

## FCC Bulk Current Injection Clamp

### Datasheet



#### Introduction

FCC Corporation has developed and manufactured continuous wave injection probes for more than 22 model numbers, which can meet requirements of particular users and compliance tests. It can be used in the test in compliance with Mil-Std-461/462, RTCA/DO-160 Section 20 and 22, Bellcore TR-NWT-001 089, SAEJ15447, EN 55101-4, CSEFA-2 Euro-Fighter and other susceptibility specifications.

Model No.	Clamp Dimension (mm)			Rated Power CW	Insertion Loss				
	ID (A)	OD (B)	Ht. (C)		≤6 dB	≤10 dB	≤15 dB	≤20dB	≤25dB
F-120-1	40	127	70	100			1 MHz-125 MHz	50KHZ-150M HZ	25kHz-1 75 MHz
F-120-2	40	127	70	100		500KHZ-230 MHz	175KHZ-250 MHz	90KHZ-275M HZ	50KHZ-300M HZ
F-120-3	40	127	70	125	500 KHZ-700 KHZ	200KHZ-15M HZ	100KHZ-275 MHz	60KHZ-300M HZ	30KHZ-250M HZ
F-120-3B	32	94	64	100	475KHZ-1MHz	200KHZ-30M HZ	100KHZ-275 MHz	60KHZ-300M HZ	40KHZ-350M HZ

F-120-4	40	127	70	125			120KHZ-125 MHZ	600KHZ-150 MHZ	20KHZ-175M HZ
F-120-4A	40	127	70	200	500KHZ- 1MHZ		60KHZ-125M HZ	30KHZ-125M HZ	12KHZ-175M HZ
F-120-5	66	142	54	100		200KHZ-15M HZ	100KHZ-150 MHZ	60KHZ-200M HZ	30KHZ-250M HZ
F-120-6	40	127	70	100			3MHZ-400M HZ	400KHZ-450 MHZ	100KHZ-500 MHZ
F-120-6A	40	127	70	100		300KHZ-275 MHZ	70MHZ-450 MHZ	30KHZ-475M HZ	13KHZ-500M HZ
F-120-7	63	153	102	125			400KHZ-100 MHZ	100KHZ-175 MHZ	40KHZ-190M HZ
F-120-8	40	127	134	200	700KHZ- 100MHZ	300KHZ-275 MHZ	150KHZ-375 MHZ	75KHZ-400M HZ	40KHZ-425M HZ
F-120-8A	40	127	134	200		200KHZ-125 MHZ	70KHZ-155M HZ	35KHZ-165M HZ	20KHZ-175M HZ
F-120-8B	40	127	134	200		350KHZ-475 MHZ	200KHZ-520 MHZ	110kHz-540 MHZ	60KHZ-550M HZ
F-120-9	40	127	70	100		120KHZ-230 MHZ	50KHZ-275M HZ	25KHZ-300M HZ	13KHZ-325M HZ
F-120-9B	32	94	64	100		150KHZ-80M HZ	50KHZ-200M HZ	25KHZ-275M HZ	15KHZ-300M HZ
F-130	40	117	38	50	30MHZ-4 00MHZ	10MHZ-600 MHZ	6MHZ-700M HZ	4MHZ-725M HZ	
F-130A	32	94	64	50	4MHZ-45 0MHZ	1MHZ-550M HZ	700KHZ-600 MHZ	500kHz-625 MHZ	
F-13-1	40	127	70	200	10MHZ-3 50MHZ	5MHZ-510M HZ	3MHZ-550M HZ	2MHZ-570M HZ	1MHZ-575M HZ

F-130-1A	40	127	70	400	7.5MHZ-350 MHZ	3.5MHZ-525 MHZ	3MHZ-580M HZ	1.5MHZ-600 MHZ	1MHZ-850M HZ
F-130-2	51	178	102	700	10MHZ-250MHZ	3MHZ-400M HZ	2MHZ-580M HZ	500KHZ-550 MHZ	300KHZ-570 MHZ
F-130-3	66	142	54	100	15MHZ-250MHZ	7MHZ-350M HZ	5MHZ-450M HZ	2MHZ-500M HZ	
F-140	40	127	70	100	2MHZ-350MHZ	900KHZ-700 MHZ	450KHZ-1G HZ	200KHZ-1.3 GHZ	150KHZ-1.35 GHZ
F-140A	40	127	70	100	100KHZ-350 MHZ	100KHZ-700 MHZ	100KHZ-1G HZ	100KHZ-1.3 GHZ	100KHZ-1.35 GHZ

#### Low Frequency Injection:

The injection probe with model number of F-120-1, F-120-4, F-120-4A, F-120-6 and F-120-6A can be used in impulse injection source and susceptibility monitoring probes. These probes can induce and couple the transient signals with rising time of 5 ns and half impulse width of 100  $\mu$ s. When it is used as monitoring probe, the available frequency range is from 10 KHz to 200 MHz and transferrable impedance +20 dB K2 is from 200 KHz to 150 MHz.

#### The Application of Bulk Current Injection Probe

Bulk Current Injection (BCI) method is used to evaluate electromagnetic susceptibility of a wide range of electronic equipment, including automotive, avionics, computing, medical and tele-communications equipment etc. ECI method can simulate the continuous wave current produced by electrical conductors of EUT in normal operating mode. These conductors include signals, control and power supply circuits of EUT. Bulk current injection conducted immunity test methods use RF transformers to inductively couple large RF currents into conductors linking parts of electronic systems. The injection probe acts as a multiple or single primary winding and the line or circuit under test acts as a secondary winding. Injection probes can be used over the entire frequency shown in the insertion loss curve accompanying each unit.

There are three benefits for performing compliance testing using bulk current injection. The primary benefit is that BCI test results correlate well with radiated susceptibility test results. The design engineer can evaluate the affect of injected currents on the "System" or "Subsystem" under development and the relative immunity of different designs at the prototype stage of equipment development saving significant redesign time and cost. Third, conducted immunity testing can function as an integral part of a production quality assurance program. Quality assurance engineers can use BCI to perform conducted immunity tests on 100% of all critical circuits ensuring a high level of system compliance.



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