0	(dB) -8.4 -7.8	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch 1.880	(dBm) 17.5 18.2 16.9	(H/V) V H	(dB) 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03	(dBm) 24.61 25.24 23.97	(dBm) 33.0 33.0 33.0	(dB) -8.4 -7.8 -9.0	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch	(dBm) 17.5 18.2	(H/V) V H	(dB) 0.98 0.98	(dBi) 8.05 8.05	(dBm) 24.61 25.24	(dBm) 33.0 33.0	(dB) -8.4 -7.8	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch 1.880	(dBm) 17.5 18.2 16.9	(H/V) V H	(dB) 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03	(dBm) 24.61 25.24 23.97	(dBm) 33.0 33.0 33.0	(dB) -8.4 -7.8 -9.0	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch 1.880 1.880	(dBm) 17.5 18.2 16.9	(H/V) V H	(dB) 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03	(dBm) 24.61 25.24 23.97	(dBm) 33.0 33.0 33.0	(dB) -8.4 -7.8 -9.0	Notes

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EVDO-Rev A, 1900MHz BC1

ompany:	:							
roject #:		15U20164						
ate:		07/06/15						
est Engi		TWang						
onfigura		EUT only						
lode:		CDMA Rev A 19	00MHz					
			1					
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
GHz	-						-	Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.851 1.851	(dBm) 17.6	(H/V) V	(dB) 0.98	(dBi) 8.05	(dBm) 24.71	(dBm) 33.0	(dB) -8.3	Notes
GHz Low Ch 1.851 1.851 Mid Ch	(dBm) 17.6 18.3	(H/V) V H	(dB) 0.98 0.98	(dBi) 8.05 8.05	(dBm) 24.71 25.36	(dBm) 33.0 33.0	(dB) -8.3 -7.6	Notes
GHz Low Ch 1.851 1.851	(dBm) 17.6	(H/V) V	(dB) 0.98	(dBi) 8.05	(dBm) 24.71	(dBm) 33.0	(dB) -8.3	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880 1.880	(dBm) 17.6 18.3 17.6	(H/V) V H	(dB) 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03	(dBm) 24.71 25.36 24.67	(dBm) 33.0 33.0 33.0	(dB) -8.3 -7.6 -8.3	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880 1.880 High Ch	(dBm) 17.6 18.3 17.6 18.9	(H/V) V H	(dB) 0.98 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03 8.03	(dBm) 24.71 25.36 24.67 25.97	(dBm) 33.0 33.0 33.0 33.0 33.0	(dB) -8.3 -7.6 -8.3 -7.0	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880 1.880	(dBm) 17.6 18.3 17.6	(H/V) V H	(dB) 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03	(dBm) 24.71 25.36 24.67	(dBm) 33.0 33.0 33.0	(dB) -8.3 -7.6 -8.3	Notes

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CDMA2000 1xRTT, 1700MHz BC15

ompany								
roject #:		15U20163						
ate:		06/27/15						
'est Engi	neer:	T Wang						
Configura	tion:	EUT only						
lode:		CDMA 1XRTT 1	700MHz					
	j: Horn T862 an on: Horn T59 S		G SMA Cables and 8ft SMA Cab	le				
				ole Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
f	on: Horn T59 S SG reading	Ant. Pol.	and 8ft SMA Cat Cable Loss	Antenna Gain				Notes
f GHz Low Ch 1.7113	on: Horn T59 S SG reading (dBm) 14.5	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.27	(dBm) 21.82	(dBm) 30.0	(dB) -8.2	Notes
f GHz Low Ch	on: Horn T59 S SG reading (dBm)	Ant. Pol. (H/V)	and 8ft SMA Cab Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.7113 1.7113	on: Horn T59 S SG reading (dBm) 14.5	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.27	(dBm) 21.82	(dBm) 30.0	(dB) -8.2	Notes
f GHz Low Ch 1.7113	on: Horn T59 S SG reading (dBm) 14.5	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.27	(dBm) 21.82	(dBm) 30.0	(dB) -8.2	Notes
f GHz Low Ch 1.7113 1.7113 Mid Ch	on: Horn T59 S SG reading (dBm) 14.5 16.2	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.95 0.95	Antenna Gain (dBi) 8.27 8.27	(dBm) 21.82 23.51	(dBm) 30.0 30.0	(dB) -8.2 -6.5	Notes
f GHz Low Ch 1.7113 1.7113 1.7113 Mid Ch 1.7325 1.7325	on: Horn T59 S SG reading (dBm) 14.5 16.2 14.1	Substitution, a Ant. Pol. (H/V) V H	and 8ft SMA Cab Cable Loss (dB) 0.95 0.95	Antenna Gain (dBi) 8.27 8.27 8.27 8.23	(dBm) 21.82 23.51 21.33	(dBm) 30.0 30.0 30.0	(dB) -8.2 -6.5 -8.7	Notes
f GHz Low Ch 1.7113 1.7113 Mid Ch 1.7325	on: Horn T59 S SG reading (dBm) 14.5 16.2 14.1	Substitution, a Ant. Pol. (H/V) V H	and 8ft SMA Cab Cable Loss (dB) 0.95 0.95	Antenna Gain (dBi) 8.27 8.27 8.27 8.23	(dBm) 21.82 23.51 21.33	(dBm) 30.0 30.0 30.0	(dB) -8.2 -6.5 -8.7	Notes

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EVDO-Rev A, 1700MHz BC15

High Frequency Substitution Measurement UL Fremont Radiated Chamber G

 Company:

 Project #:
 15U20164

 Date:
 07/06/15

 Test Engineer:
 T Wang

 Configuration:
 EUT only

 Mode:
 CDMA Rev A 1700MHz

Test Equipment:

Receiving: Horn T862 and Chamber G SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.711	14.3	V	0.95	8.27	21.62	30.0	-8.4	
1.711	16.2	Н	0.95	8.27	23.55	30.0	-6.4	
Mid Ch								
1.733	14.3	V	0.95	8.23	21.53	30.0	-8.5	
1.733	16.6	Н	0.95	8.23	23.83	30.0	-6.2	
High Ch								
1.754	14.9	V	0.95	8.18	22.11	30.0	-7.9	
1.754	16.7	Н	0.95	8.18	23.96	30.0	-6.0	

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47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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10.1.6. UMTS

UMTS REL 99, 850MHz BAND 5

		ULF	emont Radia	ated Chamber E	=					
Company		151100101								
Project #		15U20164								
Date:		06/05/15 K. Huynh								
Test Eng Configura		EUT Only								
Johngura Node:		WCDMA Rel 9								
iouc.		WODIN/TREE	5 05010112							
est Equ	ipment:									
	g: Sunol T408,	and Chamb	er E Cable							
ubstitut	ion: Dipole T4	16, 8ft SMA (Cable							
f	SG reading		1	Antenna Gain		EIRP	1	EIRP Limit	Margin	Notes
-		(110.0)	(dB)	(dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	
r MHz	(dBm)	(H/V)		(/	(and in)	1				
MHz Low Ch										
MHz Low Ch 826.40	24.0	v	0.6	0.0	23.35	25.50	38.45	40.60	-15.1	
MHz Low Ch								40.60 40.60	-15.1 -26.1	
MHz Low Ch 826.40 826.40	24.0	v	0.6	0.0	23.35	25.50	38.45			
MHz Low Ch 826.40 826.40 Mid Ch	24.0 13.0	V	0.6	0.0	23.35 12.36	25.50 14.51	38.45 38.45	40.60	-26.1	
MHz Low Ch 826.40 826.40	24.0	v	0.6	0.0	23.35	25.50	38.45			
MHz Low Ch 826.40 826.40 Mid Ch 836.60 836.60	24.0 13.0 23.7	V H V	0.6 0.6 0.6	0.0 0.0 0.0	23.35 12.36 23.11	25.50 14.51 25.26	38.45 38.45 38.45 38.45	40.60	-26.1 -15.3	
MHz Low Ch 826.40 826.40 Mid Ch 836.60 836.60 High Ch	24.0 13.0 23.7 13.0	V H V H	0.6 0.6 0.6 0.6 0.6	0.0 0.0 0.0 0.0	23.35 12.36 23.11 12.34	25.50 14.51 25.26 14.49	38.45 38.45 38.45 38.45 38.45	40.60 40.60 40.60	-26.1 -15.3 -26.1	
MHz Low Ch 826.40 826.40 Mid Ch 836.60	24.0 13.0 23.7	V H V	0.6 0.6 0.6	0.0 0.0 0.0	23.35 12.36 23.11	25.50 14.51 25.26	38.45 38.45 38.45 38.45	40.60	-26.1 -15.3	

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UMTS HSDPA, 850MHz BAND 5

Company										
Project #:		15U20164								
Date:		06/06/15								
Test Eng		F. Guarnero								
Configura		EUT Only								
/lode:		WCDMA HSD	PA 850MHz							
	i <u>pment:</u> g: Sunol T407, ion: Dipole S/N			e						
	1									
f	SG reading		1	Antenna Gain		EIRP	ERP Limit	1 1	Margin	Notes
MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
MHz Low Ch	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	Notes
MHz	-		1				1	1 1	-	Notes
MHz Low Ch 826.40 826.40	(dBm)	(H/V) V	(dB) 0.6	(dBd) 0.0	(dBm)	(dBm) 24.62	(dBm) 38.45	(dBm) 40.60	(dB) -16.0	Notes
MHz Low Ch 826.40 826.40 Mid Ch	(dBm) 23.1 11.9	(H/V) V H	(dB) 0.6 0.6	(dBd) 0.0 0.0	(dBm) 22.47 11.30	(dBm) 24.62 13.45	(dBm) 38.45 38.45	(dBm) 40.60 40.60	(dB) -16.0 -27.2	Notes
MHz Low Ch 826.40 826.40 Mid Ch 836.60	(dBm) 23.1 11.9 23.0	(H/V) V H	(dB) 0.6 0.6 0.6	(dBd) 0.0 0.0	(dBm) 22.47 11.30 22.36	(dBm) 24.62 13.45 24.51	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -16.0 -27.2 -16.1	Notes
MHz Low Ch 826.40 826.40 Mid Ch	(dBm) 23.1 11.9	(H/V) V H	(dB) 0.6 0.6	(dBd) 0.0 0.0	(dBm) 22.47 11.30	(dBm) 24.62 13.45	(dBm) 38.45 38.45	(dBm) 40.60 40.60	(dB) -16.0 -27.2	Notes
MHz Low Ch 826.40 826.40 Mid Ch 836.60	(dBm) 23.1 11.9 23.0	(H/V) V H	(dB) 0.6 0.6 0.6	(dBd) 0.0 0.0	(dBm) 22.47 11.30 22.36	(dBm) 24.62 13.45 24.51	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -16.0 -27.2 -16.1	Notes
MHz Low Ch 826.40 826.40 Mid Ch 836.60 836.60	(dBm) 23.1 11.9 23.0	(H/V) V H	(dB) 0.6 0.6 0.6	(dBd) 0.0 0.0	(dBm) 22.47 11.30 22.36	(dBm) 24.62 13.45 24.51	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -16.0 -27.2 -16.1	Notes

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UMTS REL 99, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

 Company:

 Project #:
 15U20164

 Date:
 06/05/15

 Test Engineer:
 K. Huynh

 Configuration:
 EUT Only

 Mode:
 WCDMA Rel 99 1900MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
.ow Ch								
1.852	16.2	V	0.98	8.05	23.28	33.0	-9.7	
1.852	19.8	Н	0.98	8.05	26.88	33.0	-6.1	
Mid Ch								
1.880	16.5	V	0.98	8.03	23.57	33.0	-9.4	
1.880	19.3	Н	0.98	8.03	26.38	33.0	-6.6	
ligh Ch								
1.908	16.2	V	0.98	8.04	23.22	33.0	-9.8	
1.908	19.8	Н	0.98	8.04	26.82	33.0	-6.2	

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UMTS HSDPA, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber D

Company: Project #: 15U20164 Date: 06/06/15 Test Engineer: F. Guarnero Configuration: EUT Only Mode: WCDMA HSDPA 1900MHz

Test Equipment:

Receiving: Horn T344 and Chamber D SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch								
1.852	15.3	V	0.98	8.05	22.40	33.0	-10.6	
1.852	18.8	Н	0.98	8.05	25.88	33.0	-7.1	
Mid Ch								
1.880	15.6	V	0.98	8.03	22.67	33.0	-10.3	
1.880	18.5	Н	0.98	8.03	25.55	33.0	-7.4	
High Ch								
1.908	15.2	V	0.98	8.04	22.31	33.0	-10.7	
1.908	18.7	Н	0.98	8.04	25.77	33.0	-7.2	

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UMTS REL 99, 1700MHz BAND 4

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

 Company:

 Project #:
 15U20164

 Date:
 06/05/15

 Test Engineer:
 K. Huynh

 Configuration:
 EUT Only

 Mode:
 WCDMA Rel 99 1700MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.712	13.7	V	0.95	8.27	20.97	30.0	-9.0	
1.712	17.3	Н	0.95	8.27	24.66	30.0	-5.3	
Mid Ch								
1.733	13.8	V	0.95	8.23	21.08	30.0	-8.9	
1.733	17.2	H	0.95	8.23	24.46	30.0	-5.5	
High Ch			1					
1.753	13.8	V	0.95	8.18	21.02	30.0	-9.0	
1.753	17.0	Н	0.95	8.18	24.26	30.0	-5.7	

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UMTS HSDPA, 1700MHz BAND 4

High Frequency Substitution Measurement UL Fremont Radiated Chamber D

 Company:

 Project #:
 15U20164

 Date:
 06/06/15

 Test Engineer:
 K. Huynh

 Configuration:
 EUT Only

 Mode:
 WCDMA HSDPA 1700MHz

Test Equipment:

Receiving: Horn T344 and Chamber D SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.712	12.9	V	0.95	8.27	20.17	30.0	-9.8	
1.712	16.5	Н	0.95	8.27	23.83	30.0	-6.2	
Mid Ch								
1.733	12.9	V	0.95	8.23	20.19	30.0	-9.8	
1.733	16.4	Н	0.95	8.23	23.66	30.0	-6.3	
High Ch								
1.753	12.9	V	0.95	8.18	20.08	30.0	-9.9	
1.753	16.1	Н	0.95	8.18	23.36	30.0	-6.6	

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10.2. RADIATED POWER (ERP & EIRP), MODEL: A1633 (UAT)

10.2.1. GSM

Part 22 / RSS 132 850MHz Band

Band	Mode	Channel	f (MHz)	ERP (Average)	
Dariu				dBm	mW
		128	824.2	25.02	317.69
	GPRS	190	836.6	24.94	311.89
CELL		251	848.8	25.74	374.97
CELL	EGPRS	128	824.2	22.60	181.97
		190	836.6	22.26	168.27
		251	848.8	22.74	187.93

Part 24 / RSS 133 1900MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)	
Dariu				dBm	mW
		512	1850.2	25.88	387.26
	GPRS	661	1880.0	26.16	413.05
PCS		810	1909.8	26.19	415.91
FUS	EGPRS	512	1850.2	23.08	203.24
		661	1880.0	23.14	206.06
		810	1909.8	23.01	199.99

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10.2.2. CDMA2000

Part 90 800MHz Band

Band	Mode	Channel	f (MHz)	ERP (Average)	
			1 (IVII 12)	dBm	mW
		450	817.3	17.11	51.40
	BC10, 1xRTT	560	820.0	17.04	50.58
CELL		670	822.8	17.42	55.21
OLLL		450	817.3	17.21	52.60
	BC10, EVDO A	560	820.0	17.10	51.29
		670	822.8	17.22	52.72

Part 22 / RSS 132 850MHz Band

Band	Mode	Channel	f (MHz)	ERP (Average)	
Danu			1 (IVII 12)	dBm	mW
		1013	824.7	16.43	43.95
	BC 0, 1xRTT	384	836.5	16.71	46.88
CELL		777	848.3	16.75	47.32
ULL	BC 0, EVDO Rev	1013	824.7	16.63	46.03
		384	836.5	16.76	47.42
	A	777	848.3	16.81	47.97

Part 24 / RSS 133 1900MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)	
Danu			1 (IVII 12)	dBm	mW
		25	1851.3	20.61	115.08
	BC1, 1xRTT	600	1880.0	20.57	114.02
PCS		1175	1908.8	20.25	105.93
FUS	BC1, EVDO REV	25	1851.3	20.66	116.41
		600	1880.0	20.52	112.72
	A	1175	1908.8	20.25	105.93

Part 27 / RSS 139 1700MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)	
Danu			1 (IVII 12)	dBm	mW
		25	1711.3	18.65	73.28
	BC15, 1xRTT	450	1732.5	18.03	63.53
AWS		875	1753.8	18.56	71.78
AWS	BC15, EVDO, REV A	25	1711.3	18.57	71.94
		450	1732.5	18.30	67.61
		875	1753.8	18.44	69.82

10.2.3. UMTS

Part 22 / RSS 132 850MHz Band

Band	Mode	Channel	f (MHz)	ERP (Average)	
Danu			1 (IVI112)	dBm	mW
		4132	826.4	16.13	41.02
	UMTS,REL 99	4183	836.6	16.46	44.26
CELL		4233	846.6	16.65	46.24
CELL	UMTS, HSDPA	4132	826.4	15.43	34.91
		4183	836.6	15.76	37.67
		4233	846.6	15.75	37.58

Part 24 / RSS 133 1900MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)	
Danu			1 (IVII 12)	dBm	mW
		9662	1852.4	19.71	93.54
	UMTS,REL 99	9800	1880.0	19.76	94.62
PCS		9938	1907.6	20.50	112.20
FCS	UMTS, HSDPA	9662	1852.4	18.88	77.27
		9800	1880.0	18.92	77.98
		9938	1907.6	19.64	92.04

Part 27 / RSS 139 1700MHz Band

Band	Mode	Channel	Channel f (MHz)		Average)
Danu	NIOUE	Channel	1 (IVI112)	dBm	mW
		1537	1712.4	19.52	89.54
	UMTS,REL 99	1638	1732.6	19.25	84.14
PCS	,	1738	1752.5	19.27	84.53
FUS		1537	1712.4	18.66	73.45
	UMTS, HSDPA	1638	1732.6	18.36	68.55
		1738	1752.5	18.46	70.15

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10.2.4. GSM

GPRS, 850MHz BAND 5)

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

 Company:

 Project #:
 15U20164

 Date:
 06/05/15

 Test Engineer:
 F. Guarnero

 Configuration:
 EUT Only

 Mode:
 GPRS 850MHz

Test Equipment:

Receiving: Sunol T408, and Chamber E Cable Substitution: Dipole 416, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
824.20	25.6	V	0.6	0.0	25.02	27.17	38.45	40.60	-13.4	
824.20	16.7	Н	0.6	0.0	16.09	18.24	38.45	40.60	-22.4	
Mid Ch										
836.60	25.6	V	0.6	0.0	24.94	27.09	38.45	40.60	-13.5	
836.60	16.2	Н	0.6	0.0	15.59	17.74	38.45	40.60	-22.9	
High Ch										
848.80	26.4	V	0.6	0.0	25.74	27.89	38.45	40.60	-12.7	
848.80	16.6	Н	0.6	0.0	15.96	18.11	38.45	40.60	-22.5	

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EGPRS, 850MHz BAND 5

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

 Company:

 Project #:
 15U20164

 Date:
 06/05/15

 Test Engineer:
 K. Huynh

 Configuration:
 EUT Only 7281

 Mode:
 EDGE 850MHz

Test Equipment:

Receiving: Sunol T408, and Chamber E Cable Substitution: Dipole 416, 6ft SMA Cable

т MHz	SG reading (dBm)	Ant. Pol. (H/V)	(dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	(dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
824.20	23.2	V	0.6	0.0	22.60	24.75	38.45	40.60	-15.8	
824.20	12.1	Н	0.6	0.0	11.44	13.59	38.45	40.60	-27.0	
Mid Ch							•			
836.60	22.9	V	0.6	0.0	22.26	24.41	38.45	40.60	-16.2	
836.60	10.3	H	0.6	0.0	9.63	11.78	38.45	40.60	-28.8	
High Ch							•			
848.80	23.4	V	0.6	0.0	22.74	24.89	38.45	40.60	-15.7	
848.80	9.7	Н	0.6	0.0	9.08	11.23	38.45	40.60	-29.4	

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GPRS, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

Company:	
Project #:	15U20164
Date:	06/05/15
Test Engineer:	K. Huynh
Configuration:	EUT Only 7281
Mode:	GPRS 1900MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 6ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch								
1.851	15.8	V	0.98	8.05	22.86	33.0	-10.1	
1.851	18.8	Н	0.98	8.05	25.88	33.0	-7.1	
Mid Ch								
1.880	14.4	V	0.98	8.03	21.44	33.0	-11.6	
1.880	19.1	Н	0.98	8.03	26.16	33.0	-6.8	
High Ch								
1.910	15.3	V	0.98	8.05	22.33	33.0	-10.7	
1.910	19.1	Н	0.98	8.05	26.19	33.0	-6.8	

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EGPRS, 1900MHz BAND 2

ompany								
roject #:		15U20164						
ate:		06/05/15						
est Engi	neer:	K. Huynh						
onfigura	tion:	EUT Only 7281						
lode:		EDGE 1900MH						
ubstituti	on: Horn T60 S	Substitution, a	and 6ft SMA Cab	ble				
f GHz	on: Horn T60 S SG reading (dBm)	Substitution, a Ant. Pol. (H/V)	and 6ft SMA Cab Cable Loss (dB)	ole Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.851	SG reading (dBm) 13.3	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.05	(dBm) 20.32	(dBm) 33.0	(dB) -12.7	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.851 1.851 Mid Ch	SG reading (dBm) 13.3 16.0	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.98 0.98	Antenna Gain (dBi) 8.05 8.05	(dBm) 20.32 23.08	(dBm) 33.0 33.0	(dB) -12.7 -9.9	Notes
f GHz Low Ch 1.851 1.851 Mid Ch 1.880	SG reading (dBm) 13.3 16.0 12.0	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.98 0.98	Antenna Gain (dBi) 8.05 8.05 8.03	(dBm) 20.32 23.08 19.06	(dBm) 33.0 33.0 33.0	(dB) -12.7 -9.9 -13.9	Notes
f GHz Low Ch 1.851 1.851 Mid Ch	SG reading (dBm) 13.3 16.0	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.98 0.98	Antenna Gain (dBi) 8.05 8.05	(dBm) 20.32 23.08	(dBm) 33.0 33.0	(dB) -12.7 -9.9	Notes
f GHz Low Ch 1.851 1.851 Mid Ch 1.880 1.880	SG reading (dBm) 13.3 16.0 12.0	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.98 0.98	Antenna Gain (dBi) 8.05 8.05 8.03	(dBm) 20.32 23.08 19.06	(dBm) 33.0 33.0 33.0	(dB) -12.7 -9.9 -13.9	Notes
f GHz Low Ch 1.851 1.851 Mid Ch 1.880	SG reading (dBm) 13.3 16.0 12.0	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.98 0.98	Antenna Gain (dBi) 8.05 8.05 8.03	(dBm) 20.32 23.08 19.06	(dBm) 33.0 33.0 33.0	(dB) -12.7 -9.9 -13.9	Notes

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10.2.5. CDMA2000

CDMA2000 1xRTT, 800MHz BC10

	High Frequency Substitution Measurement UL Fremont Radiated Chamber G
Company:	
Project #:	15U20164
Date:	06/30/15
Test Engineer:	T Wang
Configuration:	EUT only
Mode:	CDMA 1XRTT 800MHz
Test Equipment:	
Receiving: Sunol T	899, and Chamber G Cable
Substitution: Dipole	e S/N: 00022117, 8ft SMA Cable

~	SG reading			Antenna Gain		Limit	Margin	Notes
GHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
Low Ch								
817.25	17.73	v	0.6	0.0	17.11	50.00	-32.9	
817.25	3.23	Н	0.6	0.0	2.61	50.00	-47.4	
Mid Ch								
820.00	17.66	V	0.6	0.0	17.04	50.00	-33.0	
820.00	3.13	Н	0.6	0.0	2.51	50.00	-47.5	
High Ch								
822.75	18.04	v	0.6	0.0	17.42	50.00	-32.6	
822.75	2.98	Н	0.6	0.0	2.36	50.00	-47.6	

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EVDO-Rev A, 800MHz BC10

High Frequency Substitution Measurement UL Fremont Radiated Chamber G

Company: Project #: 15U20164 Date: 07/06/15 Test Engineer: T Wang Configuration: EUT only Mode: CDMA Rev A 800MHz

Test Equipment:

Receiving: Sunol T899, and Chamber G Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
817.25	17.83	V	0.6	0.0	17.21	50.00	-32.8	
817.25	3.03	Н	0.6	0.0	2.41	50.00	-47.6	
Mid Ch								
820.00	17.72	V	0.6	0.0	17.10	50.00	-32.9	
820.00	2.83	Н	0.6	0.0	2.21	50.00	-47.8	
High Ch								
822.75	17.84	V	0.6	0.0	17.22	50.00	-32.8	
822.75	2.98	Н	0.6	0.0	2.36	50.00	-47.6	

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CDMA2000 1xRTT, 850MHz BC0

High Frequency Substitution Measurement UL Fremont Radiated Chamber G

 Company:

 Project #:
 15U20164

 Date:
 06/30/15

 Test Engineer:
 T Wang

 Configuration:
 EUT only

 Mode:
 CDMA 1XRTT 850MHz

Test Equipment:

Receiving: Sunol T899, and Chamber G Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

MHz (dBm) (H/V) (dB) (dBd) (dBm) (dBm) (dBm) (dBm) Low Ch -	(dB) -22.0 -39.7
824.70 17.1 V 0.6 0.0 16.43 18.58 38.45 40.60 824.70 -0.6 H 0.6 0.0 -1.25 0.90 38.45 40.60 Mid Ch	
824.70 0.6 H 0.6 0.0 2 0.90 38.45 40.60 Mid Ch	
836.52 17.3 V 0.6 0.0 16.71 18.86 38.45 40.60	
	-21.7
836.52 -0.3 H 0.6 0.0 -0.94 1.21 38.45 40.60	-39.4
High Ch	
848.31 17.4 V 0.6 0.0 16.75 18.90 38.45 40.60	-21.7
848.310.6 H 0.6 0.01.22 0.93 38.45 40.60	-39.7

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EVDO-Rev A, 850MHz BC0

High Fr	requency	Substitution	Measurement
1.0	Eromont	Dedicted Ch	ambar C

UL Fremont Radiated Chamber G

 Company:

 Project #:
 15U20164

 Date:
 07/06/15

 Test Engineer:
 T Wang

 Configuration:
 EUT only

 Mode:
 CDMA Rev A 850MHz

Test Equipment:

Receiving: Sunol T899, and Chamber G Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
824.70	17.3	V	0.6	0.0	16.63	18.78	38.45	40.60	-21.8	1
824.70	-0.8	Н	0.6	0.0	-1.45	0.70	38.45	40.60	-39.9	
Mid Ch										
836.52	17.4	V	0.6	0.0	16.76	18.91	38.45	40.60	-21.7	
836.52	-0.3	Н	0.6	0.0	-0.91	1.24	38.45	40.60	-39.4	
High Ch										
848.31	17.4	V	0.6	0.0	16.81	18.96	38.45	40.60	-21.6	
848.31	-0.7	H	0.6	0.0	-1.32	0.83	38.45	40.60	-39.8	

CDMA2000 1xRTT, 1900MHz BC1

ompany:	:							
roject #:		15U20164						
ate:		06/30/15						
est Engi	neer:	T Wang						
onfigura	ation:	EUT only						
lode:		CDMA 1XRTT 1	900MHz					
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.8510	(dBm) 13.5	(H/V) V	(dB) 0.98	(dBi) 8.05	(dBm) 20.61	(dBm) 33.0	(dB) -12.4	Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch	(dBm) 13.5 9.5	(H/V) V H	(dB) 0.98 0.98	(dBi) 8.05 8.05	(dBm) 20.61 16.56	(dBm) 33.0 33.0	(dB) -12.4 -16.4	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch 1.880	(dBm) 13.5 9.5 13.5	(H/V) V H	(dB) 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03	(dBm) 20.61 16.56 20.57	(dBm) 33.0 33.0 33.0	(dB) -12.4 -16.4 -12.4	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch	(dBm) 13.5 9.5	(H/V) V H	(dB) 0.98 0.98	(dBi) 8.05 8.05	(dBm) 20.61 16.56	(dBm) 33.0 33.0	(dB) -12.4 -16.4	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch 1.880 1.880 High Ch	(dBm) 13.5 9.5 13.5 9.7	(H/V) V H	(dB) 0.98 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03 8.03	(dBm) 20.61 16.56 20.57 16.79	(dBm) 33.0 33.0 33.0 33.0 33.0	(dB) -12.4 -16.4 -12.4 -16.2	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch 1.880 1.880	(dBm) 13.5 9.5 13.5	(H/V) V H	(dB) 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03	(dBm) 20.61 16.56 20.57	(dBm) 33.0 33.0 33.0	(dB) -12.4 -16.4 -12.4	Notes

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EVDO-Rev A, 1900MHz BC1

High Frequency Substitution Measurement UL Fremont Radiated Chamber G

 Company:

 Project #:
 15U20164

 Date:
 07/07/15

 Test Engineer:
 T Wang

 Configuration:
 EUT only

 Mode:
 CDMA Rev A 1900MHz

Test Equipment:

Receiving: Horn T862 and Chamber G SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.851	13.6	V	0.98	8.05	20.66	33.0	-12.3	
1.851	9.3	Н	0.98	8.05	16.41	33.0	-16.6	
Mid Ch								
1.880	13.5	V	0.98	8.03	20.52	33.0	-12.5	
1.880	9.2	Н	0.98	8.03	16.29	33.0	-16.7	
High Ch								
1.909	13.2	V	0.98	8.05	20.25	33.0	-12.8	
1.909	9.5	Н	0.98	8.05	16.59	33.0	-16.4	

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CDMA2000 1xRTT, 1700MHz BC15

High Frequency Substitution Measurement UL Fremont Radiated Chamber G

 Company:

 Project #:
 15U20163

 Date:
 06/27/15

 Test Engineer:
 T Wang

 Configuration:
 EUT only

 Mode:
 CDMA 1XRTT 1700MHz

Test Equipment:

Receiving: Horn T862 and Chamber G SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.7113	6.5	V	0.95	8.27	13.82	30.0	-16.2	
1.7113	11.3	Н	0.95	8.27	18.65	30.0	-11.3	
Mid Ch								
1.7325	5.8	V	0.95	8.23	13.03	30.0	-17.0	
1.7325	10.8	Н	0.95	8.23	18.03	30.0	-12.0	
High Ch								
1.7538	6.4	V	0.95	8.18	13.61	30.0	-16.4	
1.7538	11.3	Н	0.95	8.18	18.56	30.0	-11.4	

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EVDO-Rev A, 1700MHz BC15

High Frequency Substitution Measurement UL Fremont Radiated Chamber G

 Company:

 Project #:
 15U20164

 Date:
 07/06/15

 Test Engineer:
 T Wang

 Configuration:
 EUT only

 Mode:
 CDMA Rev A 1700MHz

Test Equipment:

Receiving: Horn T862 and Chamber G SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.711	6.6	V	0.95	8.27	13.88	30.0	-16.1	
1.711	11.3	Н	0.95	8.27	18.57	30.0	-11.4	
Mid Ch								
1.733	5.8	V	0.95	8.23	13.06	30.0	-16.9	
1.733	11.0	Н	0.95	8.23	18.30	30.0	-11.7	
High Ch								
1.754	5.9	V	0.95	8.18	13.11	30.0	-16.9	
1.754	11.2	Н	0.95	8.18	18.44	30.0	-11.6	

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10.2.6. UMTS

UMTS REL 99, 850MHz BAND 5

ompany: roject #: ate: est Engi onfigura lode:	neer: ation:	15U20164 06/27/15 T Wang EUT only WCDMA Rel S	99 850MHz							
Test Equipment: Receiving: Sunol T899, and Chamber G Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable										
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
	,,		<u>,,</u>	(<i>-</i> /	,		()		·/	
Low Ch		V	0.6	0.0	16.13	18.28	38.45	40.60	-22.3	
Low Ch 826.40	16.8	V								
	16.8 -3.6	H	0.6	0.0	-4.25	-2.10	38.45	40.60	-42.7	
826.40 826.40			0.6	0.0	4.25	-2.10	38.45	40.60	-42.7	
826.40 826.40 Mid Ch	-3.6	H								
826.40 826.40			0.6 0.6 0.6	0.0 0.0 0.0	-4.25 16.46 -3.64	-2.10 18.61 -1.49	38.45 38.45 38.45	40.60 40.60 40.60	-42.7 -22.0 -42.1	
826.40 826.40 Mid Ch 836.60 836.60	-3.6 17.1	H V	0.6	0.0	16.46	18.61	38.45	40.60	-22.0	
826.40 826.40 Mid Ch 836.60	-3.6 17.1	H V	0.6	0.0	16.46	18.61	38.45	40.60	-22.0	

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UMTS HSDPA, 850MHz BAND 5

Company:										
Project #:		15U20164								
Date:		06/30/15								
rest Engi		T Wang								
Configura		EUT only								
Node:		WCDMA HSF								
-	<u>pment:</u> j: Sunol T899, on: Dipole S/N			e			I	1		
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
826.40	16.1	V	0.6	0.0	15.43	17.58	38.45	40.60	-23.0	
826.40	-4.0	Н	0.6	0.0	-4.65	-2.50	38.45	40.60	-43.1	
Mid Ch	1	V	0.6	0.0	15.76	17.91	38.45	40.60	-22.7	
Mid Ch 836.60	16.4				-4.24	-2.09	38.45	40.60	-42.7	
Mid Ch 836.60 836.60	16.4 -3.6	Н	0.6	0.0	-4.24					
836.60 836.60		Н	0.6	0.0	-4.24	-2.00	50.45			
836.60		H	0.6	0.0	-4.24	17.90	38.45	40.60	-22.7	

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UMTS REL 99, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

Company: Project #: 15U20164 Date: 06/05/15 Test Engineer: K. Huynh Configuration: EUT Only 7281 Mode: WCDMA Rel 99 1900MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 6ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch								
1.852	9.5	V	0.98	8.05	16.56	33.0	-16.4	
1.852	12.6	Н	0.98	8.05	19.71	33.0	-13.3	
Mid Ch								
1.880	10.6	V	0.98	8.03	17.65	33.0	-15.4	
1.880	12.7	Н	0.98	8.03	19.76	33.0	-13.2	
High Ch								
1.908	11.5	V	0.98	8.04	18.55	33.0	-14.4	
1.908	13.4	Н	0.98	8.04	20.50	33.0	-12.5	

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UMTS HSDPA, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber D

Company: Project #: 15U2 Date: 06/06 Test Engineer: F. Gu Configuration: EUT Mode: WCD

15U20164 06/06/15 F. Guarnero EUT Only WCDMA HSDPA 1900MHz

Test Equipment:

Receiving: Horn T344 and Chamber D SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading	Ant. Pol.	Cable Loss	Antenna Gain		Limit (dBm)	Margin	Notes
	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(abiii)	(dB)	
Low Ch								
1.852	8.8	V	0.98	8.05	15.89	33.0	-17.1	
1.852	11.8	Н	0.98	8.05	18.88	33.0	-14.1	
Mid Ch								
1.880	10.2	V	0.98	8.03	17.29	33.0	-15.7	
1.880	11.9	Н	0.98	8.03	18.92	33.0	-14.1	
High Ch								
1.908	10.8	V	0.98	8.04	17.86	33.0	-15.1	
1.908	12.6	Н	0.98	8.04	19.64	33.0	-13.4	

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UMTS REL 99, 1700MHz BAND 4

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

 Company:

 Project #:
 15U20164

 Date:
 06/05/15

 Test Engineer:
 K. Huynh

 Configuration:
 EUT Only 7281

 Mode:
 WCDMA Rel 99 1700MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 6ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.712	11.2	V	0.95	8.27	18.52	30.0	-11.5	
1.712	12.2	Н	0.95	8.27	19.52	30.0	-10.5	
Mid Ch			1			-		
1.733	11.0	V	0.95	8.23	18.24	30.0	-11.8	
1.733	12.0	Н	0.95	8.23	19.25	30.0	-10.8	
High Ch								
1.753	10.4	V	0.95	8.18	17.59	30.0	-12.4	
1.753	12.0	Н	0.95	8.18	19.27	30.0	-10.7	

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UMTS HSDPA, 1700MHz BAND 4

High Frequency Substitution Measurement UL Fremont Radiated Chamber D

Company: Project #: 15U20164 Date: 06/06/15 Test Engineer: F. Guarnero Configuration: EUT Only Mode: WCDMA HSDPA 1700MHz

Test Equipment:

Receiving: Horn T344 and Chamber D SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch								-
1.712	10.6	V	0.95	8.27	17.87	30.0	-12.1	
1.712	11.3	Н	0.95	8.27	18.66	30.0	-11.3	
Mid Ch								
1.733	10.2	V	0.95	8.23	17.44	30.0	-12.6	
1.733	11.1	Н	0.95	8.23	18.36	30.0	-11.6	
ligh Ch			-					
1.753	9.6	V	0.95	8.18	16.78	30.0	-13.2	
1.753	11.2	Н	0.95	8.18	18.46	30.0	-11.5	

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10.3. RADIATED POWER (ERP & EIRP), MODEL: A1688 (LAT)

10.3.1. GSM

Part 22 / 850MHz Band

Band	Mode	Channel	f (MHz)	ERP (Average)
Dariu	Niode	Channel	1 (IVII 12)	dBm	mW
		128	824.2	30.02	1004.62
	GPRS	190	836.6	30.30	1071.52
CELL		251	848.8	30.21	1049.54
		128	824.2	25.52	356.45
	EGPRS	190	836.6	25.56	359.75
		251	848.8	25.64	366.44

Part 24 / 1900MHz Band

Band	Mode	Channel	f (MHz)	EIRP ((Average)
Dariu	Niode	Glaine	1 (IVI112)	dBm	mW
		512	1850.2	29.78	950.60
	GPRS	661	1880.0	30.01	1002.31
PCS		810	1909.8	29.72	937.56
FUS		512	1850.2	28.48	704.69
	EGPRS	661	1880.0	27.89	615.18
		810	1909.8	28.22	663.74

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10.3.2. CDMA2000

Part 90 800MHz Band

Band	Mode	Channel	f (MHz)	ERP (/	Average)
Danu	IVIOUE	Channel	1 (IVII 12)	dBm	mW
		450	817.3	20.11	102.57
	BC10, 1xRTT	560	820.0	20.04	100.93
CELL		670	822.8	20.42	110.15
ULL		450	817.3	20.31	107.40
	BC10, EVDO A	560	820.0	20.14	103.28
		670	822.8	20.37	108.89

Part 22 / 850MHz Band

Band	Mode	Channel	f (MHz)	ERP (/	Average)
Danu	IVIOUE	Channel	1 (IVII 12)	dBm	mW
		1013	824.7	21.15	130.32
	BC 0, 1xRTT	384	836.5	21.81	151.71
CELL		777	848.3	22.04	159.96
ULL	BC 0, EVDO Rev	1013	824.7	21.18	131.22
	, A	384	836.5	21.86	153.46
	A	777	848.3	22.09	161.81

Part 24 / 1900MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)		
Danu	Ivioue	Channel	1 (IVII 12)	dBm	mW	
		25	1851.3	25.10	323.59	
	BC1, 1xRTT	600	1880.0	25.77	377.57	
PCS		1175	1908.8	25.69	370.68	
FC3	BC1, EVDO REV	25	1851.3	25.46	351.56	
	^	600	1880.0	26.00	398.11	
	A	1175	1908.8	25.94	392.64	

Part 27 / 1700MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)
Danu	NIUGE	Channel	1 (IVII 12)	dBm	mW
		25	1711.3	23.47	222.33
	BC15, 1xRTT	450	1732.5	23.38	217.77
AWS		875	1753.8	23.54	225.94
AWS	BC15, EVDO,	25	1711.3	23.49	223.36
	REV A	450	1732.5	23.62	230.14
	NLV A	875	1753.8	23.76	237.68

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10.3.3. UMTS

Part 22 / 850MHz Band

Band	Mode	Channel	f (MHz)	ERP (Average)		
Danu	WIDGE	Channel	1 (IVI112)	dBm	mW	
		4132	826.4	22.93	196.34	
	UMTS,REL 99	4183	836.6	22.76	188.80	
CELL		4233	846.6	23.10	204.17	
UELL		4132	826.4	22.02	159.22	
	UMTS, HSDPA	4183	836.6	21.86	153.46	
		4233	846.6	22.22	166.72	

Part 24 / 1900MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)		
Danu	WOUE	Channel	1 (IVII 12)	dBm	mW	
		9662	1852.4	26.58	454.99	
	UMTS,REL 99	9800	1880.0	26.15	412.10	
PCS		9938	1907.6	26.39	435.51	
FC3		9662	1852.4	25.78	378.44	
	UMTS, HSDPA	9800	1880.0	25.35	342.77	
		9938	1907.6	25.31	339.63	

Part 27 / 1700MHz Band

Band	Mode	Channel	f (MHz)	EIRP (Average)
Danu	NIUGE	Channel	1 (IVII 12)	dBm	mW
		1537	1712.4	24.26	266.69
	UMTS,REL 99	1638	1732.6	24.21	263.63
PCS		1738	1752.5	23.86	243.22
FUS		1537	1712.4	23.56	226.99
	UMTS, HSDPA	1638	1732.6	23.39	218.27
		1738	1752.5	23.16	207.01

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10.3.4. GSM

GPRS, 850MHz BAND 5

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

Company: Project #: 15U20165 Date: 06/04/15 Test Engineer: K. Huynh Configuration: EUT Only Mode: GSM 850MHz

Test Equipment:

Receiving: Sunol T408, and Chamber E Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch									-	
824.20	30.6	V	0.6	0.0	30.02	32.17	38.45	40.60	-8.4	
824.20	10.4	Н	0.6	0.0	9.76	11.91	38.45	40.60	-28.7	
Mid Ch										
836.60	30.9	V	0.6	0.0	30.30	32.45	38.45	40.60	-8.1	
836.60	11.5	Н	0.6	0.0	10.93	13.08	38.45	40.60	-27.5	
High Ch										
848.80	30.8	V	0.6	0.0	30.21	32.36	38.45	40.60	-8.2	
848.80	11.8	Н	0.6	0.0	11.17	13.32	38.45	40.60	-27.3	

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EGPRS, 850MHz BAND 5

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

 Company:

 Project #:
 15U20165

 Date:
 06/04/15

 Test Engineer:
 K. Huynh

 Configuration:
 EUT Only

 Mode:
 EDGE 850MHz

Test Equipment:

Receiving: Sunol T408, and Chamber E Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	(dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	(dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
824.20	26.1	v	0.6	0.0	25.52	27.67	38.45	40.60	-12.9	
824.20	5.6	Н	0.6	0.0	5.00	7.15	38.45	40.60	-33.5	
Mid Ch										
836.60	26.2	V	0.6	0.0	25.56	27.71	38.45	40.60	-12.9	
836.60	6.8	Н	0.6	0.0	6.23	8.38	38.45	40.60	-32.2	
High Ch										
848.80	26.3	V	0.6	0.0	25.64	27.79	38.45	40.60	-12.8	
848.80	6.7	Н	0.6	0.0	6.07	8.22	38.45	40.60	-32.4	

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GPRS, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

Company:	
Project #:	15U20165
Date:	06/04/15
Test Engineer:	K. Huynh
Configuration:	EUT Only
Mode:	GPRS 1900MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch								
1.851	22.5	V	0.98	8.05	29.58	33.0	-3.4	
1.851	22.7	Н	0.98	8.05	29.78	33.0	-3.2	
Mid Ch								
1.880	21.4	V	0.98	8.03	28.49	33.0	-4.5	
1.880	23.0	Н	0.98	8.03	30.01	33.0	-3.0	
High Ch								
1.910	21.5	V	0.98	8.05	28.60	33.0	-4.4	
1.910	22.6	Н	0.98	8.05	29.72	33.0	-3.3	

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EGPRS, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

Company: Project #: 15U20165 Date: 06/04/15 Test Engineer: K. Huynh Configuration: EUT Only Mode: EDGE 1900MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 8ft SMA Cable

GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.851	20.9	V	0.98	8.05	27.98	33.0	-5.0	
1.851	21.4	Н	0.98	8.05	28.48	33.0	-4.5	
Mid Ch								
1.880	20.3	V	0.98	8.03	27.32	33.0	-5.7	
1.880	20.8	H	0.98	8.03	27.89	33.0	-5.1	
High Ch								
1.910	20.1	V	0.98	8.05	27.12	33.0	-5.9	
1.910	21.1	Н	0.98	8.05	28.22	33.0	-4.8	

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CDMA2000 10.3.5.

CDMA2000 1xRTT, 800MHz BC10

	High Frequency Substitution Measurement UL Fremont Radiated Chamber G
Company:	
Project #:	15U20164
Date:	06/30/15
Test Engineer:	T Wang
Configuration:	EUT only
Mode:	CDMA 1XRTT 800MHz

Test Equipment:

Mode:

Receiving: Sunol T899, and Chamber G Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch	(,			<u> </u>	(()	(/	:
817.25	20.73	V	0.6	0.0	20.11	50.00	-29.9	÷
817.25	5.23	H	0.6	0.0	4.61	50.00	-45.4	
Mid Ch								
820.00	20.66	V	0.6	0.0	20.04	50.00	-30.0	*
820.00	5.13	Н	0.6	0.0	4.51	50.00	-45.5	
High Ch								
822.75	21.04	V	0.6	0.0	20.42	50.00	-29.6	•
822.75	4.98	Н	0.6	0.0	4.36	50.00	-45.6	

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EVDO-Rev A, 800MHz BC10

High Frequency Substitution Measurement UL Fremont Radiated Chamber G

Company:Project #:15U20165Date:07/06/15Test Engineer:T WangConfiguration:EUT onlyMode:CDMA Rev A 800MHz

Test Equipment:

Receiving: Sunol T899, and Chamber G Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch				. ,		. ,	. , ,	
817.25	20.93	V	0.6	0.0	20.31	50.00	-29.7	
817.25	4.83	Н	0.6	0.0	4.21	50.00	-45.8	
Mid Ch								
820.00	20.76	V	0.6	0.0	20.14	50.00	-29.9	
820.00	5.33	Н	0.6	0.0	4.71	50.00	-45.3	
High Ch								
822.75	20.99	V	0.6	0.0	20.37	50.00	-29.6	
822.75	5.56	Н	0.6	0.0	4.94	50.00	-45.1	

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CDMA2000 1xRTT, 850MHz BC0

	15U20164								
	06/29/15								
eer:	T Wang								
ion:	EUT only								
	CDMA 1XRTT	850MHz							
SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	Notes
(dBm)	(H/V) V	(dB) 0.6	(dBd) 0.0	(dBm) 21.15	(dBm) 23.30	(dBm) 38.45	(dBm) 40.60	(dB) -17.3	Notes
(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	Notes
(dBm)	(H/V) V	(dB) 0.6	(dBd) 0.0	(dBm) 21.15	(dBm) 23.30	(dBm) 38.45	(dBm) 40.60	(dB) -17.3	Notes
(dBm)	(H/V) V	(dB) 0.6	(dBd) 0.0	(dBm) 21.15	(dBm) 23.30	(dBm) 38.45	(dBm) 40.60	(dB) -17.3	Notes
(dBm) 21.8 4.6	(H/V) V H	(dB) 0.6 0.6	(dBd) 0.0 0.0	(dBm) 21.15 3.95	(dBm) 23.30 6.10	(dBm) 38.45 38.45	(dBm) 40.60 40.60	(dB) -17.3 -34.5	Notes
(dBm) 21.8 4.6 22.4	(H/V) V H V	(dB) 0.6 0.6	(dBd) 0.0 0.0	(dBm) 21.15 3.95 21.81	(dBm) 23.30 6.10 23.96	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -17.3 -34.5 -16.6	Notes
(dBm) 21.8 4.6 22.4	(H/V) V H V	(dB) 0.6 0.6	(dBd) 0.0 0.0	(dBm) 21.15 3.95 21.81	(dBm) 23.30 6.10 23.96	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -17.3 -34.5 -16.6	Notes
	ieer: ion: <u>ment:</u> Sunol T899,	06/29/15 ion: T Wang EUT only CDMA 1XRTT ment: Sunol T899, and Chambo	06/29/15 eer: T Wang ion: EUT only CDMA 1XRTT 850MHz ment: Sunol T899, and Chamber G Cable	06/29/15 eer: T Wang ion: EUT only CDMA 1XRTT 850MHz ment:	06/29/15 eer: T Wang ion: EUT only CDMA 1XRTT 850MHz ment: Sunol T899, and Chamber G Cable	06/29/15 eer: T Wang ion: EUT only CDMA 1XRTT 850MHz ment: Sunol T899, and Chamber G Cable	06/29/15 eer: T Wang ion: EUT only CDMA 1XRTT 850MHz ment: Sunol T899, and Chamber G Cable	06/29/15 teer: T Wang tion: EUT only CDMA 1XRTT 850MHz terminal constraints of the second	06/29/15 T Wang ion: EUT only CDMA 1XRTT 850MHz ment: Sunol T899, and Chamber G Cable

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High Frequency Substitution Measurement

EVDO-Rev A, 850MHz BC0

oject #:		15U20165								
ate:		07/06/15								
est Engi	neer:	T Wang								
onfigura	tion:	EUT only								
ode:		CDMA Rev A	850MHz							
	: Sunol T899, on: Dipole S/N			e						
f MHz	SG reading (dBm)			Antenna Gain (dBd)		EIRP (dBm)		EIRP Limit (dBm)	Margin (dB)	Notes
MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
MHz Low Ch										Notes
MHz Low Ch 824.70	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	Notes
MHz Low Ch 824.70 824.70	(dBm) 21.8	(H/V) V	(dB) 0.6	(dBd)	(dBm) 21.18	(dBm) 23.33	(dBm) 38.45	(dBm) 40.60	(dB) -17.3	Notes
MHz Low Ch 824.70 824.70 Mid Ch	(dBm) 21.8	(H/V) V	(dB) 0.6	(dBd)	(dBm) 21.18	(dBm) 23.33	(dBm) 38.45	(dBm) 40.60	(dB) -17.3	Notes
MHz Low Ch 824.70 824.70 824.70 Mid Ch 836.52	(dBm) 21.8 4.7	(H/V) V H	(dB) 0.6 0.6	(dBd) 0.0 0.0	(dBm) 21.18 4.05	(dBm) 23.33 6.20	(dBm) 38.45 38.45	(dBm) 40.60 40.60	(dB) -17.3 -34.4	Notes
MHz Low Ch 824.70 824.70 Mid Ch 836.52 836.52	(dBm) 21.8 4.7 22.5	(H/V) V H	(dB) 0.6 0.6	(dBd) 0.0 0.0 0.0	(dBm) 21.18 4.05 21.86	(dBm) 23.33 6.20 24.01	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -17.3 -34.4 -16.6	Notes
MHz Low Ch 824.70 824.70 824.70 Mid Ch 836.52	(dBm) 21.8 4.7 22.5	(H/V) V H	(dB) 0.6 0.6	(dBd) 0.0 0.0 0.0	(dBm) 21.18 4.05 21.86	(dBm) 23.33 6.20 24.01	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -17.3 -34.4 -16.6	Notes

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CDMA2000 1xRTT, 1900MHz BC1

ompany								
Project #:		15U20164						
Date:		06/29/15						
lest Engi	neer:	T Wang						
Configura		EUT only						
/lode:		CDMA 1XRTT 1	900MHz					
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.8510	(dBm) 17.2	(H/V) V	(dB) 0.98	(dBi) 8.05	(dBm) 24.26	(dBm) 33.0	(dB) -8.7	Notes
GHz Low Ch 1.8510 1.8510	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch	(dBm) 17.2 18.0	(H/V) V H	(dB) 0.98 0.98	(dBi) 8.05 8.05	(dBm) 24.26 25.10	(dBm) 33.0 33.0	(dB) -8.7 -7.9	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch 1.880	(dBm) 17.2 18.0 16.8	(H/V) V H	(dB) 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03	(dBm) 24.26 25.10 23.82	(dBm) 33.0 33.0 33.0	(dB) 	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch	(dBm) 17.2 18.0	(H/V) V H	(dB) 0.98 0.98	(dBi) 8.05 8.05	(dBm) 24.26 25.10	(dBm) 33.0 33.0	(dB) -8.7 -7.9	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch 1.880 1.880 High Ch	(dBm) 17.2 18.0 16.8 18.7	(H/V) V H V H	(dB) 0.98 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03 8.03	(dBm) 24.26 25.10 23.82 25.77	(dBm) 33.0 33.0 33.0 33.0 33.0	(dB) -8.7 -7.9 -9.2 -7.2	Notes
GHz Low Ch 1.8510 1.8510 Mid Ch 1.880 1.880	(dBm) 17.2 18.0 16.8	(H/V) V H	(dB) 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03	(dBm) 24.26 25.10 23.82	(dBm) 33.0 33.0 33.0	(dB) 	Notes

EVDO-Rev A, 1900MHz BC1

		OLING		l Chamber G				
company:								
roject #:		15U20165						
)ate:		07/06/15						
'est Engi	neer:	T Wang						
Configura		EUT only						
lode:		CDMA Rev A 19	900MHz					
): Horn T862 an on: Horn T59 S		and 8ft SMA Cab	ble				
				ole Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
f GHz Low Ch	on: Horn T59 S SG reading (dBm)	ubstitution, a Ant. Pol. (H/V)	and 8ft SMA Cab Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz 1.851	on: Horn T59 S SG reading (dBm) 17.5	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.05	(dBm) 24.61	(dBm) 33.0	(dB) -8.4	Notes
f GHz Low Ch	on: Horn T59 S SG reading (dBm)	ubstitution, a Ant. Pol. (H/V)	and 8ft SMA Cab Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.851 1.851	on: Horn T59 S SG reading (dBm) 17.5	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.05	(dBm) 24.61	(dBm) 33.0	(dB) -8.4	Notes
f GHz 1.851	on: Horn T59 S SG reading (dBm) 17.5	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.05	(dBm) 24.61	(dBm) 33.0	(dB) -8.4	Notes
f GHz Low Ch 1.851 1.851 Mid Ch	on: Horn T59 S SG reading (dBm) 17.5 18.4	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.98 0.98	Antenna Gain (dBi) 8.05 8.05	(dBm) 24.61 25.46	(dBm) 33.0 33.0	(dB) -8.4 -7.5	Notes
f GHz Low Ch 1.851 1.851 Mid Ch 1.880 1.880	on: Horn T59 S SG reading (dBm) 17.5 18.4 17.5	Ant. Pol. (H/V) V H	and 8ft SMA Cat Cable Loss (dB) 0.98 0.98	Antenna Gain (dBi) 8.05 8.05 8.05	(dBm) 24.61 25.46 24.57	(dBm) 33.0 33.0 33.0 33.0	(dB) -8.4 -7.5 -8.4	Notes
f GHz Low Ch 1.851 1.851 Mid Ch 1.880	on: Horn T59 S SG reading (dBm) 17.5 18.4 17.5	Ant. Pol. (H/V) V H	and 8ft SMA Cat Cable Loss (dB) 0.98 0.98	Antenna Gain (dBi) 8.05 8.05 8.05	(dBm) 24.61 25.46 24.57	(dBm) 33.0 33.0 33.0 33.0	(dB) -8.4 -7.5 -8.4	Notes

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CDMA2000 1xRTT, 1700MHz BC15

			uency Substitu emont Radiated	tion Measuremer I Chamber G	It			
Company:								
Project #:		15U20163						
Date:		06/27/15						
Test Engi	neer:	T Wang						
Configura	tion:	EUT only						
Mode:		CDMA 1XRTT 1	700MHz					
-	j: Horn T862 an on: Horn T59 S		and 8ft SMA Cab	ble		1		
-				ole Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Substituti f GHz Low Ch	on: Horn T59 S SG reading (dBm)	ubstitution, a Ant. Pol. (H/V)	and 8ft SMA Cab Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.7113	on: Horn T59 S SG reading (dBm) 14.4	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.27	(dBm) 21.76	(dBm) 30.0	(dB) -8.2	Notes
Substituti f GHz Low Ch	on: Horn T59 S SG reading (dBm)	ubstitution, a Ant. Pol. (H/V)	and 8ft SMA Cab Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.7113 1.7113	on: Horn T59 S SG reading (dBm) 14.4	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.27	(dBm) 21.76	(dBm) 30.0	(dB) -8.2	Notes
f GHz Low Ch 1.7113	on: Horn T59 S SG reading (dBm) 14.4	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.27	(dBm) 21.76	(dBm) 30.0	(dB) -8.2	Notes
f GHz Low Ch 1.7113 1.7113 Mid Ch	on: Horn T59 S SG reading (dBm) 14.4 16.2	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.95 0.95	Antenna Gain (dBi) 8.27 8.27	(dBm) 21.76 23.47	(dBm) 30.0 30.0	(dB) -8.2 -6.5	Notes
f GHz Low Ch 1.7113 1.7113 Mid Ch 1.7325 1.7325	on: Horn T59 S SG reading (dBm) 14.4 16.2 13.8	Ant. Pol. (H/V) V H	and 8ft SMA Cab Cable Loss (dB) 0.95 0.95	Antenna Gain (dBi) 8.27 8.27 8.27 8.23	(dBm) 21.76 23.47 21.03	(dBm) 30.0 30.0 30.0	(dB) -8.2 -6.5 -9.0	Notes
f GHz Low Ch 1.7113 1.7113 Mid Ch 1.7325	on: Horn T59 S SG reading (dBm) 14.4 16.2 13.8	Ant. Pol. (H/V) V H	and 8ft SMA Cab Cable Loss (dB) 0.95 0.95	Antenna Gain (dBi) 8.27 8.27 8.27 8.23	(dBm) 21.76 23.47 21.03	(dBm) 30.0 30.0 30.0	(dB) -8.2 -6.5 -9.0	Notes

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EVDO-Rev A, 1700MHz BC15

ompany:								
oject #:		15U20165						
ate:		07/06/15						
est Engi		T Wang						
onfigura		EUT only						
ode:		CDMA Rev A 1	700MH 2					
			G SMA Cables and 8ft SMA Cab	ble		1 1		
				ole Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ubstituti f	on: Horn T59 S SG reading	Ant. Pol.	and 8ft SMA Cat Cable Loss	Antenna Gain				Notes
f GHz Low Ch 1.711	on: Horn T59 S SG reading (dBm) 14.2	aubstitution, a Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.27	(dBm) 21.52	(dBm) 30.0	(dB) -8.5	Notes
f GHz	on: Horn T59 S SG reading (dBm)	ubstitution, a Ant. Pol. (H/V)	and 8ft SMA Cab Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.711 1.711	on: Horn T59 S SG reading (dBm) 14.2	aubstitution, a Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.27	(dBm) 21.52	(dBm) 30.0	(dB) -8.5	Notes
f GHz Low Ch 1.711	on: Horn T59 S SG reading (dBm) 14.2	aubstitution, a Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 8.27	(dBm) 21.52	(dBm) 30.0	(dB) -8.5	Notes
f GHz ow Ch 1.711 1.711 Mid Ch	on: Horn T59 S SG reading (dBm) 14.2 16.2	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.95 0.95	Antenna Gain (dBi) 8.27 8.27	(dBm) 21.52 23.49	(dBm) 30.0 30.0	(dB) -8.5 -6.5	Notes
f GHz Low Ch 1.711 1.711 Mid Ch 1.733 1.733	on: Horn T59 S SG reading (dBm) 14.2 16.2 14.4	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.95 0.95	Antenna Gain (dBi) 8.27 8.27 8.27 8.23	(dBm) 21.52 23.49 21.63	(dBm) 30.0 30.0 30.0	(dB) -8.5 -6.5 -8.4	Notes
f GHz Low Ch 1.711 1.711 Mid Ch 1.733	on: Horn T59 S SG reading (dBm) 14.2 16.2 14.4	Ant. Pol. (H/V) V H	Cable Loss (dB) 0.95 0.95	Antenna Gain (dBi) 8.27 8.27 8.27 8.23	(dBm) 21.52 23.49 21.63	(dBm) 30.0 30.0 30.0	(dB) -8.5 -6.5 -8.4	Notes

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10.3.6. UMTS

UMTS REL 99, 850MHz BAND 5

Company: Project #: Date: Test Engi Configura Mode:	neer: ition:	15U20165 06/05/15 K. Huynh EUT Only WCDMA Rel S	99 850MHz							
Test Equipment: Receiving: Sunol T408, and Chamber E Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable										
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch	7 22 6	V	0.6	0.0	22.93	25.08	38.45	40.60	-15.5	
826.40	23.6		0.6	0.0	12.11	14.26	38.45	40.60	-26.3	
	12.7	H					1	1		
826.40 826.40		H								
826.40		H	0.6	0.0	22.76	24.91	38.45	40.60	-15.7	
826.40 826.40 Mid Ch	12.7		0.6 0.6	0.0 0.0	22.76 12.13	24.91 14.28	38.45 38.45	40.60 40.60	-15.7 -26.3	
826.40 826.40 Mid Ch 836.60 836.60	12.7 23.4	v								
826.40 826.40 Mid Ch 836.60	12.7 23.4	v								

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UMTS HSDPA, 850MHz BAND 5

Company:	:									
Project #:		15U20165								
Date:		06/06/15								
Test Engi	ineer:	F. Guarnero								
Configura		EUT Only								
/lode:		WCDMA HSD	PA 850MHz							
	g: Sunol T407, ion: Dipole S/N			e						
		Ant. Pol.	Cable Loss	Antenna Gain	ERP	EIRP	ERP Limit	EIRP Limit	Margin	Notes
f MHz	SG reading (dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	
MHz Low Ch	(dBm)	(H/V)	(dB)	(dBd)						
MHz Low Ch 826.40	(dBm) 22.6	(H/V) V	(dB) 0.6	(dBd) 0.0	22.02	24.17	38.45	40.60	-16.4	
MHz Low Ch	(dBm)	(H/V)	(dB)	(dBd)						
MHz Low Ch 826.40 826.40	(dBm) 22.6	(H/V) V	(dB) 0.6	(dBd) 0.0	22.02	24.17	38.45	40.60	-16.4	
MHz Low Ch 826.40	(dBm) 22.6	(H/V) V	(dB) 0.6	(dBd) 0.0	22.02	24.17	38.45	40.60	-16.4	
MHz Low Ch 826.40 826.40 Mid Ch	(dBm) 22.6 11.9	(H/V) V H	(dB) 0.6 0.6	(dBd) 0.0 0.0	22.02	24.17 13.46	38.45 38.45	40.60 40.60	-16.4 -27.1	
MHz Low Ch 826.40 826.40 Mid Ch 836.60 836.60	(dBm) 22.6 11.9 22.5	(H/V) V H V	(dB) 0.6 0.6 0.6	(dBd) 0.0 0.0	22.02 11.31 21.86	24.17 13.46 24.01	38.45 38.45 38.45 38.45	40.60 40.60 40.60	-16.4 -27.1 -16.6	
MHz Low Ch 826.40 826.40 Mid Ch 836.60	(dBm) 22.6 11.9 22.5	(H/V) V H V	(dB) 0.6 0.6 0.6	(dBd) 0.0 0.0	22.02 11.31 21.86	24.17 13.46 24.01	38.45 38.45 38.45 38.45	40.60 40.60 40.60	-16.4 -27.1 -16.6	

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UMTS REL 99, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

 Company:

 Project #:
 15U20165

 Date:
 06/05/15

 Test Engineer:
 K. Huynh

 Configuration:
 EUT Only

 Mode:
 WCDMA Rel 99 1900MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.852	16.0	V	0.98	8.05	23.10	33.0	-9.9	
1.852	19.5	Н	0.98	8.05	26.58	33.0	-6.4	
Mid Ch								
1.880	16.7	V	0.98	8.03	23.76	33.0	-9.2	
1.880	19.1	Н	0.98	8.03	26.15	33.0	-6.8	
High Ch								
1.908	16.2	V	0.98	8.04	23.31	33.0	-9.7	
1.908	19.3	Н	0.98	8.04	26.39	33.0	-6.6	

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UMTS HSDPA, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber D

Company: Project #: 15U20165 Date: 06/06/15 Test Engineer: F. Guarnero Configuration: EUT Only Mode: WCDMA HSDPA 1900MHz

Test Equipment:

Receiving: Horn T344 and Chamber D SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch				-				
1.852	15.2	V	0.98	8.05	22.30	33.0	-10.7	
1.852	18.7	Н	0.98	8.05	25.78	33.0	-7.2	
Mid Ch								
1.880	15.8	V	0.98	8.03	22.85	33.0	-10.2	
1.880	18.3	Н	0.98	8.03	25.35	33.0	-7.6	
ligh Ch								
1.908	15.3	V	0.98	8.04	22.41	33.0	-10.6	
1.908	18.2	Н	0.98	8.04	25.31	33.0	-7.7	

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UMTS REL 99, 1700MHz BAND 4

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

Company: Project #: 15U20165 Date: 06/05/15 Test Engineer: K. Huynh Configuration: EUT Only Mode: WCDMA Rel 99 1700MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.712	13.4	V	0.95	8.27	20.70	30.0	-9.3	
1.712	16.9	Н	0.95	8.27	24.26	30.0	-5.7	
Mid Ch								
1.733	13.7	V	0.95	8.23	20.94	30.0	-9.1	
1.733	16.9	Н	0.95	8.23	24.21	30.0	-5.8	
High Ch								
1.753	13.7	V	0.95	8.18	20.89	30.0	-9.1	
1.753	16.6	Н	0.95	8.18	23.86	30.0	-6.1	

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UMTS HSDPA, 1700MHz BAND 4

High Frequency Substitution Measurement UL Fremont Radiated Chamber D

Company: Project #: 15U20165 Date: 06/06/15 Test Engineer: K. Huynh Configuration: EUT Only Mode: WCDMA HSDPA 1700MHz

Test Equipment:

Receiving: Horn T344 and Chamber D SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch					<u>ب</u>	<u> </u>		
1.712	12.6	V	0.95	8.27	19.87	30.0	-10.1	
1.712	16.2	Н	0.95	8.27	23.56	30.0	-6.4	
Mid Ch					ļ			
1.733	12.8	V	0.95	8.23	20.04	30.0	-10.0	
1.733	16.1	Н	0.95	8.23	23.39	30.0	-6.6	
ligh Ch	•		-		ļ			
1.753	12.8	V	0.95	8.18	20.00	30.0	-10.0	
1.753	15.9	Н	0.95	8.18	23.16	30.0	-6.8	

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10.4. RADIATED POWER (ERP & EIRP), MODEL: A1688 (UAT)

10.4.1. GSM

Part 22 / 850MHz Band

Band	Mode	Channel	f (MHz)	ERP (Average)
Dariu	Nidde	Channel		dBm	mW
		128	824.2	24.72	296.48
	GPRS	190	836.6	24.86	306.20
CELL		251	848.8	25.54	358.10
UELL		128	824.2	22.06	160.69
	EGPRS	190	836.6	21.74	149.28
		251	848.8	22.65	184.08

Part 24 / 1900MHz Band

Band	Mode	Channel	f (MHz)	EIRP	(Average)
Dariu	woue	Channel		dBm	mW
		512	1850.2	24.78	300.61
	GPRS	661	1880.0	26.02	399.94
PCS		810	1909.8	26.05	402.72
FUS		512	1850.2	22.96	197.70
	EGPRS	661	1880.0	23.02	200.45
		810	1909.8	22.75	188.36

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10.4.2. CDMA2000

Part 90 800MHz Band

Band	Mada	Mode Channel f (MHz)		ERP (Average)		
Danu	Widde	Channel		dBm	mW	
		450	817.3	17.01	50.23	
	BC10, 1xRTT	560	820.0	16.79	47.75	
CELL		670	822.8	17.26	53.21	
ULL		450	817.3	16.71	46.88	
	BC10, EVDO A	560	820.0	16.76	47.42	
		670	822.8	17.22	52.72	

Part 22 / 850MHz Band

Band	Mode	Mode Channel f (MHz)		ERP (Average)		
Danu	NIUGE		1 (IVII 12)	dBm	mW	
		1013	824.7	16.36	43.25	
	BC 0, 1xRTT	384	836.5	16.71	46.88	
CELL		777	848.3	16.67	46.45	
ULL	BC 0, EVDO Rev	1013	824.7	16.43	43.95	
		384	836.5	16.78	47.64	
	A	777	848.3	16.85	48.42	

Part 24 / 1900MHz Band

Band	Mode	Mode Channel f (MHz)		EIRP (Average)		
Danu	Mode Channel		1 (IVII 12)	dBm	mW	
		25	1851.3	20.47	111.43	
	BC1, 1xRTT	600	1880.0	20.23	105.44	
PCS		1175	1908.8	20.12	102.80	
FCS	BC1, EVDO REV	25	1851.3	20.49	111.94	
		600	1880.0	20.32	107.65	
	A	1175	1908.8	20.17	103.99	

Part 27 / 1700MHz Band

Band	Mode	Mode Channel f (MHz)		EIRP (Average)		
Danu	NIOUE			dBm	mW	
		25	1711.3	18.41	69.34	
	BC15, 1xRTT	450	1732.5	17.91	61.80	
AWS		875	1753.8	18.24	66.68	
AWS	BC15, EVDO,	25	1711.3	18.47	70.31	
	REV A	450	1732.5	18.03	63.53	
	NLV A	875	1753.8	18.25	66.83	

10.4.3. UMTS

Part 22 / 850MHz Band

Band	Mode	Mode Channel f (MHz)		ERP (Average)		
Danu			dBm	mW		
		4132	826.4	16.22	41.88	
	UMTS,REL 99	4183	836.6	16.26	42.27	
CELL		4233	846.6	16.61	45.81	
CELL		4132	826.4	15.54	35.81	
	UMTS, HSDPA	4183	836.6	15.56	35.97	
		4233	846.6	15.94	39.26	

Part 24 / 1900MHz Band

Band	Mode	Mode Channel f (MHz)		EIRP (Average)		
Danu	Channel		1 (IVII 12)	dBm	mW	
		9662	1852.4	19.62	91.62	
	UMTS,REL 99	9800	1880.0	19.65	92.26	
PCS		9938	1907.6	20.44	110.66	
FCS		9662	1852.4	18.78	75.51	
	UMTS, HSDPA	9800	1880.0	18.62	72.78	
		9938	1907.6	19.36	86.30	

Part 27 / 1700MHz Band

Band	Mode	Mode Channel f (MHz)		EIRP (Average)		
Danu	WOUE	Channel	1 (IVII 12)	dBm	mW	
		1537	1712.4	19.06	80.54	
	UMTS,REL 99	1638	1732.6	18.88	77.27	
PCS		1738	1752.5	18.96	78.70	
FUS		1537	1712.4	18.46	70.15	
	UMTS, HSDPA	1638	1732.6	18.06	63.97	
		1738	1752.5	18.36	68.55	

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10.4.4. GSM

GPRS, 850MHz BAND 5

High Frequency Substitution Measurement UL Fremont Radiated Chamber E Company: Project #: 15U20165 Date: 06/05/15 Test Engineer: F. Guarnero Configuration: EUT Only Mode: GSM 850MHz Test Equipment: Receiving: Sunol T408, and Chamber E Cable Substitution: Dipole 416, 6ft SMA Cable SG reading Ant. Pol. ERP EIRP ERP Limit EIRP Limit Notes Cable Loss Antenna Gain Margin f MHz (dBm) (H/V) (dB) (dBd) (dBm) (dBm) (dBm) (dBm) (dB) Low Ch 25.3 V 0.6 0.0 24.72 26.87 38.45 40.60 -13.7 824.20 824.20 16.9 Η 0.6 0.0 16.28 18.43 38.45 40.60 -22.2 Mid Ch 40.60 836.60 25.5 V 0.6 0.0 24.86 27.01 38.45 -13.6 836.60 16.4 Η 0.6 0.0 15.80 17.95 38.45 40.60 -22.7 High Ch 848.80 26.2 V 0.6 0.0 25.54 27.69 38.45 40.60 -12.9 848.80 16.7 Η 0.6 0.0 16.10 18.25 38.45 40.60 -22.4 Rev. 06.18.14

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EGPRS, 850MHz BAND 5

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

 Company:

 Project #:
 15U20165

 Date:
 06/05/15

 Test Engineer:
 K. Huynh

 Configuration:
 EUT Only

 Mode:
 EDGE 850MHz

Test Equipment:

Receiving: Sunol T408, and Chamber E Cable Substitution: Dipole 416, 6ft SMA Cable

Law Ch		/) (dB)	(dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	
Low Ch									
824.20 2	22.7 V	0.6	0.0	22.06	24.21	38.45	40.60	-16.4	
824.20 1	11.6 H	0.6	0.0	10.95	13.10	38.45	40.60	-27.5	
Mid Ch									
836.60 2	22.4 V	0.6	0.0	21.74	23.89	38.45	40.60	-16.7	
836.60 1	10.3 H	0.6	0.0	9.68	11.83	38.45	40.60	- 28.8	
High Ch									
848.80 2	23.3 V	0.6	0.0	22.65	24.80	38.45	40.60	-15.8	
848.80 1	10.3 H	0.6	0.0	9.72	11.87	38.45	40.60	-28.7	

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GPRS, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

Company:	
Project #:	15U20165
Date:	06/05/15
Test Engineer:	K. Huynh
Configuration:	EUT Only
Mode:	GSM 1900MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 6ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch								
1.851	15.0	V	0.98	8.05	22.09	33.0	-10.9	
1.851	17.7	Н	0.98	8.05	24.78	33.0	-8.2	
Mid Ch								
1.880	14.7	V	0.98	8.03	21.79	33.0	-11.2	
1.880	19.0	Н	0.98	8.03	26.02	33.0	-7.0	
ligh Ch								
1.910	14.6	V	0.98	8.05	21.66	33.0	-11.3	
1.910	19.0	Н	0.98	8.05	26.05	33.0	-6.9	

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EGPRS, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

Company: Project #: 15U20165 Date: 06/05/15 Test Engineer: K. Huynh Configuration: EUT Only Mode: EDGE 1900MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 6ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch						. ,		
1.851	12.8	V	0.98	8.05	19.84	33.0	-13.2	
1.851	15.9	Н	0.98	8.05	22.96	33.0	-10.0	
Mid Ch								
1.880	12.1	V	0.98	8.03	19.16	33.0	-13.8	
1.880	16.0	Н	0.98	8.03	23.02	33.0	-10.0	
High Ch								
1.910	11.9	V	0.98	8.05	18.96	33.0	-14.0	
1.910	15.7	Н	0.98	8.05	22.75	33.0	-10.2	
1.910 ev. 06.18.1	Å	Н	0.98	8.05	22.15	33.0	-10.2	<u>I</u>

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10.4.5. CDMA2000

CDMA2000 1xRTT, 800MHz BC10

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:	
Project #:	15U20164
Date:	06/29/15
Test Engineer:	T Wang
Configuration:	EUT only
Mode:	CDMA 1XRTT 800MHz

Test Equipment:

Receiving: Sunol T899, and Chamber G Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
817.25	17.63	V	0.6	0.0	17.01	50.00	-33.0	
817.25	3.12	Н	0.6	0.0	2.50	50.00	-47.5	
Mid Ch								
820.00	17.41	V	0.6	0.0	16.79	50.00	-33.2	
820.00	3.07	Н	0.6	0.0	2.45	50.00	-47.5	
High Ch								
822.75	17.88	V	0.6	0.0	17.26	50.00	-32.7	
822.75	2.81	Н	0.6	0.0	2.19	50.00	-47.8	

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EVDO-Rev A, 800MHz BC10

High Frequency Substitution Measurement UL Fremont Radiated Chamber G

Company: Project #: 15U20165 Date: 07/06/15 Test Engineer: T Wang Configuration: EUT only Mode: CDMA Rev A 800MHz

Test Equipment:

Receiving: Sunol T899, and Chamber G Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch	(42.11)	()	(42)	(424)	(42.11)	(42.11)	(42)	
817.25	17.33	V	0.6	0.0	16.71	50.00	-33.3	
817.25	3.13	Н	0.6	0.0	2.51	50.00	-47.5	
Mid Ch								
820.00	17.38	V	0.6	0.0	16.76	50.00	-33.2	
820.00	3.20	Н	0.6	0.0	2.58	50.00	-47.4	
High Ch								
822.75	17.84	V	0.6	0.0	17.22	50.00	-32.8	
822.75	3.28	Н	0.6	0.0	2.66	50.00	-47.3	

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CDMA2000 1xRTT, 850MHz BC0

company:										
roject #:		15U20164								
Date:		06/29/15								
est Engi		T Wang								
onfigura		EUT only								
lode:		CDMA 1XRTT	850MHz							
-	on: Dipole S/N		er G Cable 8ft SMA Cable	e						
-	on: Dipole S/N	l: 00022117,	8ft SMA Cabl	e Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
f MHz	on: Dipole S/N SG reading (dBm)	l: 00022117, Ant. Pol.	8ft SMA Cable Cable Loss	Antenna Gain		(dBm)	1		-	Notes
f MHz Low Ch 824.70	on: Dipole S/N SG reading (dBm) 17.0	l: 00022117, Ant. Pol. (H/V) V	8ft SMA Cable Cable Loss (dB)	Antenna Gain (dBd) _{0.0}	(dBm) 16.36	(dBm) 18.51	(dBm) 38.45	(dBm) 40.60	(dB) -22.1	Notes
f MHz Low Ch	on: Dipole S/N SG reading (dBm)	l: 00022117, Ant. Pol. (H/V)	8ft SMA Cable Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	Notes
f MHz Low Ch 824.70 824.70	on: Dipole S/N SG reading (dBm) 17.0	l: 00022117, Ant. Pol. (H/V) V	8ft SMA Cable Cable Loss (dB)	Antenna Gain (dBd) _{0.0}	(dBm) 16.36	(dBm) 18.51	(dBm) 38.45	(dBm) 40.60	(dB) -22.1	Notes
f MHz Low Ch 824.70	on: Dipole S/N SG reading (dBm) 17.0	l: 00022117, Ant. Pol. (H/V) V	8ft SMA Cable Cable Loss (dB)	Antenna Gain (dBd) _{0.0}	(dBm) 16.36	(dBm) 18.51	(dBm) 38.45	(dBm) 40.60	(dB) -22.1	Notes
f MHz Low Ch 824.70 824.70 Mid Ch	SG reading (dBm) 17.0 -0.9	l: 00022117, Ant. Pol. (H/V) V H	8ft SMA Cable Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0	(dBm) 16.36 -1.47	(dBm) 18.51 0.68	(dBm) 38.45 38.45	(dBm) 40.60 40.60	(dB) -22.1 -39.9	Notes
f MHz Low Ch 824.70 824.70 Mid Ch 836.52 836.52	SG reading (dBm) 17.0 -0.9 17.3	l: 00022117, Ant. Pol. (H/V) V H	8ft SMA Cable Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 16.36 -1.47 16.71	(dBm) 18.51 0.68 18.86	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -22.1 -39.9 -21.7	Notes
f MHz Low Ch 824.70 824.70 Mid Ch 836.52	SG reading (dBm) 17.0 -0.9 17.3	l: 00022117, Ant. Pol. (H/V) V H	8ft SMA Cable Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 16.36 -1.47 16.71	(dBm) 18.51 0.68 18.86	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -22.1 -39.9 -21.7	Notes

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EVDO-Rev A, 850MHz BC0

DATE: JULY 24, 2015
FCC ID: BCG-E2946A

High Frequency Substitution Measurement	
UL Fremont Radiated Chamber G	

Company:

 Project #:
 15U20165

 Date:
 07/06/15

 Test Engineer:
 T Wang

 Configuration:
 EUT only

 Mode:
 CDMA Rev A 850MHz

Test Equipment:

Receiving: Sunol T899, and Chamber G Cable Substitution: Dipole S/N: 00022117, 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
.ow Ch										
824.70	17.1	V	0.6	0.0	16.43	18.58	38.45	40.60	-22.0	
824.70	-1.0	Н	0.6	0.0	-1.65	0.50	38.45	40.60	-40.1	
Mid Ch										
836.52	17.4	V	0.6	0.0	16.78	18.93	38.45	40.60	-21.7	
836.52	-0.4	Н	0.6	0.0	-1.04	1.11	38.45	40.60	-39.5	
ligh Ch										
848.31	17.5	V	0.6	0.0	16.85	19.00	38.45	40.60	-21.6	
848.31	-0.5	Н	0.6	0.0	-1.13	1.02	38.45	40.60	-39.6	

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CDMA2000 1xRTT, 1900MHz BC1

High Frequency Substitution Measurement UL Fremont Radiated Chamber G Company: Project #: 15U20164 Date: 06/29/15 Test Engineer: T Wang Configuration: EUT only Mode: CDMA 1XRTT 1900MHz Test Equipment: Receiving: Horn T862 and Chamber G SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable Ant. Pol. SG reading Cable Loss EIRP Limit f Antenna Gain Margin Notes (dBm) (H/V) (dBm) (dBm) (dB) GHz (dB)(dBi) Low Ch V 0.98 8.05 -12.5 1.8510 13.4 20.47 33.0 1.8510 9.3 Н 0.98 8.05 16.36 33.0 -16.6 Mid Ch 13.2 0.98 8.03 20.23 33.0 -12.8 1.880 V 1.880 9.6 Η 0.98 8.03 16.65 33.0 -16.4 High Ch V 0.98 8.05 20.12 33.0 -12.9 1.9088 13.1 1.9088 16.54 9.5 0.98 8.05 33.0 -16.5 Η Rev. 06.18.14

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EVDO-Rev A, 1900MHz BC1

ompany	:							
roject #:		15U20165						
)ate:		07/07/15						
est Engi		T Wang						
Configura		EUT only						
lode:		CDMA Rev A 1	900MHz					
	g: Horn T862 an Ion: Horn T59 S		and 8ft SMA Cables	ble				
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
GHz	SG reading (dBm)	Ant. Pol. (H/V)		Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
-	-							Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.851 1.851	(dBm) 13.4	(H/V) V	(dB)	(dBi) 8.05	(dBm) 20.49	(dBm) 33.0	(dB) -12.5	Notes
GHz Low Ch 1.851 1.851 Mid Ch	(dBm) 13.4 9.3	(H/V) V H	(dB) 0.98 0.98	(dBi) 8.05 8.05	(dBm) 20.49 16.37	(dBm) 33.0 33.0	(dB) -12.5 -16.6	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880	(dBm) 13.4 9.3 13.3	(H/V) V H	(dB) 0.98 0.98 0.98	(dBi) 8.05 8.05 8.05 8.03	(dBm) 20.49 16.37 20.32	(dBm) 33.0 33.0 33.0	(dB) -12.5 -16.6 -12.7	Notes
GHz Low Ch 1.851 1.851 Mid Ch	(dBm) 13.4 9.3	(H/V) V H	(dB) 0.98 0.98	(dBi) 8.05 8.05	(dBm) 20.49 16.37	(dBm) 33.0 33.0	(dB) -12.5 -16.6	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880 1.880 High Ch	(dBm) 13.4 9.3 13.3 9.3	(H/V) V H V H	(dB) 0.98 0.98 0.98 0.98	(dBi) 8.05 8.05 8.03 8.03	(dBm) 20.49 16.37 20.32 16.34	(dBm) 33.0 33.0 33.0 33.0 33.0	(dB) -12.5 -16.6 -12.7 -16.7	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880 1.880	(dBm) 13.4 9.3 13.3	(H/V) V H	(dB) 0.98 0.98 0.98	(dBi) 8.05 8.05 8.05 8.03	(dBm) 20.49 16.37 20.32	(dBm) 33.0 33.0 33.0	(dB) -12.5 -16.6 -12.7	Notes

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CDMA2000 1xRTT, 1700MHz BC15

High Frequency Substitution Measurement UL Fremont Radiated Chamber G

 Company:

 Project #:
 15U20163

 Date:
 06/27/15

 Test Engineer:
 T Wang

 Configuration:
 EUT only

 Mode:
 CDMA 1XRTT 1700MHz

Test Equipment:

Receiving: Horn T862 and Chamber G SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f SHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.7113	6.5	V	0.95	8.27	13.79	30.0	-16.2	
1.7113	11.1	Н	0.95	8.27	18.41	30.0	-11.6	
Mid Ch								
1.7325	5.6	V	0.95	8.23	12.91	30.0	-17.1	
1.7325	10.6	Н	0.95	8.23	17.91	30.0	-12.1	
High Ch								
1.7538	6.3	V	0.95	8.18	13.48	30.0	-16.5	
1.7538	11.0	Η	0.95	8.18	18.24	30.0	-11.8	

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EVDO-Rev A, 1700MHz BC15

High Frequency Substitution Measurement UL Fremont Radiated Chamber G

 Company:

 Project #:
 15U20165

 Date:
 07/06/15

 Test Engineer:
 T Wang

 Configuration:
 EUT only

 Mode:
 CDMA Rev A 1700MHz

Test Equipment:

Receiving: Horn T862 and Chamber G SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch				-				
1.711	6.5	V	0.95	8.27	13.80	30.0	-16.2	
1.711	11.2	Н	0.95	8.27	18.47	30.0	-11.5	
Mid Ch								
1.733	5.7	V	0.95	8.23	12.93	30.0	-17.1	
1.733	10.8	Н	0.95	8.23	18.03	30.0	-12.0	
ligh Ch								
1.754	6.3	V	0.95	8.18	13.56	30.0	-16.4	
1.754	11.0	Н	0.95	8.18	18.25	30.0	-11.7	

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10.4.6. UMTS

UMTS REL 99, 850MHz BAND 5

Company		451100404								
Project #:		15U20164								
Date:		06/05/15								
Test Engi		K. Huynh								
Configura		EUT Only								
Node:		WCDMA Rel 9	19 850MHz							
	i <u>pment:</u> g: Sunol T408, ion: Dipole T41									
	•						EDD Limit	EIRP Limit	Margin	Notes
f	SG reading	Ant Pol	Cable Loss	Antenna Gain	FRP					
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	(dBm)	(dBm)	(dB)	Notes
	-		1				1			Notes
MHz Low Ch 826.40	(dBm) 16.8	(H/V) V	(dB) 0.6	(dBd) 0.0	(dBm)	(dBm) 18.37	(dBm) 38.45	(dBm) 40.60	(dB) -22.2	indles
MHz Low Ch	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	ivoles
MHz Low Ch 826.40 826.40	(dBm) 16.8	(H/V) V	(dB) 0.6	(dBd) 0.0	(dBm)	(dBm) 18.37	(dBm) 38.45	(dBm) 40.60	(dB) -22.2	NOLES
MHz Low Ch 826.40 826.40 Mid Ch	(dBm) 16.8 -3.0	(H/V) V H	(dB)	(dBd) 0.0 0.0	(dBm) 16.22 -3.64	(dBm) 18.37 -1.49	(dBm) 38.45 38.45	(dBm) 40.60 40.60	(dB) -22.2 -42.1	
MHz Low Ch 826.40 826.40	(dBm) 16.8	(H/V) V	(dB) 0.6	(dBd) 0.0	(dBm)	(dBm) 18.37	(dBm) 38.45	(dBm) 40.60	(dB) -22.2	
MHz Low Ch 826.40 826.40 Mid Ch 836.60 836.60	(dBm) 16.8 -3.0 	(H/V) V H V	(dB) 0.6 0.6 0.6	(dBd) 0.0 0.0 0.0	(dBm) 16.22 -3.64 16.26	(dBm) 18.37 -1.49 18.41	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -22.2 -42.1 -22.2	
MHz Low Ch 826.40 826.40 Mid Ch 836.60	(dBm) 16.8 -3.0 	(H/V) V H V	(dB) 0.6 0.6 0.6	(dBd) 0.0 0.0 0.0	(dBm) 16.22 -3.64 16.26	(dBm) 18.37 -1.49 18.41	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -22.2 -42.1 -22.2	

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UMTS HSDPA, 850MHz BAND 5

Company:	:									
Project #:		15U20164								
Date:		06/06/15								
lest Engi	ineer:	F. Guarnero								
onfigura	ation:	EUT only								
lode:		WCDMA HSD	PA 850MHz							
	g: Sunol T407, ion: Dipole S/N			e						
				1						
f	SG reading		1	Antenna Gain		EIRP		EIRP Limit	Margin	Notes
MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
MHz Low Ch	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	Notes
MHz Low Ch 826.40	(dBm)	(H/V) V	(dB) 0.6	(dBd) 0.0	(dBm)	(dBm) 17.69	(dBm) 38.45	(dBm) 40.60	(dB) -22.9	Notes
MHz Low Ch	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	Notes
MHz Low Ch 826.40 826.40 Mid Ch	(dBm) 16.2 -3.9	(H/V) V H	(dB) 0.6 0.6	(dBd) 0.0 0.0	(dBm) 15.54 4.49	(dBm) 17.69 -2.34	(dBm) 38.45 38.45	(dBm) 40.60 40.60	(dB) -22.9	Notes
MHz Low Ch 826.40 826.40 Mid Ch 836.60	(dBm) 16.2 -3.9 	(H/V) V H	(dB) 0.6 0.6 0.6	(dBd) 0.0 0.0	(dBm) 15.54 -4.49 15.56	(dBm) 17.69 -2.34 17.71	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -22.9 -42.9 -22.9	Notes
MHz Low Ch 826.40 826.40 Mid Ch	(dBm) 16.2 -3.9	(H/V) V H	(dB) 0.6 0.6	(dBd) 0.0 0.0	(dBm) 15.54 4.49	(dBm) 17.69 -2.34	(dBm) 38.45 38.45	(dBm) 40.60 40.60	(dB) -22.9 -42.9	Notes
MHz Low Ch 826.40 826.40 Mid Ch 836.60 836.60	(dBm) 16.2 -3.9 	(H/V) V H	(dB) 0.6 0.6 0.6	(dBd) 0.0 0.0	(dBm) 15.54 -4.49 15.56	(dBm) 17.69 -2.34 17.71	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -22.9 -42.9 -22.9	Notes
MHz Low Ch 826.40 826.40 Mid Ch 836.60	(dBm) 16.2 -3.9 	(H/V) V H	(dB) 0.6 0.6 0.6	(dBd) 0.0 0.0	(dBm) 15.54 -4.49 15.56	(dBm) 17.69 -2.34 17.71	(dBm) 38.45 38.45 38.45	(dBm) 40.60 40.60 40.60	(dB) -22.9 -42.9 -22.9	Notes

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UMTS REL 99, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

 Company:

 Project #:
 15U20165

 Date:
 06/05/15

 Test Engineer:
 K. Huynh

 Configuration:
 EUT Only

 Mode:
 WCDMA Rel 99 1900MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 6ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.852	10.0	V	0.98	8.05	17.10	33.0	-15.9	
1.852	12.6	Н	0.98	8.05	19.62	33.0	-13.4	
Mid Ch								
1.880	10.4	V	0.98	8.03	17.42	33.0	-15.6	
1.880	12.6	Н	0.98	8.03	19.65	33.0	-13.4	
High Ch								
1.908	10.8	V	0.98	8.04	17.86	33.0	-15.1	
1.908	13.4	Н	0.98	8.04	20.44	33.0	-12.6	

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UMTS HSDPA, 1900MHz BAND 2

High Frequency Substitution Measurement UL Fremont Radiated Chamber D

 Company:

 Project #:
 15U20165

 Date:
 06/06/15

 Test Engineer:
 F. Guarnero

 Configuration:
 EUT Only

 Mode:
 WCDMA HSDPA 1900MHz

Test Equipment:

Receiving: Horn T344 and Chamber D SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch		<u> </u>						
1.852	9.0	V	0.98	8.05	16.09	33.0	-16.9	
1.852	11.7	Н	0.98	8.05	18.78	33.0	-14.2	
Mid Ch								
1.880	9.6	V	0.98	8.03	16.69	33.0	-16.3	
1.880	11.6	Н	0.98	8.03	18.62	33.0	-14.4	
ligh Ch								
1.908	9.9	V	0.98	8.04	16.96	33.0	-16.0	
1.908	12.3	Η	0.98	8.04	19.36	33.0	-13.6	

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UMTS REL 99, 1700MHz BAND 4

High Frequency Substitution Measurement UL Fremont Radiated Chamber E

Company: Project #: 15U20165 Date: 06/05/15 Test Engineer: K. Huynh Configuration: EUT Only Mode: WCDMA Rel 99 1700MHz

Test Equipment:

Receiving: Horn T346 and Chamber E SMA Cables Substitution: Horn T60 Substitution, and 6ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
_ow Ch								
1.712	8.2	V	0.95	8.27	15.47	30.0	-14.5	
1.712	11.7	Н	0.95	8.27	19.06	30.0	-10.9	
Mid Ch								
1.733	7.8	V	0.95	8.23	15.12	30.0	-14.9	
1.733	11.6	Н	0.95	8.23	18.88	30.0	-11.1	
High Ch								
1.753	8.2	V	0.95	8.18	15.46	30.0	-14.5	
1.753	11.7	Н	0.95	8.18	18.96	30.0	-11.0	

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UMTS HSDPA, 1700MHz BAND 4

High Frequency Substitution Measurement UL Fremont Radiated Chamber D

Company: Project #: 15U20165 Date: 06/06/15 Test Engineer: F. Guarnero Configuration: EUT Only Mode: WCDMA HSDPA 1700MHz

Test Equipment:

Receiving: Horn T344 and Chamber D SMA Cables Substitution: Horn T59 Substitution, and 8ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
ow Ch								
1.712	6.5	V	0.95	8.27	13.77	30.0	-16.2	
1.712	11.1	Н	0.95	8.27	18.46	30.0	-11.5	
Mid Ch								
1.733	7.2	V	0.95	8.23	14.44	30.0	-15.6	
1.733	10.8	Н	0.95	8.23	18.06	30.0	-11.9	
ligh Ch								
1.753	7.4	V	0.95	8.18	14.58	30.0	-15.4	
1.753	11.1	Н	0.95	8.18	18.36	30.0	-11.6	

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10.5. PEAK-TO-AVERAGE RATIO (MODEL: A1633)

In addition, when the transmitter power is measured in terms of average value, the peak-toaverage ratio of the power shall not exceed 13 dB.

Peak-To-Average Ratio:

		Couducted	Power (dBm)	Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
GSM850	GPRS	33.70	33.47	0.23
6310650	EGPRS	32.26	28.86	3.4
*Peak Reading = Av	verage Reading + P	eak-to-Average F	Ratio	<u>.</u>

		Couducted	Power (dBm)	Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
GSM1900	GPRS	30.69	30.45	0.24
G2W1900	EGPRS	31.53	27.99	3.54
*Peak Reading = Av	verage Reading + P	eak-to-Average F	Ratio	

		Couducted F	Power (dBm)	Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
CDMA2000 BC0	1xRTT	29.80	24.98	4.82
	EVDO A	30.57	24.93	5.64
*Peak Reading =	Average Reading +	Peak-to-Average F	Ratio	

		Couducted F	Power (dBm)	Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
CDMA2000 BC1	1xRTT	29.20	24.95	4.25
CDMA2000 BC1	EVDO A	30.26	24.97	5.29
*Peak Reading =	Average Reading +	Peak-to-Average F	Ratio	

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		Couducted F	Power (dBm)	Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
CDMA2000	1xRTT	29.56	24.98	4.58
BC15	EVDO A	29.94	24.98	4.96
*Peak Reading =	Average Reading +	Peak-to-Average I	Ratio	

		Couducted F	Power (dBm)	Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
CDMA2000	1xRTT	29.86	24.92	4.94
BC10	EVDO A	30.89	24.95	5.94
*Peak Reading =	Average Reading +	Peak-to-Average F	Ratio	-

		Couducted	Power (dBm)	Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
UMTS Band 5	REL99	28.17	24.95	3.22
OWI S Barlu S	HSDPA	27.58	24.14	3.44
*Peak Reading = Av	verage Reading + P	eak-to-Average	Ratio	

		Couducted	Power (dBm)	Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
UMTS Band 2	REL99	28.23	24.98	3.25
OWI'S Band 2	HSDPA	27.67	24.27	3.40
*Peak Reading = Av	verage Reading + P	eak-to-Average F	Ratio	

		Couducted Power (dBm)		Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
UMTS Band 4	REL99	28.11	24.94	3.17
	HSDPA	27.43	24.10	3.33
*Peak Reading = Average Reading + Peak-to-Average Ratio				

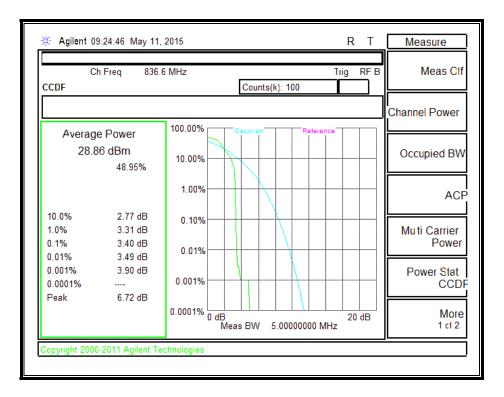
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GSM850, GPRS



GSM850, EGPRS

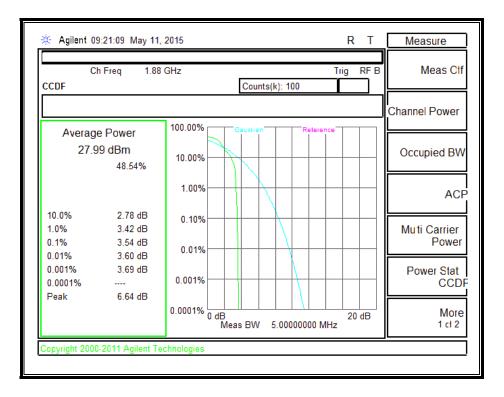


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GSM1900, GPRS

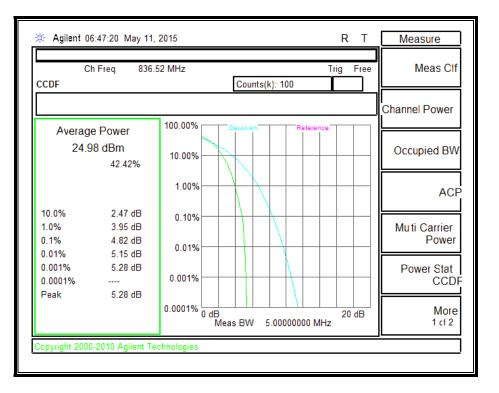


GSM1900, EGPRS

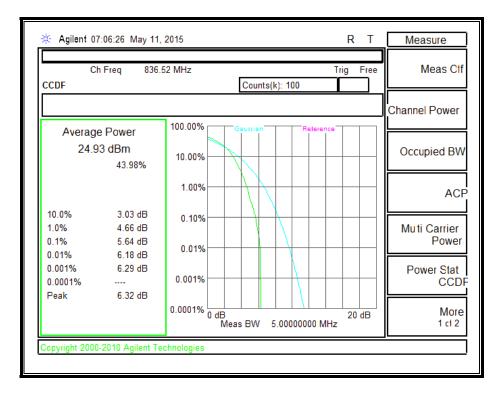


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BC 0, 1xRTT



BC 0, EVDO A

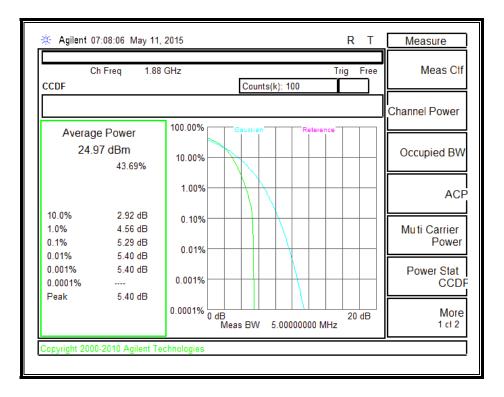


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BC 1, 1xRTT

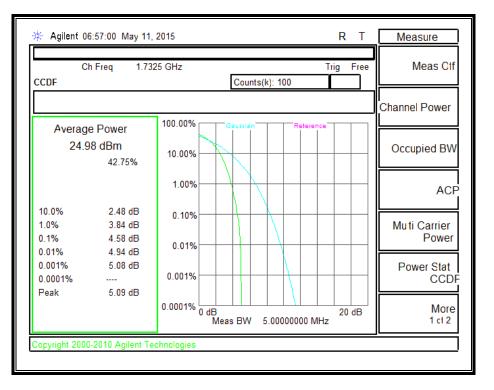


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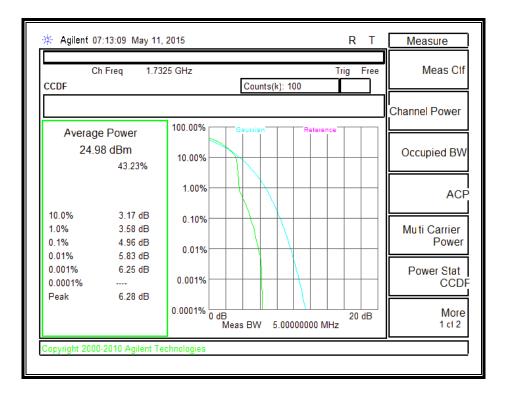


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BC15, 1xRTT

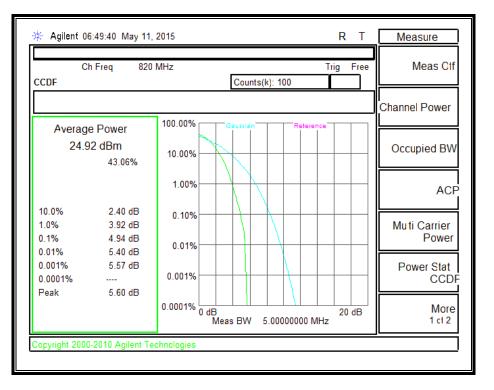


BC15, EVDO A

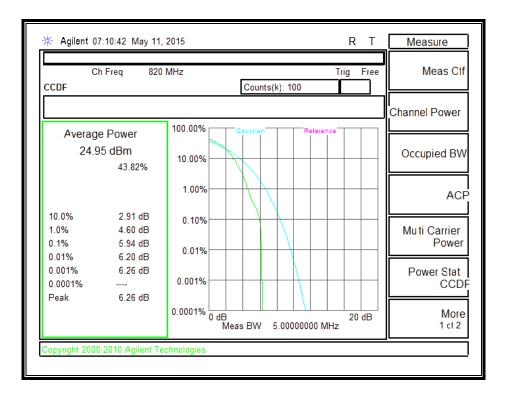


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BC10, 1xRTT

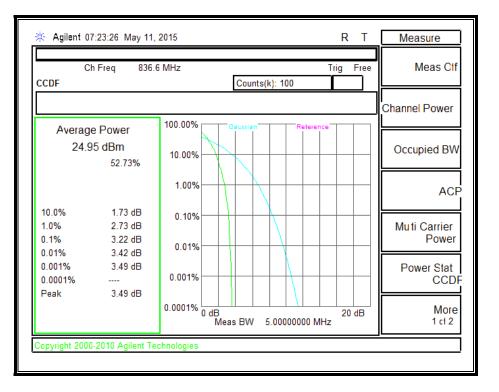


BC10, EVDO A

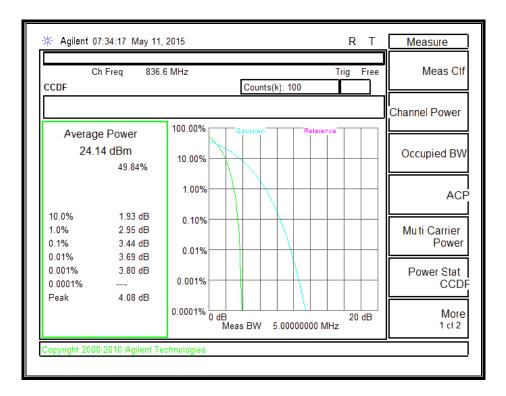


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UMTS850, REL 99 BAND 5

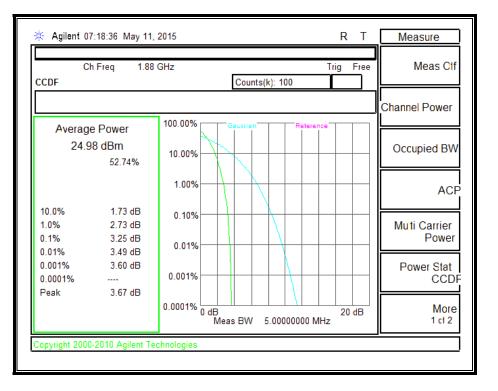


UMTS 850, HSDPA BAND 5

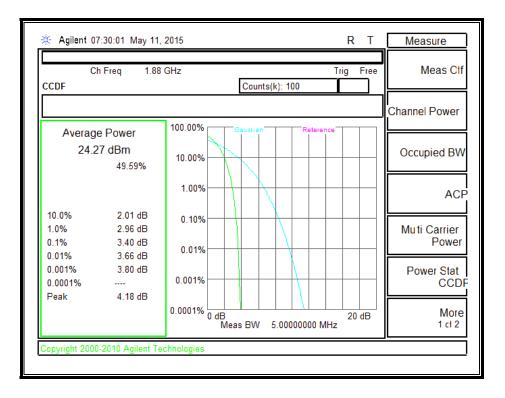


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UMTS 1900, REL99 BAND 2

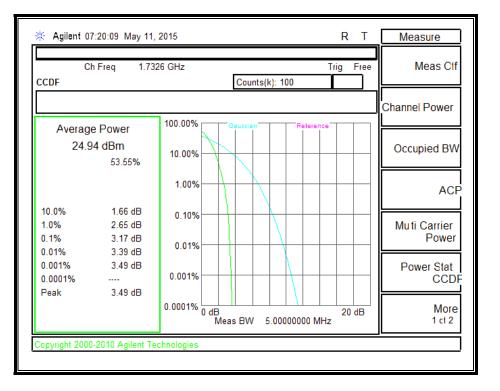


UMTS 1900, HSDPA BAND 2

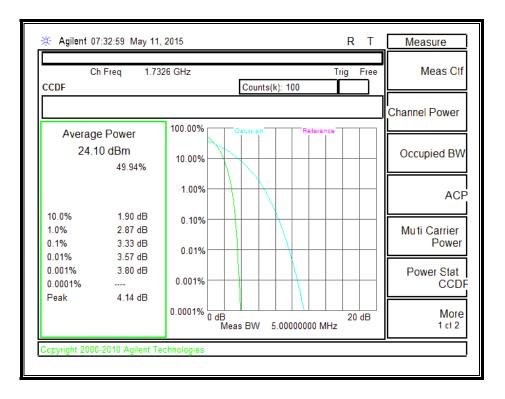


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UMTS 1700, REL99 BAND 4



UMTS 1700, HSDPA BAND 4



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10.6. PEAK-TO-AVERAGE RATIO (MODEL: A1688)

In addition, when the transmitter power is measured in terms of average value, the peak-toaverage ratio of the power shall not exceed 13 dB.

Peak-To-Average Ratio:

		Conducted Power (dBm)		Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
GSM850	GPRS	33.82	33.49	0.33
631030	EGPRS	32.09	28.82	3.27
*Peak Reading = Average Reading + Peak-to-Average Ratio				

		Conducted Power (dBm)		Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
0014000	GPRS	30.12	29.82	0.3
GSM1900	EGPRS	31.16	27.99	3.17
*Peak Reading = Average Reading + Peak-to-Average Ratio				

		Couducted Power (c		Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
CDMA2000 BC0	1xRTT	29.79	24.98	4.81
	EVDO A	30.37	24.97	5.4
*Peak Reading = Average Reading + Peak-to-Average Ratio				

		Conducted Power (dBm)		Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
CDMA2000 BC1	1xRTT	29.46	24.86	4.6
CDMA2000 BCT	EVDO A	28.43	24.87	3.56
*Peak Reading = Average Reading + Peak-to-Average Ratio				

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		Conducted Power (dBm)		Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
CDMA2000 BC15	1xRTT	29.46	24.92	4.54
	EVDO A	29.02	24.93	4.09
*Peak Reading = Average Reading + Peak-to-Average Ratio				

	Conducted Power (dBm)		Peak-to- Average Ratio	
Mode	Modulation	*Peak	Average	(PAR)
CDMA2000	1xRTT	29.36	24.97	4.39
BC10	EVDO A	30.44	25	5.44
*Peak Reading = Average Reading + Peak-to-Average Ratio				

		Conducted Power (dBm)		Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
UMTS Band 5	REL99	28.09	24.92	3.17
OWI S Banu S	HSDPA	27.16	23.99	3.17
*Peak Reading = Average Reading + Peak-to-Average Ratio				

		Conducted Power (dBm)		Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
	REL99	27.56	24.81	2.75
UMTS Band 2	HSDPA	27.15	24.02	3.13
*Peak Reading = Average Reading + Peak-to-Average Ratio				

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		Conducted Power (dBm)		Peak-to- Average Ratio
Mode	Modulation	*Peak	Average	(PAR)
	REL99	27.97	24.91	3.06
UMTS Band 4	HSDPA	26.9	24.11	2.79
*Peak Reading = Average Reading + Peak-to-Average Ratio				

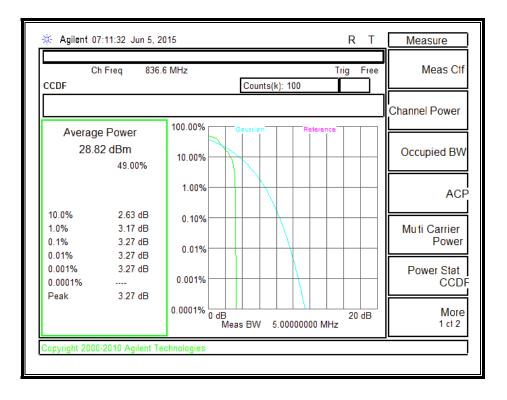
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GSM850, GPRS

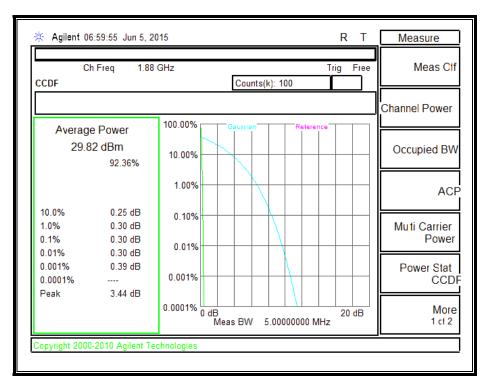


GSM850, EGPRS

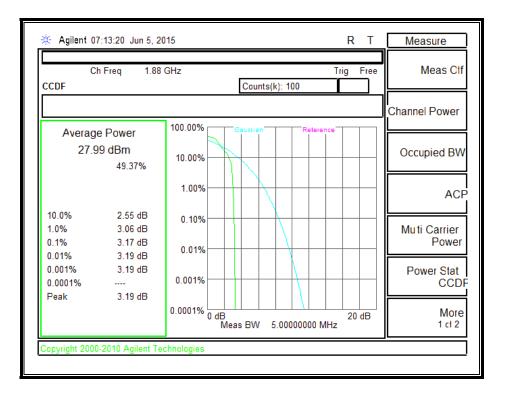


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GSM1900, GPRS

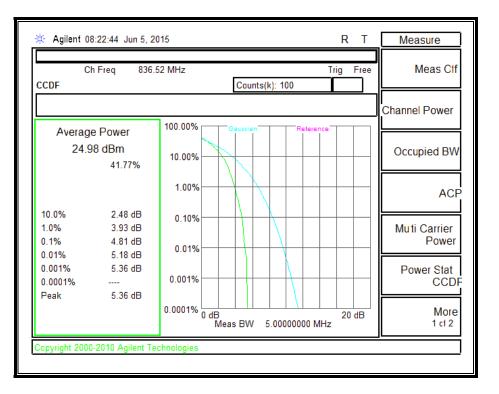


GSM1900, EGPRS

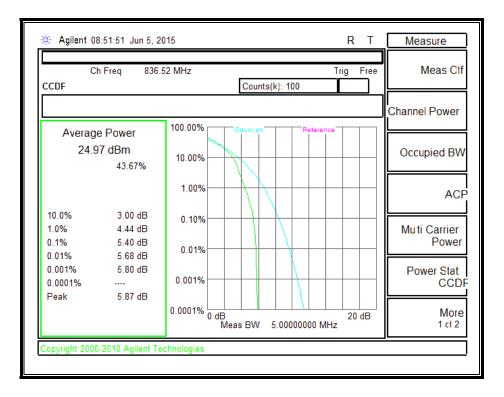


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BC 0, 1xRTT



BC 0, EVDO A

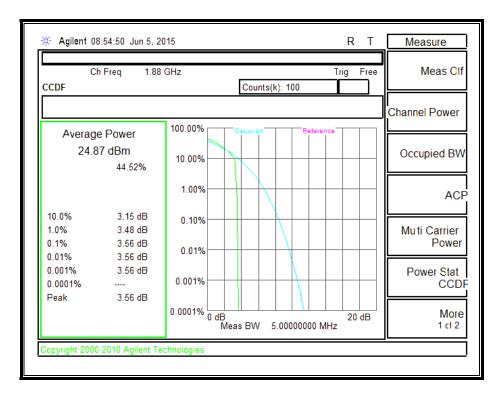


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<u>BC 1, 1xRTT</u>

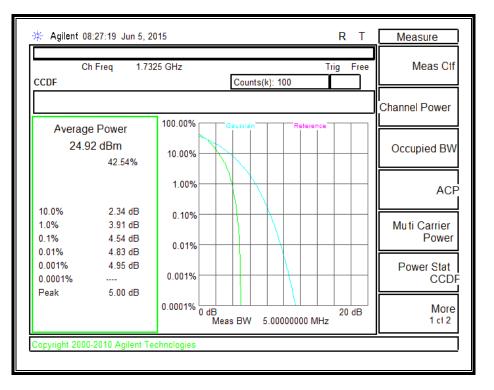


BC 1, EVDO A



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BC15, 1xRTT

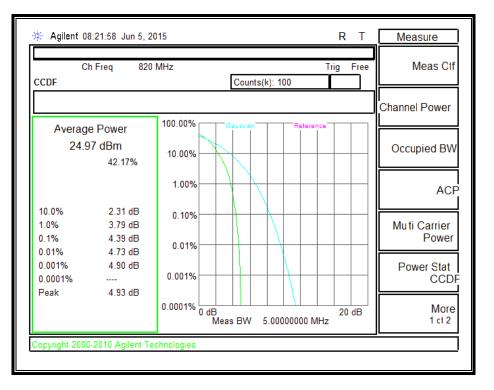


BC15, EVDO A



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BC10, 1xRTT

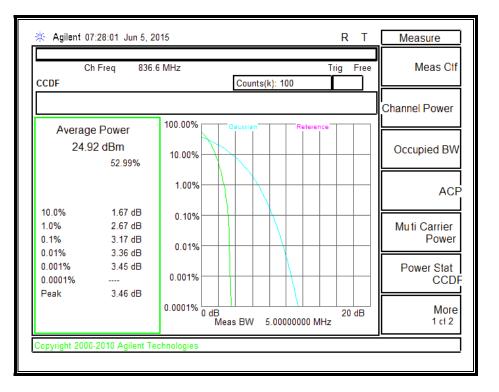


BC10, EVDO A

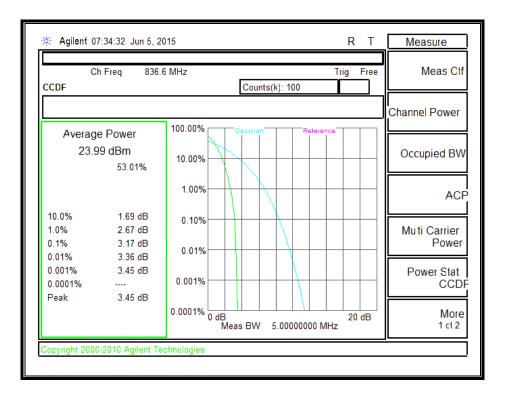


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UMTS850, REL 99 BAND 5



UMTS 850, HSDPA BAND 5

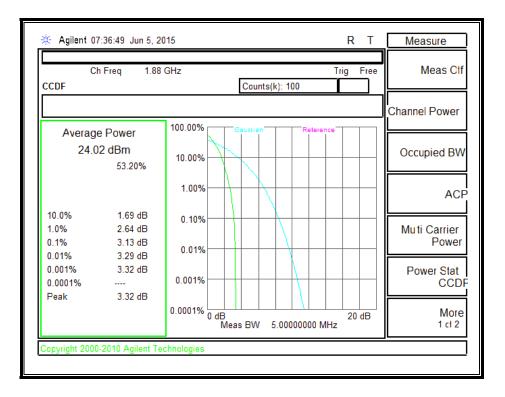


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UMTS 1900, REL99 BAND 2

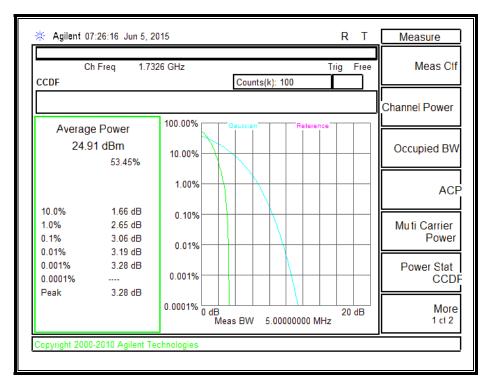


UMTS 1900, HSDPA BAND 2

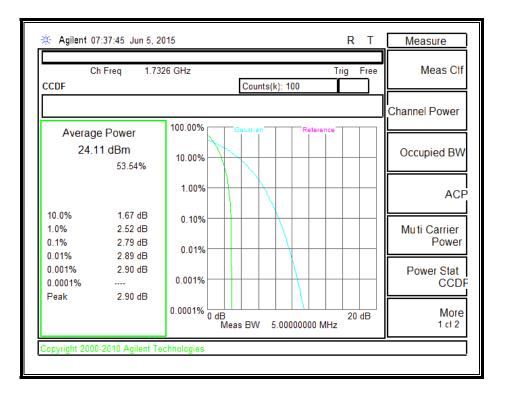


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UMTS 1700, REL99 BAND 4



UMTS 1700, HSDPA BAND 4



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10.7. FIELD STRENGTH OF SPURIOUS RADIATION, MODEL: A1633 (LAT)

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53 and §90.691.

LIMIT

22.917 (e) and 24.238 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

§27.53 (h) For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log10(P) dB

§90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10 (f/6.1) decibels or 50 + 10 Log10 (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10 (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at

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