Coaxial

Bandpass Filter

ZABP-670-S+

50Ω 470 to 870 MHz

Generic photo used for illustration purposes only

CASE STYLE: UU1842

The Big Deal

- High rejection
- Good VSWR
- Connectorized package

Product Overview

ZABP-670-S+ is a 50Ω bandpass filter with a rugged connectorized package covering the passband of 470 to 870 MHz. The bandpass filter offers good matching within the passband and provides high rejection. This filter has miniature high Q capacitors and wire welded inductors for high reliability. It has repeatable performance across lots and consistent performance across temperature.

Key Features

Feature	Advantages
High rejection	ZABP-670-S+ has sharper transition and rejects spurious signals in the stopband.
Good VSWR	This filter maintains typical VSWR over passband frequency range making this filter easier to integrate into receiver and transmitter RF chains with less concerns for in band frequency ripple.
Connectorized package	Connectorized package is easy to interface with other devices and well suited for test setups.

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CASE STYLE: UU1842

Connectors	Model
SMA-M\F	ZABP-670-S+

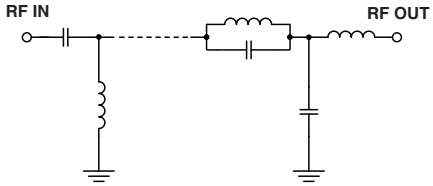
Features

- High rejection
- Good VSWR, 1.4:1 typical@ passband
- Connectorized package

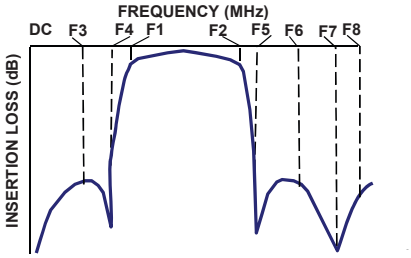
Applications

- Harmonic rejection
- Transmitters / receivers
- Digital TV
- Test equipment

Functional Schematic



Typical Frequency Response



+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications at 25°C

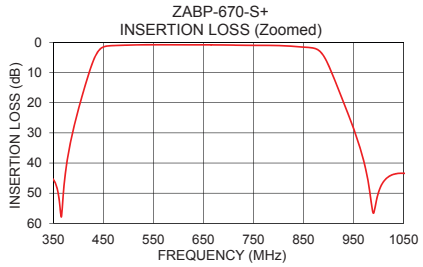
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	-	-	-	670	-	MHz
	Insertion Loss	F1-F2	470-870	-	2.0	2.8	dB
	VSWR	F1-F2	470-870	-	1.4	1.8	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC - 280	40	50	-	dB
		F3-F4	280-365	20	35	-	dB
	VSWR	DC-F4	DC - 365	-	20	-	:1
Stop Band, Upper	Insertion Loss	F5-F6	965-1200	20	30	-	dB
		F6-F7	1200-2000	45	55	-	dB
		F7-F8	2000-3000	-	30	-	dB
	VSWR	F5-F8	965 - 3000	-	20	-	:1

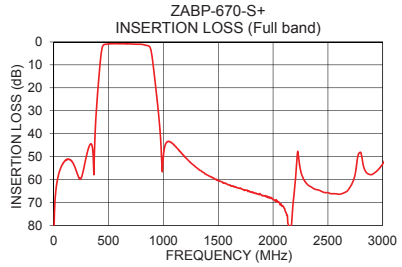
Maximum Ratings	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.7 W max.

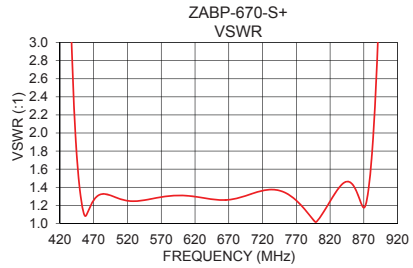
Permanent damage may occur if any of these limits are exceeded.

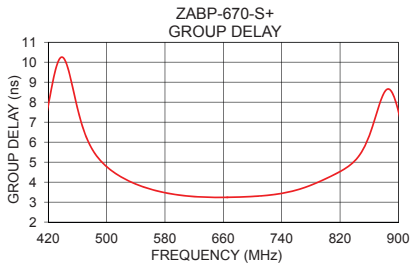
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (ns)
1	87.69	306921.90	470	6.45
100	51.95	1323.38	500	4.77
280	53.74	123.27	520	4.26
365	57.29	50.87	540	3.90
388	30.27	36.10	560	3.65
403	20.44	25.31	580	3.47
425	8.28	8.04	600	3.35
438	3.31	2.82	620	3.28
470	1.05	1.26	640	3.24
670	0.81	1.26	660	3.24
870	1.88	1.17	670	3.24
885	3.33	2.10	700	3.28
932	20.73	15.83	720	3.34
955	30.94	19.44	740	3.44
965	36.14	20.22	760	3.60
1200	50.31	23.63	780	3.85
2000	68.70	24.89	800	4.16
2225	47.73	23.37	820	4.53
2800	48.24	18.97	850	5.53
3000	53.22	22.68	870	7.42









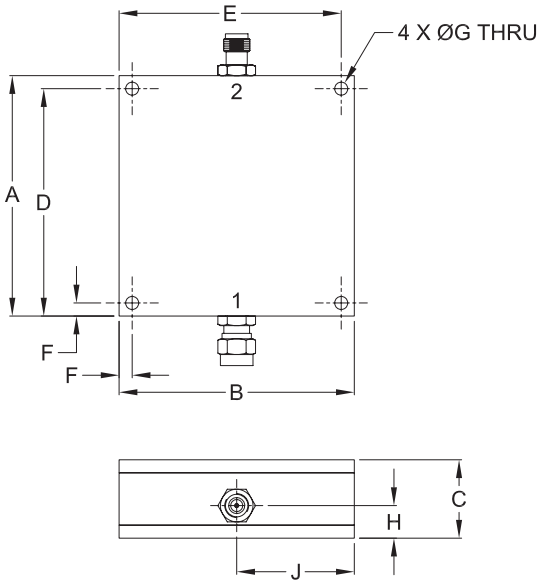
Notes

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Coaxial Connections

PORT - 1	SMA-MALE
PORT - 2	SMA-FEMALE

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E
2.300	**2.250**	**.750**	**2.175**	**2.125**
58.42	57.15	19.05	55.25	53.98

F	G	H	J	wt.
.125	**.125**	**.312**	**1.125**	**grams**
3.18	3.18	7.93	28.58	124

Note: Please refer to case style drawing for details

Coaxial Band Pass Filter ZABP-670-S+

Typical Performance Data

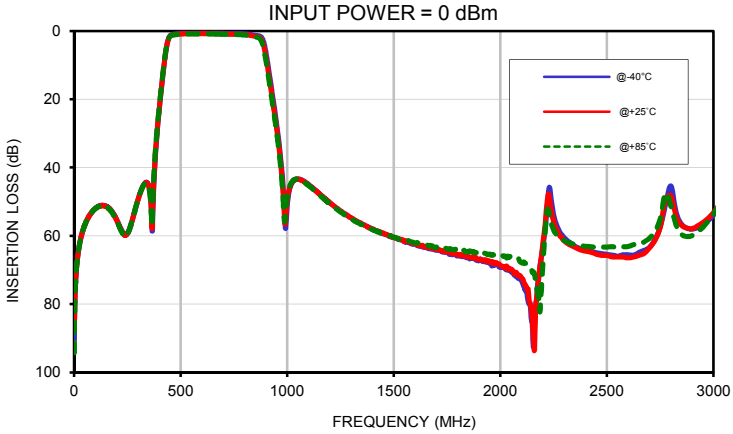
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
1	90.46	87.69	94.25	0.00	0.00	0.00	0.00	0.00	0.00
5	76.32	76.63	76.59	0.00	0.00	0.00	0.00	0.00	0.00
25	62.68	62.54	62.65	0.00	0.00	0.00	0.01	0.01	0.01
50	56.81	56.77	56.90	0.00	0.00	0.00	0.02	0.04	0.04
75	53.77	53.76	53.73	0.00	0.01	0.01	0.05	0.07	0.07
100	51.97	51.95	51.90	0.00	0.01	0.01	0.08	0.11	0.13
125	51.17	51.22	51.19	0.01	0.02	0.02	0.14	0.18	0.20
150	51.33	51.42	51.46	0.02	0.03	0.03	0.22	0.26	0.29
175	52.62	52.80	52.93	0.03	0.04	0.04	0.31	0.36	0.38
200	55.31	55.48	55.73	0.04	0.06	0.06	0.37	0.43	0.46
225	58.73	58.79	58.96	0.06	0.08	0.07	0.39	0.46	0.49
250	59.33	59.35	59.54	0.09	0.10	0.10	0.37	0.44	0.48
280	53.81	53.74	53.73	0.12	0.14	0.13	0.33	0.40	0.45
300	49.37	49.35	49.27	0.15	0.17	0.16	0.31	0.39	0.43
325	45.22	45.27	45.26	0.19	0.22	0.21	0.31	0.39	0.44
365	56.81	57.29	57.16	0.30	0.34	0.34	0.40	0.50	0.55
385	33.07	32.56	32.09	0.40	0.45	0.47	0.52	0.64	0.70
388	30.74	30.27	29.84	0.42	0.48	0.50	0.55	0.67	0.74
390	29.28	28.83	28.42	0.43	0.50	0.52	0.57	0.69	0.76
400	22.67	22.27	21.91	0.54	0.63	0.66	0.69	0.84	0.93
403	20.83	20.44	20.09	0.59	0.69	0.73	0.75	0.91	1.00
410	16.71	16.33	15.99	0.76	0.89	0.96	0.93	1.13	1.25
425	8.56	8.28	7.99	1.88	2.17	2.40	2.05	2.42	2.70
430	6.23	6.02	5.79	2.84	3.25	3.61	2.99	3.48	3.88
438	3.34	3.31	3.21	5.77	6.43	7.12	5.79	6.53	7.21
440	2.83	2.84	2.77	6.87	7.61	8.40	6.83	7.63	8.39
450	1.37	1.51	1.56	15.64	16.82	18.57	14.37	15.36	16.49
470	0.91	1.05	1.12	18.41	18.85	18.74	18.40	19.07	19.29
670	0.67	0.81	0.89	18.30	18.74	19.14	17.66	17.84	18.09
870	1.48	1.88	2.20	21.31	21.94	19.41	21.31	23.05	21.81
890	3.36	4.43	5.36	7.44	6.32	5.42	7.48	6.27	5.40
900	6.26	7.60	8.73	3.55	3.27	2.98	3.52	3.15	2.86
910	10.14	11.53	12.67	1.93	1.96	1.91	1.84	1.80	1.73
920	14.35	15.68	16.79	1.27	1.40	1.43	1.13	1.19	1.20
932	19.46	20.73	21.79	0.95	1.10	1.16	0.76	0.86	0.89
940	22.90	24.15	25.20	0.84	1.00	1.06	0.63	0.73	0.77
955	29.65	30.94	32.05	0.75	0.89	0.97	0.49	0.58	0.62
965	34.72	36.14	37.39	0.72	0.86	0.94	0.43	0.53	0.57
975	40.90	42.67	44.30	0.69	0.84	0.92	0.39	0.48	0.52
1000	51.03	49.62	48.64	0.67	0.81	0.90	0.32	0.41	0.44
1200	50.33	50.31	50.62	0.52	0.74	0.85	0.18	0.27	0.29
1300	54.76	54.72	55.06	0.46	0.68	0.79	0.19	0.27	0.29
1400	57.99	58.01	58.17	0.44	0.64	0.76	0.21	0.29	0.31
1500	60.46	60.40	60.39	0.45	0.64	0.76	0.22	0.30	0.33
1600	62.45	62.36	62.06	0.45	0.64	0.76	0.24	0.32	0.35
1700	64.05	63.91	63.32	0.47	0.66	0.77	0.26	0.34	0.37
1800	65.80	65.43	64.32	0.47	0.67	0.79	0.28	0.36	0.39
1900	67.21	67.07	64.71	0.48	0.68	0.80	0.29	0.37	0.40
2000	68.92	68.70	65.97	0.49	0.70	0.82	0.30	0.38	0.42
2100	73.20	72.48	67.95	0.50	0.71	0.84	0.30	0.39	0.43
2200	62.76	61.94	67.48	0.51	0.73	0.86	0.32	0.42	0.48
2300	60.63	61.49	61.46	0.53	0.75	0.87	0.30	0.40	0.44
2400	64.00	64.45	63.10	0.54	0.77	0.89	0.30	0.40	0.44
2500	65.50	65.72	63.29	0.54	0.78	0.91	0.30	0.40	0.45
2600	65.54	66.44	63.11	0.55	0.79	0.92	0.29	0.40	0.45
2700	63.31	63.46	60.64	0.56	0.80	0.93	0.28	0.40	0.45
2800	45.42	48.24	51.25	0.72	0.92	1.02	0.29	0.41	0.46
2900	58.06	57.87	59.91	0.55	0.78	0.92	0.27	0.41	0.46
2950	56.77	56.13	57.47	0.54	0.77	0.91	0.28	0.41	0.47
3000	53.90	53.22	53.58	0.54	0.77	0.90	0.29	0.42	0.49

Typical Performance Data

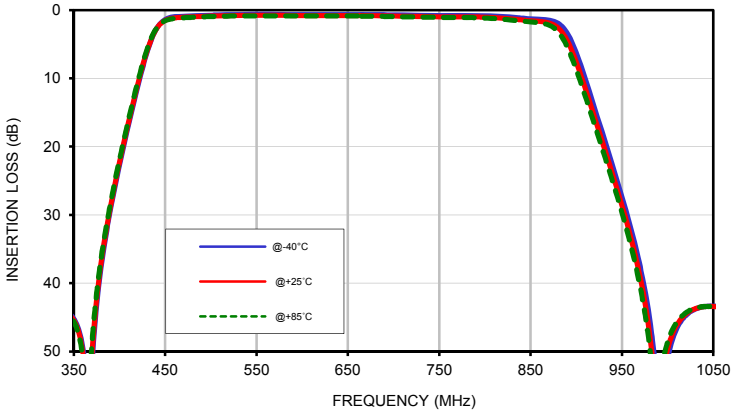
FREQ. (MHz)	GROUP DELAY (nsec)		
	@-40°C	@+25°C	@+85°C
470	6.54	6.45	6.37
480	5.70	5.66	5.62
490	5.17	5.14	5.12
500	4.80	4.77	4.76
510	4.51	4.49	4.48
520	4.28	4.26	4.25
530	4.08	4.07	4.05
540	3.92	3.90	3.89
550	3.78	3.77	3.76
560	3.66	3.65	3.64
570	3.56	3.55	3.55
580	3.48	3.47	3.47
590	3.41	3.40	3.40
600	3.35	3.35	3.35
610	3.31	3.31	3.31
620	3.28	3.28	3.29
630	3.25	3.25	3.27
640	3.24	3.24	3.25
645	3.23	3.24	3.25
650	3.23	3.24	3.25
655	3.23	3.24	3.25
660	3.23	3.24	3.25
665	3.23	3.24	3.25
670	3.23	3.24	3.25
675	3.24	3.25	3.26
680	3.25	3.25	3.26
685	3.25	3.26	3.27
690	3.26	3.27	3.28
700	3.28	3.28	3.29
710	3.30	3.31	3.32
720	3.33	3.34	3.35
730	3.37	3.38	3.40
740	3.42	3.44	3.46
750	3.49	3.51	3.53
760	3.57	3.60	3.63
770	3.68	3.71	3.74
780	3.81	3.85	3.88
790	3.96	4.00	4.04
800	4.12	4.16	4.20
810	4.30	4.34	4.38
820	4.48	4.53	4.57
830	4.69	4.75	4.81
840	4.97	5.06	5.15
850	5.38	5.53	5.69
860	6.07	6.31	6.55
870	7.15	7.42	7.65

Typical Performance Curves

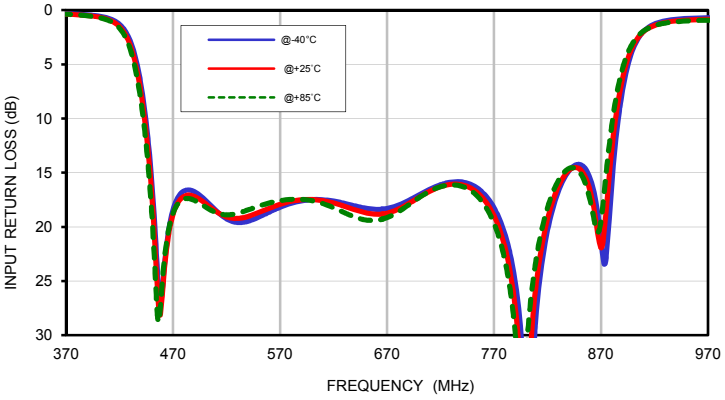
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



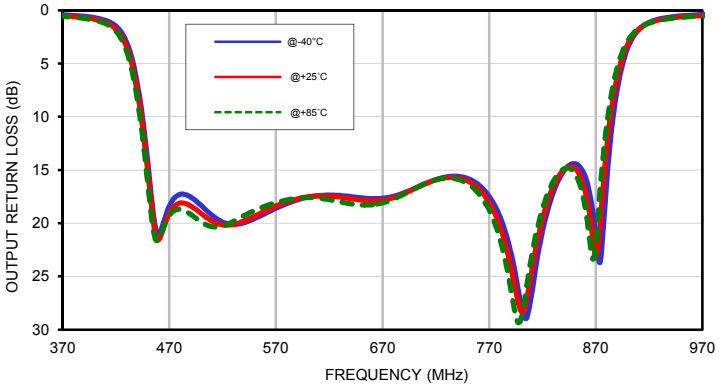
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



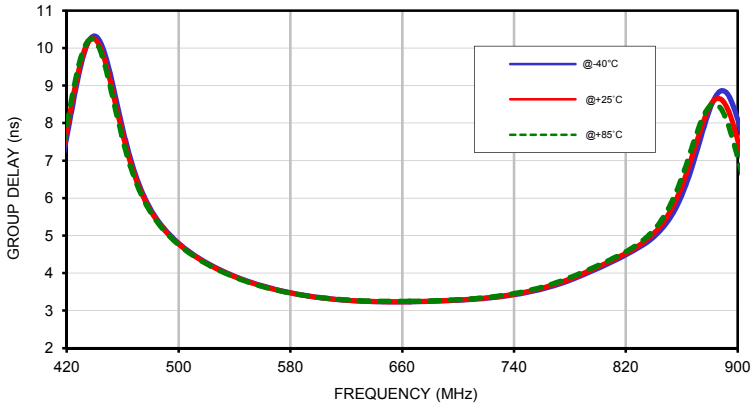
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



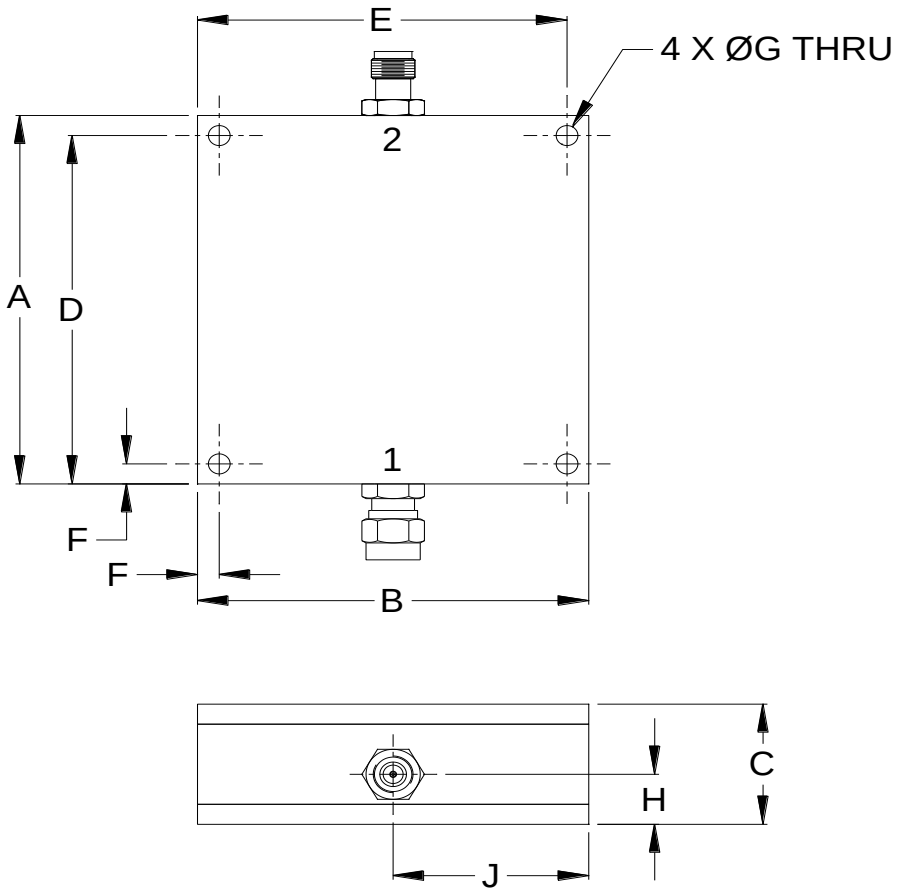
GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



Case Style UU

Outline Dimensions

UU1842



CASE#	A	B	C	D	E	F	G	H	J	WT.GRAMS
UU1842	2.300 (58.42)	2.250 (57.15)	0.750 (19.05)	2.175 (55.25)	2.125 (53.98)	0.125 (3.18)	0.125 (3.18)	0.312 (7.93)	1.125 (28.58)	124

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .03; 3 Pl. ± .015

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
   For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.

Mini-Circuits

Environmental Specifications **ENV28T5**

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85°C	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I