

L & S BAND GaAs FET [Plastic Mold Lead-less PKG]**DESCRIPTION**

The MGF0951P GaAs FET with an N-channel schottky Gate, is designed for use L/S band amplifiers.

FEATURES

- High output power
Po=31dBm(TYP.) @f=2.15GHz, Pin=20dBm
- High power gain
Glp=13dB(TYP.) @f=2.15GHz
- High power added efficiency
ηadd=50%(TYP.) @f=2.15GHz, Pin=20dBm
- Plastic Mold Lead-less PKG

APPLICATION

- For L/S Band power amplifiers

QUALITY

- GG

RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=200mA • Rg=500Ω

Delivery Tape & Reel(1.5K)

Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGSO	Gate to source breakdown voltage	-15	V
VGDO	Gate to drain breakdown voltage	-15	V
ID	Drain current	800	mA
IGR	Reverse gate current	-2.5	mA
IGF	Forward gate current	5.4	mA
PT	Total power dissipation	6.0	W
Tch	Channel temperature	150	°C
Tstg	Storage temperature	-40 to +150	°C

Recommended maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
Tch	Channel temperature	150	°C

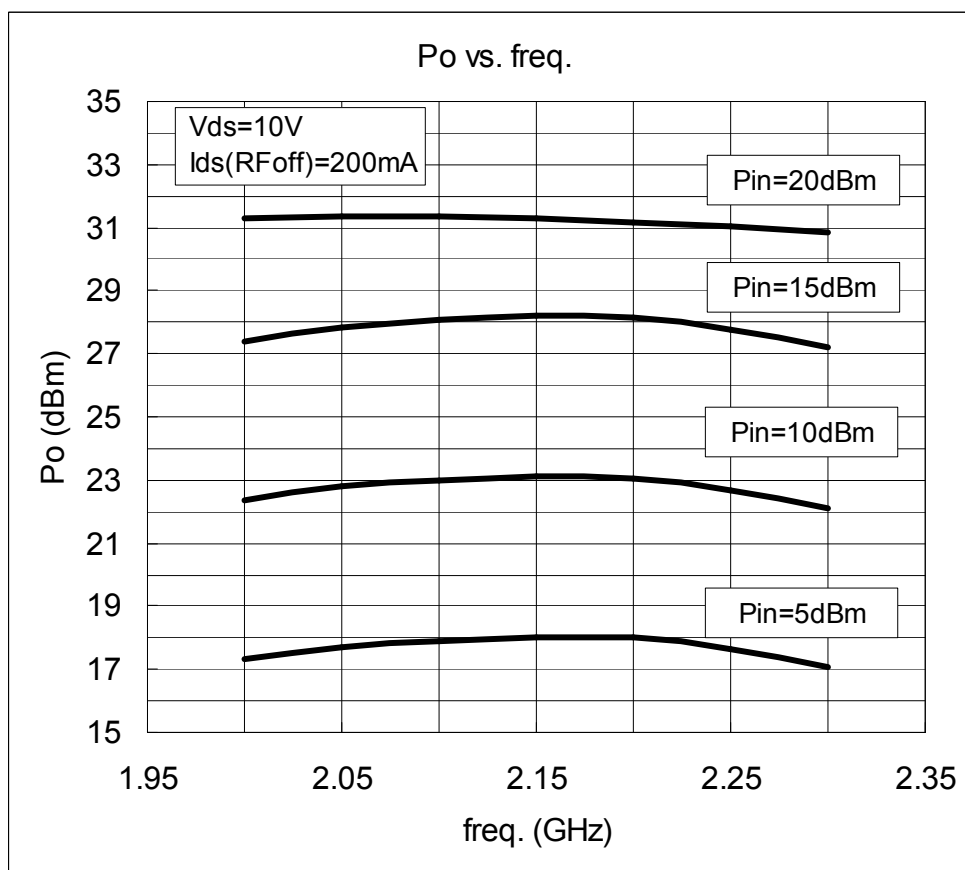
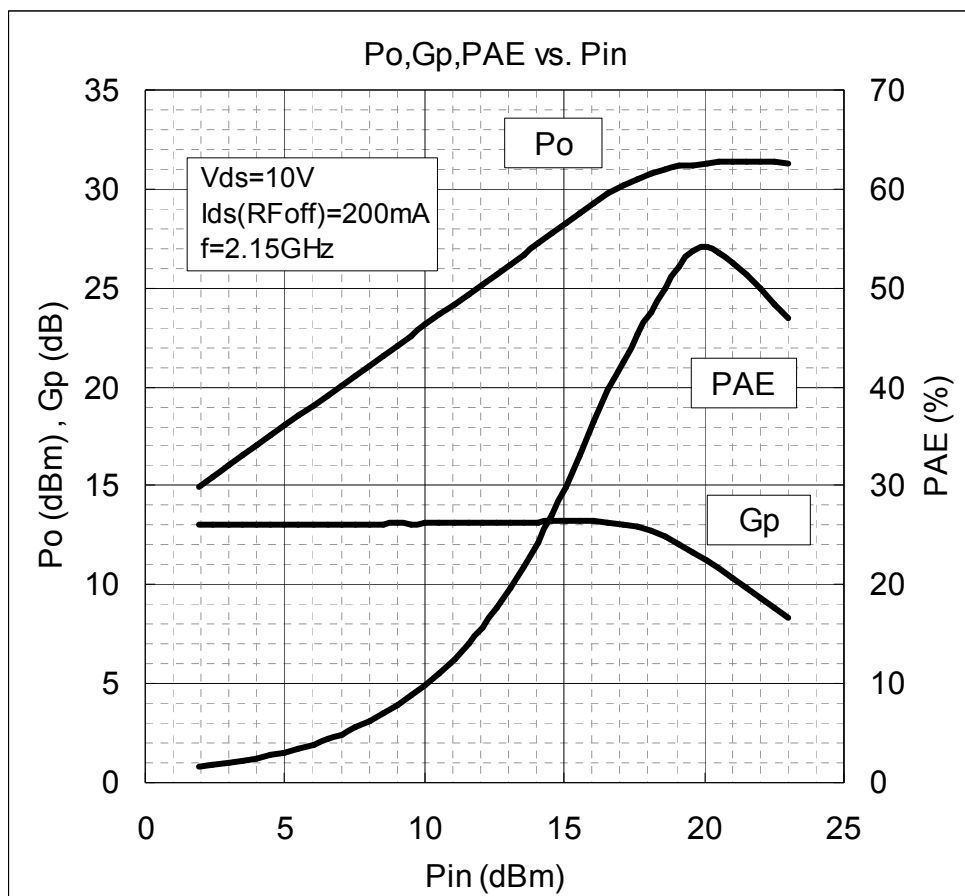
Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=2.5mA	-1	-3	-5	V
gm	Transconductance	VDS=3V, ID=300mA	--	200	--	mS
Po	Output power	VDS=10V, ID=200mA, f=2.15GHz	29.5	31	--	dBm
ηadd *1	Power added Efficiency	*1: Pin=20dBm, *2: Pin=10dBm	--	50	--	%
GLP *2	Linear Power Gain	*3: f1=2.15GHz, f2=2.16GHz	11	13	--	dB
IM3 *3	3 rd order Modulation Distortion	Po(SCL)=20dBm	--	-45	--	dBc
Rth(ch-c)	Thermal Resistance *1	ΔVf Method	--	20	25	°C/W

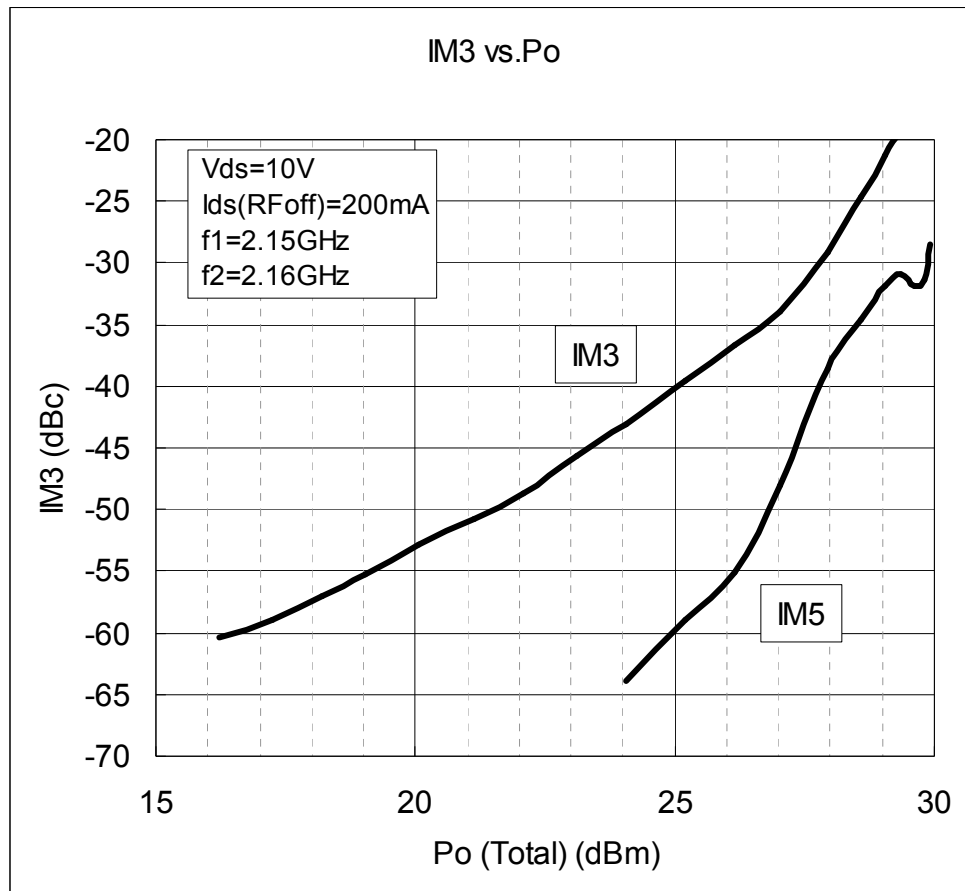
*1: Channel to case / Above parameters, ratings, limits are subject to change.

Fig.1

MGF0951P TYPICAL CHARACTERISTICS



MGF0951P TYPICAL CHARACTERISTICS



MGF0951P S PARAMETERS (Ta=25°C,VD=10V,ID=200mA)

f (MHz)	S Parameter(TYP.)								K	MSG/MAG (dB)
	S11		S21		S12		S22			
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)		
600	0.847	-98.9	7.176	117.6	0.039	44.1	0.186	-115.6	0.476	22.7
800	0.827	-115.4	5.972	106.5	0.043	37.8	0.207	-126.0	0.564	21.4
1000	0.807	-127.9	5.076	97.3	0.046	34.1	0.225	-133.2	0.666	20.4
1200	0.797	-137.6	4.392	89.6	0.048	31.5	0.240	-137.7	0.767	19.6
1400	0.785	-145.0	3.867	82.8	0.051	29.6	0.256	-140.5	0.855	18.8
1600	0.777	-151.3	3.450	76.6	0.052	29.0	0.270	-142.7	0.951	18.2
1800	0.772	-156.1	3.127	71.0	0.053	28.2	0.284	-143.5	1.027	16.7
2000	0.763	-160.3	2.865	65.7	0.056	28.0	0.295	-144.3	1.099	15.2
2200	0.754	-164.1	2.655	60.8	0.058	27.2	0.303	-144.8	1.173	14.1
2400	0.745	-167.7	2.485	55.8	0.060	27.4	0.314	-145.3	1.223	13.3
2600	0.733	-171.3	2.342	50.9	0.064	26.7	0.325	-145.4	1.269	12.5
2800	0.720	-175.0	2.223	46.1	0.067	25.9	0.335	-145.3	1.312	11.9
3000	0.709	-178.8	2.114	41.4	0.070	25.4	0.342	-145.4	1.358	11.3
3200	0.698	177.4	2.023	36.7	0.073	24.8	0.346	-146.1	1.399	10.7
3400	0.689	173.5	1.939	31.8	0.076	23.9	0.350	-147.5	1.426	10.2
3600	0.678	169.7	1.867	27.2	0.080	22.8	0.351	-148.9	1.451	9.7
3800	0.669	166.0	1.807	22.6	0.084	22.0	0.351	-149.5	1.462	9.3
4000	0.660	162.4	1.756	18.1	0.089	21.6	0.346	-150.5	1.458	8.9
4200	0.651	158.4	1.715	13.4	0.095	20.2	0.340	-152.0	1.451	8.6
4400	0.641	154.1	1.677	8.5	0.101	18.6	0.334	-154.4	1.442	8.3
4600	0.630	149.4	1.640	3.6	0.108	16.8	0.332	-156.5	1.413	8.0
4800	0.619	144.6	1.604	-1.2	0.114	15.0	0.328	-158.4	1.410	7.7
5000	0.608	140.0	1.572	-6.1	0.122	12.9	0.323	-160.6	1.398	7.4
5200	0.599	135.2	1.543	-11.1	0.129	10.5	0.318	-163.5	1.378	7.1
5400	0.589	130.4	1.512	-16.2	0.137	7.9	0.316	-167.3	1.356	6.9
5600	0.577	125.2	1.486	-21.3	0.146	5.1	0.316	-170.5	1.337	6.6
5800	0.563	120.3	1.466	-26.4	0.156	2.2	0.314	-172.9	1.305	6.4
6000	0.549	115.0	1.453	-31.6	0.165	-0.9	0.307	-175.5	1.287	6.2
6200	0.533	108.4	1.440	-37.1	0.177	-4.6	0.300	-178.9	1.263	6.0
6400	0.518	101.4	1.427	-42.9	0.189	-8.3	0.293	177.0	1.243	5.8
6600	0.505	93.1	1.417	-48.9	0.201	-12.7	0.286	173.4	1.222	5.6
6800	0.497	84.1	1.403	-55.3	0.213	-17.2	0.269	169.2	1.206	5.4
7000	0.501	74.8	1.386	-61.9	0.226	-22.5	0.245	162.5	1.185	5.3

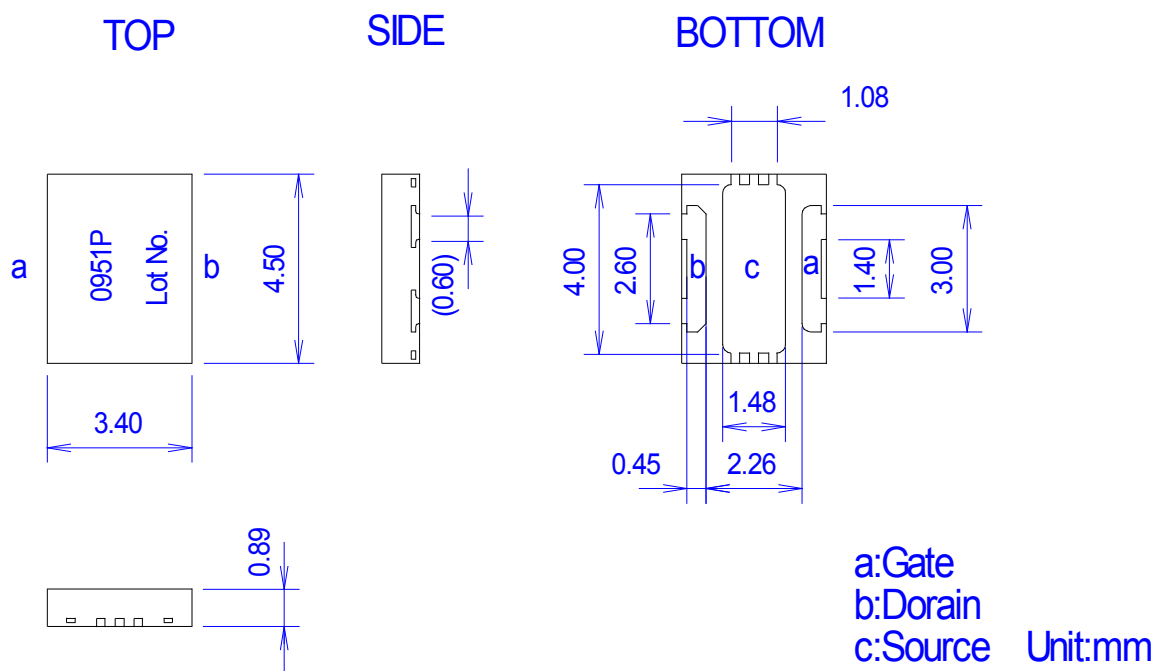
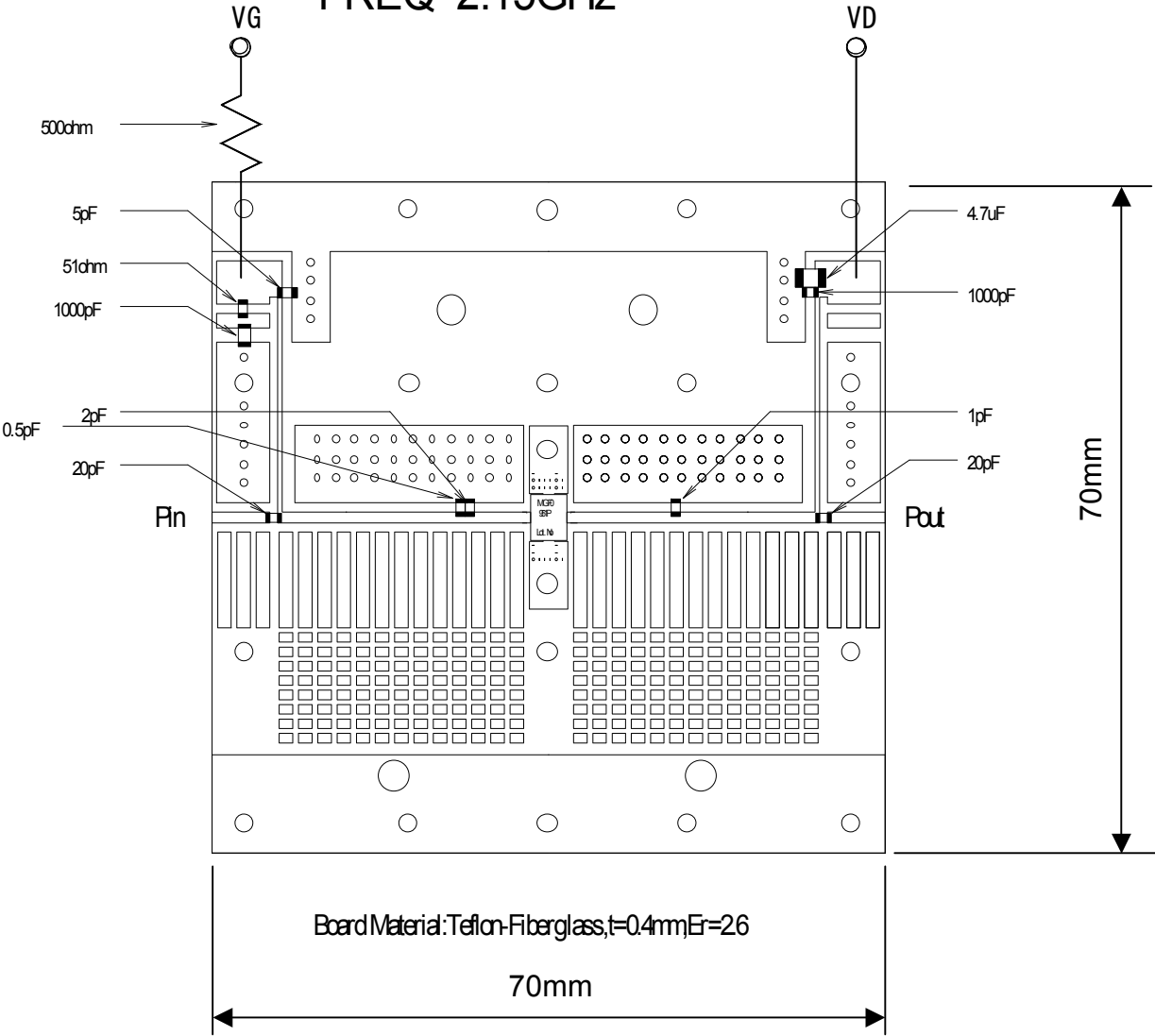
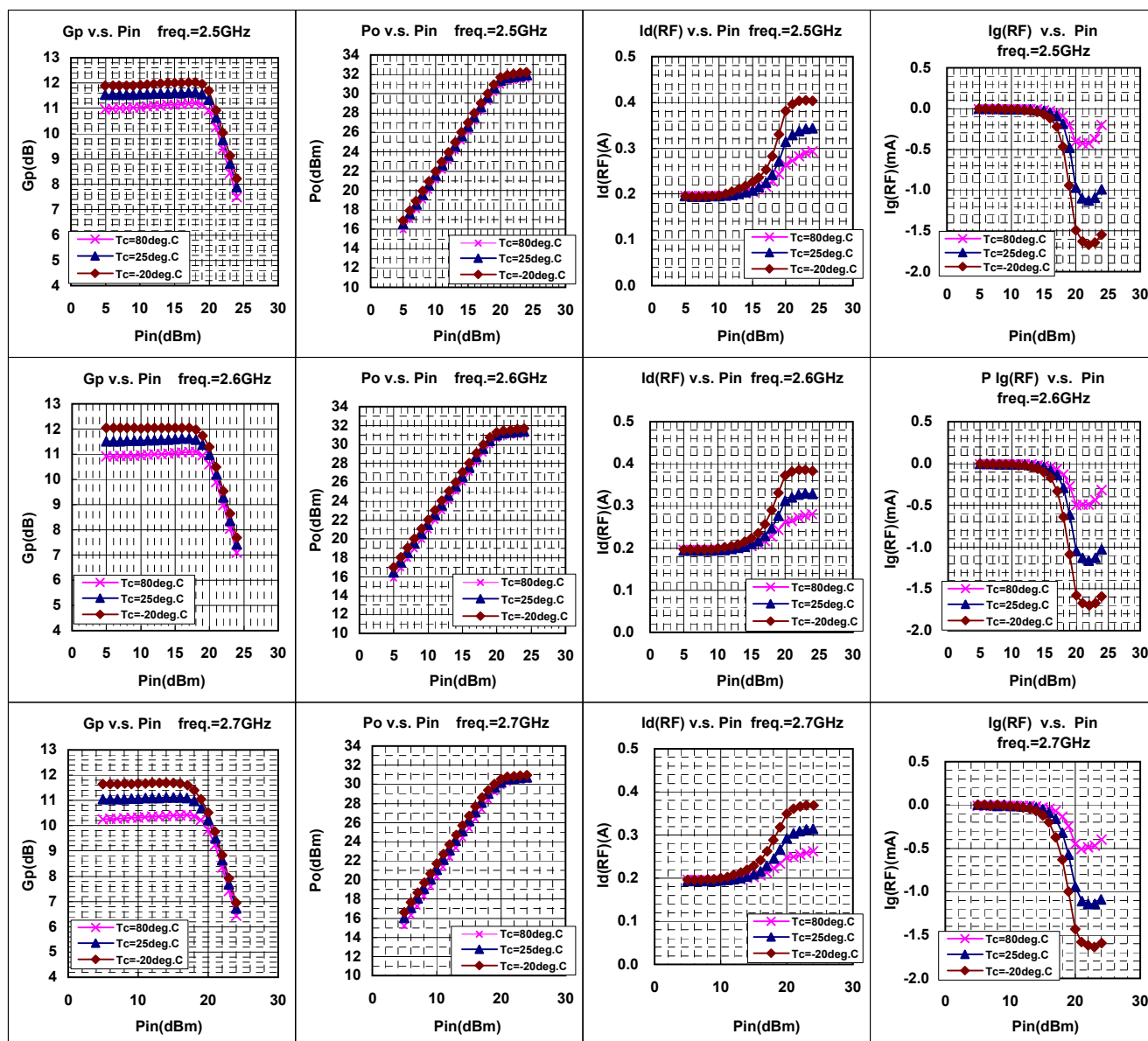


Fig1.OUTLINE DRAWING

MGF0951P TESTFIXTURE FREQ=2.15GHz

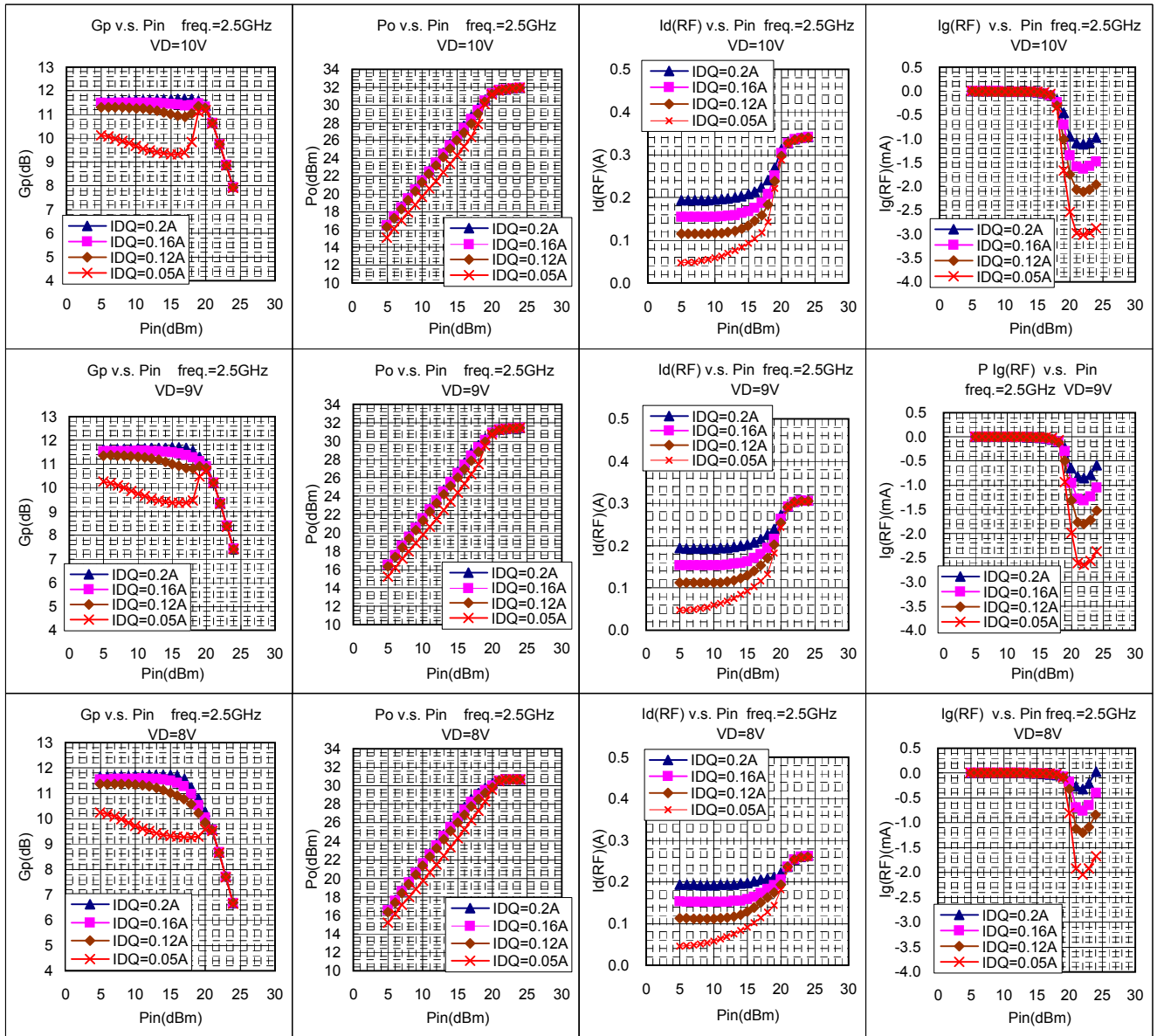


MGF0951P RF TEST DATA(CW) VD=10V,Idq=0.2A
Gp,Po,Id(RF),Ig(RF) v.s. Pin



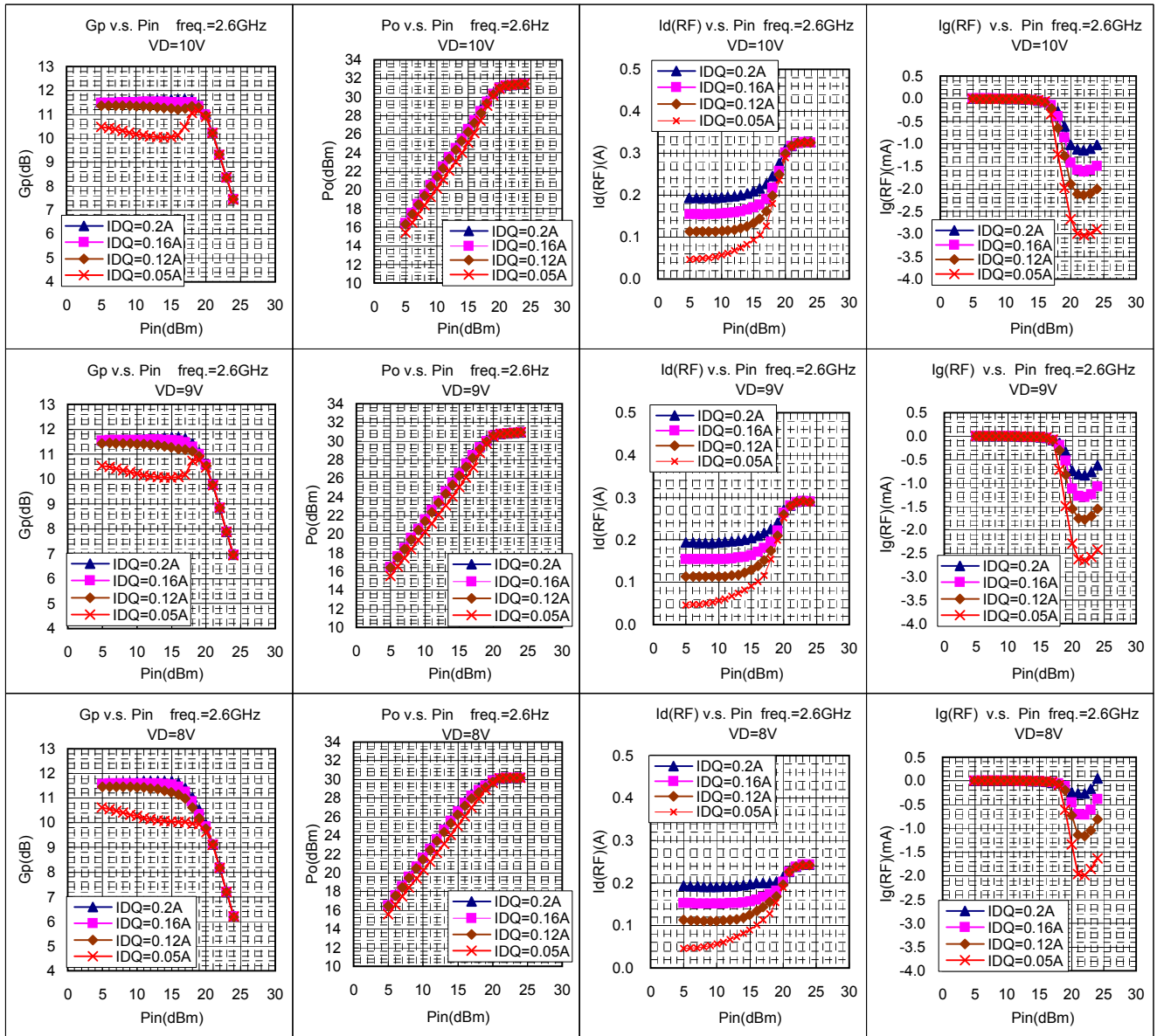
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Gp,Po,Id(RF),Ig(RF) v.s. Pin



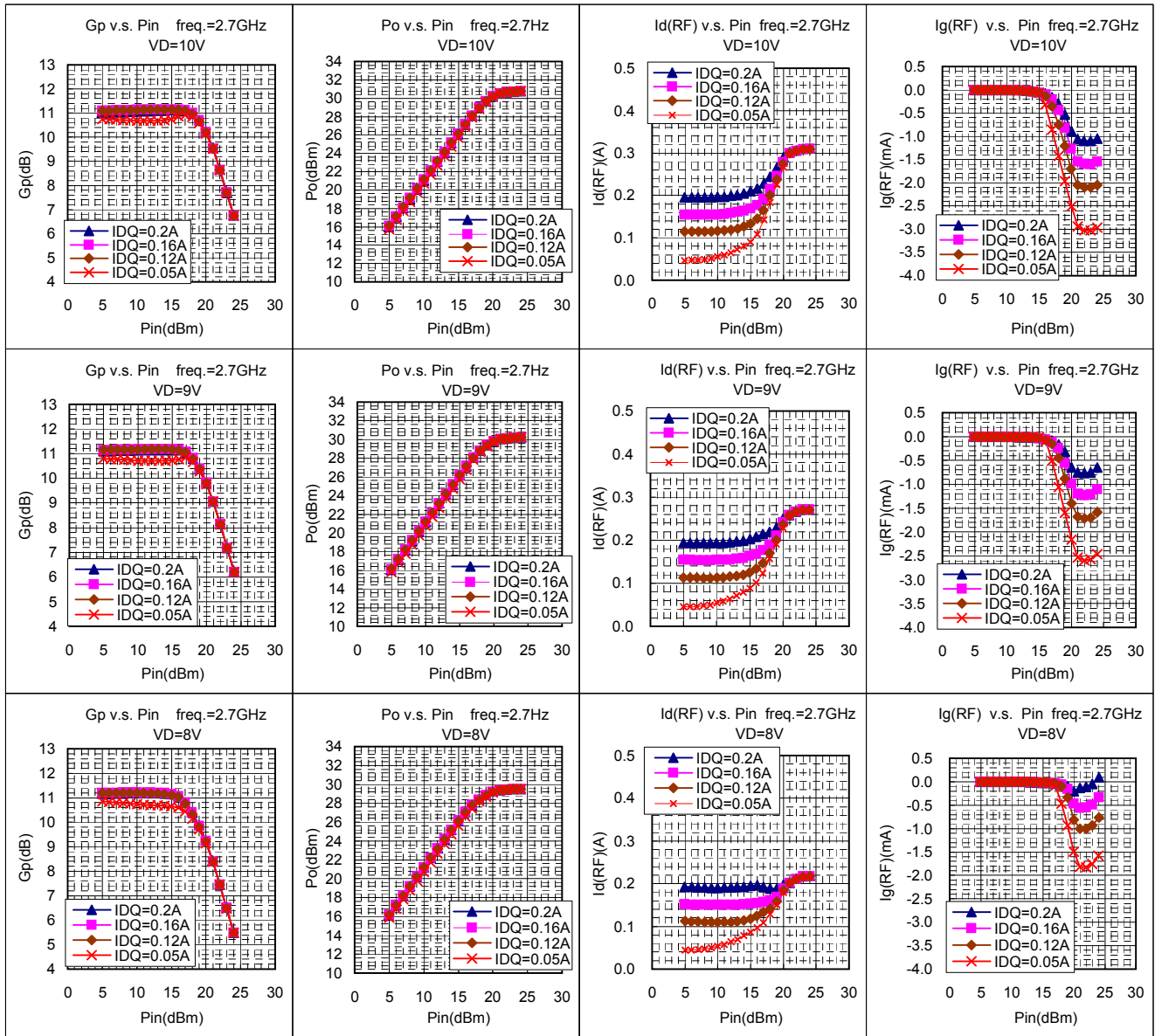
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Gp,Po,Id(RF),Ig(RF) v.s. Pin

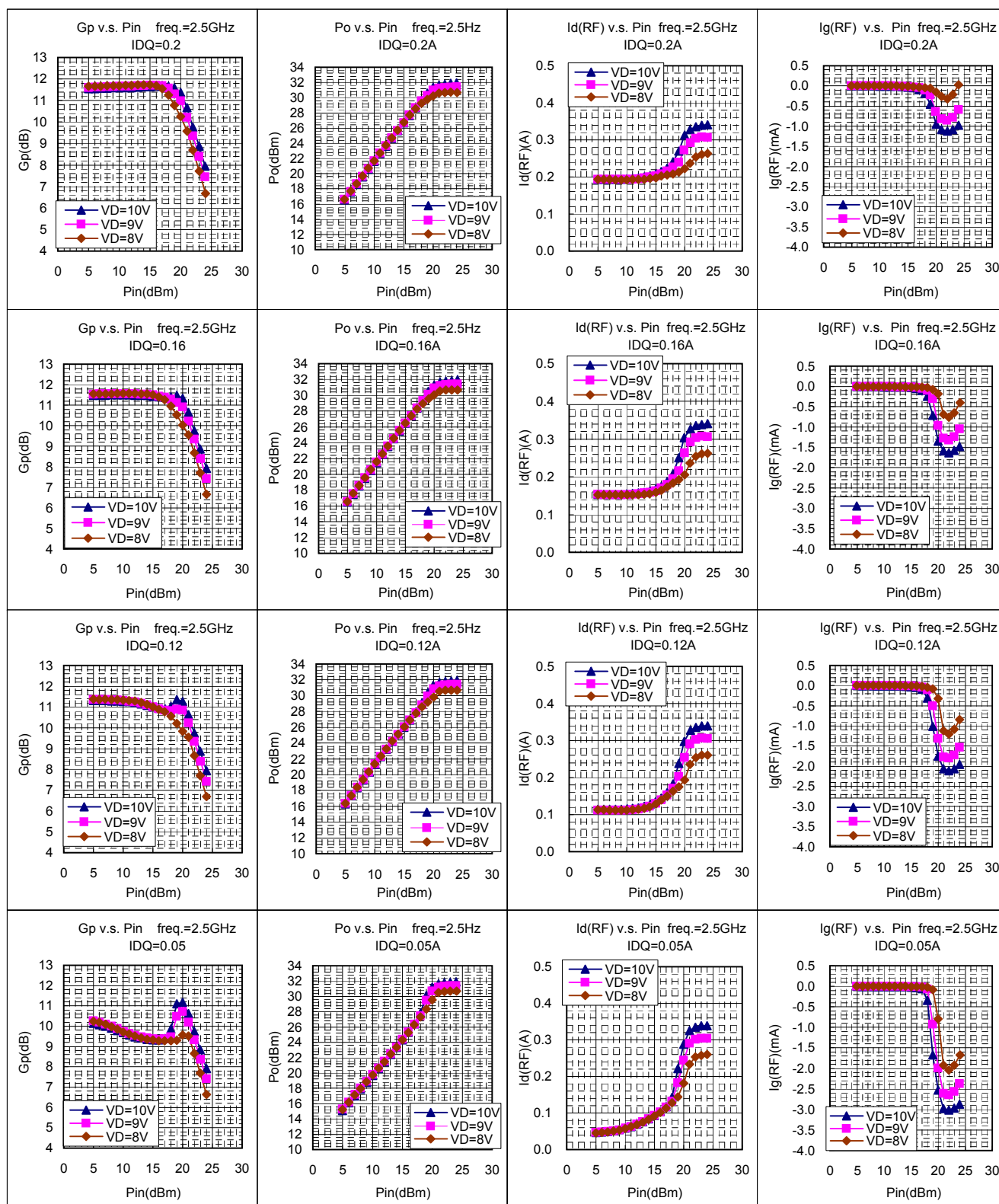


MGF0951P RF TEST DATA(CW)

Gp,Po,Id(RF),Ig(RF) v.s. Pin

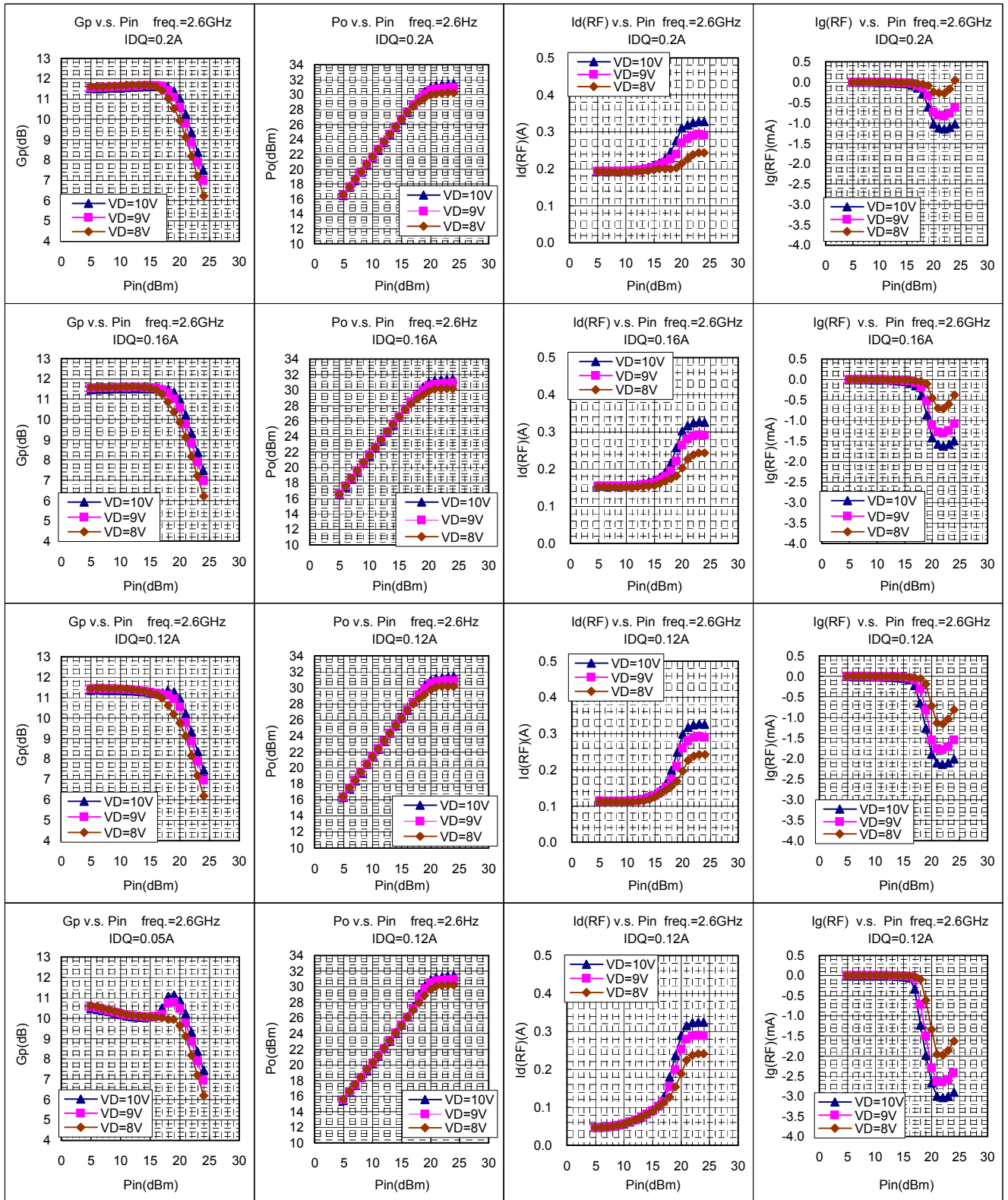


MGF0951P RF TEST DATA(CW)
Gp,Po,Id(RF),Ig(RF) v.s. Pin



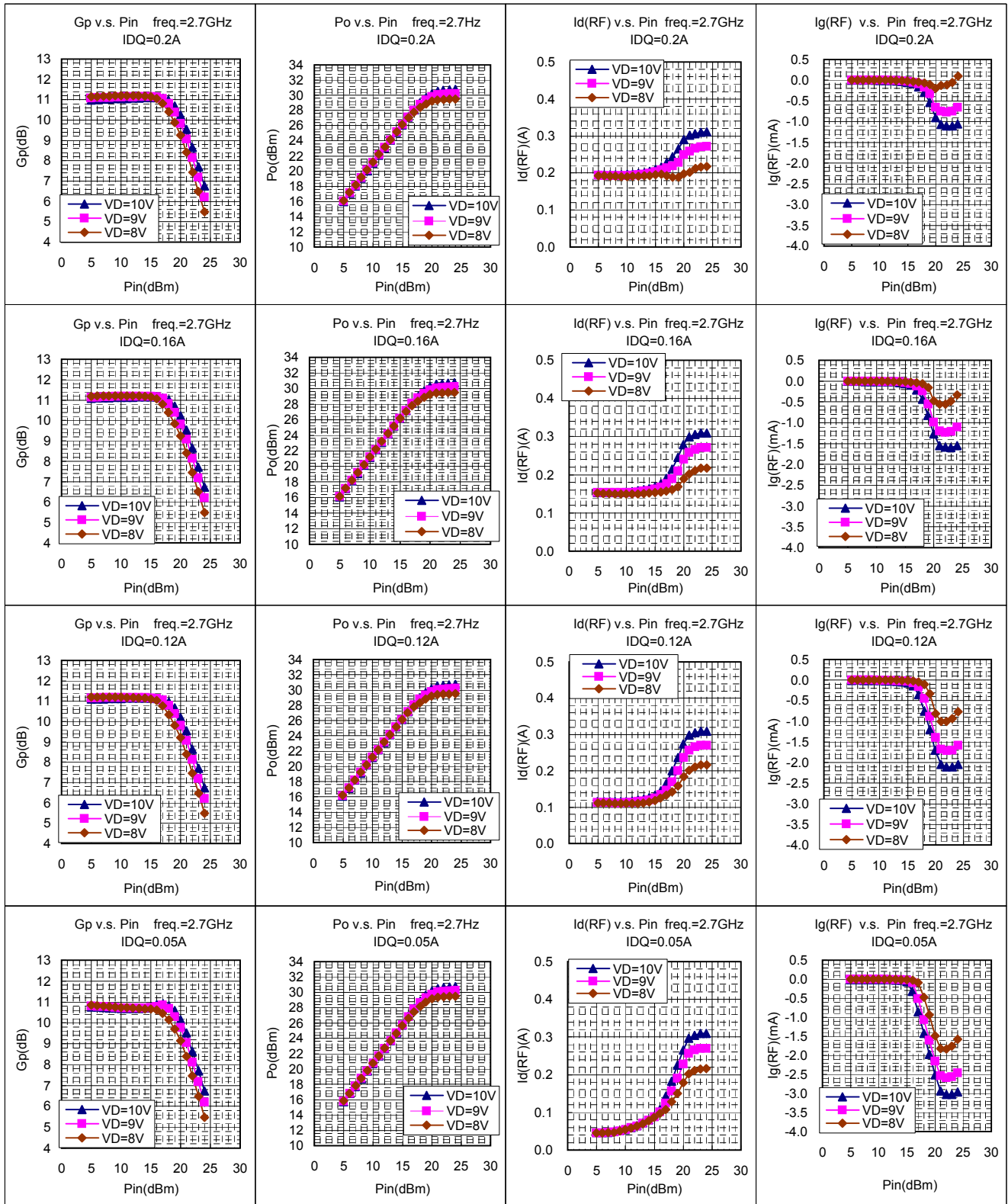
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Gp,Po,Id(RF),Ig(RF) v.s. Pin

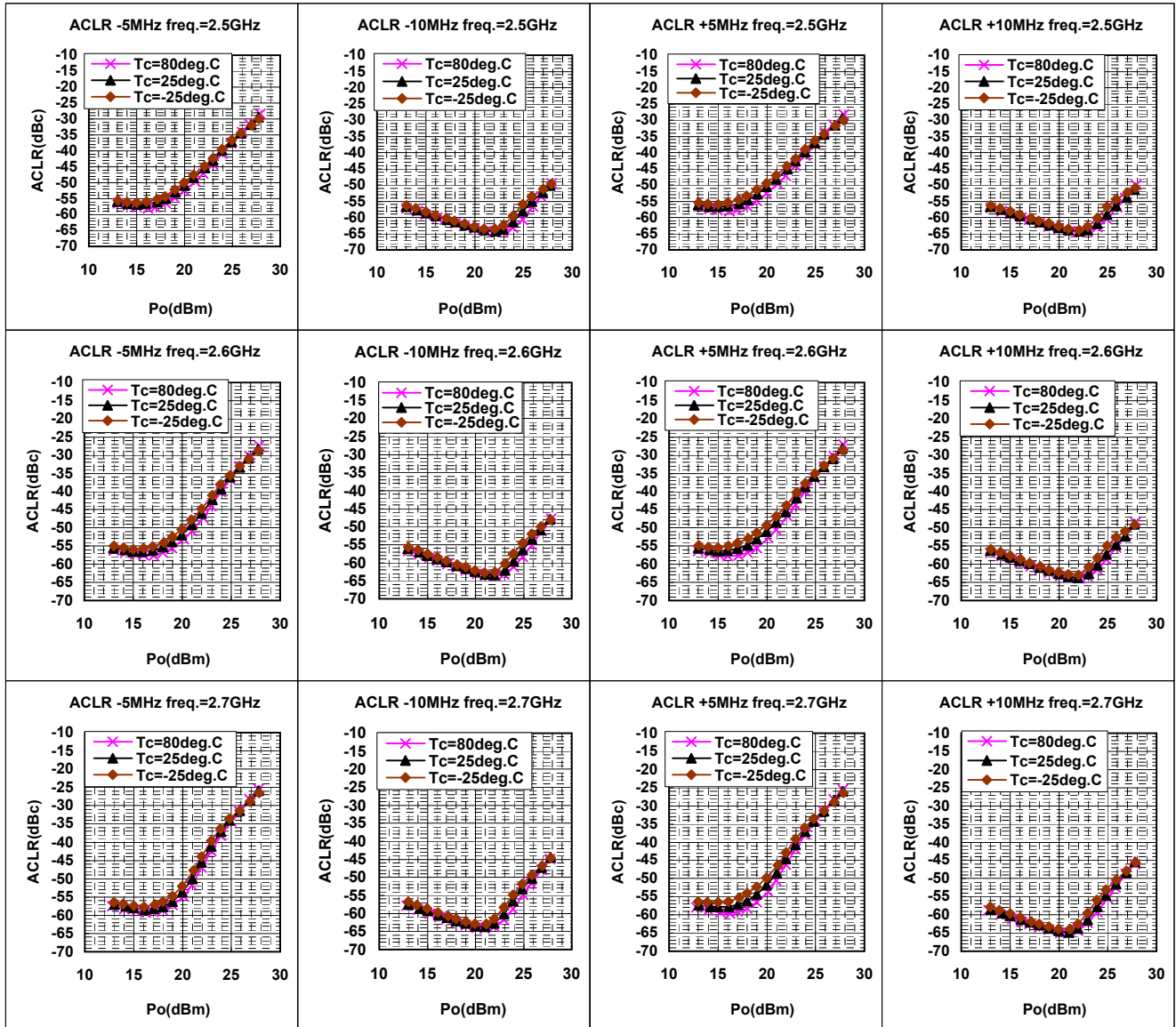


MGF0951P RF TEST DATA(CW)

Gp,Po,Id(RF),Ig(RF) v.s. Pin

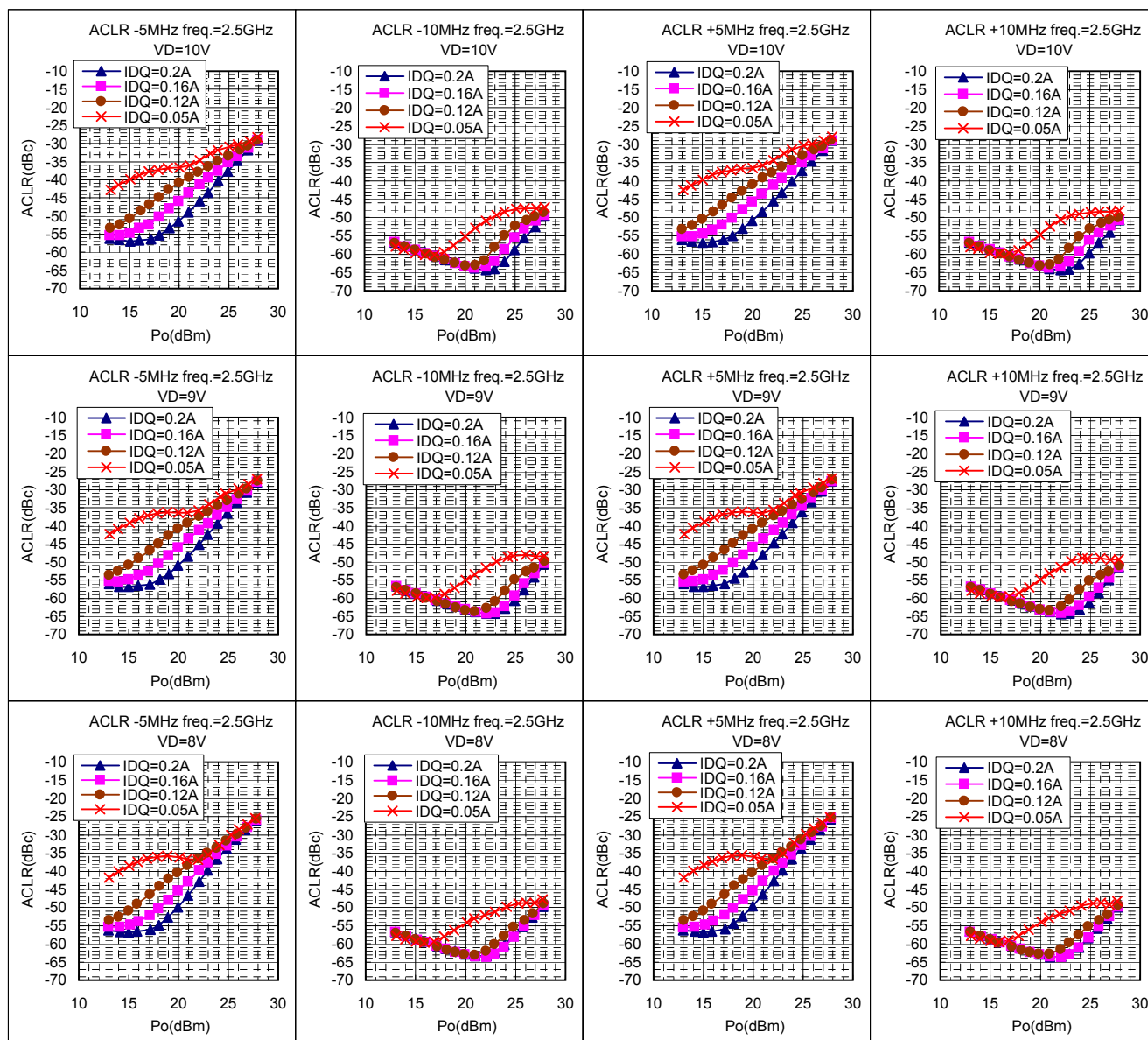


MGF0951P RF TEST DATA(W-CDMA) VD=10V,Idq=0.2A
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



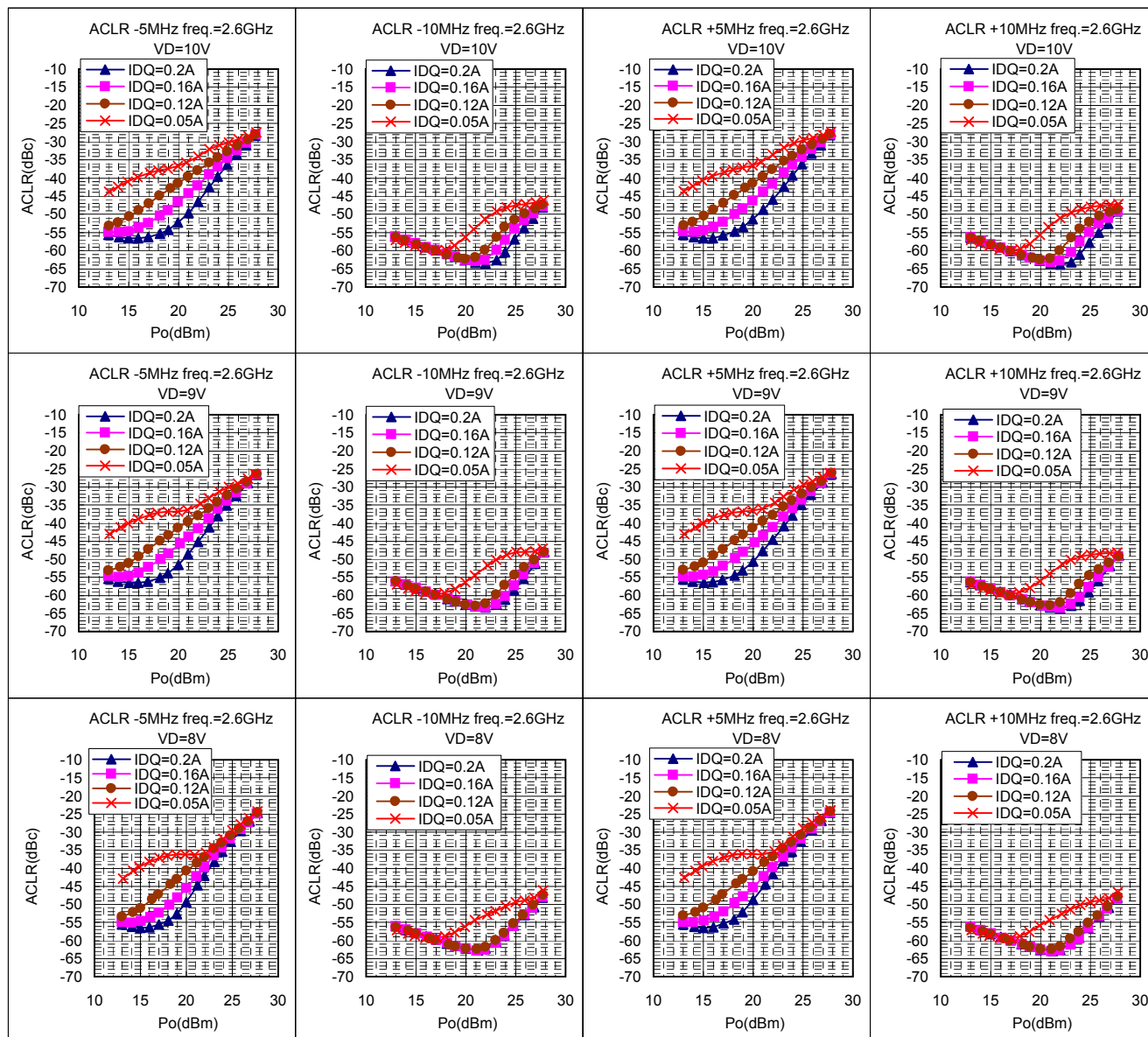
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ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



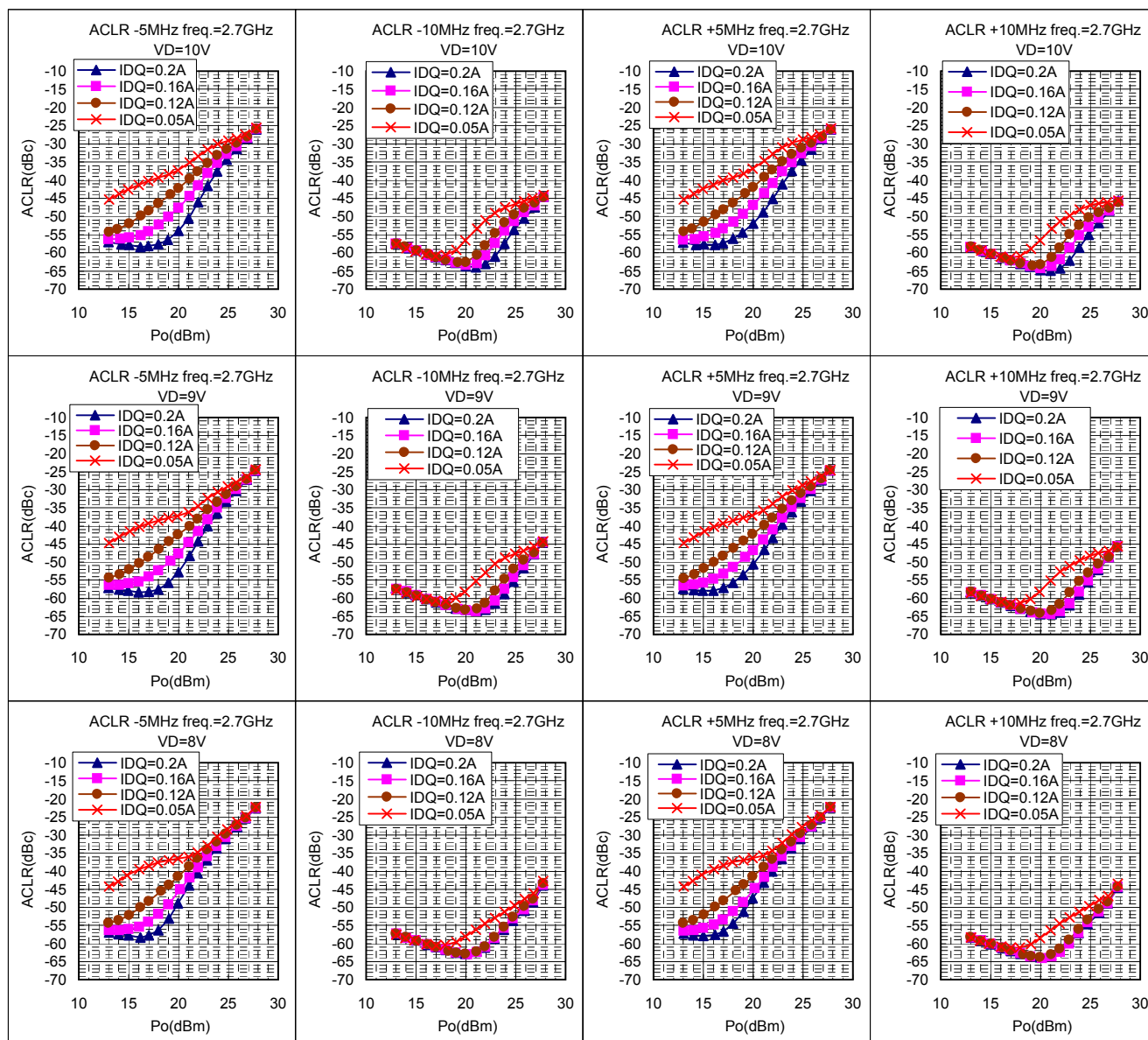
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ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



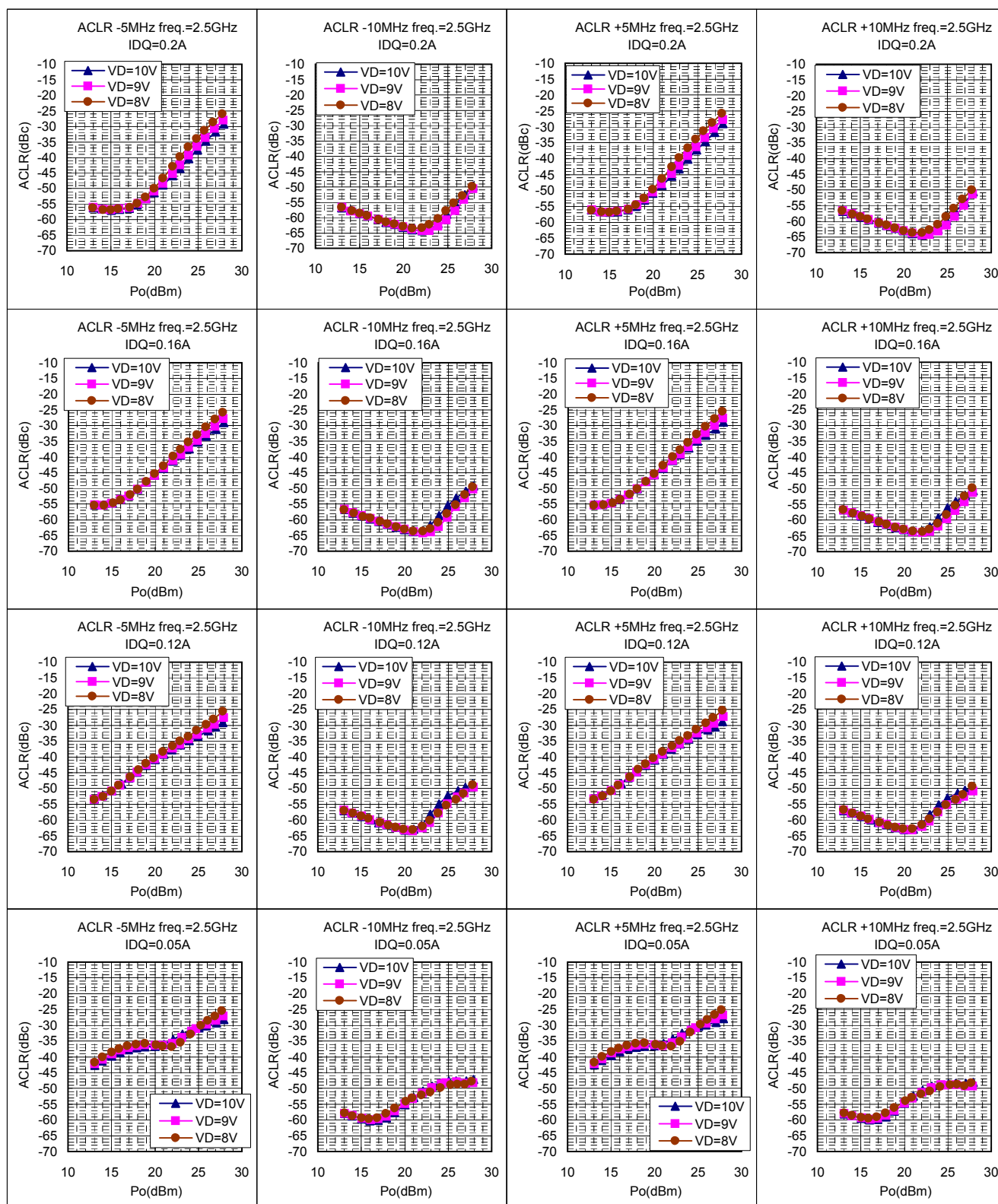
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ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



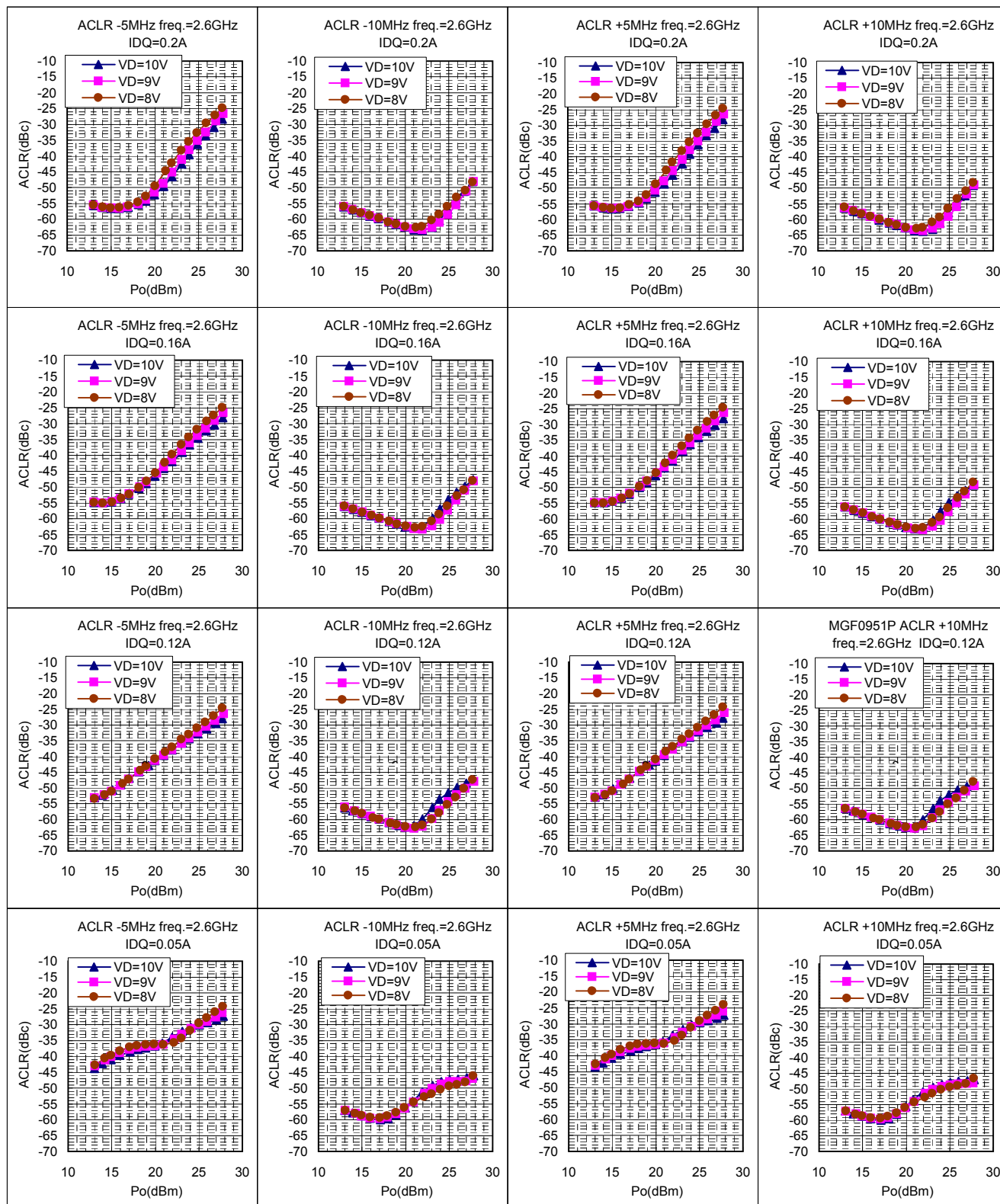
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ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



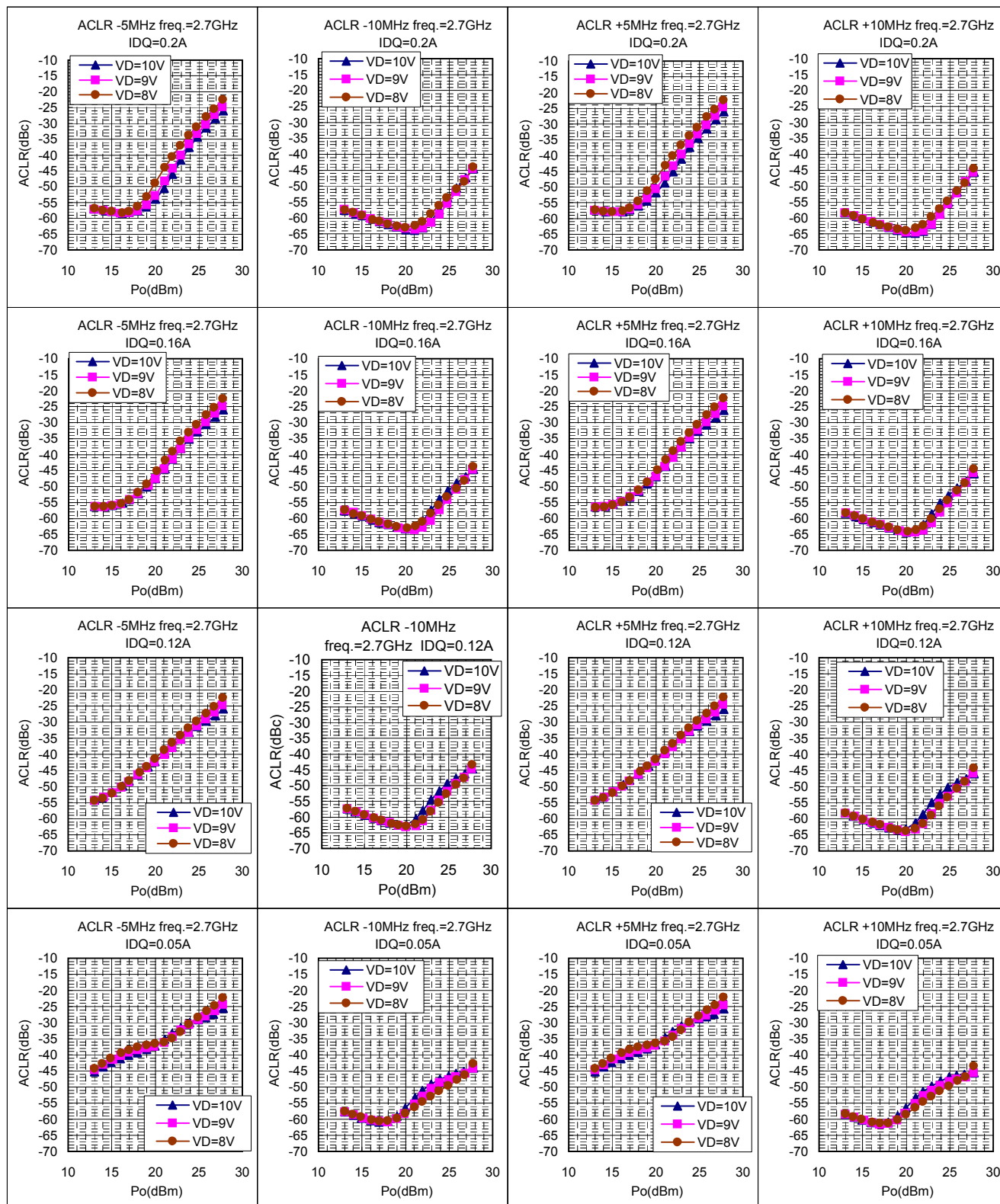
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ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal

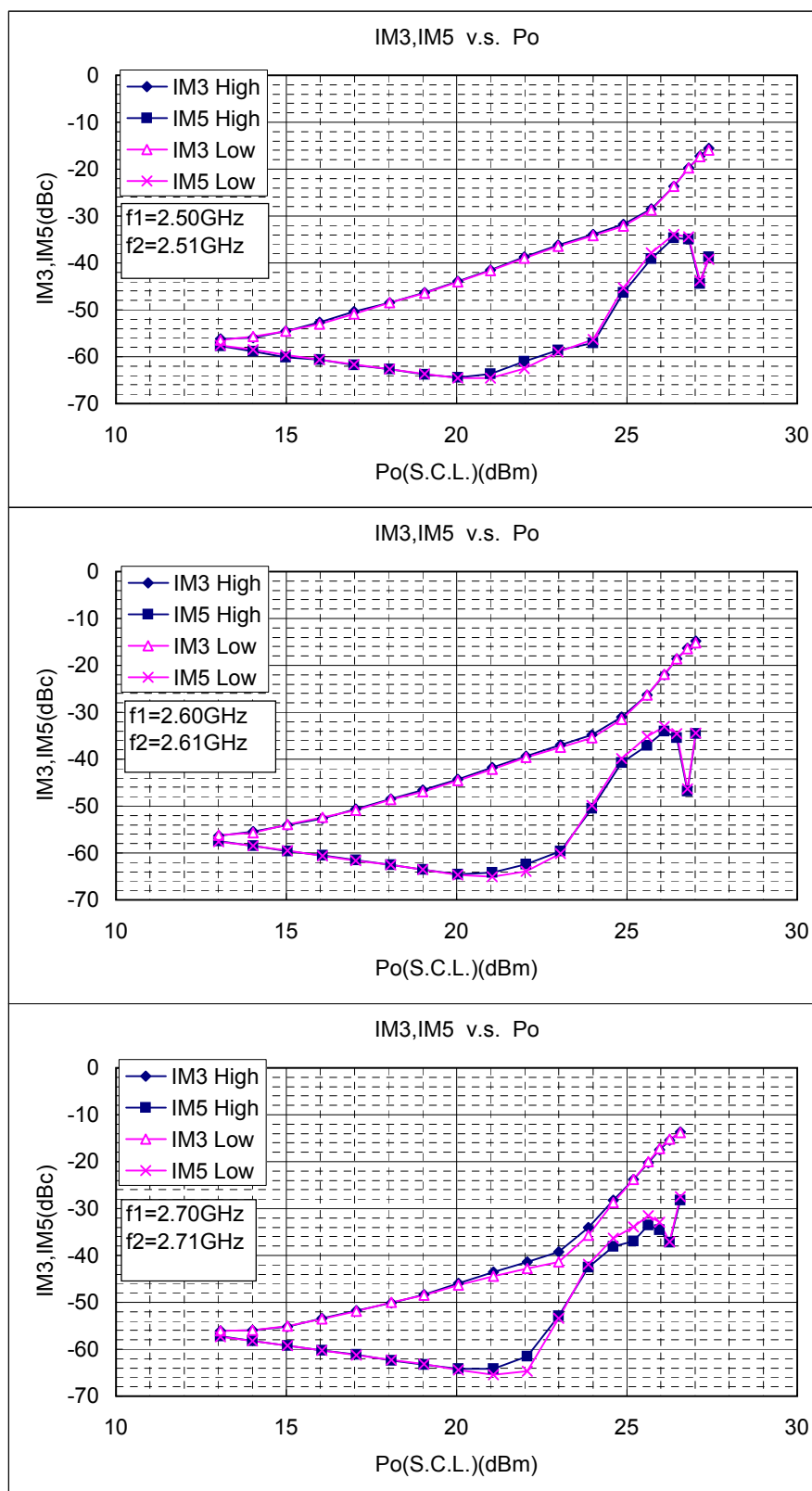


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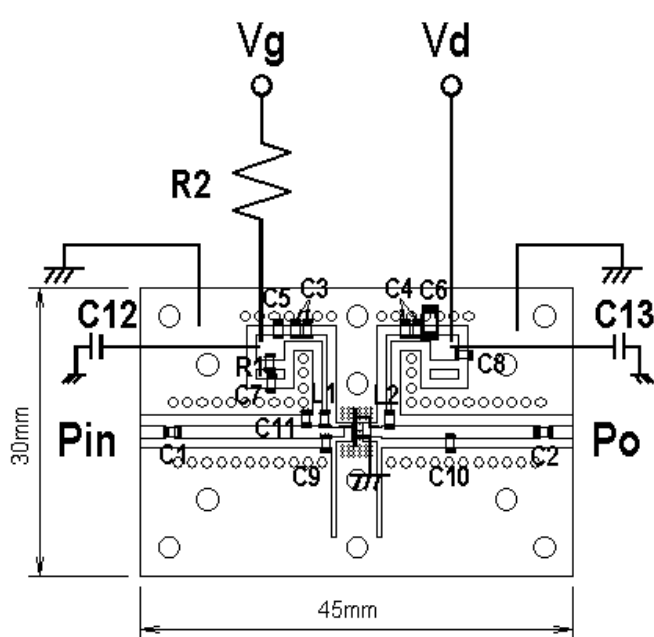
ACLR v.s. Po 3GPP TEST MODEL1 64ch's Single Signal



MGF0951P RF TEST DATA VD=10V, Idq=0.2A
IM3,IM5 v.s. Pin



MGF0951P TEST FIXTURE $f=2.6\text{GHz}$



C1,C2,C3,C4=20pF

C5,C7,C8=1000pF

C9=2pF

C10=1pF

C12,C13=47uF

C11=0.5pF

C6=4.7uF

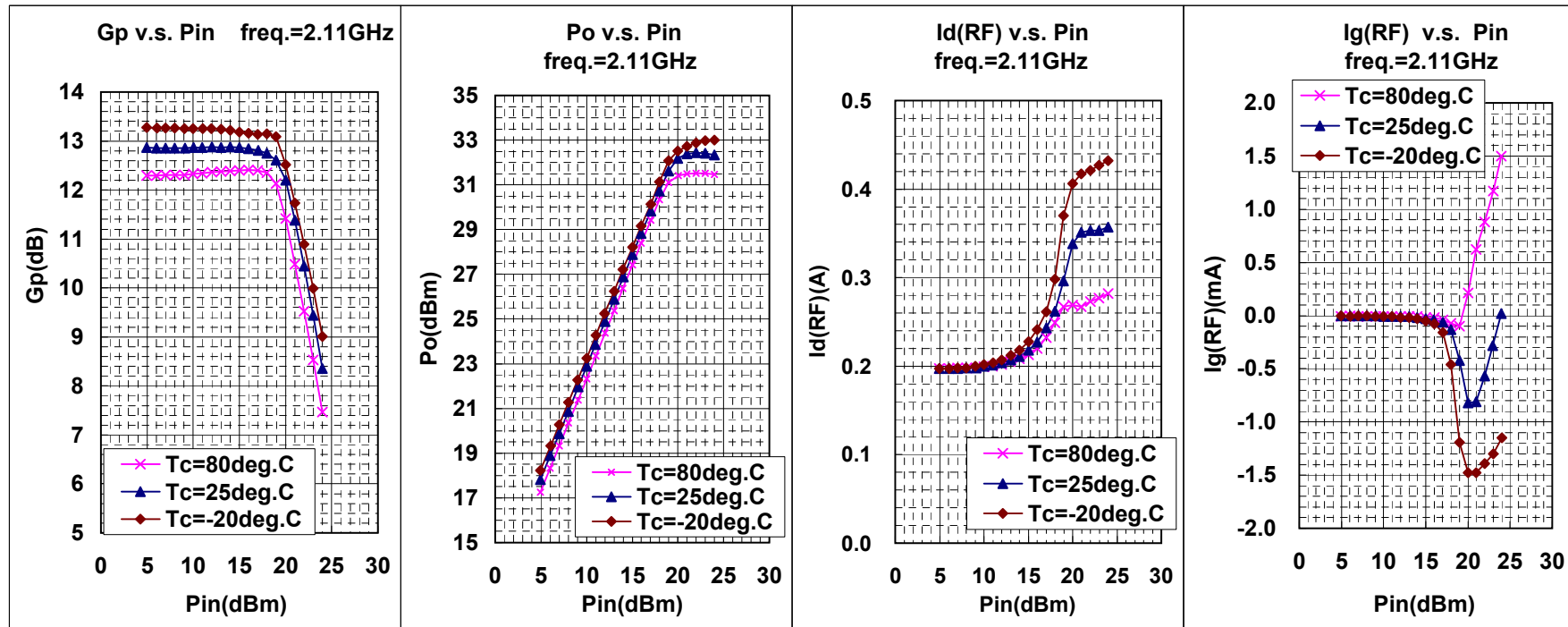
L1,L2=12nH

R1=51ohm

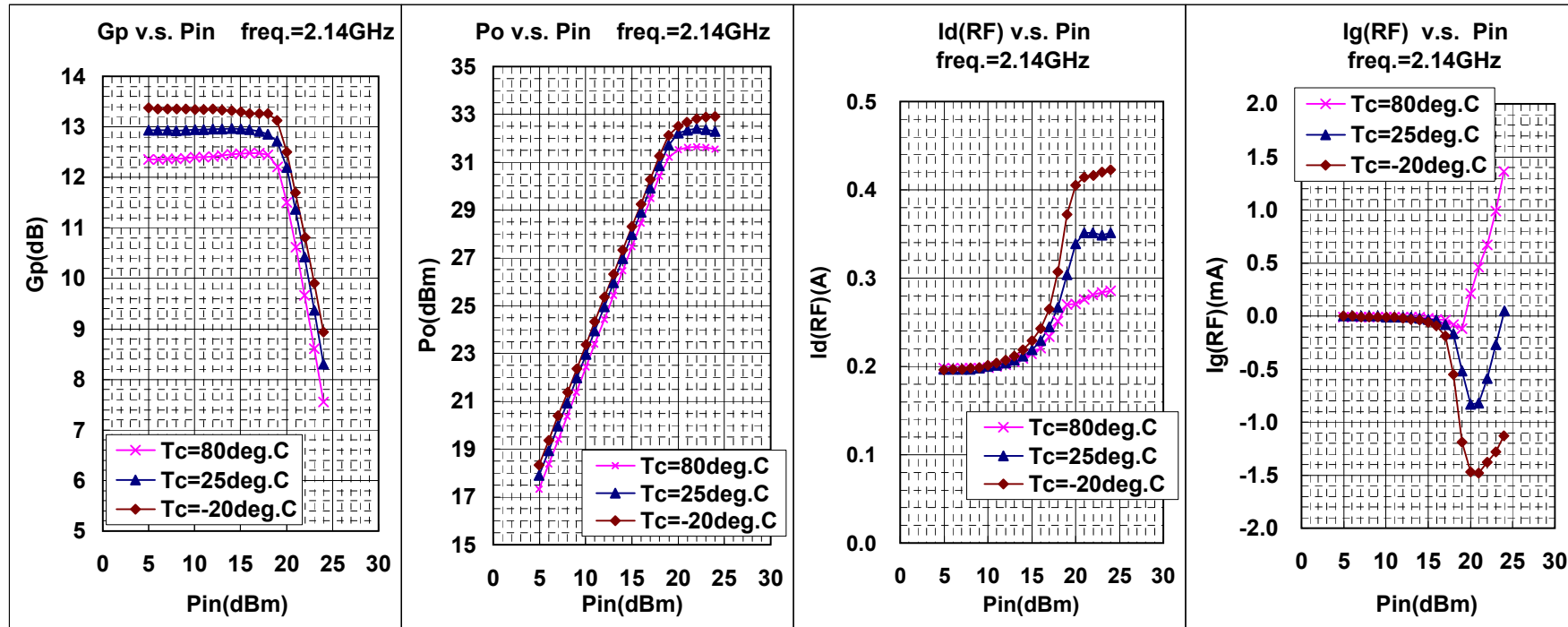
R2=500ohm

Board material:FR4 Thickness=0.8(mm)
Specific dielectric constant=4.4

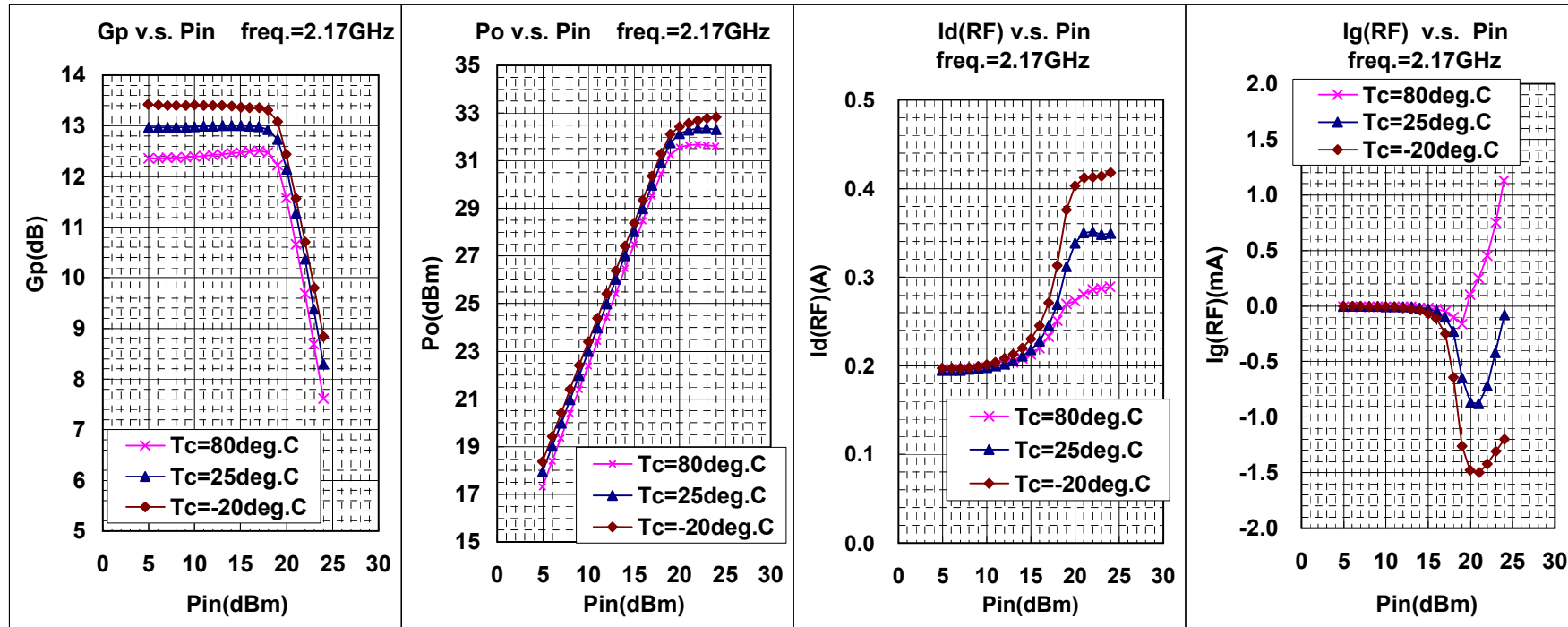
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Gp,Po,Id(RF),Ig(RF) v.s. Pin



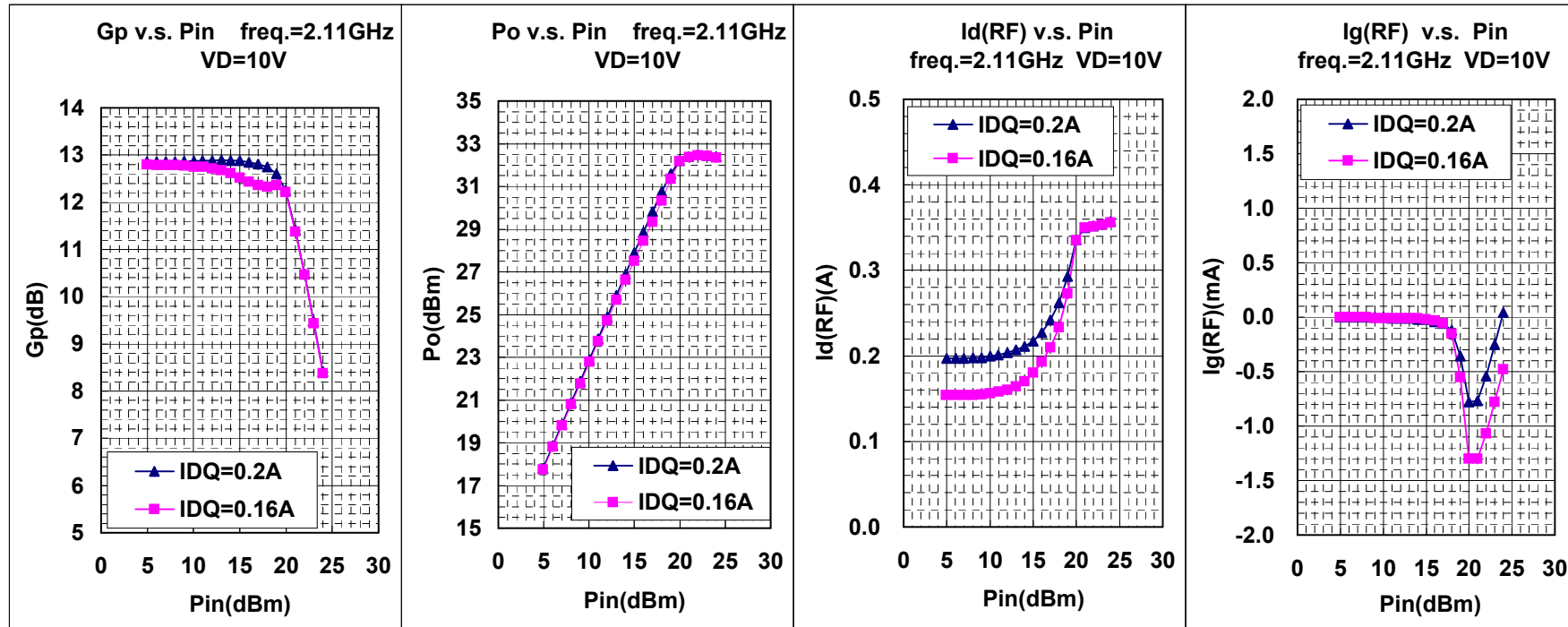
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Gp,Po,Id(RF),Ig(RF) v.s. Pin



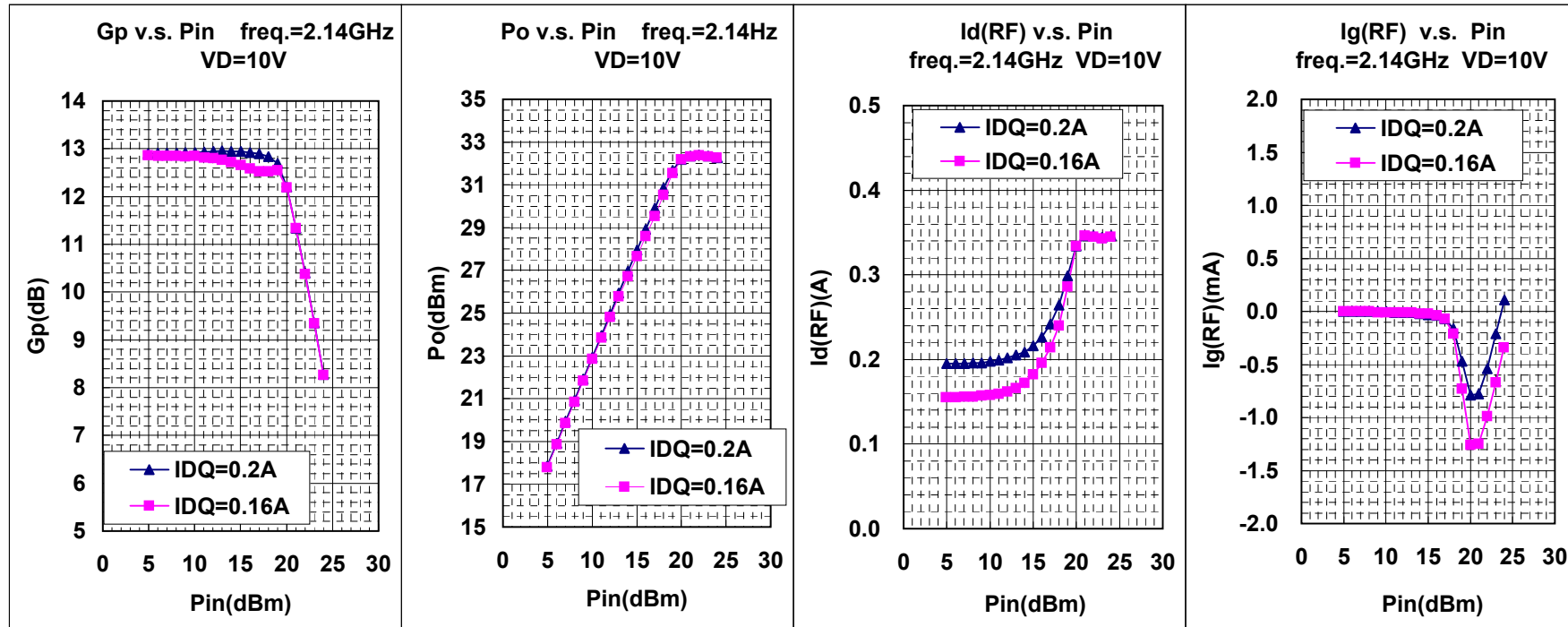
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Gp, Po, Id(RF), Ig(RF) v.s. Pin



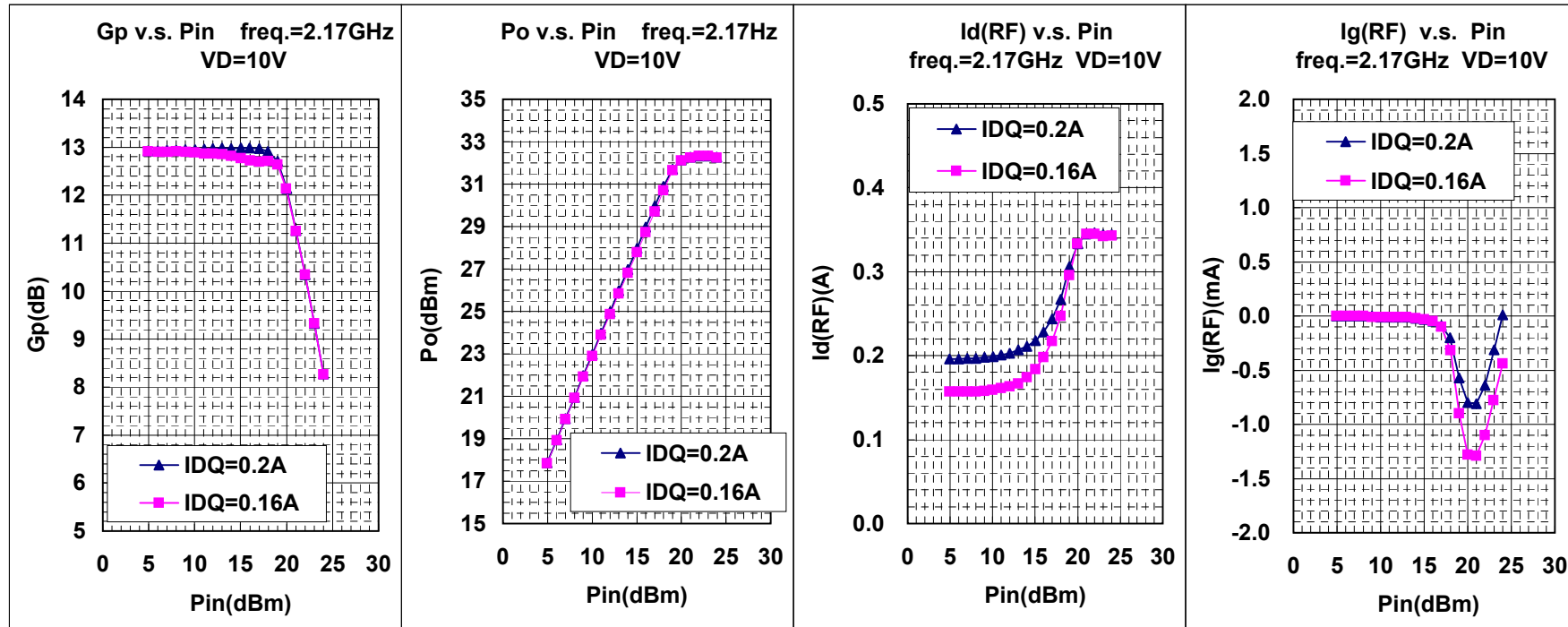
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Gp,Po,Id(RF),Ig(RF) v.s. Pin



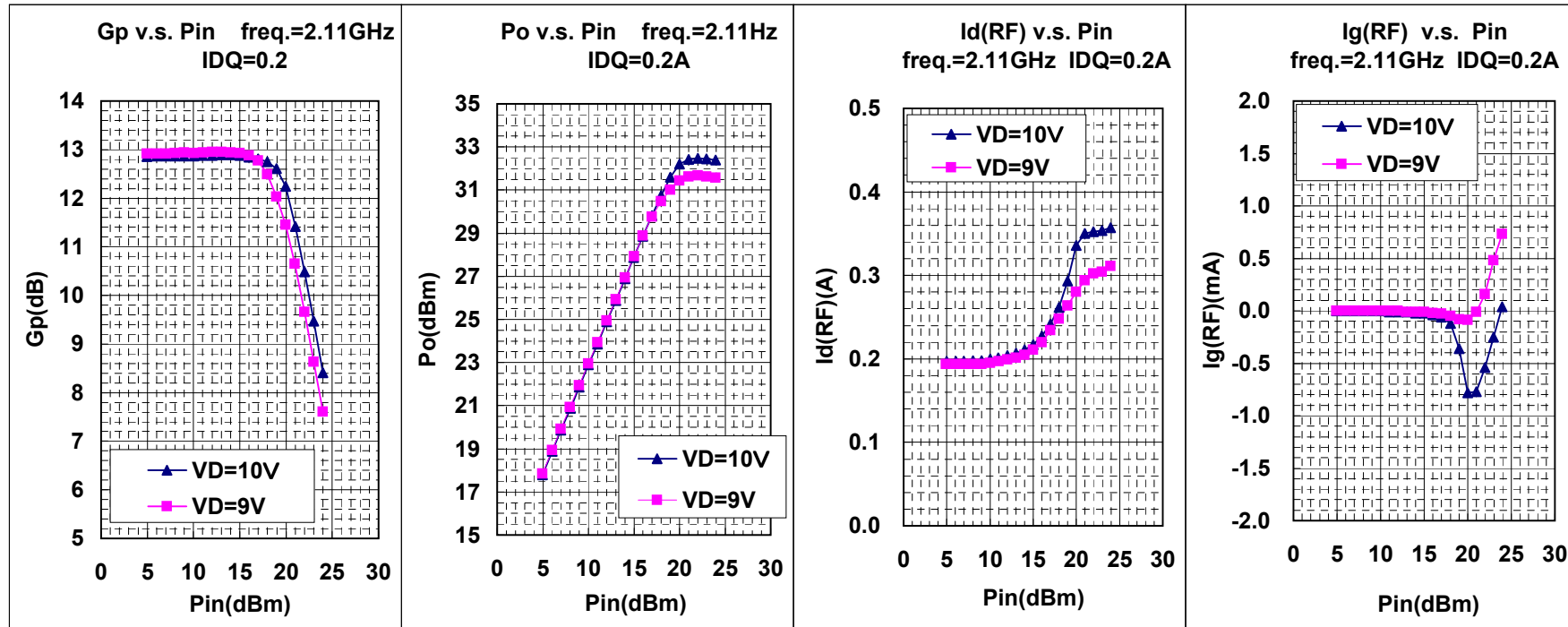
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Gp,Po,Id(RF),Ig(RF) v.s. Pin



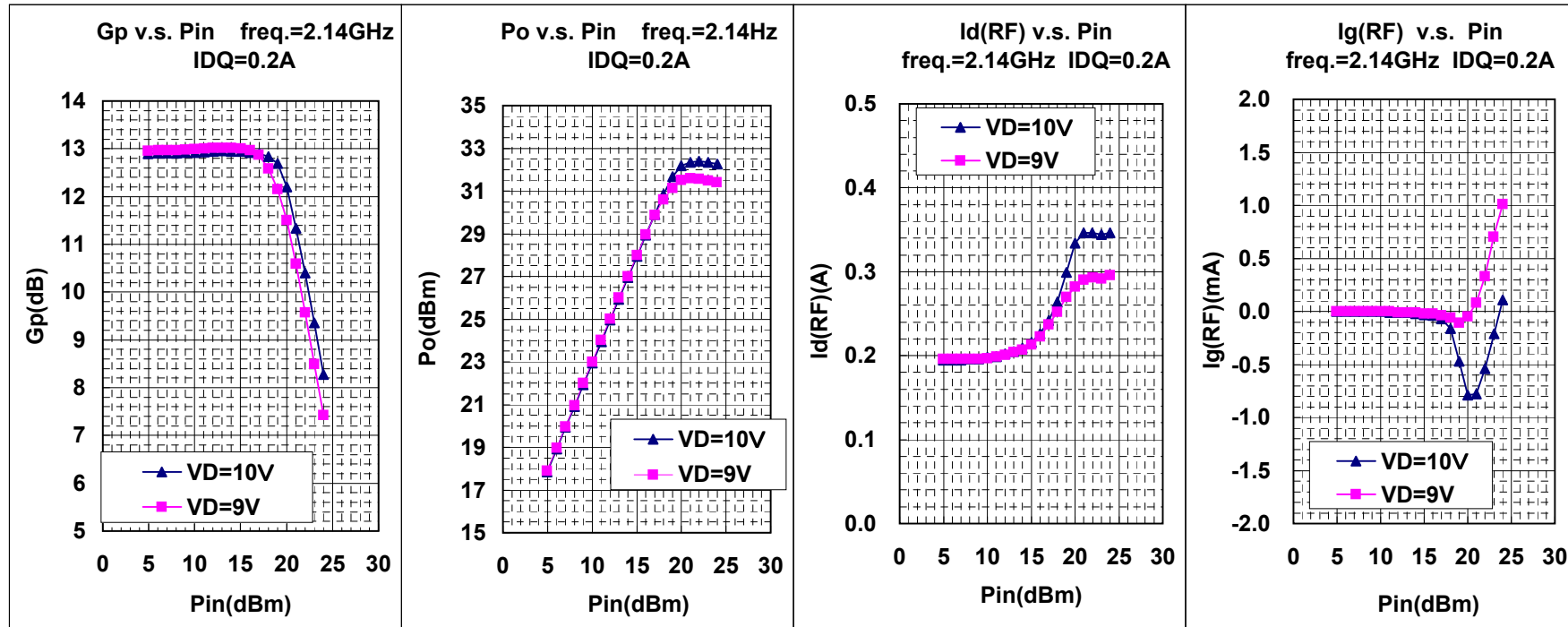
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Gp,Po,Id(RF),Ig(RF) v.s. Pin



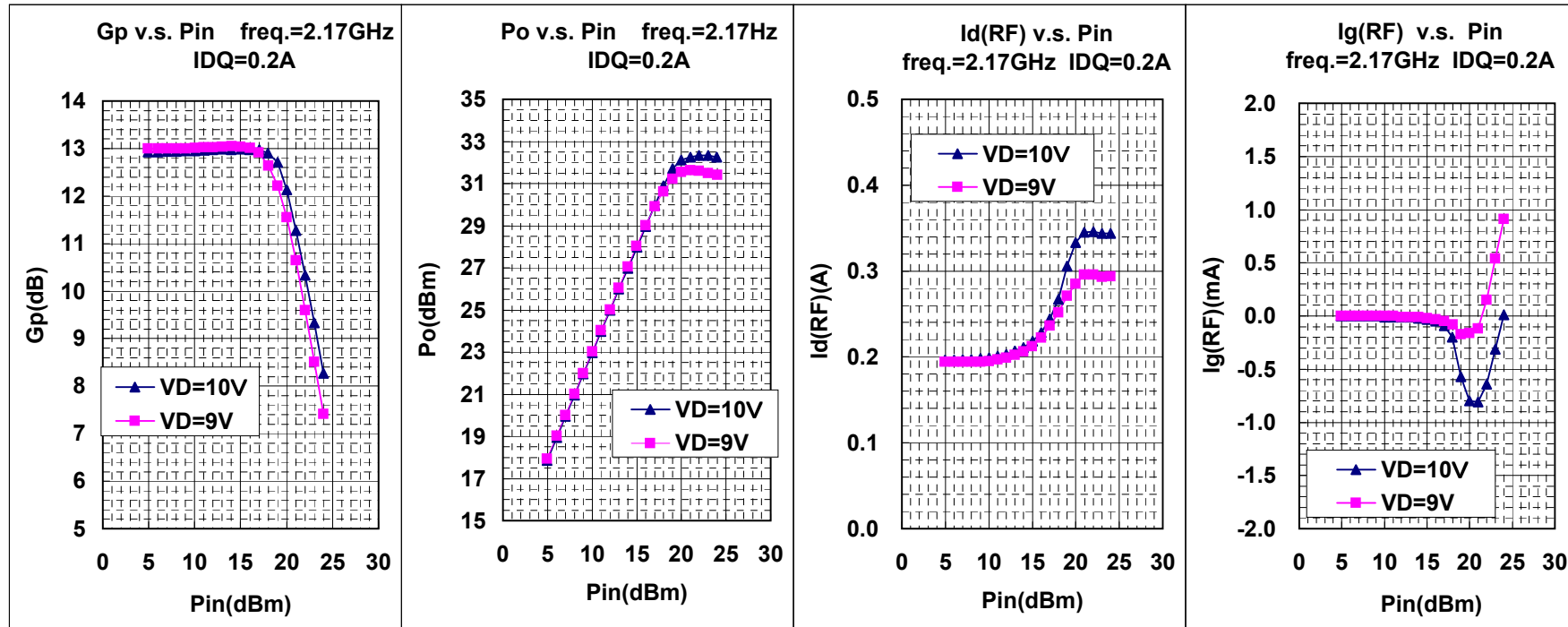
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Gp,Po,Id(RF),Ig(RF) v.s. Pin



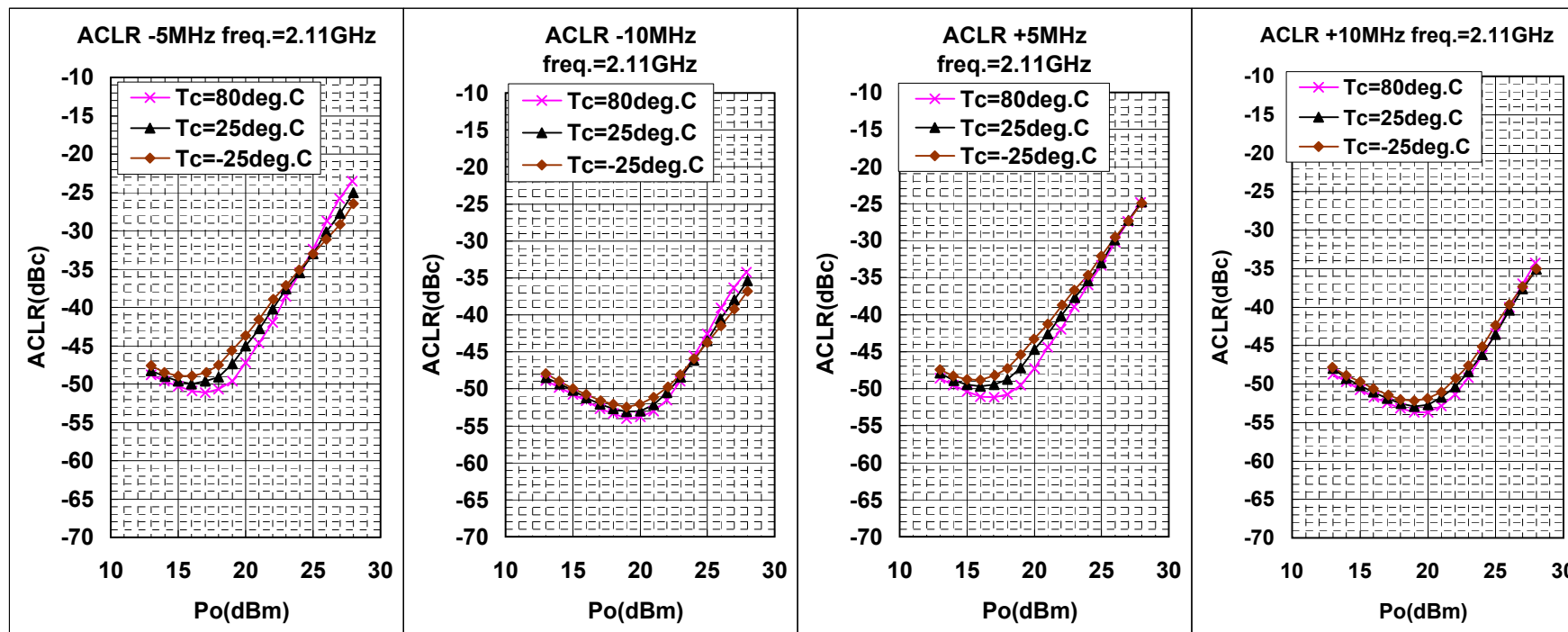
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Gp,Po,Id(RF),Ig(RF) v.s. Pin



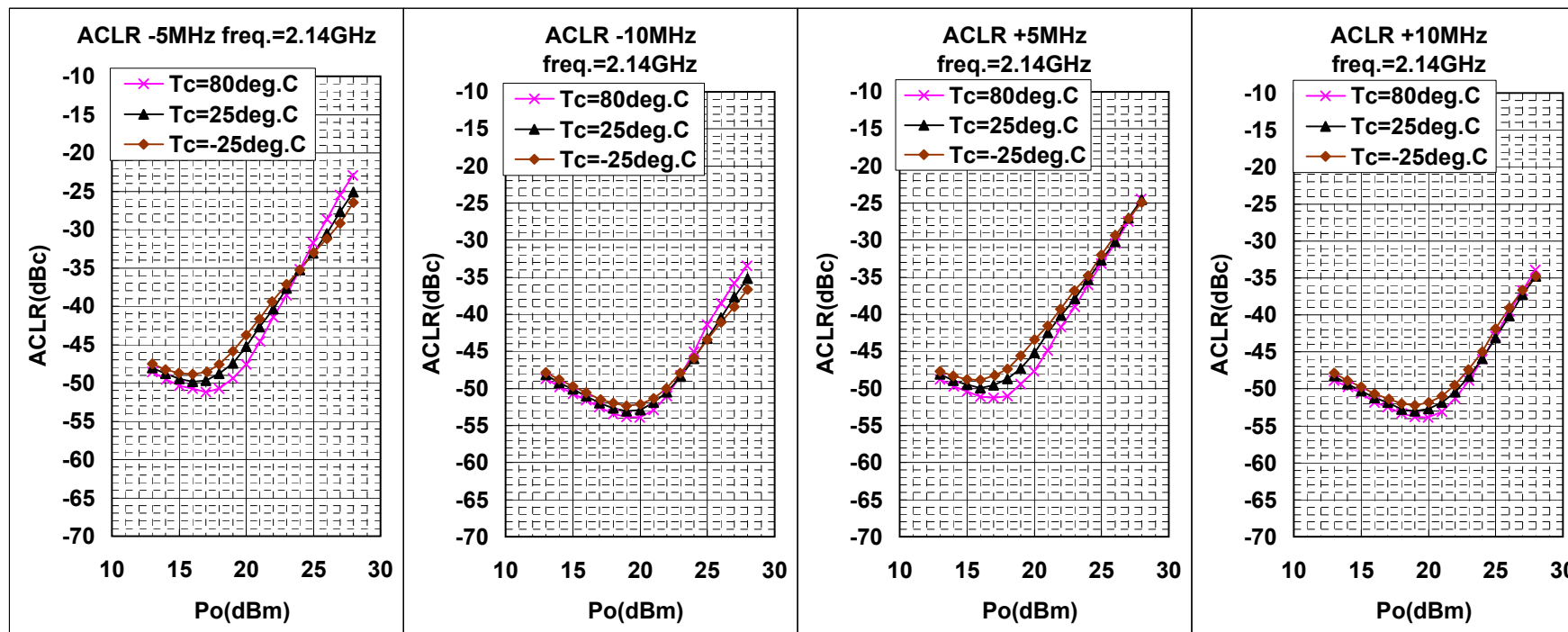
MGF0951P RF TEST DATA(CW)
Gp,Po,Id(RF),Ig(RF) v.s. Pin



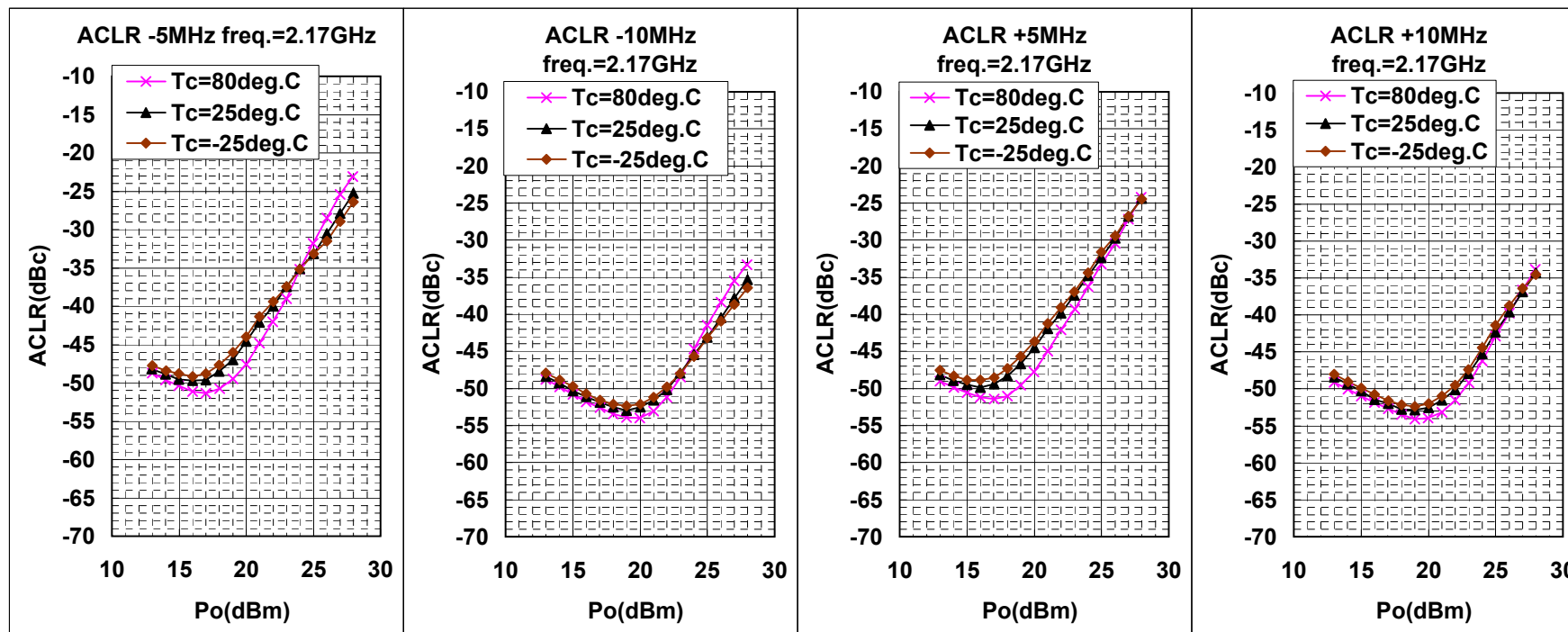
MGF0951P RF TEST DATA(W-CDMA) VD=10V,IDQ=0.2A
ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



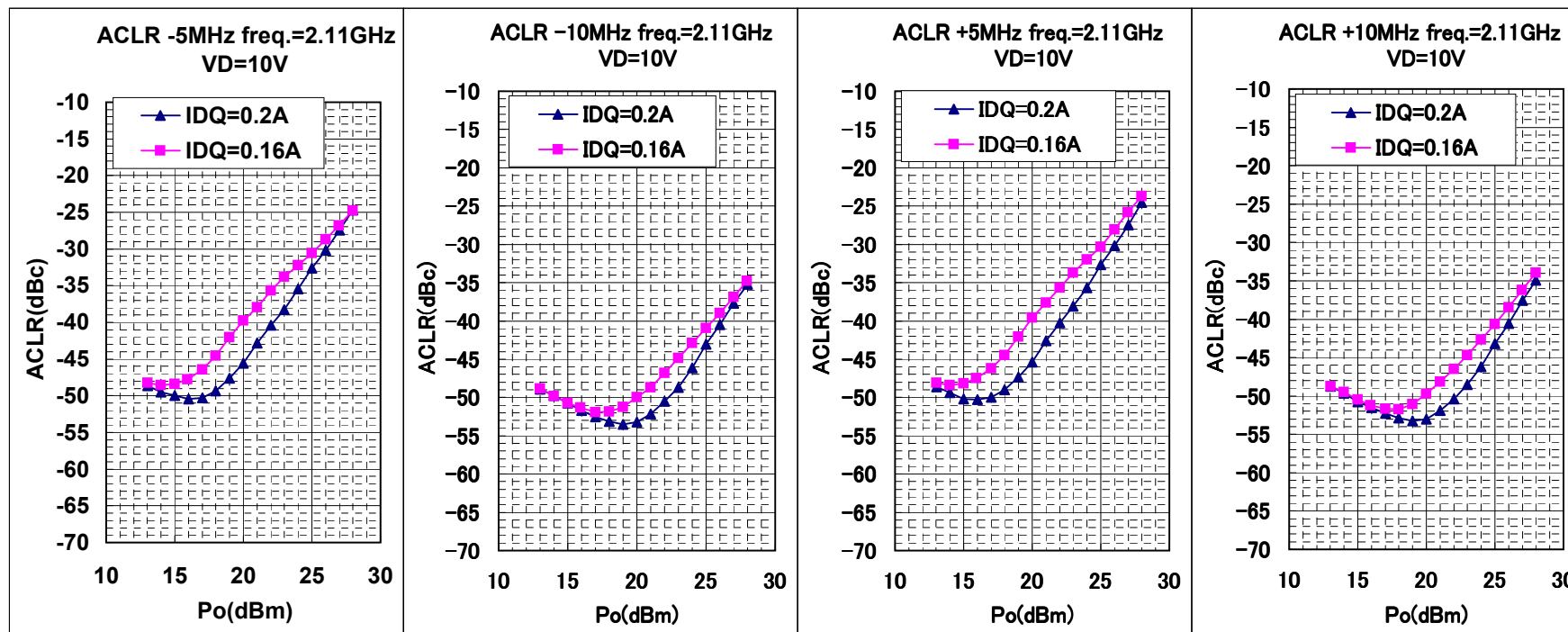
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 ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



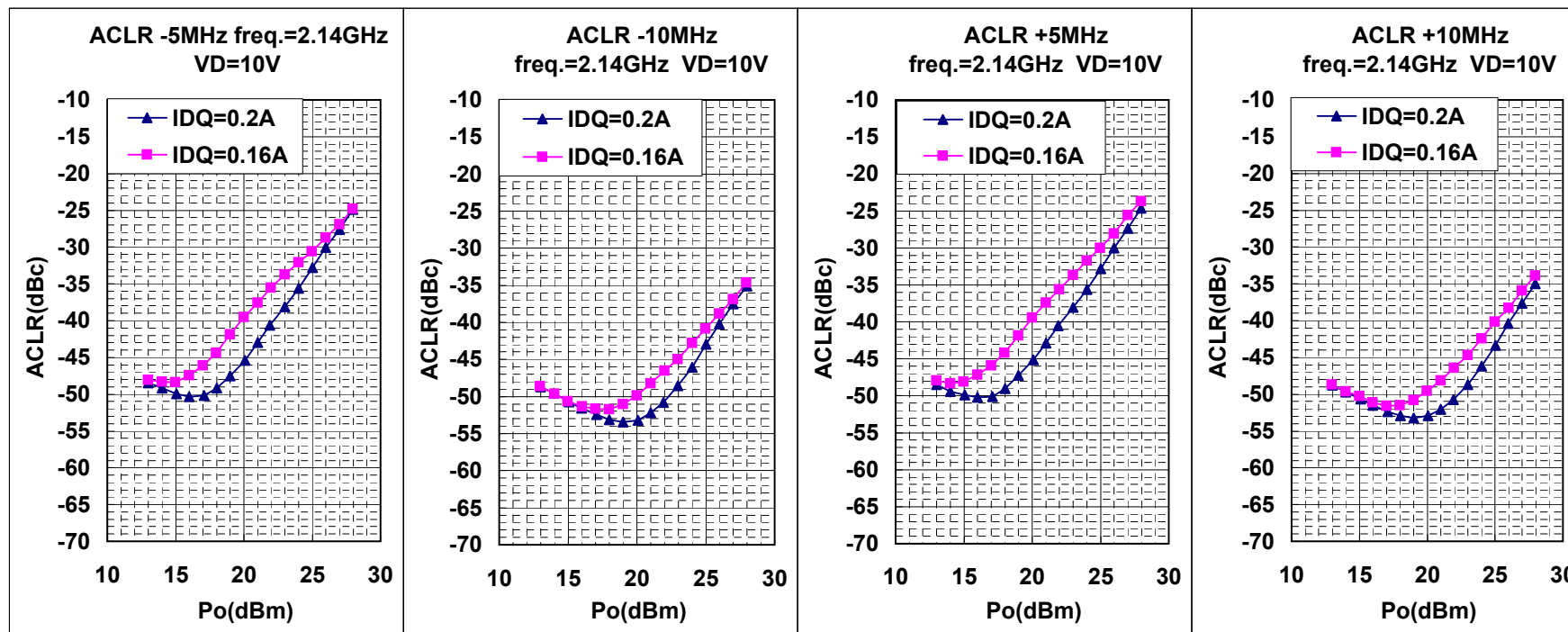
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ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



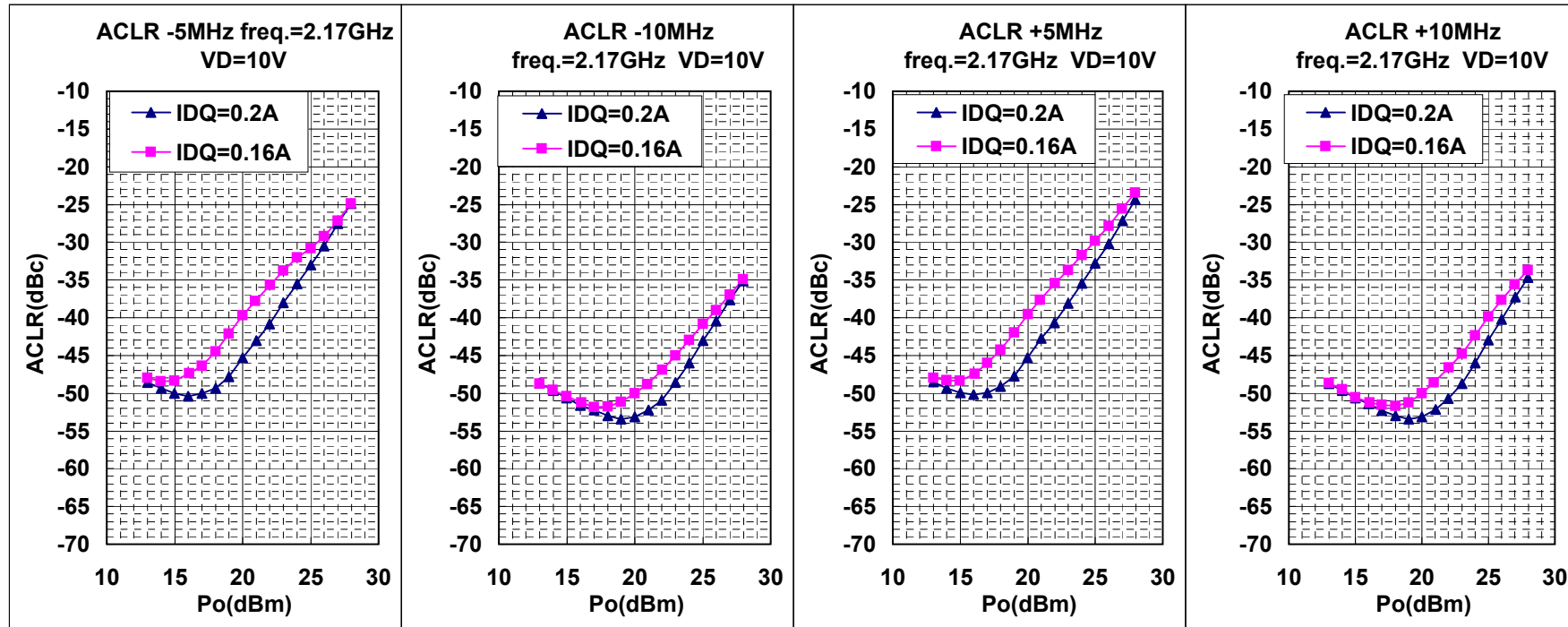
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ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



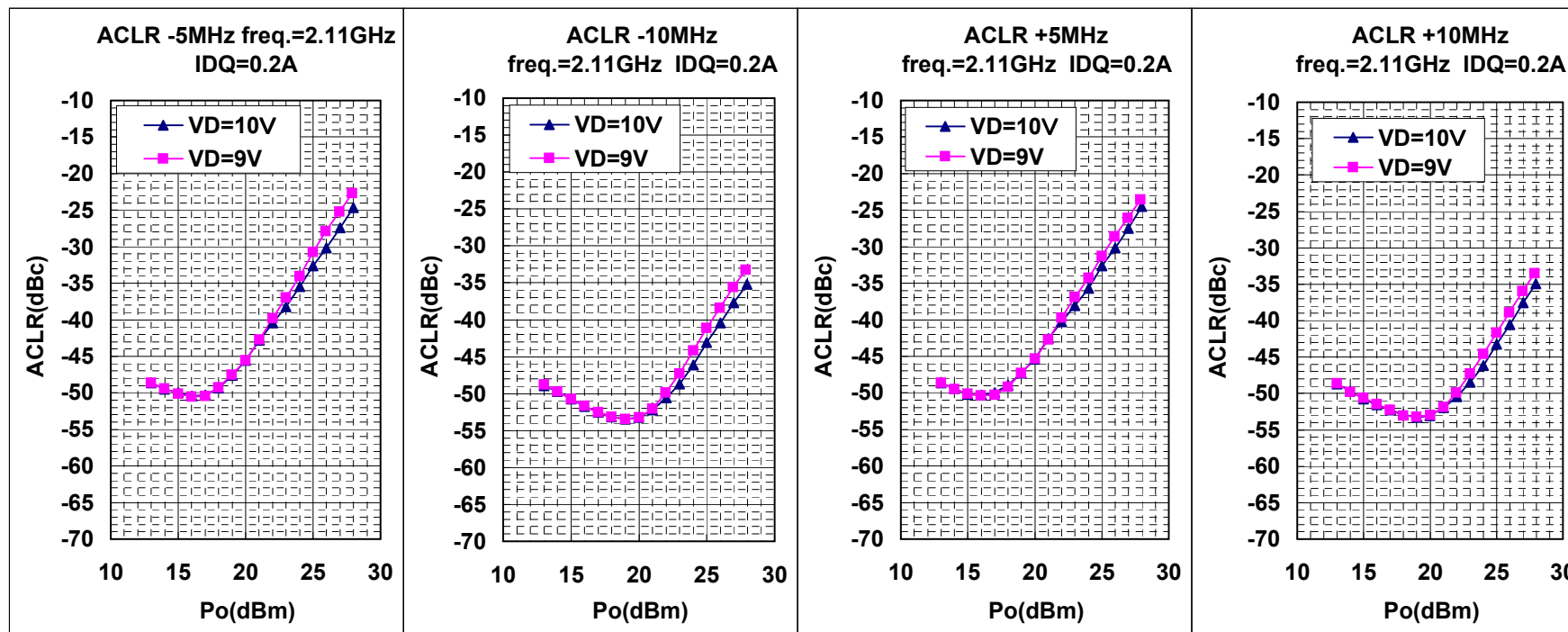
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ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



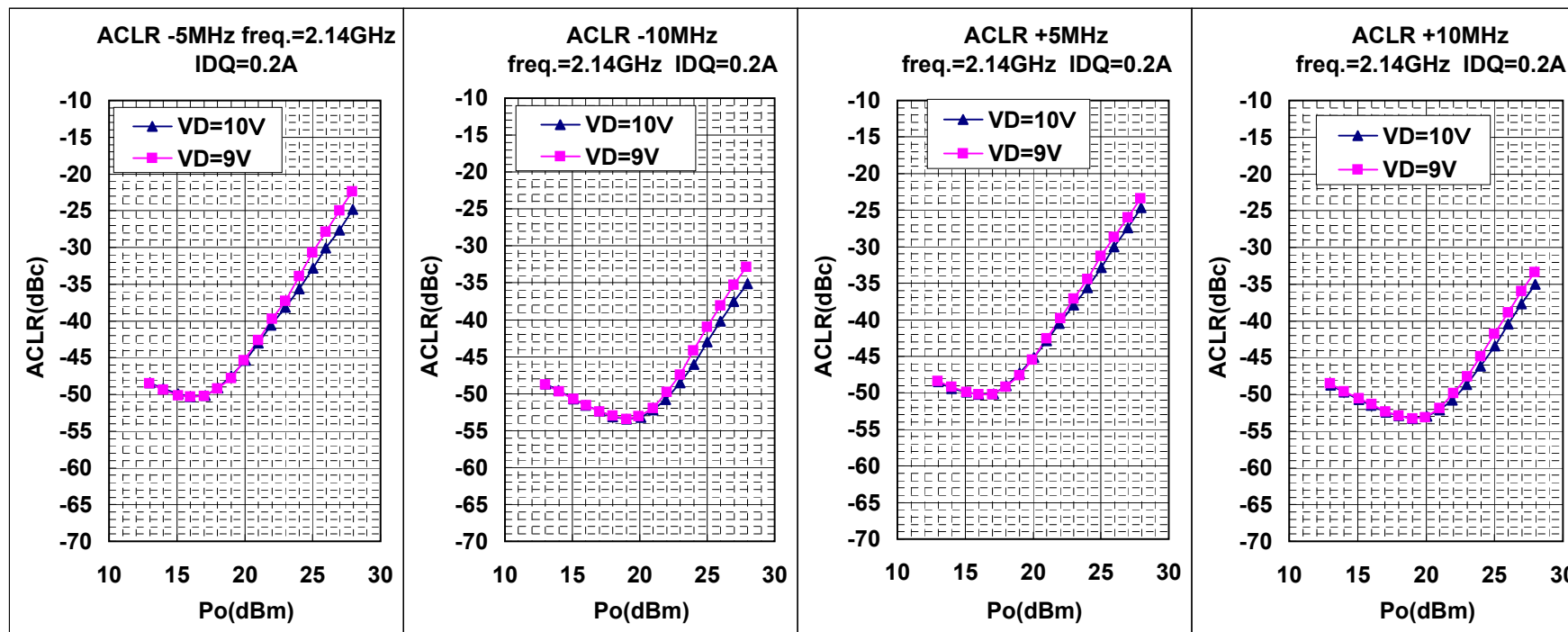
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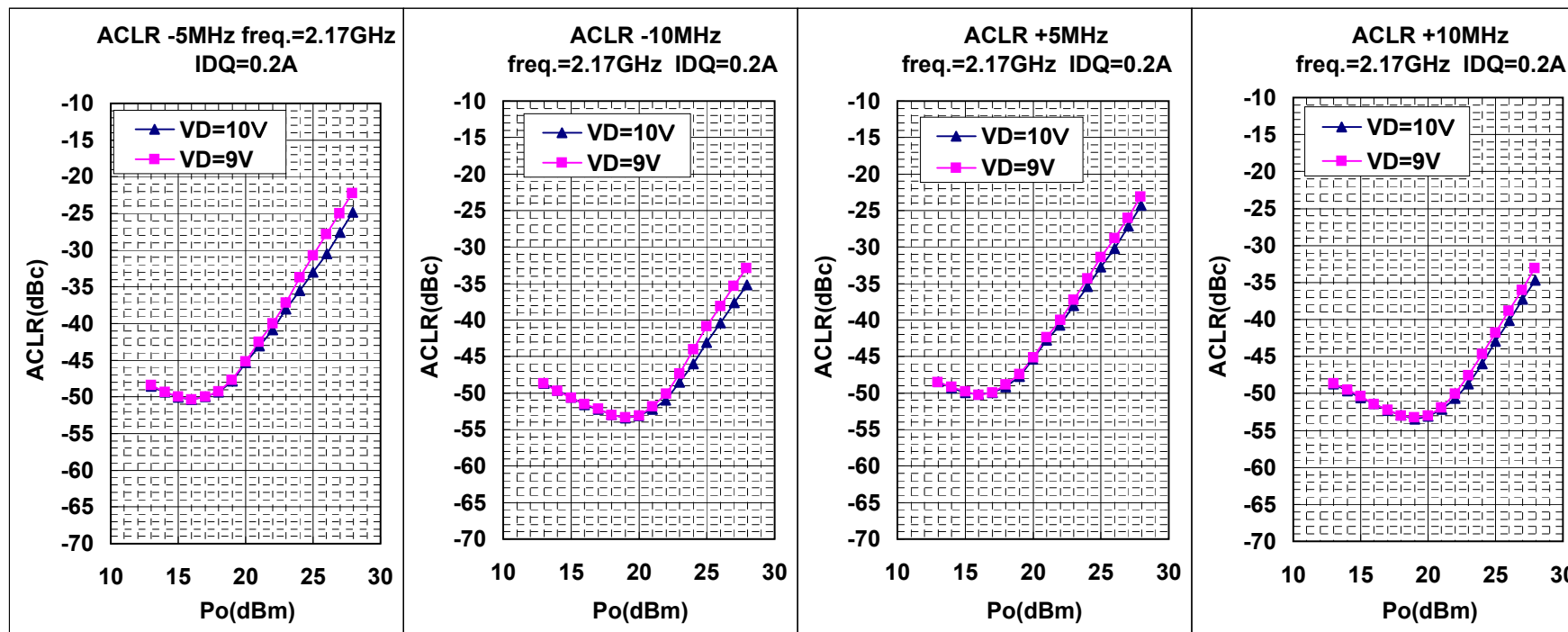
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ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



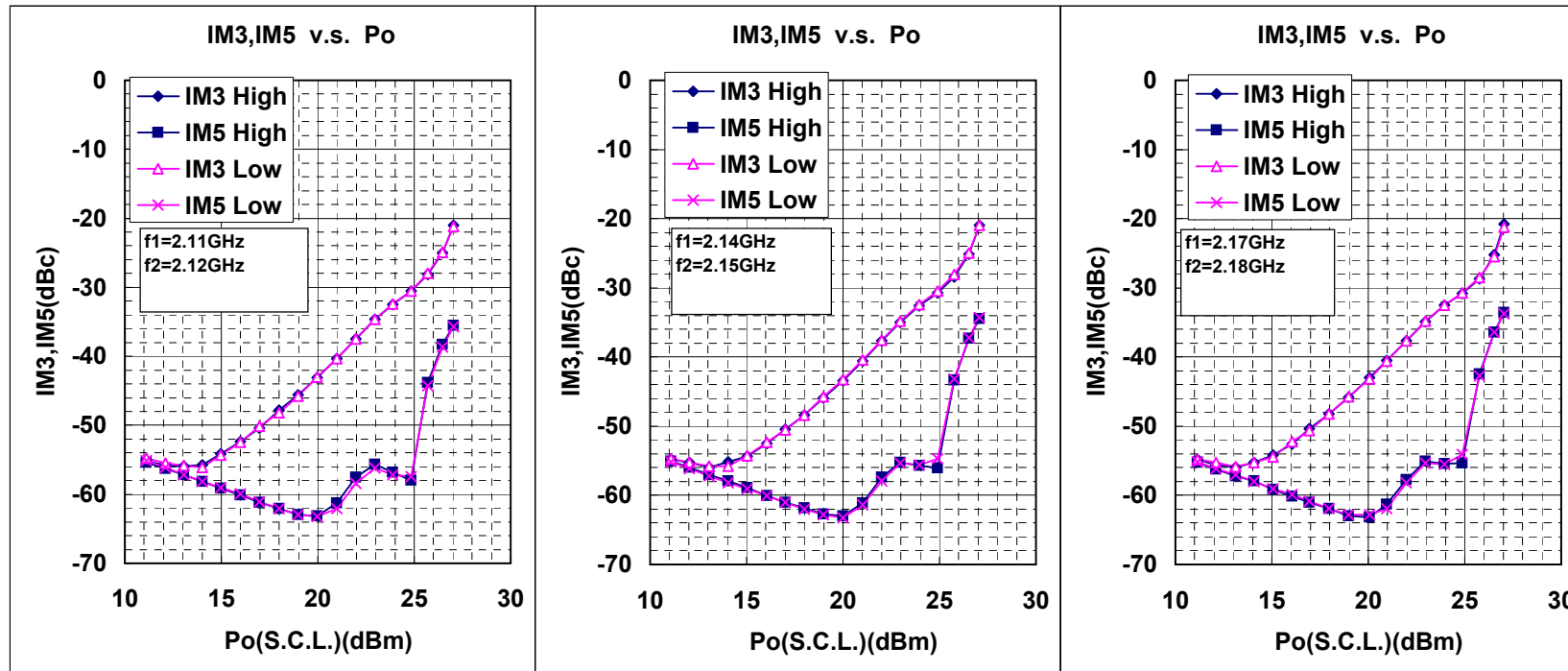
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ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



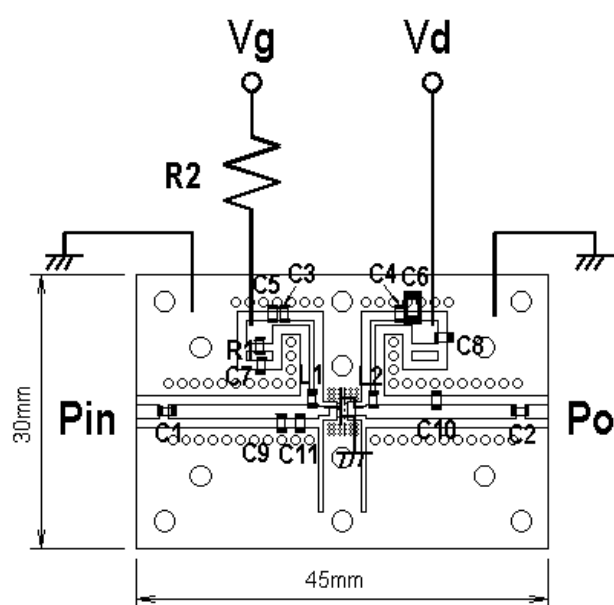
MGF0951P RF TEST DATA(W-CDMA)
ACLR v.s. Po 3GPP TEST MODEL1 64ch's 2carrier Signal



MGF0951P RF TEST DATA VD=10V, IDQ=0.2A
IM3, IM5 v.s. Pin



MGF0951P TEST FIXTURE $f=2.11\text{-}2.17\text{GHz}$



C1,C2,C3,C4=20pF
C5,C7,C8=1000pF
C9=2pF
C10=1pF
C11=0.5pF
C6=4.7uF
L1,L2=12nH
R1=51ohm
R2=500ohm

Board material:FR4 Thickness=0.8(mm)
Specific dielectric constant=4.4

L & S BAND GaAs FET [Plastic Mold Lead-less PKG]**Requests Regarding Safety Designs**

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