

RMS Communications Inc.,

20V8GBDK* Technical Report

Including Salt Fog & Temperature



- **Summary:**
- **Electrical Performance:**
 - a) Temperature test.
- **Environmental Performance:**
 - a) Salt Fog Exposure
- **Typical Plots (Isolation, Tap Loss & Return Loss)**
- **Picture of Salt Fog Samples & Internal Features of 20V8 Series (Also applies to 20V4's)**
- **Specifications of 20V8GBDK* DigiTaps**
- **Low Inter-Modulation Information**

Summary:

The tests conducted in this evaluation were carried out in accordance with SCTE standards for testing procedures of Passive devices. The passives tested were also compared with the most recent version of the SCTE IPS-SP-206 Drop Passives standards available on the date of this evaluation.

For the electrical testing (Insertion Loss, Return Loss and Isolation) the test equipment used was a HP 8714B (75Ω model) and 8712C (75Ω model) that was factory calibrated in February 2001. Also it was calibrated before each test using a HP85039F Calibration Kit.

For temperature testing it was done in a Tenney chamber cycling between -40C to room temperature up to +70C.

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Temperature Test

Introduction:

The splitters response is measured at room temperature and then at -40C and +70C. During this test all unused ports are terminated with a sealed F connector and then it is covered with boot that has a sealant in it. It is then placed in the test chamber.

This test was performed on our low value taps (11dB terminating tap and 14dB tap) as we found that the biggest change was on the low value taps.

Also we did some preliminary tests in cascades of 2, 3, 4 & 5 units and found that there was not a great deal of change from -40C to +70C based on the variance below.

Test Procedure:

Place splitters in test chamber and increase temperature to +70C, allow units to stabilize at that temperature. Plot response. Repeat same procedure at -40C.

Temperature Response IL Tests

20V8GBDK-11

Model #	Test Info	5 MHz	16 MHz	70 MHz	450 MHz	550 MHz	750 MHz	870 MHz	1000 MHz
20V8GBDKT11 Terminating Tap	Mfgs. Spec	11 +/-1.5	11 +/-1.5	11 +/-1.5	11 +/-1.5	11 +/-1.5	11 +/-1.5	11 +/-1.5	11 +/-1.5
	-40 C	10.56	10.44	10.23	10.56	10.78	10.99	11.24	12.25
	Room	10.77	10.21	9.93	10.24	10.41	10.79	11.16	12.04
	+70 C	10.45	10.59	10.33	10.98	10.99	11.10	11.78	12.50
	Change -40 to +70	-0.11	+0.15	+0.10	+0.42	+0.21	+0.11	+0.54	+0.25

Temperature Response IL Tests

20V8GBDK-14

Model #	Test Info	5 MHz	16 MHz	70 MHz	450 MHz	550 MHz	750 MHz	870 MHz	1000 MHz
20V8GBDK-14 14dB 8-Way DC	Mfgs. Spec	14 +/-1.5	14 +/-1.5	14 +/-1.5	14 +/-1.5	14 +/-1.5	14 +/-1.5	14 +/-1.5	14.5 +/-1.5
	-40 C	13.90	13.91	14.45	14.67	14.60	14.99	15.03	15.23
	Room	13.90	13.90	14.24	14.54	14.67	14.90	14.99	15.01
	+70 C	14.34	14.46	14.67	14.89	14.84	15.23	15.25	15.45
	Change -40 to +70	+0.44	+0.55	+0.22	+0.22	+0.24	+0.24	+0.22	+0.22

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Salt Fog

Introduction:

The salt spray tests were performed in our Orpington facility in a Q-Fog Model SSP600 chamber. And were exposed to 816 hours +/- 10 hours exposure. And was based on Method 1(IEC68-2-9 Procedure B) test method.

Salt Fog Test

RMS DigiTap 20V8GBDK-11 (Terminating)

Salt Fog Tests

Parameter	Test Info	5 MHz	16 MHz	70 MHz	450 MHz	550 MHz	750 MHz	870 MHz	1000 MHz
Tap Loss	20V8GBDK-11 QC	11.5+/-1.5	11.5+/-1.5	11.5+/-1.5	11.5+/-1.5	11.5+/-1.5	11.5+/-1.5	11.5+/-1.5	11.5+/-1.5
Maximum dB	20V8GBDK-11 Typical	11.00	11.00	11.00	11.00	11.25	11.25	11.5	12.00
(Average)	Before Salt Spray	10.65	10.33	10.23	10.55	10.67	10.99	11.25	11.96
	After 816 Hour Salt Spray	10.99	11.00	11.23	11.45	11.56	11.67	11.97	12.34
Return Loss	20V8GBDK0-11 QC	15	18	18	18	18	18	18	18
Minimum dB	20V8GBDK-11 Typical	24	20	21	22	32	30	27	20
(Input/Tap)	Before Salt Spray	19	21	22	24	27	26	23	19
	After 816 Hour Salt Spray	16	22	22	23	26	24	21	18
Isolation	20V8GBDK0-11 QC	21	23	23	23	23	23	23	23
Minimum dB	20V8GBDK-11 Typical	33	45	45	33	31	31	27	24
(Adjacent - Ports)	Before Salt Spray	30	35	40	30	29	30	26	24
	After 816 Hour Salt Sprat	26	32	33	28	27	25	24	22

RMS DigiTap 20V8GBDK-14

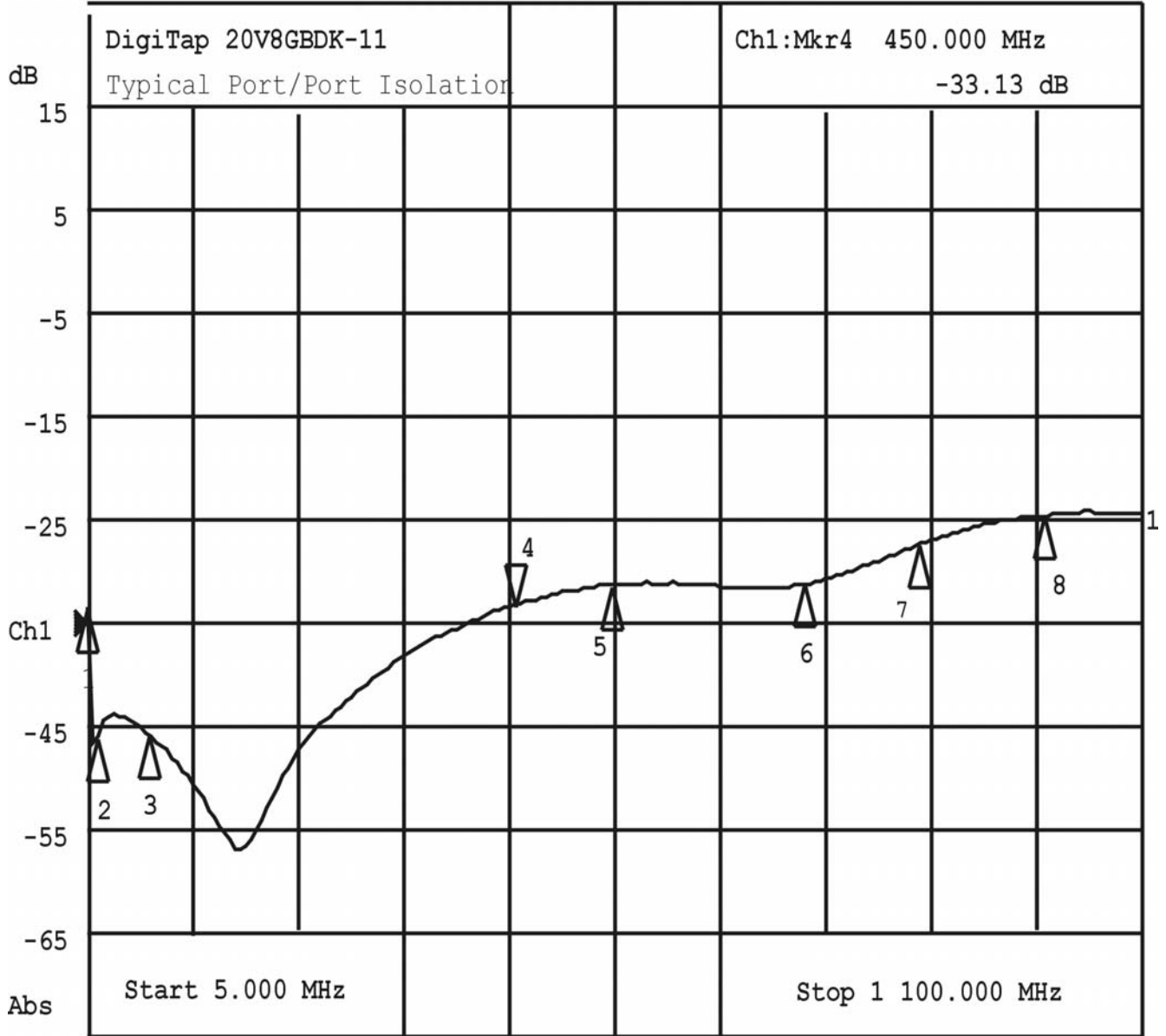
Salt Fog Tests

Parameter	Test Info	5 MHz	16 MHz	70 MHz	450 MHz	550 MHz	750 MHz	870 MHz	1000 MHz
Insertion Loss	20V8GBDK-14 QC	4.0	4.0	3.7	3.7	4.0	4.1	4.3	4.5
Maximum dB	20V8GBDK-14 Typical	3.8	3.8	3.6	3.6	3.8	3.9	4.2	4.3
(In to Output)	Before Salt Spray	3.95	4.0	3.9	3.7	3.84	4.1	4.25	4.45
	After 816 Hour Salt Spray	4.1	4.2	4.2	4.2	4.3	4.34	4.41	4.48
Tap Loss	20V8GBDK-14 QC	14+/-1.5	14+/-1.5	14+/-1.5	14+/-1.5	14+/-1.5	14+/-1.5	14+/-1.5	14.5+/-1.5
Maximum dB	20V8GBDK-14 Typical	13.9	13.8	13.5	13.9	14.3	14.4	14.8	15.1
(Average)	Before Salt Spray	13.95	13.78	13.7	13.8	14.1	14.2	14.3	14.34
	After 816 Hour Salt Spray	14..2	14.1	14.1	14.15	14..23	14.32	14.5	14.76
Isolation	20V8GBDK-14 QC	21	23	23	23	23	23	23	23
Minimum dB	20V8GBDK-14 Typical	22	25	27	27	26	26	24	25
(Adjacent -Ports)	Before Salt Spray	24	26	29	24	25	27	27	26
	After 816 Hour Salt Spray	23	24	25	24	23.5	24.3	23.2	22.9
Return Loss	20V8GBDK-14 QC	15	18	18	18	18	18	18	18
Minimum dB	20V8GBDK-14 Typical	17	20	20	21	22	21	20	19
(Average)	Before Salt Spray	19	23	24	25	25	27	26	21
All Ports)	After 816 Hour Salt Spray	16.5	19.5	19.25	18.1	18.25	18.05	17.95	17.10

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►1:Transmission Log Mag 10.0 dB/ Ref -35.00 dB C

►2:Off

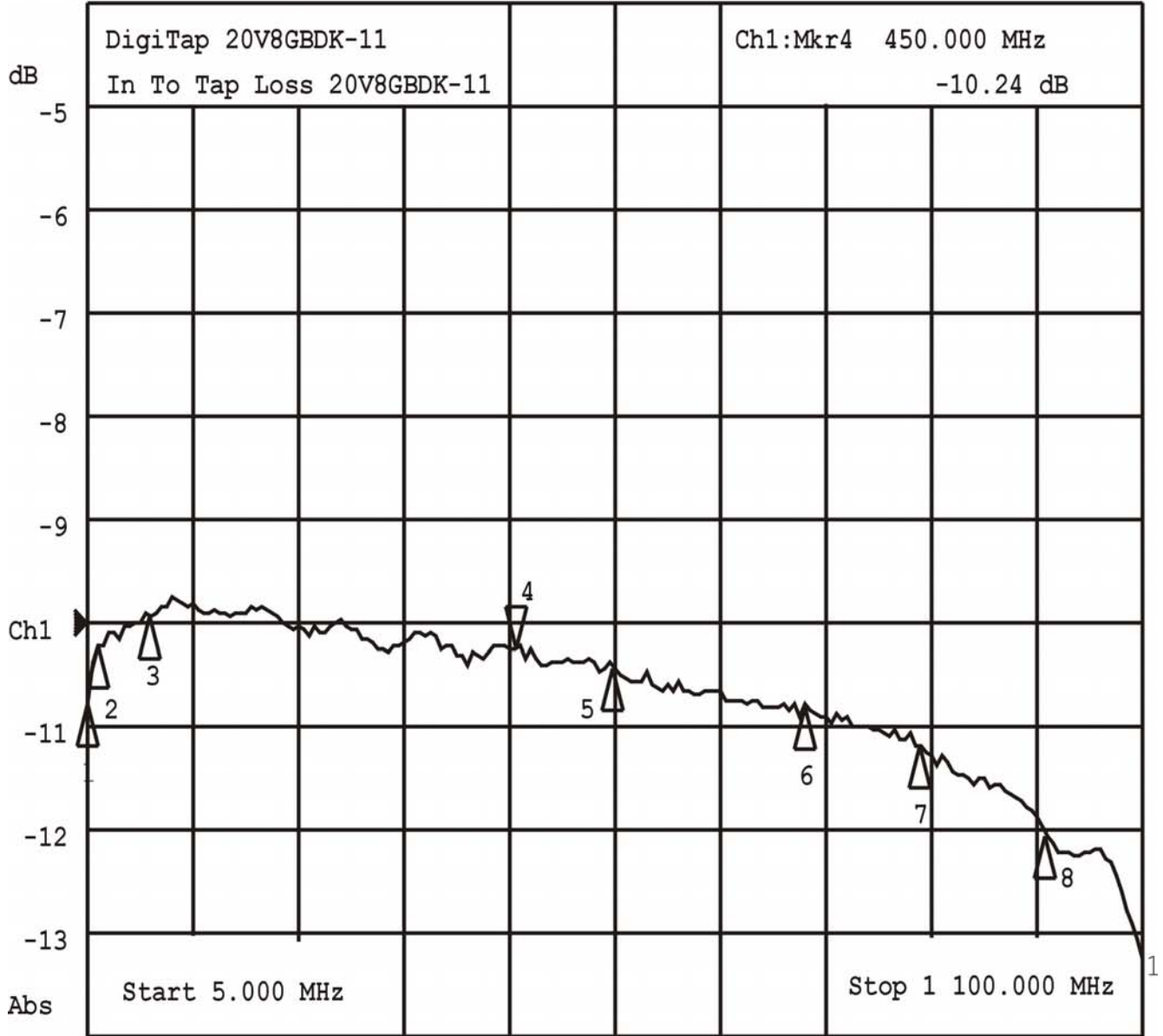


Marker	Freq (MHz)	Ch 1 (dB)	Ch 2 (dB)
1	5.000	-33.54	
2	16.000	-45.99	
3	70.000	-45.88	
4	450.000	-33.13	
5	550.000	-31.26	
6	750.000	-31.18	
7	870.000	-27.33	
8	1000.000	-24.60	

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►1:Transmission Log Mag 1.0 dB/ Ref -10.00 dB C

►2:Off



Marker	Freq (MHz)	Ch 1 (dB)	Ch 2 (dB)
1	5.000	-10.77	
2	16.000	-10.21	
3	70.000	-9.93	
4	450.000	-10.24	
5	550.000	-10.41	
6	750.000	-10.79	
7	870.000	-11.16	
8	1000.000	-12.04	

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▶1:Off

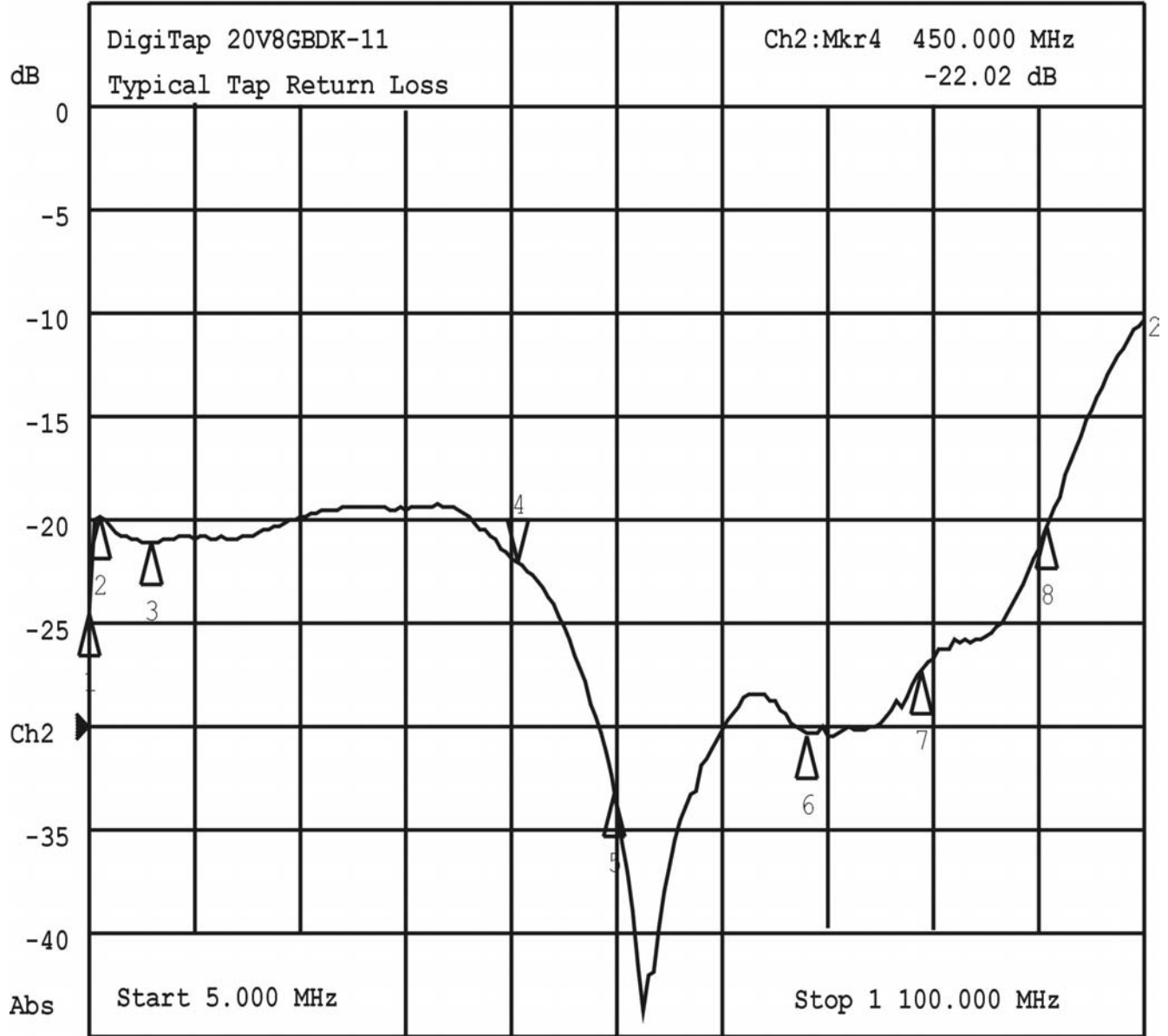
▶2:Reflection

Log Mag

5.0 dB/

Ref -30.00 dB

C



Marker	Freq (MHz)	Ch 1 (dB)	Ch 2 (dB)
1	5.000		-24.38
2	16.000		-19.77
3	70.000		-21.07
4	450.000		-22.02
5	550.000		-33.14
6	750.000		-30.31
7	870.000		-27.25
8	1000.000		-20.22

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▶1:Off

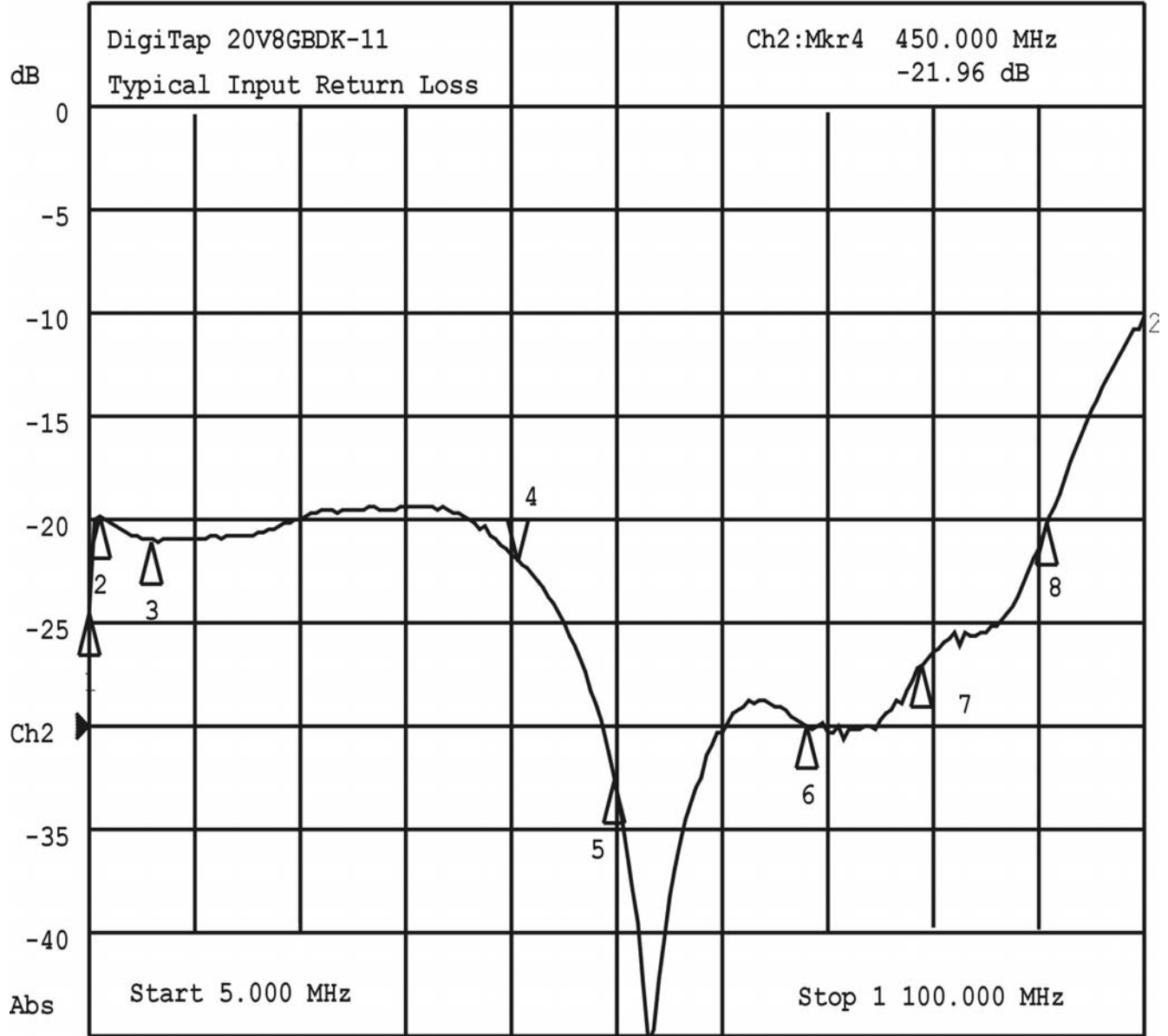
▶2:Reflection

Log Mag

5.0 dB/

Ref -30.00 dB

C

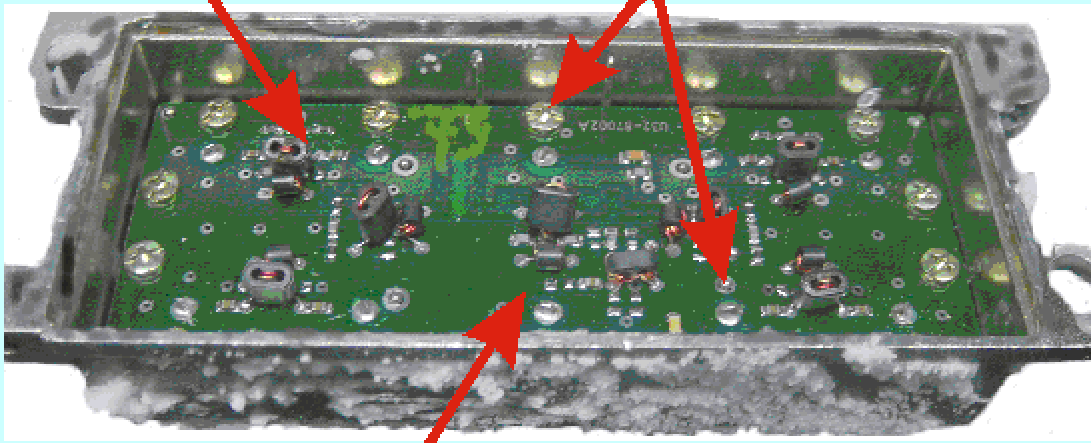


Marker	Freq (MHz)	Ch 1 (dB)	Ch 2 (dB)
1	5.000		-24.45
2	16.000		-19.77
3	70.000		-20.96
4	450.000		-21.96
5	550.000		-32.55
6	750.000		-29.97
7	870.000		-26.97
8	1000.000		-20.09

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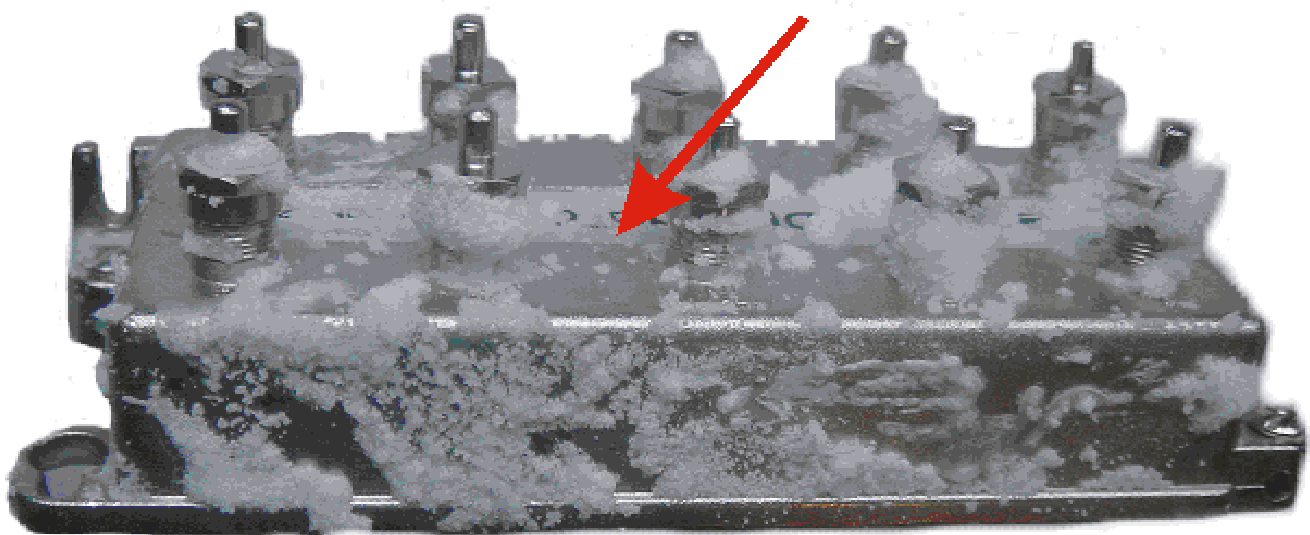
**Double Sided Plated
Through Hole
Printed Circuit Board**

**Multiple Grounding Points
From PCB To Housing Achieves
Outstanding Bandwidth Performance**



**Extensive Use Of Surface Mounted
Components And Strip Line Technology On PCB
Assure Consistency Of Specifications**

**Zinc Housing With Bright Nickel Plating
For Superior Corrosion Resistance**



**Concave Solder Back Design Assures
Excellent RFI Characteristics And
Superior Sealing Of Back Plate To Housing**