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PRODUCT GUIDE
Waveguides

Broad Selection of Ready-to-Ship Waveguides

Fairview Microwave offers a comprehensive selection of active and passive waveguide components that cover microwave and millimeter wave bands up to 220 GHz. With over 30 different categories and thousands of models, our waveguide products include low noise and power amplifiers, converter mixers, bandpass filters, detectors, pin diode and electromechanical relay switches, antennas, adapters, attenuators, phase shifters, oscillators, couplers, gain horns, magic tees, terminations, transitions, twists, bends, sections, flexible waveguides, and assembly accessories.








Fairview's waveguide models offer system designs that utilize integrated waveguide components and interconnects. These configurations result in a completely shielded signal path with excellent isolation for optimum signal processing performance. Our waveguides also enable extremely high peak power levels to be transmitted with very low losses. Typical use cases for our waveguide products range from point-to-point radio links, test and measurement, and industrial to front end radars, sensors, and wireless communication.

All models are in-stock and ready for same-day shipping. Visit www.fairviewmicrowave.com to view the complete waveguide inventory and comprehensive datasheets that include typical performance graphs, detailed CAD drawings and real-time pricing and inventory.



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Waveguide Low Noise Amplifiers

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Typical Gain (dB)	Typical Gain Flatness (dB)	Noise Figure (dB)	P1dB (Watts)	Max DC Voltage (Volts)	Typ DC Current (mA)	Flange Type	ECCN
FMWGA3206 	WR-10	75 - 110	25		5.5		8	180	UG-387/U-Mod	3A001.b.4.e.3
FMWGA3205 	WR-12	60 - 90	30		4.5	8	8	225	UG-387/U	EAR99
FMWGA3204 	WR-15	50 - 75	30		5		8	175	UG-385/U	EAR99
FMWGA3203 	WR-19	40 - 60	30		4.5	15	8	350	UG-383/U-Mod	EAR99
FMWGA3202 	WR-22	33 - 50	30		5.5	10	8	300	UG-383/U	EAR99
FMWGA3208 	WR-28	26.5 - 40	22	0.75	3	13.5	15	125	UG-599/U	EAR99
FMWGA3201 	WR-28	26.5 - 40	30		3		8	375	UG-599/U	EAR99





Waveguide Power Amplifiers

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Minimum Gain (dB)	Saturated Output Power (dBm)	Flange Type	ECCN
FMAM4023 	WR-12	70.5 - 76.5	25	20	Round Cover UG-387/U	EAR99
FMAM4024 	WR-12	80.5 - 86.5	20	19	Round Cover UG-387/U	EAR99


Waveguide Converters/Mixers

FM P/N	RF/LO Frequency Range (GHz)	IF Frequency Range (GHz)	Conversion Loss (dB)	Waveguide Type	Connector	ECCN
FMMD1005 	26.5 - 40	DC - 18 GHz	6	WR-28 UG-599/U	SMA Female	EAR99
FMMD1002 	50 - 75	DC - 18 GHz	8	WR-15 UG-385/U	SMA Female	EAR99








Waveguide Frequency Multipliers

FM P/N	Waveguide Type	Input Frequency Range (GHz)	Output Frequency Range (GHz)	Typ Output Power (dBm)	Typ Harmonics	Max DC Voltage (V)	Typ DC Current (mA)	Flange Type	ECCN
FMFX2026 	WR-10	12.5 - 18.33	75 - 11	10	-15	8	375	UG-387/U-Mod	3A001.B.4.E.3
FMFX2023 	WR-15	12.5 - 18.75	50 - 75	5	-15	8	275	UG-385/U	EAR99
FMFX2022 	WR-19	10 - 15	40 - 60	0	-15	8	150	UG-383/U	EAR99
FMFX2021 	WR-28	13.25 - 20	26.5 - 40	5	-15	8	350	UG-599/U	EAR99
















Waveguide Detectors

FM P/N	Connector 1	RF Frequency Range (GHz)	Voltage Sensitivity (V/nW)	Input Power (dBm)	Connector 2	ECCN
FMMT3000 	WR-10 UG-387/U	75 - 100	-900	20	SMA Female	EAR99
















Waveguide Electromechanical Relay Switches

FM P/N	Waveguide Type	Switch Type	RF Freq. Range (GHz)	Actuator/Features	Insertion Loss (dB)	Isolation (dB)	DC Power (Volts)	Power Rating (Watts)	ROHS Compliant	ECCN
FMWGS6058 	WR-28	SPDT/DPDT	26.5 - 40	FailsafeTTL Logic, Window Indicator, Manual Override	0.15	55	12	550	Yes	EAR99
FMWGS6059 	WR-28	SPDT/DPDT	26.5 - 40	FailsafeTTL Logic, Window Indicator, Manual Override	0.15	55	28	550	Yes	EAR99
FMWGS6056 	WR-28	SPDT/DPDT	26.5 - 40	FailsafeWindow Indicator, Manual Override	0.15	55	12	550	Yes	EAR99
FMWGS6057 	WR-28	SPDT/DPDT	26.5 - 40	FailsafeWindow Indicator, Manual Override	0.15	55	28	550	Yes	EAR99
FMWGS6002 	WR-28	SPDT	26.5 - 40	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.15	55	12	550	Yes	EAR99
FMWGS6000 	WR-28	SPDT	26.5 - 40	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.15	55	28	550	Yes	EAR99
FMWGS6003 	WR-28	SPDT	26.5 - 40	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.15	55	12	550	Yes	EAR99
















Waveguide Electromechanical Relay Switches Continued

FM P/N	Waveguide Type	Switch Type	RF Freq. Range (GHz)	Actuator/Features	Insertion Loss (dB)	Isolation (dB)	DC Power (Volts)	Power Rating (Watts)	ROHS Compliant	ECCN
FMWGS6001 	WR-28	SPDT	26.5 - 40	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.15	55	28	550	Yes	EAR99
FMWGS6042 	WR-34	SPDT/DPDT	22 - 33	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.15	60	12	620	Yes	EAR99
FMWGS6040 	WR-34	SPDT/DPDT	22 - 33	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.15	60	28	620	Yes	EAR99
FMWGS6043 	WR-34	SPDT/DPDT	22 - 33	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.15	60	12	620	Yes	EAR99
FMWGS6041 	WR-34	SPDT/DPDT	22 - 33	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.15	60	28	620	Yes	EAR99
FMWGS6006 	WR-42	SPDT	18 - 26.5	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.15	60	12	800	Yes	EAR99
FMWGS6004 	WR-42	SPDT	18 - 26.5	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.15	60	28	800	Yes	EAR99
FMWGS6007 	WR-42	SPDT	18 - 26.5	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.15	60	12	800	Yes	EAR99
FMWGS6005 	WR-42	SPDT	18 - 26.5	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.15	60	28	800	Yes	EAR99
FMWGS6010 	WR-62	SPDT	12.4 - 18	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.1	60	12	2,000	Yes	EAR99
FMWGS6008 	WR-62	SPDT	12.4 - 18	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.1	60	28	2,000	Yes	EAR99
FMWGS6011 	WR-62	SPDT	12.4 - 18	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.1	60	12	2,000	Yes	EAR99
FMWGS6009 	WR-62	SPDT	12.4 - 18	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.1	60	28	2,000	Yes	EAR99
FMWGS6014 	WR-75	SPDT	10 - 15	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.05	75	12	3,500	Yes	EAR99
FMWGS6012 	WR-75	SPDT	10 - 15	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.05	75	28	3,500	Yes	EAR99
















Waveguide Electromechanical Relay Switches Continued

FM P/N	Waveguide Type	Switch Type	RF Freq. Range (GHz)	Actuator/Features	Insertion Loss (dB)	Isolation (dB)	DC Power (Volts)	Power Rating (Watts)	ROHS Compliant	ECCN
FMWGS6015 	WR-75	SPDT	10 - 15	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.05	75	12	3,500	Yes	EAR99
FMWGS6013 	WR-75	SPDT	10 - 15	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.05	75	28	3,500	Yes	EAR99
FMWGS6062 	WR-90	SPDT/DPDT	8.2 - 12.4	FailsafeTTL Logic, Window Indicator, Manual Override	0.07	80	12	5,000	Yes	EAR99
FMWGS6066 	WR-90	SPDT/DPDT	8.2 - 12.4	FailsafeTTL Logic, Window Indicator, Manual Override	0.07	80	12	5,000	Yes	EAR99
FMWGS6063 	WR-90	SPDT/DPDT	8.2 - 12.4	FailsafeTTL Logic, Window Indicator, Manual Override	0.07	80	28	5,000	Yes	EAR99
FMWGS6067 	WR-90	SPDT/DPDT	8.2 - 12.4	FailsafeTTL Logic, Window Indicator, Manual Override	0.07	80	28	5,000	Yes	EAR99
FMWGS6060 	WR-90	SPDT/DPDT	8.2 - 12.4	FailsafeWindow Indicator, Manual Override	0.07	80	12	5,000	Yes	EAR99
FMWGS6064 	WR-90	SPDT/DPDT	8.2 - 12.4	FailsafeWindow Indicator, Manual Override	0.07	80	12	5,000	Yes	EAR99
FMWGS6061 	WR-90	SPDT/DPDT	8.2 - 12.4	FailsafeWindow Indicator, Manual Override	0.07	80	28	5,000	Yes	EAR99
FMWGS6065 	WR-90	SPDT/DPDT	8.2 - 12.4	FailsafeWindow Indicator, Manual Override	0.07	80	28	5,000	Yes	EAR99
FMWGS6018 	WR-90	SPDT	8.2 - 12.4	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.07	80	12	5,000	Yes	EAR99
FMWGS6016 	WR-90	SPDT	8.2 - 12.4	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.07	80	28	5,000	Yes	EAR99
FMWGS6019 	WR-90	SPDT	8.2 - 12.4	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.07	80	12	5,000	Yes	EAR99
FMWGS6017 	WR-90	SPDT	8.2 - 12.4	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.07	80	28	5,000	Yes	EAR99
FMWGS6038 	WR-102	SPDT/DPDT	7 - 11	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.06	80	12	6,000	Yes	EAR99






Waveguide Electromechanical Relay Switches Continued

FM P/N	Waveguide Type	Switch Type	RF Freq. Range (GHz)	Actuator/Features	Insertion Loss (dB)	Isolation (dB)	DC Power (Volts)	Power Rating (Watts)	ROHS Compliant	ECCN
FMWGS6036 	WR-102	SPDT/DPDT	7 - 11	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.06	80	28	6,000	Yes	EAR99
FMWGS6039 	WR-102	SPDT/DPDT	7 - 11	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.06	80	12	6,000	Yes	EAR99
FMWGS6037 	WR-102	SPDT/DPDT	7 - 11	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.06	80	28	6,000	Yes	EAR99
FMWGS6070 	WR-112	SPDT/DPDT	7.05 - 10	FailsafeTTL Logic, Window Indicator, Manual Override	0.05	80	12	7,000	Yes	EAR99
FMWGS6071 	WR-112	SPDT/DPDT	7.05 - 10	FailsafeTTL Logic, Window Indicator, Manual Override	0.05	80	28	7,000	Yes	EAR99
FMWGS6068 	WR-112	SPDT/DPDT	7.05 - 10	FailsafeWindow Indicator, Manual Override	0.05	80	12	7,000	Yes	EAR99
FMWGS6069 	WR-112	SPDT/DPDT	7.05 - 10	FailsafeWindow Indicator, Manual Override	0.05	80	28	7,000	Yes	EAR99
FMWGS6022 	WR-112	SPDT	7.05 - 10	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.05	80	12	7,000	Yes	EAR99
FMWGS6020 	WR-112	SPDT	7.05 - 10	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.05	80	28	7,000	Yes	EAR99
FMWGS6023 	WR-112	SPDT	7.05 - 10	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.05	80	12	7,000	Yes	EAR99
FMWGS6021 	WR-112	SPDT	7.05 - 10	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.05	80	28	7,000	Yes	EAR99
FMWGS6026 	WR-137	SPDT	5.85 - 8.2	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.02	70	12	12,000	Yes	EAR99
FMWGS6024 	WR-137	SPDT	5.85 - 8.2	Break Before Make, Latching, Self Cut Off, Window Indicator, Manual Override	0.02	70	28	12,000	Yes	EAR99
FMWGS6027 	WR-137	SPDT	5.85 - 8.2	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.02	70	12	12,000	Yes	EAR99
FMWGS6025 	WR-137	SPDT	5.85 - 8.2	Break Before Make, Latching, TTL Logic, Self Cut Off, Window Indicator, Manual Override	0.02	70	28	12,000	Yes	EAR99





Waveguide Electromechanical Relay Switches Continued

FM P/N	Waveguide Type	Switch Type	RF Freq. Range (GHz)	Actuator/Features	Insertion Loss (dB)	Isolation (dB)	DC Power (Volts)	Power Rating (Watts)	ROHS Compliant	ECCN
FMWGS6034 	WR-159	SPDT/DPDT	4.9 - 7.05	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.06	70	12	12,000	Yes	EAR99
FMWGS6032 	WR-159	SPDT/DPDT	4.9 - 7.05	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.06	70	28	12,000	Yes	EAR99
FMWGS6035 	WR-159	SPDT/DPDT	4.9 - 7.05	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.06	70	12	12,000	Yes	EAR99
FMWGS6033 	WR-159	SPDT/DPDT	4.9 - 7.05	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.06	70	28	12,000	Yes	EAR99
FMWGS6030 	WR-187	SPDT/DPDT	3.95 - 5.85	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.02	80	12	22,000	Yes	EAR99
FMWGS6028 	WR-187	SPDT/DPDT	3.95 - 5.85	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.02	80	28	22,000	Yes	EAR99
FMWGS6031 	WR-187	SPDT/DPDT	3.95 - 5.85	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.002	80	12	22,000	Yes	EAR99
FMWGS6029 	WR-187	SPDT/DPDT	3.95 - 5.85	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.02	80	28	22,000	Yes	EAR99
FMWGS6054 	WRD-180	SPDT/DPDT	18 - 40	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.4	50	12	2,000	Yes	EAR99
FMWGS6052 	WRD-180	SPDT/DPDT	18 - 40	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.4	50	28	2,000	Yes	EAR99
FMWGS6055 	WRD-180	SPDT/DPDT	18 - 40	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.4	50	12	2,000	Yes	EAR99
FMWGS6053 	WRD-180	SPDT/DPDT	18 - 40	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.4	50	28	2,000	Yes	EAR99
FMWGS6046 	WRD-650	SPDT/DPDT	6.5 - 18	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.35	60	12	8,500	Yes	EAR99
FMWGS6044 	WRD-650	SPDT/DPDT	6.5 - 18	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.35	60	28	8,500	Yes	EAR99
FMWGS6047 	WRD-650	SPDT/DPDT	6.5 - 18	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.35	60	12	8,500	Yes	EAR99


Waveguide Electromechanical Relay Switches Continued

FM P/N	Waveguide Type	Switch Type	RF Freq. Range (GHz)	Actuator/Features	Insertion Loss (dB)	Isolation (dB)	DC Power (Volts)	Power Rating (Watts)	ROHS Compliant	ECCN
FMWGS6045 	WRD-650	SPDT/DPDT	6.5 - 18	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.35	60	28	8,500	Yes	EAR99
FMWGS6050 	WRD-750	SPDT/DPDT	7.5 - 18	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.3	60	12	8,500	Yes	EAR99
FMWGS6048 	WRD-750	SPDT/DPDT	7.5 - 18	Latching, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.3	60	28	8,500	Yes	EAR99
FMWGS6051 	WRD-750	SPDT/DPDT	7.5 - 18	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.3	60	12	8,500	Yes	EAR99
FMWGS6049 	WRD-750	SPDT/DPDT	7.5 - 18	Latching, TTL Logic, Self Cut Off, Set Indicators, Manual Override, Viewing Window	0.3	60	28	8,500	Yes	EAR99




Waveguide PIN Diode Switches

FM P/N	Waveguide Type	Switch Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum Isolation (dB)	Maximum Switching Time (ns)	Flange Type	Control Connector	ECCN
FMSW9003 	WR-10	Reflective/SPST	75 - 110	5.5	20	300	Round Cover UG-387/U	SMA Female	EAR99
FMSW9004 	WR-10	Reflective/SPDT	75 - 110	7	20	300	Round Cover UG-387/U	SMA Female	EAR99
FMSW9001 	WR-12	Reflective/SPST	60 - 90	4.5	20	300	Round Cover UG-387/U	SMA Female	EAR99
FMSW9002 	WR-12	Reflective/SPDT	60 - 90	6	20	300	Round Cover UG-387/U	SMA Female	EAR99








Waveguide Gunn Oscillators

FM P/N	Waveguide Type	Center Frequency (GHz)	Tuning Range (GHz)	Frequency Stability (MHz/deg C)	Phase Noise (dBc/Hz)	Output Power (dBm)	Flange Type	ECCN
FMWGN1010 	WR-28	35	+/- 3		-95	13	Square Cover UG-599/U	EAR99



Waveguide Gunn Oscillators Continued

FM P/N	Waveguide Type	Center Frequency (GHz)	Tuning Range (GHz)	Frequency Stability (MHz/deg C)	Phase Noise (dBc/Hz)	Output Power (dBm)	Flange Type	ECCN
FMWGN1011 	WR-28	35	+/- 3		-95	13	Square Cover UG-599/U	EAR99
FMWGN1012 	WR-42	24.125	+/- 1	-0.8	-98	10	Square Cover UG-595/U	EAR99
FMWGN1013 	WR-90	9.375	+/- 0.25		-105	10	Square Cover UG-39/U	EAR99

















Waveguide Direct Read Attenuators

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum Attenuation (dB)	Insertion Loss (dB)	Maximum VSWR	Input Power (Watts)	Flange Type	ECCN
SMW10AT5001 	WR-10	75 - 110	50	1	1.2:1	0.2	Round Cover UG-387/U-Mod	EAR99
SMW15AT5001 	WR-15	50 - 75	50	0.8	1.2:1	0.3	Round Cover UG-385/U	EAR99
SMW19AT5001 	WR-19	40 - 60	50	0.7	1.15:1	0.2	Round Cover UG-383/U-Mod	EAR99
SMW22AT5001 	WR-22	33 - 50	50	0.6	1.15:1	0.4	Round Cover UG-383/U	EAR99
SMW22AT5002 	WR-22	33 - 50	60		1.15:1	0.5	Round Cover UG-383/U	EAR99
SMW28AT5001 	WR-28	26.5 - 40	50	0.5	1.15:1	0.5	Square Cover UG-599/U	EAR99
SMW42AT5001 	WR-42	18 - 26.5	50	0.5	1.15:1	1	Square Cover UG-595/U	EAR99













Waveguide Fixed Attenuators

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Flange Type 1 - Flange Type 2	VSWR	Maximum Attenuators (dB)	ECCN
FMWAT1012-3 	WR-10	75 - 110	Round Cover UG-387/U-Mod - Round Cover UG-387/U-Mod	1.15:1	3	EAR99
FMWAT1012-6 	WR-10	75 - 110	Round Cover UG-387/U-Mod - Round Cover UG-387/U-Mod	1.15:1	6	EAR99


Waveguide Fixed Attenuators Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Flange Type 1 - Flange Type 2	VSWR	Maximum Attenuators (dB)	ECCN
FMWAT1012-10 	WR-10	75 - 110	Round Cover UG-387/U-Mod - Round Cover UG-387/U-Mod	1.15:1	10	EAR99
FMWAT1012-20 	WR-10	75 - 110	Round Cover UG-387/U-Mod - Round Cover UG-387/U-Mod	1.15:1	20	EAR99
FMWAT1012-30 	WR-10	75 - 110	Round Cover UG-387/U-Mod - Round Cover UG-387/U-Mod	1.15:1	30	EAR99
FMWAT1011-3 	WR-12	60 - 90	Round Cover UG-387/U - Round Cover UG-387/U	1.15:1	3	EAR99
FMWAT1011-6 	WR-12	60 - 90	Round Cover UG-387/U - Round Cover UG-387/U	1.15:1	6	EAR99
FMWAT1011-10 	WR-12	60 - 90	Round Cover UG-387/U - Round Cover UG-387/U	1.15:1	10	EAR99
FMWAT1011-20 	WR-12	60 - 90	Round Cover UG-387/U - Round Cover UG-387/U	1.15:1	20	EAR99
FMWAT1011-30 	WR-12	60 - 90	Round Cover UG-387/U - Round Cover UG-387/U	1.15:1	30	EAR99
FMWAT1010-3 	WR-15	50 - 75	Round Cover UG-385/U - Round Cover UG-385/U	1.15:1	3	EAR99
FMWAT1010-6 	WR-15	50 - 75	Round Cover UG-385/U - Round Cover UG-385/U	1.15:1	6	EAR99
FMWAT1010-10 	WR-15	50 - 75	Round Cover UG-385/U - Round Cover UG-385/U	1.15:1	10	EAR99
FMWAT1010-20 	WR-15	50 - 75	Round Cover UG-385/U - Round Cover UG-385/U	1.15:1	20	EAR99
FMWAT1010-30 	WR-15	50 - 75	Round Cover UG-385/U - Round Cover UG-385/U	1.15:1	30	EAR99
FMWAT1009-3 	WR-19	40 - 60	Round Cover UG-383/U-Mod - Round Cover UG-383/U-Mod	1.15:1	3	EAR99
FMWAT1009-6 	WR-19	40 - 60	Round Cover UG-383/U-Mod - Round Cover UG-383/U-Mod	1.15:1	6	EAR99
FMWAT1009-10 	WR-19	40 - 60	Round Cover UG-383/U-Mod - Round Cover UG-383/U-Mod	1.15:1	10	EAR99




Waveguide Fixed Attenuators Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Flange Type 1 - Flange Type 2	VSWR	Maximum Attenuators (dB)	ECCN
FMWAT1009-20 	WR-19	40 - 60	Round Cover UG-383/U-Mod - Round Cover UG-383/U-Mod	1.15:1	20	EAR99
FMWAT1009-30 	WR-19	40 - 60	Round Cover UG-383/U-Mod - Round Cover UG-383/U-Mod	1.15:1	30	EAR99
FMWAT1008-3 	WR-22	33 - 50	Round Cover UG-383/U - Round Cover UG-383/U	1.15:1	3	EAR99
FMWAT1008-6 	WR-22	33 - 50	Round Cover UG-383/U - Round Cover UG-383/U	1.15:1	6	EAR99
FMWAT1008-10 	WR-22	33 - 50	Round Cover UG-383/U - Round Cover UG-383/U	1.15:1	10	EAR99
FMWAT1008-20 	WR-22	33 - 50	Round Cover UG-383/U - Round Cover UG-383/U	1.15:1	20	EAR99
FMWAT1008-30 	WR-22	33 - 50	Round Cover UG-383/U - Round Cover UG-383/U	1.15:1	30	EAR99
FMWAT1007-3 	WR-28	26.5 - 40	Round Cover UG-599/U - Round Cover UG-599/U	1.15:1	3	EAR99
FMWAT1007-6 	WR-28	26.5 - 40	Round Cover UG-599/U - Round Cover UG-599/U	1.15:1	6	EAR99
FMWAT1007-10 	WR-28	26.5 - 40	Round Cover UG-599/U - Round Cover UG-599/U	1.2:1	10	EAR99
FMWAT1007-20 	WR-28	26.5 - 40	Round Cover UG-599/U - Round Cover UG-599/U	1.2:1	20	EAR99
FMWAT1007-30 	WR-28	26.5 - 40	Round Cover UG-599/U - Round Cover UG-599/U	1.15:1	30	EAR99












Waveguide Variable Attenuators

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Flange Type	Insertion Loss (dB)	Maximum Attenuators (dB)	ECCN
FMW10AT002-30 	WR-10	75 - 110	Round Cover UG-387/U-Mod	1	30	EAR99

Waveguide Variable Attenuators Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Flange Type	Insertion Loss (dB)	Maximum Attenuators (dB)	ECCN
FMW12AT002-30 	WR-12	60 - 90	Round Cover UG-387/U	0.4	30	EAR99
SMW19AT001-30 	WR-19	40 - 60	Round Cover UG-383/U-Mod	0.6	30	EAR99
SMW22AT001-30 	WR-22	33 - 50	Round Cover UG-383/U	0.5	30	EAR99

















Waveguide Antennas with Coax Adapters

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	Connector	ECCN
FM9850B/2F-10 	WR-28	26.5 - 40	10	WR-28	2.92mm Female	EAR99
FMWAN028-10KF 	WR-28	26.5 - 40	10	WR-28	2.92mm Female	EAR99
FMWAN028-10KM 	WR-28	26.5 - 40	10	WR-28	2.92mm Male	EAR99
SMH128KR-10 	WR-28	26.5 - 40	10	WR-28	2.92mm Female	EAR99
FM9850B/2F-15 	WR-28	26.5 - 40	15	WR-28	2.92mm Female	EAR99
FMWAN028-15KF 	WR-28	26.5 - 40	15	WR-28	2.92mm Female	EAR99
FMWAN028-15KM 	WR-28	26.5 - 40	15	WR-28	2.92mm Male	EAR99
FM9850B/2F-20 	WR-28	26.5 - 40	20	WR-28	2.92mm Female	EAR99
FMWAN028-20KF 	WR-28	26.5 - 40	20	WR-28	2.92mm Female	EAR99
FMWAN028-20KM 	WR-28	26.5 - 40	20	WR-28	2.92mm Male	EAR99
FM9851B/2F-10 	WR-34	22 - 33	10	WR-34	2.92mm Female	EAR99
















Waveguide Antennas with Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	Connector	ECCN
FMWAN034-10KF 	WR-34	22 - 33	10	WR-34	2.92mm Female	EAR99
FM9851B/2F-15 	WR-34	22 - 33	15	WR-34	2.92mm Female	EAR99
FMWAN034-15KF 	WR-34	22 - 33	15	WR-34	2.92mm Female	EAR99
FM9851B/2F-20 	WR-34	22 - 33	20	WR-34	2.92mm Female	EAR99
FMWAN034-20KF 	WR-34	22 - 33	20	WR-34	2.92mm Female	EAR99
SMH134KR-20 	WR-34	22 - 33	20	WR-34	2.92mm Female	EAR99
FM9852B/2F-10 	WR-42	18 - 26.5	10	WR-42	2.92mm Female	EAR99
FMWAN042-10ELKF 	WR-42	18 - 26.5	10	WR-42	2.92mm Female	EAR99
FMWAN042-10KF 	WR-42	18 - 26.5	10	WR-42	2.92mm Female	EAR99
FMWAN042-10KM 	WR-42	18 - 26.5	10	WR-42	2.92mm Male	EAR99
FMWAN042-10SF 	WR-42	18 - 26.5	10	WR-42	SMA Female	EAR99
FM9852B/2F-15 	WR-42	18 - 26.5	15	WR-42	2.92mm Female	EAR99
FMWAN042-15ELKF 	WR-42	18 - 26.5	15	WR-42	2.92mm Female	EAR99
FMWAN042-15KF 	WR-42	18 - 26.5	15	WR-42	2.92mm Female	EAR99
FMWAN042-15KM 	WR-42	18 - 26.5	15	WR-42	2.92mm Male	EAR99
FMWAN042-15SF 	WR-42	18 - 26.5	15	WR-42	SMA Female	EAR99








Waveguide Antennas with Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	Connector	ECCN
FM9852B/2F-20 	WR-42	18 - 26.5	20	WR-42	2.92mm Female	EAR99
FMWAN042-20ELKF 	WR-42	18 - 26.5	20	WR-42	2.92mm Female	EAR99
FMWAN042-20KF 	WR-42	18 - 26.5	20	WR-42	2.92mm Female	EAR99
FMWAN042-20KM 	WR-42	18 - 26.5	20	WR-42	2.92mm Male	EAR99
FMWAN042-20SF 	WR-42	18 - 26.5	20	WR-42	SMA Female	EAR99
SMH142SR-20 	WR-42	18 - 26.5	20	WR-42	SMA Female	EAR99
FM9853B/SF-10 	WR-51	15 - 22	10	WR-51	SMA Female	EAR99
FMWAN051-10ELSF 	WR-51	15 - 22	10	WR-51	SMA Female	EAR99
FMWAN051-10SF 	WR-51	15 - 22	10	WR-51	SMA Female	EAR99
FM9853B/SF-15 	WR-51	15 - 22	15	WR-51	SMA Female	EAR99
FMWAN051-15ELSF 	WR-51	15 - 22	15	WR-51	SMA Female	EAR99
FMWAN051-15SF 	WR-51	15 - 22	15	WR-51	SMA Female	EAR99
FM9853B/SF-20 	WR-51	15 - 22	20	WR-51	SMA Female	EAR99
FMWAN051-20ELSF 	WR-51	15 - 22	20	WR-51	SMA Female	EAR99
FMWAN051-20SF 	WR-51	15 - 22	20	WR-51	SMA Female	EAR99
SMH151SR-20B 	WR-51	15 - 22	20	WR-51	SMA Female	EAR99
















Waveguide Antennas with Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	Connector	ECCN
FM9854B/NF-10 	WR-62	12.4 - 18	10	WR-62	N Female	EAR99
FM9854B/SF-10 	WR-62	12.4 - 18	10	WR-62	SMA Female	EAR99
FMWAN062-10ELNF 	WR-62	12.4 - 18	10	WR-62	N Female	EAR99
FMWAN062-10ELSF 	WR-62	12.4 - 18	10	WR-62	SMA Female	EAR99
FMWAN062-10NF 	WR-62	12.4 - 18	10	WR-62	N Female	EAR99
FMWAN062-10NM 	WR-62	12.4 - 18	10	WR-62	N Male	EAR99
FMWAN062-10SF 	WR-62	12.4 - 18	10	WR-62	SMA Female	EAR99
FMWAN062-10SM 	WR-62	12.4 - 18	10	WR-62	SMA Male	EAR99
SMH162NR-10 	WR-62	12.4 - 18	10	WR-62	N Female	EAR99
FM9854B/NF-15 	WR-62	12.4 - 18	15	WR-62	N Female	EAR99
FM9854B/SF-15 	WR-62	12.4 - 18	15	WR-62	SMA Female	EAR99
FMWAN062-15ELNF 	WR-62	12.4 - 18	15	WR-62	N Female	EAR99
FMWAN062-15ELSF 	WR-62	12.4 - 18	15	WR-62	SMA Female	EAR99
FMWAN062-15NF 	WR-62	12.4 - 18	15	WR-62	N Female	EAR99
FMWAN062-15NM 	WR-62	12.4 - 18	15	WR-62	N Male	EAR99
FMWAN062-15SF 	WR-62	12.4 - 18	15	WR-62	SMA Female	EAR99

















Waveguide Antennas with Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	Connector	ECCN
FMWAN062-15SM 	WR-62	12.4 - 18	15	WR-62	SMA Male	EAR99
FM9854B/NF-20 	WR-62	12.4 - 18	20	WR-62	N Female	EAR99
FM9854B/SF-20 	WR-62	12.4 - 18	20	WR-62	SMA Female	EAR99
FMWAN062-20ELNF 	WR-62	12.4 - 18	20	WR-62	N Female	EAR99
FMWAN062-20NF 	WR-62	12.4 - 18	20	WR-62	N Female	EAR99
FMWAN062-20NM 	WR-62	12.4 - 18	20	WR-62	N Male	EAR99
FMWAN062-20SF 	WR-62	12.4 - 18	20	WR-62	SMA Female	EAR99
FMWAN062-20SM 	WR-62	12.4 - 18	20	WR-62	SMA Male	EAR99
SMH162NR-20 	WR-62	12.4 - 18	20	WR-62	N Female	EAR99
FM9855B/NF-10 	WR-75	10 - 15	10	WR-75	N Female	EAR99
FM9855B/SF-10 	WR-75	10 - 15	10	WR-75	SMA Female	EAR99
FMWAN075-10ELNF 	WR-75	10 - 15	10	WR-75	N Female	EAR99
FMWAN075-10ELSF 	WR-75	10 - 15	10	WR-75	SMA Female	EAR99
FMWAN075-10NF 	WR-75	10 - 15	10	WR-75	N Female	EAR99
FMWAN075-10SF 	WR-75	10 - 15	10	WR-75	SMA Female	EAR99
FM9855B/NF-15 	WR-75	10 - 15	15	WR-75	N Female	EAR99

















Waveguide Antennas with Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	Connector	ECCN
FM9855B/SF-15 	WR-75	10 - 15	15	WR-75	SMA Female	EAR99
FMWAN075-15ELNF 	WR-75	10 - 15	1510	WR-75	N Female	EAR99
FMWAN075-15ELSF 	WR-75	10 - 15	1510	WR-75	SMA Female	EAR99
FMWAN075-15NF 	WR-75	10 - 15	15	WR-75	N Female	EAR99
FMWAN075-15SF 	WR-75	10 - 15	15	WR-75	SMA Female	EAR99
FM9855B/NF-20 	WR-75	10 - 15	20	WR-75	N Female	
FM9855B/SF-20 	WR-75	10 - 15	20	WR-75	SMA Female	
FMWAN075-20ELNF 	WR-75	10 - 15	20	WR-75	N Female	EAR99
FMWAN075-20ELSF 	WR-75	10 - 15	20	WR-75	SMA Female	EAR99
FMWAN075-20NF 	WR-75	10 - 15	20	WR-75	N Female	EAR99
FMWAN075-20SF 	WR-75	10 - 15	20	WR-75	SMA Female	EAR99
SMH175SR-20 	WR-75	10 - 15	20	WR-75	SMA Female	
FM9856B/NF-10 	WR-90	8.2 - 12.4	10	WR-90	N Female	
FM9856B/SF-10 	WR-90	8.2 - 12.4	10	WR-90	SMA Female	
FMWAN090-10ELNF 	WR-90	8.2 - 12.4	10	WR-90	N Female	

















Waveguide Antennas with Coax Adapters

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	Connector	ECCN
FMWAN090-10ELSF 	WR-90	8.2 - 12.4	10	WR-90	SMA Female	
FMWAN090-10NF 	WR-90	8.2 - 12.4	10	WR-90	N Female	
FMWAN090-10SF 	WR-90	8.2 - 12.4	10	WR-90	SMA Female	
FMWAN090-10SM 	WR-90	8.2 - 12.4	10	WR-90	SMA Male	
FM9856B/NF-15 	WR-90	8.2 - 12.4	15	WR-90	N Female	
FM9856B/SF-15 	WR-90	8.2 - 12.4	15	WR-90	SMA Female	
FMWAN090-15ELNF 	WR-90	8.2 - 12.4	15	WR-90	N Female	
FMWAN090-15ELSF 	WR-90	8.2 - 12.4	15	WR-90	SMA Female	
FMWAN090-15NF 	WR-90	8.2 - 12.4	15	WR-90	N Female	
FMWAN090-15SF 	WR-90	8.2 - 12.4	15	WR-90	SMA Female	
FMWAN090-15SM 	WR-90	8.2 - 12.4	15	WR-90	SMA Male	
FM9856B/NF-20 	WR-90	8.2 - 12.4	20	WR-90	N Female	
FM9856B/SF-20 	WR-90	8.2 - 12.4	20	WR-90	SMA Female	
FMWAN090-20ELNF 	WR-90	8.2 - 12.4	20	WR-90	N Female	
FMWAN090-20ELSF 	WR-90	8.2 - 12.4	20	WR-90	SMA Female	
FMWAN090-20NF 	WR-90	8.2 - 12.4	20	WR-90	N Female	

















Waveguide Antennas with Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	Connector	ECCN
FMWAN090-20SF 	WR-90	8.2 - 12.4	20	WR-90	SMA Female	
FMWAN090-20SM 	WR-90	8.2 - 12.4	20	WR-90	SMA Male	
SMH190NR-20 	WR-90	8.2 - 12.4	20	WR-90	N Female	
SMH190SR-20 	WR-90	8.2 - 12.4	20	WR-90	SMA Female	
FM9857B/NF-10 	WR-102	7 - 11	10	WR-102	N Female	
FM9857B/SF-10 	WR-102	7 - 11	10	WR-102	SMA Female	
FMWAN102-10ELSF 	WR-102	7 - 11	10	WR-102	SMA Female	
FMWAN102-10NF 	WR-102	7 - 11	10	WR-102	N Female	
FMWAN102-10NM 	WR-102	7 - 11	10	WR-102	N Male	
FMWAN102-10SF 	WR-102	7 - 11	10	WR-102	SMA Female	
FMWAN102-10SM 	WR-102	7 - 11	10	WR-102	SMA Male	
FM9857B/NF-15 	WR-102	7 - 11	15	WR-102	N Female	
FM9857B/SF-15 	WR-102	7 - 11	15	WR-102	SMA Female	
FMWAN102-15ELSF 	WR-102	7 - 11	15	WR-102	SMA Female	
FMWAN102-15NF 	WR-102	7 - 11	15	WR-102	N Female	
FMWAN102-15NM 	WR-102	7 - 11	15	WR-102	N Male	

















Waveguide Antennas with Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	Connector	ECCN
FMWAN102-15SF 	WR-102	7 - 11	15	WR-102	SMA Female	
FMWAN102-15SM 	WR-102	7 - 11	15	WR-102	SMA Male	
FM9857B/NF-20 	WR-102	7 - 11	20	WR-102	N Female	
FM9857B/SF-20 	WR-102	7 - 11	20	WR-102	SMA Female	
FMWAN102-20ELSF 	WR-102	7 - 11	20	WR-102	SMA Female	
FMWAN102-20NF 	WR-102	7 - 11	20	WR-102	N Female	
FMWAN102-20NM 	WR-102	7 - 11	20	WR-102	N Male	
FMWAN102-20SF 	WR-102	7 - 11	20	WR-102	SMA Female	
FMWAN102-20SM 	WR-102	7 - 11	20	WR-102	SMA Male	
FM9858B/NF-10 	WR-112	7.05 - 10	10	WR-112	N Female	
FM9858B/SF-10 	WR-112	7.05 - 10	10	WR-112	SMA Female	
FMWAN112-10ELNF 	WR-112	7.05 - 10	10	WR-112	N Female	
FMWAN112-10ELSF 	WR-112	7.05 - 10	10	WR-112	SMA Female	
FMWAN112-10NF 	WR-112	7.05 - 10	10	WR-112	N Female	
FMWAN112-10SF 	WR-112	7.05 - 10	10	WR-112	SMA Female	
SMH1112SR-10 	WR-112	7.05 - 10	10	WR-112	SMA Female	

















Waveguide Antennas with Coax Adapters Continued

FM9858B/NF-15 	WR-112	7.05 - 10	15	WR-112	N Female	
FM9858B/SF-15 	WR-112	7.05 - 10	15	WR-112	SMA Female	
FMWAN112-15ELNF 	WR-112	7.05 - 10	15	WR-112	N Female	
FMWAN112-15ELSF 	WR-112	7.05 - 10	15	WR-112	SMA Female	
FMWAN112-15NF 	WR-112	7.05 - 10	15	WR-112	N Female	
FMWAN112-15SF 	WR-112	7.05 - 10	15	WR-112	SMA Female	
FM9858B/NF-20 	WR-112	7.05 - 10	20	WR-112	N Female	
FM9858B/SF-20 	WR-112	7.05 - 10	20	WR-112	SMA Female	
FMWAN112-20ELNF 	WR-112	7.05 - 10	20	WR-112	N Female	
FMWAN112-20ELSF 	WR-112	7.05 - 10	20	WR-112	SMA Female	
FMWAN112-20NF 	WR-112	7.05 - 10	20	WR-112	N Female	
FMWAN112-20SF 	WR-112	7.05 - 10	20	WR-112	SMA Female	
SMH1112NR-20 	WR-112	7.05 - 10	20	WR-112	N Female	
SMH1112SR-20 	WR-112	7.05 - 10	20	WR-112	SMA Female	
FM9859B/NF-10 	WR-137	5.85 - 8.2	10	WR-137	N Female	
FM9859B/SF-10 	WR-137	5.85 - 8.2	10	WR-137	SMA Female	

















Waveguide Antennas with Coax Adapters Continued

FMWAN137-10NF 	WR-137	5.85 - 8.2	10	WR-137	N Female	
FMWAN137-10SF 	WR-137	5.85 - 8.2	10	WR-137	SMA Female	
FM9859B/NF-15 	WR-137	5.85 - 8.2	15	WR-137	N Female	
FM9859B/SF-15 	WR-137	5.85 - 8.2	15	WR-137	SMA Female	
FMWAN137-15NF 	WR-137	5.85 - 8.2	15	WR-137	N Female	
FMWAN137-15SF 	WR-137	5.85 - 8.2	15	WR-137	SMA Female	
FM9859B/NF-20 	WR-137	5.85 - 8.2	20	WR-137	N Female	
FM9859B/SF-20 	WR-137	5.85 - 8.2	20	WR-137	SMA Female	
FMWAN137-20NF 	WR-137	5.85 - 8.2	20	WR-137	N Female	
FMWAN137-20SF 	WR-137	5.85 - 8.2	20	WR-137	SMA Female	
FM9860B/NF-10 	WR-159	4.9 - 7.05	10	WR-159	N Female	
FMWAN159-10NF 	WR-159	4.9 - 7.05	10	WR-159	N Female	
FMWAN159-10SF 	WR-159	4.9 - 7.05	10	WR-159	SMA Female	
FM9860B/NF-15 	WR-159	4.9 - 7.05	15	WR-159	N Female	
FM9860B/SF-15 	WR-159	4.9 - 7.05	15	WR-159	SMA Female	
FMWAN159-15NF 	WR-159	4.9 - 7.05	15	WR-159	N Female	







Waveguide Antennas with Coax Adapters Continued

FMWAN159-15SF 	WR-159	4.9 - 7.05	15	WR-159	SMA Female	
FM9860B/NF-20 	WR-159	4.9 - 7.05	20	WR-159	N Female	
FM9860B/SF-20 	WR-159	4.9 - 7.05	20	WR-159	SMA Female	
FMWAN159-20NF 	WR-159	4.9 - 7.05	20	WR-159	N Female	
FMWAN159-20SF 	WR-159	4.9 - 7.05	20	WR-159	SMA Female	
FM9861B/NF-10 	WR-187	3.95 - 5.85	10	WR-187	N Female	
FM9861B/SF-10 	WR-187	3.95 - 5.85	10	WR-187	SMA Female	
FMWAN187-10NF 	WR-187	3.95 - 5.85	10	WR-187	N Female	
FMWAN187-10SF 	WR-187	3.95 - 5.85	10	WR-187	SMA Female	
FM9861B/NF-15 	WR-187	3.95 - 5.85	15	WR-187	N Female	
FM9861B/SF-15 	WR-187	3.95 - 5.85	15	WR-187	SMA Female	
FMWAN187-15NF 	WR-187	3.95 - 5.85	15	WR-187	N Female	
FMWAN187-15SF 	WR-187	3.95 - 5.85	15	WR-187	SMA Female	
FM9861B/NF-20 	WR-187	3.95 - 5.85	20	WR-187	N Female	
FM9861B/SF-20 	WR-187	3.95 - 5.85	20	WR-187	SMA Female	
FMWAN187-20NF 	WR-187	3.95 - 5.85	20	WR-187	N Female	









Waveguide Antennas with Coax Adapters Continued

FMWAN187-20SF 	WR-187	3.95 - 5.85	20	WR-187	SMA Female	
FM9862B/NF-10 	WR-229	3.3 - 4.9	10	WR-229	N Female	
FMWAN229-10NF 	WR-229	3.3 - 4.9	10	WR-229	N Female	
FMWAN229-10SF 	WR-229	3.3 - 4.9	10	WR-229	SMA Female	
FM9862B/NF-15 	WR-229	3.3 - 4.9	15	WR-229	N Female	
FMWAN229-15NF 	WR-229	3.3 - 4.9	15	WR-229	N Female	
FMWAN284-10SF 	WR-284	2.6 - 3.95	10	WR-284	SMA Female	
FM9863B/NF-15 	WR-284	2.6 - 3.95	15	WR-284	N Female	
FMWAN284-15NF 	WR-284	2.6 - 3.95	15	WR-284	N Female	
FMWAN284-15SF 	WR-284	2.6 - 3.95	15	WR-284	SMA Female	
FM9863B/NF-20 	WR-284	2.6 - 3.95	20	WR-284	N Female	
FMWAN284-20NF 	WR-284	2.6 - 3.95	20	WR-284	N Female	
FMWAN284-20SF 	WR-284	2.6 - 3.95	20	WR-284	SMA Female	
FMWAN430-10NF 	WR-430	1.7 - 2.6	10	WR-430	N Female	
FMWAN430-10SF 	WR-430	1.7 - 2.6	10	WR-430	SMA Female	
FM9864B/NF-15 	WR-430	1.7 - 2.6	15	WR-430	N Female	

















Waveguide Antennas with Coax Adapters Continued

FMWAN430-15NF 	WR-430	1.7 - 2.6	15	WR-430	N Female	
FMWAN430-15SF 	WR-430	1.7 - 2.6	15	WR-430	SMA Female	
FM9864B/NF-20 	WR-430	1.7 - 2.6	20	WR-430	N Female	
FMWAN430-20NF 	WR-430	1.7 - 2.6	20	WR-430	N Female	
FMWAN430-20SF 	WR-430	1.7 - 2.6	20	WR-430	SMA Female	
FM9864B/NF-10 	WR-430	1.7 - 2.6		WR-430	N Female	

















Standard Gain Horns

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FMWAN1029 	WR-5	140 - 220	10	Round Cover UG-387/U-Mod	EAR99
FMWAN1030 	WR-5	140 - 220	15	Round Cover UG-387/U-Mod	EAR99
FMWAN1031 	WR-5	140 - 220	20	Round Cover UG-387/U-Mod	EAR99
FMWAN1032 	WR-5	140 - 220	25	Round Cover UG-387/U-Mod	EAR99
FMWAN1025 	WR-6	110 - 170	10	Round Cover UG-387/U-Mod	EAR99
FMWAN1026 	WR-6	110 - 170	15	Round Cover UG-387/U-Mod	EAR99
FMWAN1027 	WR-6	110 - 170	20	Round Cover UG-387/U-Mod	EAR99
FMWAN1028 	WR-6	110 - 170	25	Round Cover UG-387/U-Mod	EAR99

















Standard Gain Horns Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FMWAN1021 	WR-8	90 - 140	10	Round Cover UG-387/U-Mod	EAR99
FMWAN1022 	WR-8	90 - 140	15	Round Cover UG-387/U-Mod	EAR99
FMWAN1023 	WR-8	90 - 140	20	Round Cover UG-387/U-Mod	EAR99
FMWAN1024 	WR-8	90 - 140	25	Round Cover UG-387/U-Mod	EAR99
FMWAN1017 	WR-10	75 - 110	10	Round Cover UG-387/U-Mod	EAR99
FMWAN1018 	WR-10	75 - 110	15	Round Cover UG-387/U-Mod	EAR99
FMWAN1019 	WR-10	75 - 110	20	Round Cover UG-387/U-Mod	EAR99
FMWAN1020 	WR-10	75 - 110	25	Round Cover UG-387/U-Mod	EAR99
FMWAN1013 	WR-12	60 - 90	10	Round Cover UG-387/U-Mod	EAR99
FMWAN1014 	WR-12	60 - 90	15	Round Cover UG-387/U-Mod	EAR99
FMWAN1015 	WR-12	60 - 90	20	Round Cover UG-387/U-Mod	EAR99
FMWAN1016 	WR-12	60 - 90	25	Round Cover UG-387/U	EAR99
FMWAN1009 	WR-15	50 - 75	10	Round Cover UG-385/U-Mod	EAR99
FMWAN1010 	WR-15	50 - 75	15	Round Cover UG-385/U-Mod	EAR99
FMWAN1011 	WR-15	50 - 75	20	Round Cover UG-385/U-Mod	EAR99
FMWAN1012 	WR-15	50 - 75	25	Round Cover UG-385/U-Mod	EAR99

















Standard Gain Horns Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FMWAN1005 	WR-19	40 - 60	10	Round Cover UG-383/U-Mod	EAR99
FMWAN1006 	WR-19	40 - 60	15	Round Cover UG-383/U-Mod	EAR99
FMWAN1007 	WR-19	40 - 60	20	Round Cover UG-383/U-Mod	EAR99
FMWAN1008 	WR-19	40 - 60	25	Round Cover UG-383/U-Mod	EAR99
FM9850B-10 	WR-28	26.5 - 40	10	Square Cover UG-599/U	EAR99
FMWAN028-10 	WR-28	26.5 - 40	10	Square Cover UG-599/U	EAR99
FM9850B-15 	WR-28	26.5 - 40	15	Square Cover UG-599/U	EAR99
FMWAN028-15 	WR-28	26.5 - 40	15	Square Cover UG-599/U	EAR99
FM9850B-20 	WR-28	26.5 - 40	20	Square Cover UG-599/U	EAR99
FMWAN028-20 	WR-28	26.5 - 40	20	Square Cover UG-599/U	EAR99
FM9851B-10 	WR-34	22 - 33	10	Square Cover UG-1530/U	EAR99
FMWAN034-10 	WR-34	22 - 33	10	Square Cover UG-1530/U	EAR99
FM9851B-15 	WR-34	22 - 33	15	Square Cover UG-1530/U	EAR99
FMWAN034-15 	WR-34	22 - 33	15	Square Cover UG-1530/U	EAR99
FM9851B-20 	WR-34	22 - 33	20	Square Cover UG-1530/U	EAR99
FMWAN034-20 	WR-34	22 - 33	20	Square Cover UG-1530/U	EAR99

















Standard Gain Horns Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FM9852B-10 	WR-42	18 - 26.5	10	Square Cover UG-597/U	EAR99
FMWAN042-10 	WR-42	18 - 26.5	10	Square Cover UG-597/U	EAR99
FM9852B-15 	WR-42	18 - 26.5	15	Square Cover UG-597/U	EAR99
FMWAN042-15 	WR-42	18 - 26.5	15	Square Cover UG-597/U	EAR99
FM9852B-20 	WR-42	18 - 26.5	20	Square Cover UG-597/U	EAR99
FMWAN042-20 	WR-42	18 - 26.5	20	Square Cover UG-597/U	EAR99
FM9853B-10 	WR-51	15 - 22	10	Square Cover	EAR99
FMWAN051-10 	WR-51	15 - 22	10	Square Cover	EAR99
FM9853B-15 	WR-51	15 - 22	15	Square Cover	EAR99
FMWAN051-15 	WR-51	15 - 22	15	Square Cover	EAR99
FM9853B-20 	WR-51	15 - 22	20	Square Cover	EAR99
FMWAN051-20 	WR-51	15 - 22	20	Square Cover	EAR99
FM9854B-10 	WR-62	12.4 - 18	10	Square Cover UG-1665/U	EAR99
FMWAN062-10 	WR-62	12.4 - 18	10	Square Cover	EAR99
FM9854B-15 	WR-62	12.4 - 18	15	Square Cover	EAR99
FMWAN062-15 	WR-62	12.4 - 18	15	Square Cover	EAR99

















Standard Gain Horns Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FM9854B-20 	WR-62	12.4 - 18	20	Square Cover	EAR99
FMWAN062-20 	WR-62	12.4 - 18	20	Square Cover	EAR99
FM9855B-10 	WR-75	10 - 15	10	Square Cover	EAR99
FMWAN075-10 	WR-75	10 - 15	10	Square Cover	EAR99
FM9855B-15 	WR-75	10 - 15	15	Square Cover	EAR99
FMWAN075-15 	WR-75	10 - 15	15	Square Cover	EAR99
FM9855B-20 	WR-75	10 - 15	20	Square Cover	EAR99
FMWAN075-20 	WR-75	10 - 15	20	Square Cover	EAR99
FM9856B-10 	WR-90	8.2 - 12.4	10	Square Cover UG-135/U	EAR99
FMWAN090-10 	WR-90	8.2 - 12.4	10	Square Cover UG-135/U	EAR99
FM9856B-15 	WR-90	8.2 - 12.4	15	Square Cover UG-135/U	EAR99
FMWAN090-15 	WR-90	8.2 - 12.4	15	Square Cover UG-135/U	EAR99
FM9856B-20 	WR-90	8.2 - 12.4	20	Square Cover UG-135/U	EAR99
FMWAN090-20 	WR-90	8.2 - 12.4	20	Square Cover UG-135/U	EAR99
FM9858B-10 	WR-112	7.05 - 10	10	Square Cover	EAR99
FMWAN112-10 	WR-112	7.05 - 10	10	Square Cover	EAR99


Standard Gain Horns Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FM9858B-15 	WR-112	7.05 - 10	15	Square Cover UG-138/U	EAR99
FMWAN112-15 	WR-112	7.05 - 10	15	Square Cover	EAR99
FM9858B-20 	WR-112	7.05 - 10	20	Square Cover	EAR99
FMWAN112-20 	WR-112	7.05 - 10	20	Square Cover	EAR99
FM9857B-10 	WR-102	7 - 11	10	Square Cover UG-1493/U	EAR99
FMWAN102-10 	WR-102	7 - 11	10	Square Cover	EAR99
FM9857B-15 	WR-102	7 - 11	15	Square Cover	EAR99
FMWAN102-15 	WR-102	7 - 11	15	Square Cover	EAR99
FM9857B-20 	WR-102	7 - 11	20	Square Cover UG-1493/U	EAR99
FMWAN102-20 	WR-102	7 - 11	20	Square Cover	EAR99
FM9859B-20 	WR-137	5.85 - 8.2	20	CMR-137F	EAR99
FM9859B-10 	WR-137	5.85 - 8.2	10	CMR-137	EAR99
FMWAN137-10 	WR-137	5.85 - 8.2	10	CMR-137	EAR99
FM9859B-15 	WR-137	5.85 - 8.2	15	CMR-137	EAR99
FMWAN137-15 	WR-137	5.85 - 8.2	15	CMR-137	EAR99
FMWAN137-20 	WR-137	5.85 - 8.2	20	CMR-137	EAR99
















Standard Gain Horns Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FM9860B-10 	WR-159	4.9 - 7.05	10	CMR-159	EAR99
FMWAN159-10 	WR-159	4.9 - 7.05	10	CMR-159	EAR99
FM9860B-15 	WR-159	4.9 - 7.05	15	CMR-159	EAR99
FMWAN159-15 	WR-159	4.9 - 7.05	15	Square Cover UG-1731/U	EAR99
FM9860B-20 	WR-159	4.9 - 7.05	20	CMR-159	EAR99
FMWAN159-20 	WR-159	4.9 - 7.05	20	CMR-159	EAR99
FM9861B-10 	WR-187	3.95 - 5.85	10	CMR-187	EAR99
FMWAN187-10 	WR-187	3.95 - 5.85	10	CMR-187	EAR99
FM9861B-15 	WR-187	3.95 - 5.85	15	CMR-187	EAR99
FMWAN187-15 	WR-187	3.95 - 5.85	15	CMR-187	EAR99
FM9861B-20 	WR-187	3.95 - 5.85	20	CMR-187	EAR99
FMWAN187-20 	WR-187	3.95 - 5.85	20	CMR-187	EAR99
FM9862B-10 	WR-229	3.3 - 4.9	10	CMR-229	EAR99
FMWAN229-10 	WR-229	3.3 - 4.9	10	CMR-229	EAR99
FM9862B-15 	WR-229	3.3 - 4.9	15	CMR-229	EAR99
FMWAN229-15 	WR-229	3.3 - 4.9	15	CMR-229	EAR99

















Standard Gain Horns Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FM9862B-20 	WR-229	3.3 - 4.9	20	CMR-229	EAR99
FMWAN229-20 	WR-229	3.3 - 4.9	20	CMR-229	EAR99
FM9863B-10 	WR-284	2.6 - 3.95	10	CMR-284	EAR99
FM9863B-10-U 	WR-284	2.6 - 3.95	10	Round Cover UG-584/U	
FMWAN284-10 	WR-284	2.6 - 3.95	10	CMR-284	EAR99
FM9863B-15 	WR-284	2.6 - 3.95	15	CMR-284	EAR99
FM9863B-15-U 	WR-284	2.6 - 3.95	15	Round Cover UG-584/U	EAR99
FMWAN284-15 	WR-284	2.6 - 3.95	15	CMR-284	EAR99
FM9863B-20 	WR-284	2.6 - 3.95	20	CMR-284	EAR99
FM9863B-20-U 	WR-284	2.6 - 3.95	20	Round Cover UG-584/U	EAR99
FMWAN284-20 	WR-284	2.6 - 3.95	20	CMR-284	EAR99
FM9864B-10 	WR-430	1.7 - 2.6	10	CPR-430F	EAR99
FMWAN430-10 	WR-430	1.7 - 2.6	10	CPR-430F	EAR99
FM9864B-15 	WR-430	1.7 - 2.6	15	CPR-430F	EAR99
FMWAN430-15 	WR-430	1.7 - 2.6	15	CPR-430F	EAR99
FM9864B-20 	WR-430	1.7 - 2.6	20	CPR-430F	EAR99






Conical Gain Horns

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FMWAN1065 	WR-5	140 - 220	10	Round Cover UG-387/U	EAR99
FMWAN1066 	WR-5	140 - 220	15	Round Cover UG-387/U	EAR99
FMWAN1067 	WR-5	140 - 220	20	Round Cover UG-387/U	EAR99
FMWAN1068 	WR-5	140 - 220	25	Round Cover UG-387/U	EAR99
FMWAN1061 	WR-6	100 - 112	10	Round Cover UG-387/U-Mod	EAR99
FMWAN1062 	WR-6	100 - 112	15	Round Cover UG-387/U-Mod	EAR99
FMWAN1063 	WR-6	100 - 112	20	Round Cover UG-387/U-Mod	EAR99
FMWAN1064 	WR-6	100 - 112	25	Round Cover UG-387/U-Mod	EAR99
FMWAN1057 	WR-8	100 - 112	10	Round Cover UG-387/U-Mod	EAR99
FMWAN1058 	WR-8	100 - 112	15	Round Cover UG-387/U-Mod	EAR99
FMWAN1059 	WR-8	100 - 112	20	Round Cover UG-387/U-Mod	EAR99
FMWAN1060 	WR-8	100 - 112	25	Round Cover UG-387/U-Mod	EAR99
FMWAN1049 	WR-10	87 - 100	10	Round Cover UG-387/U	EAR99
FMWAN1050 	WR-10	87 - 100	15	Round Cover UG-387/U	EAR99
FMWAN1051 	WR-10	87 - 100	20	Round Cover UG-387/U	EAR99







Conical Gain Horns Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FMWAN1052 	WR-10	87 - 100	25	Round Cover UG-387/U	EAR99
FMWAN1053 	WR-10	77 - 87	10	Round Cover UG-387/U	EAR99
FMWAN1054 	WR-10	77 - 87	15	Round Cover UG-387/U	EAR99
FMWAN1055 	WR-10	77 - 87	20	Round Cover UG-387/U	EAR99
FMWAN1056 	WR-10	77 - 87	25	Round Cover UG-387/U	EAR99
FMWAN1045 	WR-12	77 - 87	10	Round Cover UG-387/U	EAR99
FMWAN1046 	WR-12	77 - 87	15	Round Cover UG-387/U	EAR99
FMWAN1047 	WR-12	77 - 87	20	Round Cover UG-387/U	EAR99
FMWAN1048 	WR-12	77 - 87	25	Round Cover UG-387/U	EAR99
FMWAN1041 	WR-12	68 - 77	10	Round Cover UG-387/U	EAR99
FMWAN1042 	WR-12	68 - 77	15	Round Cover UG-387/U	EAR99
FMWAN1043 	WR-12	68 - 77	20	Round Cover UG-387/U	EAR99
FMWAN1044 	WR-12	68 - 77	25	Round Cover UG-387/U	EAR99
FMWAN1037 	WR-15	58 - 68	10	Round Cover UG-385/U	EAR99
FMWAN1038 	WR-15	58 - 68	15	Round Cover UG-385/U	EAR99
FMWAN1039 	WR-15	58 - 68	20	Round Cover UG-385/U	EAR99


Conical Gain Horns Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FMWAN1040 	WR-15	58 - 68	25	Round Cover UG-385/U	EAR99
FMWAN1033 	WR-19	50 - 58	10	Round Cover UG-383/U-Mod	EAR99
FMWAN1034 	WR-19	50 - 58	15	Round Cover UG-383/U-Mod	EAR99
FMWAN1035 	WR-19	50 - 58	20	Round Cover UG-383/U-Mod	EAR99
FMWAN1036 	WR-19	50 - 58	25	Round Cover UG-383/U-Mod	EAR99












Wide Angle Scalar Feed Horns

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FMWAN1073 	WR-10	89 - 99	10	Round Cover UG-385/U-Mod	EAR99
FMWAN1074 	WR-10	89 - 99	10	Round Cover UG-385/U-Mod	EAR99
FMWAN1071 	WR-12	72 - 82	10	Round Cover UG-385/U	EAR99
FMWAN1072 	WR-12	72 - 82	10	Round Cover UG-385/U	EAR99
FMWAN1069 	WR-15	55 - 65	10	Round Cover UG-385/U	EAR99
FMWAN1070 	WR-15	55 - 65	10	Round Cover UG-385/U	EAR99



Lens Gain Horns

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FMWAN1083 	WR-10	89 - 99	34	Round Cover UG-387/U	EAR99


Lens Gain Horns

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FMWAN1085 	WR-10	89 - 99	34	Round Cover UG-387/U	EAR99
FMWAN1084 	WR-10	89 - 99	40	Round Cover UG-387/U	EAR99
FMWAN1086 	WR-10	89 - 99	40	Round Cover UG-387/U	EAR99
FMWAN1079 	WR-12	72 - 82	32	Round Cover UG-387/U	EAR99
FMWAN1081 	WR-12	72 - 82	32	Round Cover UG-387/U	EAR99
FMWAN1080 	WR-12	72 - 82	37	Round Cover UG-387/U	EAR99
FMWAN1082 	WR-12	72 - 82	37	Round Cover UG-387/U	EAR99
FMWAN1075 	WR-15	55 - 65	32	Round Cover UG-385/U	EAR99
FMWAN1077 	WR-15	55 - 65	32	Round Cover UG-385/U	EAR99
FMWAN1076 	WR-15	55 - 65	37	Round Cover UG-385/U	EAR99
FMWAN1078 	WR-15	55 - 65	37	Round Cover UG-385/U	EAR99



Omni Directional

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FMWAN1089 	WR-10	89 - 99	2	Round Cover UG-387/U	EAR99
FMWAN1088 	WR-12	75 - 79	2	Round Cover UG-387/U	EAR99










Omni Directional Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
FMWAN1087 	WR-15	58 - 62	3.5	Round Cover UG-385/U	EAR99

















Specialty Waveguide Antennas

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Gain (dB)	Flange Type	ECCN
SH0118S 	Broadband	1 - 18	11 dBi	SMA Connectors	EAR99
SH0118N 	Broadband	1 - 18	11 dBi	N Connectors	EAR99

















Waveguide to Coax Adapters

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	Connector	Body Style	ECCN
SMW10AC003 	WR-10	75 - 110	1.32:1	Round Cover UG-387/U-Mod	1.0mm Female	Right Angle	EAR99
SMW10AC004 	WR-10	75 - 110	1.33:1	Round Cover UG-387/U-Mod	1.0mm Male	Right Angle	EAR99
SMW12AC001-VF 	WR-12	60 - 90	1.67:1	Round Cover UG-387/U	1.0mm Female	Right Angle	EAR99
SMW12AC001-VM 	WR-12	60 - 90	1.67:1	Round Cover UG-387/U	1.0mm Male		EAR99
SMW15AC001-VF 	WR-15	50 - 65	1.44:1	Round Cover UG-385/U	1.85mm Female	Right Angle	EAR99
SMW15AC001-VM 	WR-15	50 - 65	1.44:1	Round Cover UG-385/U	1.85mm Male	Right Angle	EAR99
SMW19AC001-VF 	WR-19	40 - 60	1.38:1	Round Cover UG-383/U-Mod	1.85mm Female	Right Angle	EAR99
SMW19AC001-VM 	WR-19	40 - 60	1.38:1	Round Cover UG-383/U-Mod	1.85mm Male	Right Angle	EAR99
SMW22AC001-24F 	WR-22	33 - 50	1.33:1	Round Cover UG-383/U	2.4mm Female	Right Angle	EAR99













Waveguide to Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	Connector	Body Style	ECCN
SMW22AC001-24M 	WR-22	33 - 50	1.33:1	Round Cover UG-383/U	2.4mm Male	Right Angle	EAR99
FMW22CA100 	WR-22	33 - 50	1.4:1	Round Cover UG-383/U	2.4mm Female	Right Angle	EAR99
FMWCA1110 	WR-22	33 - 50	1.6:1	UG383/U	2.4mm Female	End Launch	EAR99
FMWCA1078 	WR-28	26.5 - 40	1.25:1	Square Cover UG-599/U	2.92mm Female	Right Angle	EAR99
FMWCA1103 	WR-28	26.5 - 40	1.25:1	UBR320	2.92mm Female	Right Angle	EAR99
FMWCA1104 	WR-28	26.5 - 40	1.25:1	UBR320	2.92mm Female	Right Angle	EAR99
SMW28AC001-KM 	WR-28	26.5 - 40	1.29:1	Square Cover UG-599/U	2.92mm Male	Right Angle	EAR99
FMWCA1020 	WR-28	26.5 - 40	1.3:1	Square Cover UG-599/U	2.92mm Female	Right Angle	EAR99
FMWCA1000 	WR-28	26.5 - 40	1.3:1	Square Cover UG-599/U	2.92mm Female	Right Angle	EAR99
FMWCA1109 	WR-28	26.5 - 40	1.3:1	UBR320	2.92mm Female	End Launch	EAR99
FMWCA1021 	WR-34	22 - 33	1.25:1	Square Cover UG-1530/U	2.92mm Female	Right Angle	EAR99
FMWCA1001 	WR-34	22 - 33	1.25:1	Square Cover UG-1530/U	2.92mm Female	Right Angle	EAR99
FMWCA1102 	WR-34	21.7 - 33	1.35:1	UBR260	2.92mm Female	Right Angle	EAR99
FMWCA1026 	WR-42	18 - 26.5	1.03:1	Square Cover UG-597/U	SMA Female	Right Angle	EAR99
FMWCA1019 	WR-42	18 - 26.5	1.25:1	Square Cover UG-597/U	2.92mm Female	Right Angle	EAR99
FMWCA1018 	WR-42	18 - 26.5	1.25:1	Square Cover UG-595/U	SMA Female	Right Angle	EAR99

















Waveguide to Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	Connector	Body Style	ECCN
FMWCA1101 	WR-42	17.6 - 26.7	1.25:1	UBR220	2.92mm Female	Right Angle	EAR99
FMWCA1100 	WR-42	17.6 - 26.7	1.25:1	UBR220	SMA Female	Right Angle	EAR99
SMW42AC001-KF 	WR-42	18 - 26.5	1.29:1	Square Cover UG-597/U	2.92mm Female	Right Angle	EAR99
SMW42AC001-KM 	WR-42	18 - 26.5	1.29:1	Square Cover UG-597/U	2.92mm Male	Right Angle	EAR99
FMWCA1070 	WR-42	18 - 26.5	1.3:1	Square Cover UG-597/U	2.92mm Female	End Launch	EAR99
FMWCA1022 	WR-42	18 - 26.5	1.3:1	Square Cover UG-597/U	SMA Female	Right Angle	EAR99
FMWCA9813A 	WR-42	18 - 26.5	1.4:1	Square Cover UG-597/U	2.92mm Male	Right Angle	EAR99
FMWCA1027 	WR-51	15 - 22	1.25:1	Square Cover	SMA Female	Right Angle	EAR99
FMWCA1099 	WR-51	14.5 - 22	1.25:1	UBR180	SMA Female	Right Angle	EAR99
FMWCA9879 	WR-51	15 - 22	1.3:1	Square Type	SMA Female	End Launch	EAR99
FMWCA9809 	WR-62	12.4 - 18	1.2:1	Square Cover UG-1665/U	SMA Male	Right Angle	EAR99
FMWCA1028 	WR-62	12.4 - 18	1.25:1	Square Cover UG-1665/U	N Female	Right Angle	EAR99
FMWCA1023 	WR-62	12.4 - 18	1.25:1	Square Cover UG-1665/U	SMA Female	Right Angle	EAR99
FMWCA1003 	WR-62	12.4 - 18	1.25:1	Square Cover UG-419/U	SMA Female	Right Angle	EAR99
FMWCA1097 	WR-62	11.9 - 18	1.25:1	UBR140	N Female	Right Angle	EAR99
FMWCA1098 	WR-62	11.9 - 18	1.25:1	UBR140	SMA Female	Right Angle	EAR99















Waveguide to Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	Connector	Body Style	ECCN
FMWCA1108 	WR-62	11.9 - 18	1.25:1	UBR140	SMA Female	End Launch	EAR99
FMWCA1072 	WR-62	12.4 - 18	1.3:1	Square Cover UG-1665/U	N Female	End Launch	EAR99
FMWCA1071 	WR-62	12.4 - 18	1.3:1	Square Cover UG-1665/U	SMA Female	End Launch	EAR99
FMWCA9806 	WR-62	12.4 - 18	1.4:1	Square Cover	N Male	Right Angle	EAR99
FMWCA9866 	WR-62	12.4 - 18	1.4:1	Square Type	N Female	End Launch	EAR99
FMWCA9875 	WR-62	12.4 - 18	1.4:1	Square Type	N Female	Right Angle	EAR99
FMWCA9846 	WR-62	12.4 - 18	1.4:1	Square Type	SMA Female	End Launch	EAR99
FMWCA1005 	WR-75	10 - 15	1.25:1	Square Cover	N Female	Right Angle	EAR99
FMWCA1029 	WR-75	10 - 15	1.25:1	Square Cover	N Female	Right Angle	EAR99
FMWCA1024 	WR-75	10 - 15	1.25:1	Square Cover	SMA Female	Right Angle	EAR99
FMWCA1004 	WR-75	10 - 15	1.25:1	Square Cover	SMA Female	Right Angle	EAR99
FMWCA1095 	WR-75	9.84 - 15	1.25:1	UBR120	N Female	Right Angle	EAR99
FMWCA1096 	WR-75	9.84 - 15	1.25:1	UBR120	SMA Female	Right Angle	EAR99
FMWCA1074 	WR-75	10 - 15	1.3:1	Square Cover	N Female	End Launch	EAR99
FMWCA1073 	WR-75	10 - 15	1.3:1	Square Cover	SMA Female	End Launch	EAR99
FMWCA9874 	WR-75	10 - 15	1.3:1	Square Type	N Female	Right Angle	EAR99



Waveguide to Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	Connector	Body Style	ECCN
FMWCA9867 	WR-75	10 - 15	1.4:1	Square Type	N Female	End Launch	EAR99
FMWCA9847 	WR-75	10 - 15	1.4:1	Square Type	SMA Female	End Launch	EAR99
FMWCA1033 	WR-90	8.2 - 12.4	1.25:1	CMR-90	N Female	Right Angle	EAR99
FMWCA1032 	WR-90	8.2 - 12.4	1.25:1	CMR-90	SMA Female	Right Angle	EAR99
FMWCA1009 	WR-90	8.2 - 12.4	1.25:1	CPR-90G	N Female	Right Angle	EAR99
FMWCA1036 	WR-90	8.2 - 12.4	1.25:1	CPR-90G	N Female	Right Angle	EAR99
FMWCA1035 	WR-90	8.2 - 12.4	1.25:1	CPR-90G	N Male	Right Angle	EAR99
FMWCA1007 	WR-90	8.2 - 12.4	1.25:1	CPR-90G	SMA Female	Right Angle	EAR99
FMWCA1034 	WR-90	8.2 - 12.4	1.25:1	CPR-90G	SMA Female	Right Angle	EAR99
FMWCA9868 	WR-90	8.2 - 12.4	1.25:1	Square Cover UG-135/U	N Female	End Launch	EAR99
FMWCA1031 	WR-90	8.2 - 12.4	1.25:1	Square Cover UG-135/U	N Female	Right Angle	EAR99
FMWCA1008 	WR-90	8.2 - 12.4	1.25:1	Square Cover UG-39/U	N Female	Right Angle	EAR99
FMWCA1025 	WR-90	8.2 - 12.4	1.25:1	Square Cover UG-135/U	SMA Female	Right Angle	EAR99
FMWCA1075 	WR-90	8.2 - 12.4	1.25:1	Square Cover UG-135/U	SMA Female	End Launch	EAR99
FMWCA1030 	WR-90	8.2 - 12.4	1.25:1	Square Cover UG-135/U	SMA Male	Right Angle	EAR99
FMWCA1006 	WR-90	8.2 - 12.4	1.25:1	Square Cover UG-39/U	SMA Female	Right Angle	EAR99

















Waveguide to Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	Connector	Body Style	ECCN
FMWCA1092 	WR-90	8.2 - 12.4	1.25:1	UBR100	N Female	Right Angle	EAR99
FMWCA1093 	WR-90	8.2 - 12.4	1.25:1	UBR100	SMA Female	Right Angle	EAR99
FMWCA1107 	WR-90	8.2 - 12.4	1.25:1	UBR100	SMA Female	End Launch	EAR99
FMWCA1038 	WR-102	7 - 11	1.25:1	Square Cover UG-1493/U	N Female	Right Angle	EAR99
FMWCA1039 	WR-102	7 - 11	1.25:1	Square Cover UG-1493/U	N Male	Right Angle	EAR99
FMWCA1037 	WR-102	7 - 10	1.25:1	Square Cover UG-1493/U	SMA Female	Right Angle	EAR99
FMWCA9805 	WR-102	7 - 11	1.25:1	Square Cover UG-1493/U	SMA Female	Right Angle	EAR99
FMWCA9811 	WR-102	7 - 11	1.3:1	Square Cover	SMA Male	Right Angle	EAR99
FMWCA9802 	WR-102	7 - 11	1.3:1	Square Type	N Female	Right Angle	EAR99
FMWCA9890 	WR-102	7 - 11	1.3:1	Square Type	N Male	Right Angle	EAR99
FMWCA9871 	WR-102	7 - 11	1.4:1	Square Type	SMA Female	End Launch	EAR99
FMWCA1043 	WR-112	7.05 - 10	1.25:1	CMR-112	N Female	Right Angle	EAR99
FMWCA1042 	WR-112	7.05 - 10	1.25:1	CMR-112	SMA Female	Right Angle	EAR99
FMWCA1013 	WR-112	7.05 - 10	1.25:1	CPR-112G	N Female	Right Angle	EAR99
FMWCA1045 	WR-112	7.05 - 10	1.25:1	CPR-112G	N Female	Right Angle	EAR99
FMWCA1011 	WR-112	7.05 - 10	1.25:1	CPR-112G	SMA Female	Right Angle	EAR99

















Waveguide to Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	Connector	Body Style	ECCN
FMWCA1044 	WR-112	7.05 - 10	1.25:1	CPR-112G	SMA Female	Right Angle	EAR99
FMWCA1041 	WR-112	7.05 - 10	1.25:1	Square Cover UG-138/U	N Female	Right Angle	EAR99
FMWCA1012 	WR-112	7.05 - 10	1.25:1	Square Cover UG-51/U	N Female	Right Angle	EAR99
FMWCA1040 	WR-112	7.05 - 10	1.25:1	Square Cover UG-138/U	SMA Female	Right Angle	EAR99
FMWCA1010 	WR-112	7.05 - 10	1.25:1	Square Cover UG-51/U	SMA Female	Right Angle	EAR99
FMWCA1089 	WR-112	6.57 - 9.99	1.25:1	UBR84	N Female	Right Angle	EAR99
FMWCA1090 	WR-112	6.57 - 9.99	1.25:1	UBR84	SMA Female	Right Angle	EAR99
FMWCA1106 	WR-112	6.57 - 9.99	1.25:1	UBR84	SMA Female	End Launch	EAR99
FMWCA9820 	WR-112	7.05 - 10	1.3:1	Square Type	N Female	Right Angle	EAR99
FMWCA9870 	WR-112	7.05 - 10	1.3:1	Square Type	N Female	End Launch	EAR99
FMWCA9884 	WR-112	7.05 - 10	1.3:1	Square Type	SMA Female	Right Angle	EAR99
FMWCA9865 	WR-112	7.05 - 10	1.4:1	Square Type	SMA Female	End Launch	EAR99
FMWCA1049 	WR-137	5.85 - 8.2	1.25:1	CMR-137	N Female	Right Angle	EAR99
FMWCA1048 	WR-137	5.85 - 8.2	1.25:1	CMR-137	SMA Female	Right Angle	EAR99
FMWCA1017 	WR-137	5.85 - 8.2	1.25:1	CPR-137G	N Female	Right Angle	EAR99
FMWCA1051 	WR-137	5.85 - 8.2	1.25:1	CPR-137G	N Female	Right Angle	EAR99

















Waveguide to Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	Connector	Body Style	ECCN
FMWCA1015 	WR-137	5.85 - 8.2	1.25:1	CPR-137G	SMA Female	Right Angle	EAR99
FMWCA1050 	WR-137	5.85 - 8.2	1.25:1	CPR-137G	SMA Female	Right Angle	EAR99
FMWCA1087 	WR-137	5.38 - 8.17	1.25:1	PDR70	N Female	Right Angle	EAR99
FMWCA1016 	WR-137	5.85 - 8.2	1.25:1	Round Cover UG-344/U	N Female	Right Angle	EAR99
FMWCA1047 	WR-137	5.85 - 8.2	1.25:1	Round Cover UG-441/U	N Female	Right Angle	EAR99
FMWCA1014 	WR-137	5.85 - 8.2	1.25:1	Round Cover UG-344/U	SMA Female	Right Angle	EAR99
FMWCA1046 	WR-137	5.85 - 8.2	1.25:1	Round Cover UG-441/U	SMA Female	Right Angle	EAR99
FMWCA1086 	WR-137	5.38 - 8.17	1.25:1	UDR70	N Female	Right Angle	EAR99
FMWCA1088 	WR-137	5.38 - 8.17	1.25:1	UDR70	SMA Female	Right Angle	EAR99
FMWCA9876 	WR-137	5.85 - 8.2	1.3:1	CMR-137	N Female	Right Angle	EAR99
FMWCA9830 	WR-137	5.85 - 8.2	1.3:1	CMR-137	SMA Female	Right Angle	EAR99
FMWCA1053 	WR-159	4.9 - 7.05	1.25:1	CMR-159	N Female	Right Angle	EAR99
FMWCA1052 	WR-159	4.9 - 7.05	1.25:1	CMR-159	SMA Female	Right Angle	EAR99
FMWCA1055 	WR-159	4.9 - 7.05	1.25:1	CPR-159G	N Female	Right Angle	EAR99
FMWCA1054 	WR-159	4.9 - 7.05	1.25:1	CPR-159G	SMA Female	Right Angle	EAR99
FMWCA1085 	WR-159	5.38 - 8.17	1.25:1	UDR58	SMA Female	Right Angle	EAR99












Waveguide to Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	Connector	Body Style	ECCN
FMWCA9821 	WR-159	4.9 - 7.05	1.3:1	CMR-159	N Female	Right Angle	EAR99
FMWCA9831 	WR-159	4.9 - 7.05	1.3:1	CMR-159	SMA Female	Right Angle	EAR99
FMWCA1120 	WRD-180	18 - 40	1.6:1	Square Cover UG	2.92mm Female	End Launch	
FMWCA1115 	WRD-180	18 - 40	1.6:1	Square Cover	2.92mm Female	Right Angle	EAR99
FMWCA1058 	WR-187	3.95 - 5.85	1.25:1	CMR-187	N Female	Right Angle	EAR99
FMWCA1057 	WR-187	3.95 - 5.85	1.25:1	CMR-187	SMA Female	Right Angle	EAR99
FMWCA1059 	WR-187	3.95 - 5.85	1.25:1	CPR-187G	N Female	Right Angle	EAR99
FMWCA1084 	WR-187	3.94 - 5.99	1.25:1	PDR48	N Female	Right Angle	EAR99
FMWCA1056 	WR-187	3.95 - 5.85	1.25:1	Round Cover UG-407/U	N Female	Right Angle	EAR99
FMWCA1083 	WR-187	3.94 - 5.99	1.25:1	UDR48	N Female	Right Angle	EAR99
FMWCA1105 	WR-187	3.94 - 5.99	1.25:1	UDR48	N Female	End Launch	EAR99
FMWCA1076 	WR-187	3.94 - 5.99	1.25:1	UDR48	SMA Female	Right Angle	EAR99
FMWCA9822 	WR-187	3.95 - 5.85	1.3:1	CMR-187	N Female	Right Angle	EAR99
FMWCA9832 	WR-187	3.95 - 5.85	1.3:1	CMR-187	SMA Female	Right Angle	EAR99
FMWCA1060 	WR-229	3.3 - 4.9	1.25:1	CMR-229	N Female	Right Angle	EAR99
FMWCA1062 	WR-229	3.3 - 4.9	1.25:1	CPR-229G	N Female	Right Angle	EAR99


Waveguide to Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	Connector	Body Style	ECCN
FMWCA1061 	WR-229	3.3 - 4.9	1.25:1	CPR-229G	SMA Female	Right Angle	EAR99
FMWCA9823 	WR-229	3.3 - 4.9	1.3:1	CMR-229	N Female	Right Angle	EAR99
FMWCA9833 	WR-229	3.3 - 4.9	1.3:1	CMR-229	SMA Female	Right Angle	EAR99
FMWCA1064 	WR-284	2.6 - 3.95	1.25:1	CMR-284	N Female	Right Angle	EAR99
FMWCA9834 	WR-284	2.6 - 3.95	1.25:1	CMR-284	SMA Female	Right Angle	EAR99
FMWCA1065 	WR-284	2.6 - 3.95	1.25:1	CPR-284G	N Female	Right Angle	EAR99
FMWCA1063 	WR-284	2.6 - 3.95	1.25:1	Round Cover UG-584/U	N Female	Right Angle	EAR99
FMWCA1081 	WR-284	2.6 - 3.95	1.25:1	UDR32	N Female	Right Angle	EAR99
FMWCA1082 	WR-284	2.6 - 3.95	1.25:1	UDR32	SMA Female	Right Angle	EAR99
FMWCA9824 	WR-284	2.6 - 3.95	1.3:1	CMR-284	N Female	Right Angle	EAR99
FMWCA1066 	WR-340	2.2 - 3.3	1.25:1	CPR-340F	N Female	Right Angle	EAR99
FMWCA1067 	WR-340	2.2 - 3.3	1.25:1	CPR-340G	N Female	Right Angle	EAR99
FMWCA1077 	WR-340	2.17 - 3.3	1.25:1	UDR26	N Female	Right Angle	EAR99
FMWCA1068 	WR-430	1.7 - 2.6	1.25:1	CPR-430F	N Female	Right Angle	EAR99
FMWCA1069 	WR-430	1.7 - 2.6	1.25:1	CPR-430G	N Female	Right Angle	EAR99
FMWCA1079 	WR-430	1.72 - 2.61	1.25:1	UDR22	N Female	Right Angle	EAR99

















Waveguide to Coax Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	Connector	Body Style	ECCN
FMWCA1080 	WR-430	1.72 - 2.61	1.25:1	UDR22	SMA Female	Right Angle	EAR99
FMWCA9872 	WR-430	1.7 - 2.6	1.3:1	CPR-430F	N Female	Right Angle	EAR99
FMWCA9835 	WR-430	1.7 - 2.6	1.3:1	CPR-430F	SMA Female	Right Angle	EAR99
FMWCA1116 	WRD-650	6.5 - 18	1.5:1	Square Cover UG	N Female	End Launch	EAR99
FMWCA1111 	WRD-650	6.5 - 18	1.5:1	Square Cover UG	N Female	Right Angle	
FMWCA1112 	WRD-650	6.5 - 18	1.5:1	Square Cover UG	SMA Female	Right Angle	
FMWCA1117 	WRD-650	6.5 - 18	1.5:1	Square Cover UG	SMA Female	End Launch	
FMWCA1113 	WRD-750	7.5 - 18	1.5:1	Square Cover UG	N Female	Right Angle	
FMWCA1118 	WRD-750	7.5 - 18	1.5:1	Square Cover UG	N Female	End Launch	
FMWCA1114 	WRD-750	7.5 - 18	1.5:1	Square Cover UG	SMA Female	Right Angle	EAR99
FMWCA1119 	WRD-750	7.5 - 18	1.5:1	Square Cover UG	SMA Female	End Launch	

















Flexible Waveguides

FM P/N	Waveguide Type	Design	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Length (in)	Flange Type	ECCN
SMW22SF005-6 	WR-22	Seamless	33 - 50	0.49	1.2:1	6	Round Cover UG-383/U	EAR99
SMW22SF005-12 	WR-22	Seamless	33 - 50	0.49	1.2:1	12	Round Cover UG-383/U	EAR99
SMW22SF005-24 	WR-22	Seamless	33 - 50	0.49	1.2:1	24	Round Cover UG-383/U	EAR99

















Flexible Waveguides Continued

FM P/N	Waveguide Type	Design	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Length (in)	Flange Type	ECCN
SMW28SF005-12 	WR-28	Seamless	26.5 - 40	0.49	1.2:1	12	Square Cover UG-599/U	EAR99
SMW28SF005-24 	WR-28	Seamless	26.5 - 40	0.98	1.2:1	24	Square Cover UG-599/U	EAR99
SMW28SF005-36 	WR-28	Seamless	26.5 - 40	1.47	1.2:1	36	Square Cover UG-599/U	EAR99
SMW34SF005-12 	WR-34	Seamless	22 - 33	0.4	1.15:1	12	Square Cover UG-1530/U	EAR99
SMW34SF005-24 	WR-34	Seamless	22 - 33	0.8	1.15:1	24	Square Cover UG-1530/U	EAR99
SMW34SF005-36 	WR-34	Seamless	22 - 33	1.2	1.15:1	36	Square Cover UG-1530/U	EAR99
SMW42SF005-12 	WR-42	Seamless	18 - 26.5	0.27	1.15:1	12	Square Cover UG-595/U	EAR99
SMW42SF005-24 	WR-42	Seamless	18 - 26.5	0.54	1.15:1	24	Square Cover UG-595/U	EAR99
SMW42SF005-36 	WR-42	Seamless	18 - 26.5	0.81	1.15:1	36	Square Cover UG-595/U	EAR99
SMW51SF005-12 	WR-51	Seamless	15 - 22	0.18	1.1:1	12	Square Cover	EAR99
SMW51SF005-24 	WR-51	Seamless	15 - 22	0.36	1.1:1	24	Square Cover	EAR99
SMW51SF005-36 	WR-51	Seamless	15 - 22	0.54	1.1:1	36	Square Cover	EAR99
SMW62SF005-12 	WR-62	Seamless	12.4 - 18	0.14	1.08:1	12	Square Cover UG-419/U	EAR99
SMW62SF005-24 	WR-62	Seamless	12.4 - 18	0.28	1.08:1	24	Square Cover UG-419/U	EAR99
SMW62SF005-36 	WR-62	Seamless	12.4 - 18	0.42	1.08:1	36	Square Cover UG-419/U	EAR99
SMW75SF005-12 	WR-75	Seamless	10 - 15	0.12	1.07:1	12	Square Cover	EAR99

















Flexible Waveguides Continued

FM P/N	Waveguide Type	Design	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Length (in)	Flange Type	ECCN
SMW75SF005 -24 	WR-75	Seamless	10 - 15	0.24	1.07:1	24	Square Cover	EAR99
SMW75SF005 -36 	WR-75	Seamless	10 - 15	0.36	1.07:1	36	Square Cover	EAR99
SMW90SF005 -12 	WR-90	Seamless	8.2 - 12.4	0.09	1.07:1	12	Square Cover UG-39/U	EAR99
SMW90SF006 -24 	WR-90	Seamless	8.2 - 12.4	0.18	1.07:1	24	CPR-90G	EAR99
SMW90SF005 -24 	WR-90	Seamless	8.2 - 12.4	0.18	1.07:1	24	Square Cover UG-39/U	EAR99
SMW90SF006 -36 	WR-90	Seamless	8.2 - 12.4	0.27	1.07:1	36	CPR-90G	EAR99
SMW90SF005 -36 	WR-90	Seamless	8.2 - 12.4	0.27	1.07:1	36	Square Cover UG-39/U	EAR99
SMW90SF006 -12 	WR-90	Seamless	8.2 - 12.4	0.9	1.07:1	12	CPR-90G	EAR99
SMW112SF006 -12 	WR-112	Seamless	7.05 - 10	0.08	1.07:1	12	CPR-112G	EAR99
SMW112SF005 -12 	WR-112	Seamless	7.05 - 10	0.08	1.07:1	12	Square Cover UG-51/U	EAR99
SMW112SF006 -24 	WR-112	Seamless	7.05 - 10	0.16	1.07:1	24	CPR-112G	EAR99
SMW112SF005 -24 	WR-112	Seamless	7.05 - 10	0.16	1.07:1	24	Square Cover UG-51/U	EAR99
SMW112SF006 -36 	WR-112	Seamless	7.05 - 10	0.24	1.07:1	36	CPR-112G	EAR99
SMW112SF005 -36 	WR-112	Seamless	7.05 - 10	0.24	1.07:1	36	Square Cover UG-51/U	EAR99
SMW137SF006 -12 	WR-137	Seamless	5.85 - 8.2	0.06	1.07:1	12	CPR-137G	EAR99
SMW137SF005 -12 	WR-137	Seamless	5.85 - 8.2	0.06	1.07:1	12	Round Cover UG-344/U	EAR99












Flexible Waveguides Continued

FM P/N	Waveguide Type	Design	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Length (in)	Flange Type	ECCN
SMW137SF006-24 	WR-137	Seamless	5.85 - 8.2	0.12	1.07:1	24	CPR-137G	EAR99
SMW137SF005-24 	WR-137	Seamless	5.85 - 8.2	0.12	1.07:1	24	Round Cover UG-344/U	EAR99
SMW137SF006-36 	WR-137	Seamless	5.85 - 8.2	0.18	1.07:1	36	CPR-137G	EAR99
SMW137SF005-36 	WR-137	Seamless	5.85 - 8.2	0.18	1.07:1	36	Round Cover UG-344/U	EAR99
SMW22TF005-6 	WR-22	Twistable	33 - 50	0.6	1.3:1	6	Round Cover UG-383/U	EAR99
SMW22TF005-12 	WR-22	Twistable	33 - 50	0.6	1.3:1	12	Round Cover UG-383/U	EAR99
SMW22TF005-24 	WR-22	Twistable	33 - 50	0.6	1.3:1	24	Round Cover UG-383/U	EAR99
SMW28TF005-12 	WR-28	Twistable	26.5 - 40	0.6	1.3:1	12	Square Cover UG-599/U	EAR99
SMW28TF005-24 	WR-28	Twistable	26.5 - 40	1.2	1.3:1	24	Square Cover UG-599/U	EAR99
SMW28TF005-36 	WR-28	Twistable	26.5 - 40	1.8	1.3:1	36	Square Cover UG-599/U	EAR99
SMW34TF005-12 	WR-34	Twistable	22 - 33	0.5	1.22:1	12	Square Cover UG-1530/U	EAR99
SMW34TF005-24 	WR-34	Twistable	22 - 33	1	1.22:1	24	Square Cover UG-1530/U	EAR99
SMW34TF005-36 	WR-34	Twistable	22 - 33	1.5	1.22:1	36	Square Cover UG-1530/U	EAR99
SMW42TF005-12 	WR-42	Twistable	18 - 26.5	0.35	1.3:1	12	Square Cover UG-595/U	EAR99
SMW42TF005-24 	WR-42	Twistable	18 - 26.5	0.7	1.3:1	24	Square Cover UG-595/U	EAR99
SMW42TF005-36 	WR-42	Twistable	18 - 26.5	1.05	1.35:1	36	Square Cover UG-595/U	EAR99


Flexible Waveguides Continued

FM P/N	Waveguide Type	Design	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Length (in)	Flange Type	ECCN
SMW51TF005-12 	WR-51	Twistable	15 - 22	0.55	1.15:1	12	Square Cover	EAR99
SMW51TF005-24 	WR-51	Twistable	15 - 22	1.1	1.15:1	24	Square Cover	EAR99
SMW51TF005-36 	WR-51	Twistable	15 - 22	1.65	1.15:1	36	Square Cover	EAR99
SMW62TF005-12 	WR-62	Twistable	12.4 - 18	0.28	1.1:1	12	Square Cover UG-419/U	EAR99
SMW62TF005-24 	WR-62	Twistable	12.4 - 18	0.56	1.1:1	24	Square Cover UG-419/U	EAR99
SMW62TF005-36 	WR-62	Twistable	12.4 - 18	0.84	1.1:1	36	Square Cover UG-419/U	EAR99
SMW75TF005-12 	WR-75	Twistable	10 - 15	0.18	1.1:1	12	Square Cover	EAR99
SMW75TF005-24 	WR-75	Twistable	10 - 15	0.36	1.1:1	24	Square Cover	EAR99
SMW75TF005-36 	WR-75	Twistable	10 - 15	0.54	1.1:1	36	Square Cover	EAR99
SMW90TF006-12 	WR-90	Twistable	8.2 - 12.4	0.15	1.07:1	12	CPR-90G	EAR99
SMW90TF005-12 	WR-90	Twistable	8.2 - 12.4	0.15	1.1:1	12	Square Cover UG-39/U	EAR99
SMW90TF006-24 	WR-90	Twistable	8.2 - 12.4	0.3	1.07:1	24	CPR-90G	EAR99
SMW90TF005-24 	WR-90	Twistable	8.2 - 12.4	0.36	1.1:1	24	Square Cover UG-39/U	EAR99
SMW90TF006-36 	WR-90	Twistable	8.2 - 12.4	0.45	1.07:1	36	CPR-90G	EAR99
SMW90TF005-36 	WR-90	Twistable	8.2 - 12.4	0.45	1.1:1	36	Square Cover UG-39/U	EAR99
SMW112TF006-12 	WR-112	Twistable	7.05 - 10	0.12	1.07:1	12	CPR-112G	EAR99
















Flexible Waveguides Continued

FM P/N	Waveguide Type	Design	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Length (in)	Flange Type	ECCN
SMW112TF005-12 	WR-112	Twistable	7.05 - 10	0.12	1.3:1	12	Square Cover UG-51/U	EAR99
SMW112TF006-24 	WR-112	Twistable	7.05 - 10	0.24	1.07:1	24	CPR-112G	EAR99
SMW112TF005-24 	WR-112	Twistable	7.05 - 10	0.24	1.07:1	24	Square Cover UG-51/U	EAR99
SMW112TF006-36 	WR-112	Twistable	7.05 - 10	0.36	1.07:1	36	CPR-112G	EAR99
SMW112TF005-36 	WR-112	Twistable	7.05 - 10	0.36	1.07:1	36	Square Cover UG-51/U	EAR99
SMW137TF006-12 	WR-137	Twistable	5.85 - 8.2	0.07	1.05:1	12	CPR-137G	EAR99
SMW137TF005-12 	WR-137	Twistable	5.85 - 8.2	0.07	1.05:1	12	Round Cover UG-344/U	EAR99
SMW137TF006-24 	WR-137	Twistable	5.85 - 8.2	0.14	1.05:1	24	CPR-137G	EAR99
SMW137TF005-24 	WR-137	Twistable	5.85 - 8.2	0.14	1.05:1	24	Round Cover UG-344/U	EAR99
SMW137TF005-36 	WR-137	Twistable	5.85 - 8.2	0.18	1.05:1	36	Round Cover UG-344/U	EAR99
SMW137TF006-36 	WR-137	Twistable	5.85 - 8.2	0.21	1.05:1	36	CPR-137G	EAR99











Waveguide Bandpass Filters

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Flange Type	ECCN
SFWR28-0333 	WR-28	30 - 31	1.4:1	Square Cover	EAR99





Waveguide Bends

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Bend Plane	Flange Type	ECCN
FMW5B0000 	WR-5	140 - 220	0		E-Bend	Round Cover UG-383/U-Mod	EAR99
FMW6B0000 	WR-6	110 - 170	0.35		E-Bend	Round Cover UG-383/U-Mod	EAR99
FMW8B0000 	WR-8	90 - 140	0.3		E-Bend	Round Cover UG-383/U-Mod	EAR99
SMF-10EB-001 	WR-10	75 - 110	0.21	1.1:1	E-Bend	Round Cover UG-387/U-Mod	EAR99
SMF-10HB-001 	WR-10	75 - 110	0.21	1.1:1	H-Bend	Round Cover UG-387/U-Mod	EAR99
SMF-12EB-001 	WR-12	60 - 90	0.21	1.1:1	E-Bend	Round Cover UG-387/U	EAR99
SMF-15HB-001 	WR-15	50 - 75	0.17	1.1:1	H-Bend	Round Cover UG-385/U	EAR99
SMF-19EB-001 	WR-19	40 - 60	0.18	1.1:1	E-Bend	Round Cover UG-383/U-Mod	EAR99
SMF-19HB-001 	WR-19	40 - 60	0.18	1.1:1	H-Bend	Round Cover UG-383/U-Mod	EAR99
FMW22B101 	WR-22	33 - 50	0.25	1.15:1	E-Bend	Round Cover UG-383/U	EAR99
SMF-22EB-001 	WR-22	33 - 50	0.16	1.1:1	E-Bend	Round Cover UG-383/U	EAR99
FMW22B100 	WR-22	33 - 50	0.25	1.15:1	H-Bend	Round Cover UG-383/U	EAR99
SMF-28EB-001 	WR-28	26.5 - 40	0.28	1.1:1	E-Bend	Square Cover UG-599/U	EAR99
SMF-28HB-001 	WR-28	26.5 - 40	0.28	1.1:1	H-Bend	Square Cover UG-599/U	EAR99
FMW42B100 	WR-42	18 - 26.5	0.15	1.1:1	H-Bend	Square Cover UG-595/U	EAR99















Waveguide Bends Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Bend Plane	Flange Type	ECCN
FMW42B101 	WR-42	18 - 26.5	0.2	1.1:1	E-Bend	Square Cover UG-595/U	EAR99
SMF-51EB-001 	WR-51	15 - 22	0.09	1.1:1	E-Bend	UBR180	EAR99
SMF-62EB-001 	WR-62	12.4 - 18	0.09	1.1:1	E-Bend	Square Cover UG-419/U	EAR99
SMF-62HB-001 	WR-62	12.4 - 18	0.09	1.1:1	H-Bend	Square Cover UG-419/U	EAR99
FMWRD180B001 	WRD-180	18 - 40	0.4	1.3:1	E-Bend	Square Cover UG	EAR99
FMWRD180B002 	WRD-180	18 - 40	0.4	1.3:1	H-Bend	Square Cover UG	EAR99
FMWRD650B001 	WRD-650	6.5 - 18	0.4	1.25:1	E-Bend	Square Cover UG	EAR99
FMWRD650B002 	WRD-650	6.5 - 18	0.4	1.25:1	H-Bend	Square Cover UG	EAR99
FMWRD750B001 	WRD-750	7.5 - 18	0.4	1.25:1	E-Bend	Square Cover UG	EAR99
FMWRD750B002 	WRD-750	7.5 - 18	0.4	1.25:1	H-Bend	Square Cover UG	EAR99

Waveguide Bulkhead Adapters

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Flange 1	Flange 2	ECCN
FMWAD5000 	WR-10	75 - 110	Round Cover UG-387/U-Mod	Round Cover UG-387/U-Mod	EAR99
FMWAD5001 	WR-12	60 - 90	Round Cover UG-387/U	Round Cover UG-387/U	EAR99
FMWAD5002 	WR-15	50 - 75	Round Cover UG-385/U	Round Cover UG-385/U	EAR99
FMWAD5003 	WR-19	40 - 60	Round Cover UG-383/U-Mod	Round Cover UG-383/U-Mod	EAR99

Waveguide Bulkhead Adapters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Flange 1	Flange 2	ECCN
FMWAD5004 	WR-22	33 - 50	Round Cover UG-383/U	Round Cover UG-383/U	EAR99
FMWAD5008 	WR-28	26.5 - 40	Square Cover UG-599/U	Square Cover UG-599/U	EAR99
FMWAD5009 	WR-34	22 - 33	Square Cover UG-1530/U	Square Cover UG-1530/U	EAR99
FMWAD5010 	WR-42	18 - 26.5	Square Cover UG-595/U	Square Cover UG-595/U	EAR99
FMWAD5006 	WR-42	18 - 26.5	Square Cover UG-595/U	Square Cover UG-595/U	EAR99
FMWAD5011 	WR-51	15 - 22	Square Cover	Square Cover	EAR99
FMWAD5012 	WR-62	12.4 - 18	Square Cover UG-1665/U	Square Cover UG-1665/U	EAR99
FMWAD5013 	WR-75	10 - 15	Square Cover	Square Cover	EAR99
FMWAD5014 	WR-90	8.2 - 12.4	Square Cover UG-39/U	Square Cover UG-39/U	EAR99
FMWAD5015 	WR-90	8.2 - 12.4	CPR-90G	CPR-90G	EAR99
FMWAD5016 	WR-112	7.05 - 10	Square Cover UG-51/U	Square Cover UG-51/U	EAR99
FMWAD5017 	WR-112	7.05 - 10	CPR-112G	CPR-112G	EAR99
FMWAD5018 	WR-137	5.85 - 8.2	Round Cover UG-344/U	Round Cover UG-344/U	EAR99
FMWAD5019 	WR-137	5.85 - 8.2	CPR-137G	CPR-137G	EAR99

















Waveguide Circulators

FM P/N	Waveguide Type	Flange Type	RF Frequency Range (GHz)	Maximum Input Power (Watts)	Maximum VSWR	Minimum Isolation (dB)	ECCN
FMWCR1005 	WR-28	Cover	26.5 - 40	5	1.6:1	12	EAR99
FMWCR1004 	WR-42	Cover	18 - 26.5	5	1.3:1	18	EAR99
FMWCR1003 	WR-62	Cover	12.4 - 18	10	1.3:1	18	EAR99
FMWCR1002 	WR-75	Cover	10 - 15	10	1.3:1	18	EAR99
FMWCR1001 	WR-90	Cover	8.2 - 12.4	20	1.3:1	18	EAR99
FMWCR1000 	WR-112	Cover	7.05 - 10	20	1.3:1	18	EAR99

















Waveguide Couplers-Broadwall

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
SMW10HC001-20 	WR-10	75 - 110	1.1	1.2:1	20	30	Round Cover UG-387/U-Mod	EAR99
SMW10EC001-20 	WR-10	75 - 110	1.1	1.2:1	20	30	Round Cover UG-387/U-Mod	EAR99
SMW10HC001-10 	WR-10	75 - 110	1.4	1.2:1	10	30	Round Cover UG-387/U-Mod	EAR99
SMW10EC001-10 	WR-10	75 - 110	1.4	1.2:1	10	30	Round Cover UG-387/U-Mod	EAR99
FMW10CP010-20 	WR-10	75 - 110		1.1:1	20	40	Round Cover UG-387/U	EAR99
SMW12HC001-20 	WR-12	60 - 90	1	1.2:1	20	30	Round Cover UG-387/U	EAR99
SMW12EC001-20 	WR-12	60 - 90	1	1.2:1	20	30	Round Cover UG-387/U	EAR99
SMW12EC001-10 	WR-12	60 - 90	1.4	1.2:1	10	30	Round Cover UG-387/U	EAR99
















Waveguide Couplers-Broadwall Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCP1080 -20 	WR-15	50 - 75	1	1.1:1	20	40	Round Cover UG-385/U	EAR99
SMW15HC001 -20 	WR-15	50 - 75	1	1.2:1	20	30	Round Cover UG-385/U	EAR99
SMW15HC001 -10 	WR-15	50 - 75	1.4	1.2:1	10	30	Round Cover UG-385/U	EAR99
SMW15EC001 -10 	WR-15	50 - 75	1.4	1.2:1	10	30	Round Cover UG-385/U	EAR99
SMW19EC001 -10 	WR-19	40 - 60	0.8	1.2:1	10	30	Round Cover UG-383/U	EAR99
SMW19EC001 -20 	WR-19	40 - 60	0.8	1.2:1	20	30	Round Cover UG-383/U	EAR99
SMW19HC001 -20 	WR-19	40 - 60	1	1.2:1	20	30	Round Cover UG-383/U	EAR99
SMW19HC001 -10 	WR-19	40 - 60	1.4	1.2:1	10	30	Round Cover UG-383/U	EAR99
FMW22CP010 -20 	WR-22	33 - 50	0.8	1.1:1	20	30	Round Cover UG-383/U	EAR99
SMW22EC001 -20 	WR-22	33 - 50	0.8	1.2:1	20	30	Round Cover UG-383/U	EAR99
FMWCP1079 -10 	WR-22	33 - 50	1	1.05:1	10		Round Cover UG-383/U	EAR99
FMW28CP010 -20 	WR-28	26.5 - 40	0.6	1.1:1	20	30	Square Cover UG-599/U	EAR99
SMW28HC001 -20 	WR-28	26.5 - 40	0.7	1.05:1	20	40	Square Cover UG-599/U	EAR99
SMW28EC001 -10 	WR-28	26.5 - 40	0.7	1.2:1	10	30	Square Cover UG-599/U	EAR99
SMW28HC001 -10 	WR-28	26.5 - 40	1	1.2:1	10	30	Square Cover UG-599/U	EAR99
FMWCP1006 	WR-34	22 - 33	0.15	1.05:1	20	35	Square Cover UG-1530/U	EAR99


Waveguide Couplers-Broadwall Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCP1007 	WR-34	22 - 33	0.15	1.05:1	30	35	Square Cover UG-1530/U	EAR99
FMWCP1005 	WR-34	22 - 33	0.35	1.05:1	10	35	Square Cover UG-1530/U	EAR99
SMW42HC001-20 	WR-42	18 - 26.5	0.6	1.2:1	20	30	Square Cover UG-595/U	EAR99
SMW42EC002-20 	WR-42	18 - 26.5	0.6	1.2:1	20	30	Square Cover UG-595/U	EAR99
SMW42EC002-10 	WR-42	18 - 26.5	1	1.2:1	10	30	Square Cover UG-595/U	EAR99
FMWCP1008 	WR-51	15 - 22	0.15	1.05:1	10	35	Square Cover	EAR99
FMWCP1009 	WR-51	15 - 22	0.15	1.05:1	20	35	Square Cover	EAR99
FMWCP1010 	WR-51	15 - 22	0.15	1.05:1	30	35	Square Cover	EAR99
FMWCP1011 	WR-62	12.4 - 18	0.15	1.05:1	10	40	Square Cover UG-419/U	EAR99
FMWCP1012 	WR-62	12.4 - 18	0.15	1.05:1	20	40	Square Cover UG-419/U	EAR99
FMWCP1013 	WR-62	12.4 - 18	0.15	1.05:1	30	40	Square Cover UG-419/U	EAR99
FMWCP1014 	WR-75	10 - 15	0.15	1.05:1	10	40	Square Cover	EAR99
FMWCP1015 	WR-75	10 - 15	0.15	1.05:1	20	40	Square Cover	EAR99
FMWCP1016 	WR-75	10 - 15	0.15	1.05:1	30	40	Square Cover	EAR99
FMWCP1020 	WR-90	8.2 - 12.4	0.15	1.05:1	10	40	CPR-90G	EAR99
FMWCP1017 	WR-90	8.2 - 12.4	0.15	1.05:1	10	40	Square Cover UG-39/U	EAR99














Waveguide Couplers-Broadwall Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCP1021 	WR-90	8.2 - 12.4	0.15	1.05:1	20	40	CPR-90G	EAR99
FMWCP1018 	WR-90	8.2 - 12.4	0.15	1.05:1	20	40	Square Cover UG-39/U	EAR99
FMWCP1022 	WR-90	8.2 - 12.4	0.15	1.05:1	30	40	CPR-90G	EAR99
FMWCP1019 	WR-90	8.2 - 12.4	0.15	1.05:1	30	40	Square Cover UG-39/U	EAR99
FMWCP1026 	WR-112	7.05 - 10	0.15	1.05:1	10	40	CPR-112G	EAR99
FMWCP1023 	WR-112	7.05 - 10	0.15	1.05:1	10	40	Square Cover UG-51/U	EAR99
FMWCP1027 	WR-112	7.05 - 10	0.15	1.05:1	20	40	CPR-112G	EAR99
FMWCP1024 	WR-112	7.05 - 10	0.15	1.05:1	20	40	Square Cover UG-51/U	EAR99
FMWCP1028 	WR-112	7.05 - 10	0.15	1.05:1	30	40	CPR-112G	EAR99
FMWCP1025 	WR-112	7.05 - 10	0.15	1.05:1	30	40	Square Cover UG-51/U	EAR99
FMWCP1032 	WR-137	5.85 - 8.2	0.15	1.05:1	10	40	CPR-137G	EAR99
FMWCP1029 	WR-137	5.85 - 8.2	0.15	1.05:1	10	40	Round Cover UG-344/U	EAR99
FMWCP1033 	WR-137	5.85 - 8.2	0.15	1.05:1	20	40	CPR-137G	EAR99
FMWCP1030 	WR-137	5.85 - 8.2	0.15	1.05:1	20	40	Round Cover UG-344/U	EAR99
FMWCP1034 	WR-137	5.85 - 8.2	0.15	1.05:1	30	40	CPR-137G	EAR99

















Waveguide Couplers-Broadwall Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCP1031 	WR-137	5.85 - 8.2	0.15	1.05:1	30	40	Round Cover UG-344/U	EAR99















Waveguide Couplers-Crossguide

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCP1035 	WR-34	22 - 33	0.1	1.05:1	20	20	Square Cover UG-1530/U	EAR99
FMWCP1036 	WR-34	22 - 33	0.1	1.05:1	30	20	Square Cover UG-1530/U	EAR99
FMWCP1037 	WR-34	22 - 33	0.1	1.05:1	40	25	Square Cover UG-1530/U	EAR99
FMWCP1038 	WR-34	22 - 33	0.1	1.05:1	50	10	Square Cover UG-1530/U	EAR99
FMWCP1039 	WR-42	18 - 26.5	0.1	1.05:1	20	30	Square Cover UG-595/U	EAR99
FMWCP1040 	WR-42	18 - 26.5	0.1	1.05:1	30	20	Square Cover UG-595/U	EAR99
FMWCP1041 	WR-42	18 - 26.5	0.1	1.05:1	40	20	Square Cover UG-595/U	EAR99
FMWCP1042 	WR-42	18 - 26.5	0.1	1.05:1	50	10	Square Cover UG-595/U	EAR99
FMWCP1043 	WR-51	15 - 22	0.1	1.05:1	20	20	Square Cover	EAR99
FMWCP1044 	WR-51	15 - 22	0.1	1.05:1	30	30	Square Cover	EAR99
FMWCP1045 	WR-51	15 - 22	0.1	1.05:1	40	30	Square Cover	EAR99
FMWCP1046 	WR-51	15 - 22	0.1	1.05:1	50	10	Square Cover	EAR99
FMWCP1047 	WR-62	12.4 - 18	0.1	1.05:1	20	20	Square Cover UG-419/U	EAR99

















Waveguide Couplers-Crossguide Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCP1048 	WR-62	12.4 - 18	0.1	1.05:1	30	10	Square Cover UG-419/U	EAR99
FMWCP1049 	WR-62	12.4 - 18	0.1	1.05:1	40	30	Square Cover UG-419/U	EAR99
FMWCP1050 	WR-62	12.4 - 18	0.1	1.05:1	50	10	Square Cover UG-419/U	EAR99
FMWCP1051 	WR-75	10 - 15	0.1	1.05:1	20	25	Square Cover	EAR99
FMWCP1053 	WR-75	10 - 15	0.1	1.05:1	40	15	Square Cover	EAR99
FMWCP1054 	WR-75	10 - 15	0.1	1.05:1	50	10	Square Cover	EAR99
FMWCP1055 	WR-90	8.2 - 12.4	0.1	1.05:1	20	20	Square Cover UG-39/U	EAR99
FMWCP1059 	WR-90	8.2 - 12.4	0.1	1.05:1	20	25	CPR-90G	EAR99
FMWCP1060 	WR-90	8.2 - 12.4	0.1	1.05:1	30	20	CPR-90G	EAR99
FMWCP1056 	WR-90	8.2 - 12.4	0.1	1.05:1	30	20	Square Cover UG-39/U	EAR99
FMWCP1061 	WR-90	8.2 - 12.4	0.1	1.05:1	40	10	CPR-90G	EAR99
FMWCP1057 	WR-90	8.2 - 12.4	0.1	1.05:1	40	10	Square Cover UG-39/U	EAR99
FMWCP1062 	WR-90	8.2 - 12.4	0.1	1.05:1	50	10	CPR-90G	EAR99
FMWCP1058 	WR-90	8.2 - 12.4	0.1	1.05:1	50	10	Square Cover UG-39/U	EAR99
FMWCP1067 	WR-112	7.05 - 10	0.1	1.05:1	20	25	CPR-112G	EAR99
FMWCP1063 	WR-112	7.05 - 10	0.1	1.05:1	20	45	Square Cover UG-51/U	EAR99

















Waveguide Couplers-Crossguide Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCP1068 	WR-112	7.05 - 10	0.1	1.05:1	30	25	CPR-112G	EAR99
FMWCP1064 	WR-112	7.05 - 10	0.1	1.05:1	30	25	Square Cover UG-51/U	EAR99
FMWCP1069 	WR-112	7.05 - 10	0.1	1.05:1	40	20	CPR-112G	EAR99
FMWCP1065 	WR-112	7.05 - 10	0.1	1.05:1	40	20	Square Cover UG-51/U	EAR99
FMWCP1070 	WR-112	7.05 - 10	0.1	1.05:1	50	10	CPR-112G	EAR99
FMWCP1066 	WR-112	7.05 - 10	0.1	1.05:1	50	10	Square Cover UG-51/U	EAR99
FMWCP1075 	WR-137	5.85 - 8.2	0.1	1.05:1	20	20	CPR-137G	EAR99
FMWCP1071 	WR-137	5.85 - 8.2	0.1	1.05:1	20	25	Round Cover UG-344/U	EAR99
FMWCP1076 	WR-137	5.85 - 8.2	0.1	1.05:1	30	20	CPR-137G	EAR99
FMWCP1072 	WR-137	5.85 - 8.2	0.1	1.05:1	30	20	Round Cover UG-344/U	EAR99
FMWCP1077 	WR-137	5.85 - 8.2	0.1	1.05:1	40	20	CPR-137G	EAR99
FMWCP1073 	WR-137	5.85 - 8.2	0.1	1.05:1	40	20	Round Cover UG-344/U	EAR99
FMWCP1078 	WR-137	5.85 - 8.2	0.1	1.05:1	50	10	CPR-137G	EAR99
FMWCP1074 	WR-137	5.85 - 8.2	0.1	1.05:1	50	10	Round Cover UG-344/U	EAR99








Waveguide Couplers-Crossguide with Termination

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCT1000 	WR-34	22 - 33	0.1	1.05:1	20	20	Square Cover UG-1530/U	EAR99
FMWCT1001 	WR-34	22 - 33	0.1	1.05:1	30	20	Square Cover UG-1530/U	EAR99
FMWCT1002 	WR-34	22 - 33	0.1	1.05:1	40	25	Square Cover UG-1530/U	EAR99
FMWCT1003 	WR-34	22 - 33	0.1	1.05:1	50	10	Square Cover UG-1530/U	EAR99
FMWCT1004 	WR-42	18 - 26.5	0.1	1.05:1	20	30	Square Cover UG-595/U	EAR99
FMWCT1005 	WR-42	18 - 26.5	0.1	1.05:1	30	20	Square Cover UG-595/U	EAR99
FMWCT1006 	WR-42	18 - 26.5	0.1	1.05:1	40	20	Square Cover UG-595/U	EAR99
FMWCT1007 	WR-42	18 - 26.5	0.1	1.05:1	50	10	Square Cover UG-595/U	EAR99
FMWCT1008 	WR-51	15 - 22	0.1	1.05:1	20	20	Square Cover	EAR99
FMWCT1009 	WR-51	15 - 22	0.1	1.05:1	30	30	Square Cover	EAR99
FMWCT1010 	WR-51	15 - 22	0.1	1.05:1	40	30	Square Cover	EAR99
FMWCT1011 	WR-51	15 - 22	0.1	1.05:1	50	10	Square Cover	EAR99
FMWCT1012 	WR-62	12.4 - 18	0.1	1.05:1	20	20	Square Cover UG-419/U	EAR99
FMWCT1013 	WR-62	12.4 - 18	0.1	1.05:1	30	10	Square Cover UG-419/U	EAR99
FMWCT1014 	WR-62	12.4 - 18	0.1	1.05:1	40	30	Square Cover UG-419/U	EAR99
FMWCT1015 	WR-62	12.4 - 18	0.1	1.05:1	50	10	Square Cover UG-419/U	EAR99



Waveguide Couplers-Crossguide with Termination Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCT1016 	WR-75	10 - 15	0.1	1.05:1	20	25	Square Cover	EAR99
FMWCT1017 	WR-75	10 - 15	0.1	1.05:1	30	25	Square Cover	EAR99
FMWCT1018 	WR-75	10 - 15	0.1	1.05:1	40	15	Square Cover	EAR99
FMWCT1019 	WR-75	10 - 15	0.1	1.05:1	50	10	Square Cover	EAR99
FMWCT1020 	WR-90	8.2 - 12.4	0.1	1.05:1	20	20	Square Cover UG-39/U	EAR99
FMWCT1024 	WR-90	8.2 - 12.4	0.1	1.05:1	20	25	CPR-90G	EAR99
FMWCT1025 	WR-90	8.2 - 12.4	0.1	1.05:1	30	20	CPR-90G	EAR99
FMWCT1021 	WR-90	8.2 - 12.4	0.1	1.05:1	30	20	Square Cover UG-39/U	EAR99
FMWCT1026 	WR-90	8.2 - 12.4	0.1	1.05:1	40	10	CPR-90G	EAR99
FMWCT1022 	WR-90	8.2 - 12.4	0.1	1.05:1	40	10	Square Cover UG-39/U	EAR99
FMWCT1027 	WR-90	8.2 - 12.4	0.1	1.05:1	50	10	CPR-90G	EAR99
FMWCT1023 	WR-90	8.2 - 12.4	0.1	1.05:1	50	10	Square Cover UG-39/U	EAR99
FMWCT1032 	WR-112	7.05 - 10	0.1	1.05:1	20	25	CPR-112G	EAR99
FMWCT1028 	WR-112	7.05 - 10	0.1	1.05:1	20	45	Square Cover UG-51/U	EAR99
FMWCT1033 	WR-112	7.05 - 10	0.1	1.05:1	30	25	CPR-112G	EAR99
FMWCT1029 	WR-112	7.05 - 10	0.1	1.05:1	30	25	Square Cover UG-51/U	EAR99

Waveguide Couplers-Crossguide with Termination Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCT1034 	WR-112	7.05 - 10	0.1	1.05:1	40	20	CPR-112G	EAR99
FMWCT1030 	WR-112	7.05 - 10	0.1	1.05:1	40	20	Square Cover UG-51/U	EAR99
FMWCT1035 	WR-112	7.05 - 10	0.1	1.05:1	50	10	CPR-112G	EAR99
FMWCT1031 	WR-112	7.05 - 10	0.1	1.05:1	50	10	Square Cover UG-51/U	EAR99
FMWCT1040 	WR-137	5.85 - 8.2	0.1	1.05:1	20	20	CPR-137G	EAR99
FMWCT1036 	WR-137	5.85 - 8.2	0.1	1.05:1	20	25	Round Cover UG-344/U	EAR99
FMWCT1041 	WR-137	5.85 - 8.2	0.1	1.05:1	30	20	CPR-137G	EAR99
FMWCT1037 	WR-137	5.85 - 8.2	0.1	1.05:1	30	20	Round Cover UG-344/U	EAR99
FMWCT1042 	WR-137	5.85 - 8.2	0.1	1.05:1	40	20	CPR-137G	EAR99
FMWCT1038 	WR-137	5.85 - 8.2	0.1	1.05:1	40	20	Round Cover UG-344/U	EAR99
FMWCT1043 	WR-137	5.85 - 8.2	0.1	1.05:1	50	10	CPR-137G	EAR99
FMWCT1039 	WR-137	5.85 - 8.2	0.1	1.05:1	50	10	Round Cover UG-344/U	EAR99













Waveguide Couplers-Crossguide with Termination and WG to Coax Adapter

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCT1044 	WR-34	22 - 33	0.1	1.05:1	20	20	Square Cover UG-1530/U	EAR99
FMWCT1045 	WR-34	22 - 33	0.1	1.05:1	30	20	Square Cover UG-1530/U	EAR99

Waveguide Couplers-Crossguide with Termination and WG to Coax Adapter Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCT1046 	WR-34	22 - 33	0.1	1.05:1	40	25	Square Cover UG-1530/U	EAR99
FMWCT1047 	WR-34	22 - 33	0.1	1.05:1	50	10	Square Cover UG-1530/U	EAR99
FMWCT1048 	WR-42	18 - 26.5	0.1	1.05:1	20	30	Square Cover UG-595/U	EAR99
FMWCT1049 	WR-42	18 - 26.5	0.1	1.05:1	30	20	Square Cover UG-595/U	EAR99
FMWCT1050 	WR-42	18 - 26.5	0.1	1.05:1	40	20	Square Cover UG-595/U	EAR99
FMWCT1051 	WR-42	18 - 26.5	0.1	1.05:1	50	10	Square Cover UG-595/U	EAR99
FMWCT1052 	WR-51	15 - 22	0.1	1.05:1	20	20	Square Cover	EAR99
FMWCT1053 	WR-51	15 - 22	0.1	1.05:1	30	30	Square Cover	EAR99
FMWCT1054 	WR-51	15 - 22	0.1	1.05:1	40	30	Square Cover	EAR99
FMWCT1055 	WR-51	15 - 22	0.1	1.05:1	50	10	Square Cover	EAR99
FMWCT1056 	WR-62	12.4 - 18	0.1	1.05:1	20	20	Square Cover UG-419/U	EAR99
FMWCT1057 	WR-62	12.4 - 18	0.1	1.05:1	30	10	Square Cover UG-419/U	EAR99
FMWCT1058 	WR-62	12.4 - 18	0.1	1.05:1	40	30	Square Cover UG-419/U	EAR99
FMWCT1059 	WR-62	12.4 - 18	0.1	1.05:1	50	10	Square Cover UG-419/U	EAR99
FMWCT1060 	WR-75	10 - 15	0.1	1.05:1	20	25	Square Cover	EAR99
FMWCT1064 	WR-75	10 - 15	0.1	1.05:1	20	25	Square Cover	EAR99

Waveguide Couplers-Crossguide with Termination and WG to Coax Adapter Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCT1061 	WR-75	10 - 15	0.1	1.05:1	30	25	Square Cover	EAR99
FMWCT1065 	WR-75	10 - 15	0.1	1.05:1	30	25	Square Cover	EAR99
FMWCT1062 	WR-75	10 - 15	0.1	1.05:1	40	15	Square Cover	EAR99
FMWCT1066 	WR-75	10 - 15	0.1	1.05:1	40	15	Square Cover	EAR99
FMWCT1063 	WR-75	10 - 15	0.1	1.05:1	50	10	Square Cover	EAR99
FMWCT1067 	WR-75	10 - 15	0.1	1.05:1	50	10	Square Cover	EAR99
FMWCT1068 	WR-90	8.2 - 12.4	0.1	1.05:1	20	20	Square Cover UG-39/U	EAR99
FMWCT1076 	WR-90	8.2 - 12.4	0.1	1.05:1	20	20	Square Cover UG-39/U	EAR99
FMWCT1072 	WR-90	8.2 - 12.4	0.1	1.05:1	20	25	CPR-90G	EAR99
FMWCT1080 	WR-90	8.2 - 12.4	0.1	1.05:1	20	25	CPR-90G	EAR99
FMWCT1073 	WR-90	8.2 - 12.4	0.1	1.05:1	30	20	CPR-90G	EAR99
FMWCT1081 	WR-90	8.2 - 12.4	0.1	1.05:1	30	20	CPR-90G	EAR99
FMWCT1069 	WR-90	8.2 - 12.4	0.1	1.05:1	30	20	Square Cover UG-39/U	EAR99
FMWCT1077 	WR-90	8.2 - 12.4	0.1	1.05:1	30	20	Square Cover UG-39/U	EAR99
FMWCT1074 	WR-90	8.2 - 12.4	0.1	1.05:1	40	10	CPR-90G	EAR99
FMWCT1082 	WR-90	8.2 - 12.4	0.1	1.05:1	40	10	CPR-90G	EAR99

Waveguide Couplers-Crossguide with Termination and WG to Coax Adapter Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCT1070 	WR-90	8.2 - 12.4	0.1	1.05:1	40	10	Square Cover UG-39/U	EAR99
FMWCT1078 	WR-90	8.2 - 12.4	0.1	1.05:1	40	10	Square Cover UG-39/U	EAR99
FMWCT1075 	WR-90	8.2 - 12.4	0.1	1.05:1	50	10	CPR-90G	EAR99
FMWCT1083 	WR-90	8.2 - 12.4	0.1	1.05:1	50	10	CPR-90G	EAR99
FMWCT1071 	WR-90	8.2 - 12.4	0.1	1.05:1	50	10	Square Cover UG-39/U	EAR99
FMWCT1079 	WR-90	8.2 - 12.4	0.1	1.05:1	50	10	Square Cover UG-39/U	EAR99
FMWCT1088 	WR-112	7.05 - 10	0.1	1.05:1	20	25	CPR-112G	EAR99
FMWCT1096 	WR-112	7.05 - 10	0.1	1.05:1	20	25	CPR-112G	EAR99
FMWCT1084 	WR-112	7.05 - 10	0.1	1.05:1	20	45	Square Cover UG-51/U	EAR99
FMWCT1092 	WR-112	7.05 - 10	0.1	1.05:1	20	45	Square Cover UG-51/U	EAR99
FMWCT1089 	WR-112	7.05 - 10	0.1	1.05:1	30	25	CPR-112G	EAR99
FMWCT1097 	WR-112	7.05 - 10	0.1	1.05:1	30	25	CPR-112G	EAR99
FMWCT1085 	WR-112	7.05 - 10	0.1	1.05:1	30	25	Square Cover UG-51/U	EAR99
FMWCT1093 	WR-112	7.05 - 10	0.1	1.05:1	30	25	Square Cover UG-51/U	EAR99
FMWCT1090 	WR-112	7.05 - 10	0.1	1.05:1	40	20	CPR-112G	EAR99





Waveguide Couplers-Crossguide with Termination and WG to Coax Adapter Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCT1098 	WR-112	7.05 - 10	0.1	1.05:1	40	20	CPR-112G	EAR99
FMWCT1086 	WR-112	7.05 - 10	0.1	1.05:1	40	20	Square Cover UG-51/U	EAR99
FMWCT1094 	WR-112	7.05 - 10	0.1	1.05:1	40	20	Square Cover UG-51/U	EAR99
FMWCT1091 	WR-112	7.05 - 10	0.1	1.05:1	50	10	CPR-112G	EAR99
FMWCT1099 	WR-112	7.05 - 10	0.1	1.05:1	50	10	CPR-112G	EAR99
FMWCT1087 	WR-112	7.05 - 10	0.1	1.05:1	50	10	Square Cover UG-51/U	EAR99
FMWCT1095 	WR-112	7.05 - 10	0.1	1.05:1	50	10	Square Cover UG-51/U	EAR99
FMWCT1104 	WR-137	5.85 - 8.2	0.1	1.05:1	20	20	CPR-137G	EAR99
FMWCT1112 	WR-137	5.85 - 8.2	0.1	1.05:1	20	20	CPR-137G	EAR99
FMWCT1100 	WR-137	5.85 - 8.2	0.1	1.05:1	20	25	Round Cover UG-344/U	EAR99
FMWCT1108 	WR-137	5.85 - 8.2	0.1	1.05:1	20	25	Round Cover UG-344/U	EAR99
FMWCT1105 	WR-137	5.85 - 8.2	0.1	1.05:1	30	20	CPR-137G	EAR99
FMWCT1113 	WR-137	5.85 - 8.2	0.1	1.05:1	30	20	CPR-137G	EAR99
FMWCT1101 	WR-137	5.85 - 8.2	0.1	1.05:1	30	20	Round Cover UG-344/U	EAR99
FMWCT1109 	WR-137	5.85 - 8.2	0.1	1.05:1	30	20	Round Cover UG-344/U	EAR99








Waveguide Couplers-Crossguide with Termination and WG to Coax Adapter Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (dB)	Maximum VSWR	Coupling (dB)	Directivity (dB)	Flange Type	ECCN
FMWCT1106 	WR-137	5.85 - 8.2	0.1	1.05:1	40	20	CPR-137G	EAR99
FMWCT1114 	WR-137	5.85 - 8.2	0.1	1.05:1	40	20	CPR-137G	EAR99
FMWCT1102 	WR-137	5.85 - 8.2	0.1	1.05:1	40	20	Round Cover UG-344/U	EAR99
FMWCT1110 	WR-137	5.85 - 8.2	0.1	1.05:1	40	20	Round Cover UG-344/U	EAR99
FMWCT1107 	WR-137	5.85 - 8.2	0.1	1.05:1	50	10	CPR-137G	EAR99
FMWCT1115 	WR-137	5.85 - 8.2	0.1	1.05:1	50	10	CPR-137G	EAR99
FMWCT1103 	WR-137	5.85 - 8.2	0.1	1.05:1	50	10	Round Cover UG-344/U	EAR99
FMWCT1111 	WR-137	5.85 - 8.2	0.1	1.05:1	50	10	Round Cover UG-344/U	EAR99







Waveguide Isolators

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Typical Isolation (dB)	Typical Insertion Loss (dB)	Typical VSWR	Flange Type	ECCN
FMWIR1005 	WR-10	75 - 110	30	2.3	1.5:1	UG-387/U-Mod	EAR99
FMWIR1002 	WR-15	50 - 75	30	1.8	1.4:1	UG-385/U	EAR99
FMWIR1003 	WR-19	40 - 60	30	1.6	1.4:1	UG-383/U-Mod	EAR99
FMWIR1015 	WR-28	26.5 - 40	25	1	1.3:1	UG-599/U	EAR99


Waveguide Magic Tees

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Flange Type	Insertion Loss (dB)	Minimum Isolation (dB)	ECCN
PEWMT1000 	WR-10	75 - 110	Round Cover UG-387/U-Mod	1	25	EAR99
PEWMT1001 	WR-12	60 - 90	Round Cover UG-387/U	1	25	EAR99
PEWMT1002 	WR-15	50 - 75	Round Cover UG-385/U	1	25	EAR99
PEWMT1003 	WR-19	40 - 60	Round Cover UG-383/U-Mod	0.8	25	EAR99
PEWMT1004 	WR-22	33 - 50	Round Cover UG-383/U	0.7	25	EAR99
PEWMT1005 	WR-28	26.5 - 40	Square Cover UG-599/U	0.5	25	EAR99
PEWMT1006 	WR-42	18 - 26.5	Square Cover UG-595/U	0.5	25	EAR99







Waveguide Phase Shifters

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Phase Range (Degrees)	Input Power (Watts)	Insertion Loss (dB)	Length (in)	Flange Type	ECCN
SMW10PS1001 	WR-10	75 - 110	0 - 180	0.6	1	3	Round Cover UG-387/U-Mod	EAR99
SMW12PS1001 	WR-12	60 - 90	0 - 180	0.7	1	3	Round Cover UG-387/U	EAR99
SMW15PS1001 	WR-15	50 - 75	0 - 180	0.8	1	3	Round Cover UG-385/U	EAR99
SMW19PS1001 	WR-19	40 - 60	0 - 180	1	1	3	Round Cover UG-383/U-Mod	EAR99
SMW22PS1001 	WR-22	33 - 50	0 - 180	1	1	4	Round Cover UG-383/U	EAR99
FMW28PS1002 	WR-28	26.5 - 40	0 - 180	1		4	Square Cover UG-599/U	EAR99
















Waveguide Phase Shifters Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Phase Range (Degrees)	Input Power (Watts)	Insertion Loss (dB)	Length (in)	Flange Type	ECCN
SMW42PS1001 	WR-42	18 - 26.5	0 - 180	1.5	1	4	Square Cover UG-595/U	EAR99
















Waveguide Rotary Joints

FM P/N	WG Size	Design	Max Rotation Speed (RPM)	Max Input Power (Watts)	Max Input VSWR	Max Insertion Loss (dB)	Body Material and Plating	ECCN
FMW28RJ0001 	WR-28	L Style	30	100	1.2:1	0.3	Brass, Paint	EAR99
FMW34RJ0001 	WR-34	L Style	30	100	1.25:1	0.3	Brass, Paint	EAR99
FMW62RJ0002 	WR-62	Inline Style	30	100	1.2:1	0.3	Brass, Paint	EAR99
FMW62RJ0001 	WR-62	L Style	30	100	1.2:1	0.25	Aluminum, Paint	EAR99
FMW75RJ0003 	WR-75	Inline Style	30	100	1.2:1	0.3	Aluminum, Paint	EAR99
FMW75RJ0002 	WR-75	L Style	30	100	1.2:1	0.3	Brass, Paint	EAR99
FMW75RJ0001 	WR-75	U Style	30	100	1.2:1	0.3	Brass, Paint	EAR99
FMW90RJ0002 	WR-90	Inline Style	30	300	1.2:1	0.3	Aluminum, Paint	EAR99
FMW90RJ0003 	WR-90	L Style	30	300	1.2:1	0.3	Aluminum, Paint	EAR99
FMW90RJ0001 	WR-90	U Style	30	300	1.2:1	0.3	Aluminum, Paint	EAR99
FMW137RJ0001 	WR-137	L Style	30	1,000	1.25:1	0.3	Brass, Paint	EAR99
FMW187RJ0002 	WR-187	Inline Style	30	600	1.2:1	0.25	Aluminum, Paint	EAR99
FMW187RJ0001 	WR-187	L Style	30	1,000	1.15:1	0.3	Brass, Paint	EAR99
















Waveguide Sections

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (GHz)	Typical VSWR	Maximum VSWR	Length (in)	Flange Type	ECCN
FMW05S000-1 	WR-5	140 - 220		1.15:1	1.15:1	1	Round Cover UG-387/U-Mod	EAR99
FMW05S000-3 	WR-5	140 - 220		1.15:1	1.15:1	3	Round Cover UG-387/U-Mod	EAR99
FMW05S000-6 	WR-5	140 - 220		1.15:1	1.15:1	6	Round Cover UG-387/U-Mod	EAR99
FMW05S000-9 	WR-5	140 - 220		1.15:1	1.15:1	9	Round Cover UG-387/U-Mod	EAR99
FMW05S000-12 	WR-5	140 - 220		1.15:1	1.15:1	12	Round Cover UG-387/U-Mod	EAR99
FMW06S000-1 	WR-6	110 - 170	0.35	1.15:1	1.15:1	1	Round Cover UG-387/U-Mod	EAR99
FMW06S000-3 	WR-6	110 - 170	0.35	1.15:1	1.15:1	3	Round Cover UG-387/U-Mod	EAR99
FMW06S000-6 	WR-6	110 - 170	0.55	1.15:1	1.15:1	6	Round Cover UG-387/U-Mod	EAR99
FMW06S000-9 	WR-6	110 - 170	0.75	1.15:1	1.15:1	9	Round Cover UG-387/U-Mod	EAR99
FMW06S000-12 	WR-6	110 - 170	1.50	1.15:1	1.15:1	12	Round Cover UG-387/U-Mod	EAR99
FMW08S000-1 	WR-8	90 - 140	0.30	1.15:1	1.15:1	1	Round Cover UG-387/U-Mod	EAR99
FMW08S000-3 	WR-8	90 - 140	0.30	1.15:1	1.15:1	3	Round Cover UG-387/U-Mod	EAR99
FMW08S000-6 	WR-8	90 - 140	0.50	1.15:1	1.15:1	6	Round Cover UG-387/U-Mod	EAR99
FMW08S000-9 	WR-8	90 - 140	0.70	1.15:1	1.15:1	9	Round Cover UG-387/U-Mod	EAR99
FMW08S000-12 	WR-8	90 - 140	1.20	1.15:1	1.15:1	12	Round Cover UG-387/U-Mod	EAR99








Waveguide Sections Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (GHz)	Typical VSWR	Maximum VSWR	Length (in)	Flange Type	ECCN
FMW10S010-3 	WR-10	75 - 110	0.25	1.06:1	1.06:1	3	Round Cover UG-387/U-Mod	EAR99
FMW10S010-6 	WR-10	75 - 110	0.50	1.06:1	1.06:1	6	Round Cover UG-387/U-Mod	EAR99
FMW12S010-3 	WR-12	60 - 90	0.30	1.06:1	1.15:1	3	Round Cover UG-387/U	EAR99
FMW12S010-9 	WR-12	60 - 90	0.80	1.06:1		9	Round Cover UG-387/U	EAR99
SMF-12S001-12 	WR-12	60 - 90	0.82	1.06:1	1.06:1	12	Round Cover UG-387/U	EAR99
FMW15S010-12 	WR-15	50 - 75	0.95	1.06:1		12	Round Cover UG-385/U	EAR99
SMF-15S001-03 	WR-15	50 - 75	0.20	1.06:1	1.06:1	3	Round Cover UG-385/U	EAR99
SMF-15S001-06 	WR-15	50 - 75	0.34	1.06:1	1.06:1	6	Round Cover UG-385/U	EAR99
SMF-15S001-09 	WR-15	50 - 75	0.49	1.06:1	1.06:1	9	Round Cover UG-385/U	EAR99
SMF-15S001-12 	WR-15	50 - 75	0.64	1.06:1	1.06:1	12	Round Cover UG-385/U	EAR99
FMW19S010-3 	WR-19	40 - 60	0.20	1.06:1		3	Round Cover UG-383/U-Mod	EAR99
FMW19S010-12 	WR-19	40 - 60	0.80	1.06:1		12	Round Cover UG-383/U-Mod	EAR99
SMF-19S001-06 	WR-19	40 - 60	0.25	1.06:1	1.06:1	6	Round Cover UG-383/U-Mod	EAR99
FMW22S010-3 	WR-22	33 - 50	0.25	1.1:1	1.1:1	3	Round Cover UG-383/U	EAR99
FMWSP1000 	WR-22	33 - 50		1.09:1		4	Round Cover UG-383/U	EAR99







Waveguide Sections Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (GHz)	Typical VSWR	Maximum VSWR	Length (in)	Flange Type	ECCN
FMW28S010-3 	WR-28	26.5 - 40	0.20	1.06:1	1.06:1	3	Square Cover UG-599/U	EAR99
FMW28S010-6 	WR-28	26.5 - 40	0.20	1.06:1	1.06:1	6	Square Cover UG-599/U	EAR99
FMWSP1001 	WR-28	26.5 - 40		1.09:1		4	Square Cover UG-599/U	EAR99
FMWSP1002 	WR-34	20 - 33		1.07:1		4	Square Cover UG-1530/U	EAR99
SMF-42S001-12 	WR-42	18 - 26.5	0.18	1.06:1	1.06:1	12	Square Cover UG-595/U	EAR99
SMF-42S001-03 	WR-42	18 - 26.5	0.08	1.06:1	1.06:1	3	Square Cover UG-595/U	EAR99
SMF-42S001-06 	WR-42	18 - 26.5	0.12	1.06:1	1.06:1	6	Square Cover UG-595/U	EAR99
FMWSP1003 	WR-42	18 - 26.5		1.07:1		4	Square Cover UG-595/U	EAR99
FMWSP1004 	WR-51	15 - 22		1.07:1		4	Square Cover	EAR99
SMF-62S001-06 	WR-62	12.4 - 18	0.08	1.06:1	1.06:1	6	Square Cover UG-419/U	EAR99
SMF-62S001-12 	WR-62	12.4 - 18	0.11	1.06:1	1.06:1	12	Square Cover UG-419/U	EAR99
FMWSP1005 	WR-62	12.4 - 18		1.07:1		4	Square Cover UG-419/U	EAR99
FMWSP1006 	WR-75	10 - 15		1.07:1		4	Square Cover	EAR99
SMF90S-12 	WR-90	8.2 - 12.4		1.03:1			Square Cover UG-39/U	EAR99
SMF90S-09 	WR-90	8.2 - 12.4	0.10	1.03:1	1.03:1	9	Square Cover UG-39/U	EAR99
















Waveguide Sections Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Insertion Loss (GHz)	Typical VSWR	Maximum VSWR	Length (in)	Flange Type	ECCN
FMWSP1007 	WR-90	8.2 - 12.4		1.07:1		4	Square Cover UG-39/U	EAR99
FMWSP1008 	WR-90	8.2 - 12.4		1.07:1		4	CPR-90G	EAR99
FMWSP1009 	WR-112	7.05 - 10		1.07:1		4	Square Cover UG-51/U	EAR99
FMWSP1010 	WR-112	7.05 - 10		1.07:1		4	CPR-112G	EAR99
FMWSP1011 	WR-137	5.85 - 8.2		1.07:1		4	Round Cover UG-344/U	EAR99
FMWSP1012 	WR-137	5.85 - 8.2		1.07:1		4	CPR-137G	EAR99
FMWRD650S001-3 	WRD-650	6.5 - 18	0.30	1.15:1			Square Cover UG	EAR99

















Waveguide Terminations

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Input Power (Watts)	Maximum VSWR	Length (in)	Flange Type	ECCN
FMW10TR0001 	WR-10	75 - 110	0.4	1.06:1	2	Round Cover UG-387/U	EAR99
SMW10TR1001 	WR-10	75 - 110	0.4	1.25:1	2	Round Cover UG-387/U-Mod	EAR99
SMW12TR1001 	WR-12	60 - 90	0.6	1.2:1	2	Round Cover UG-387/U	EAR99
FMW15TR0001 	WR-15	50 - 75	1	1.2:1	2	Round Cover UG-385/U	EAR99
FMW19TR0001 	WR-19	40 - 60	2	1.06:1	2	Round Cover UG-383/U	EAR99
SMW19TR1001 	WR-19	40 - 60	2	1.09:1	2	Round Cover UG-383/U-Mod	EAR99

Waveguide Terminations Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Input Power (Watts)	Maximum VSWR	Length (in)	Flange Type	ECCN
SMW22TR1002 	WR-22	33 - 50	4	1.05:1	2	Round Cover UG-383/U	EAR99
FMWTR1000 	WR-28	26.5 - 40	0.5	1.02:1		Square Cover UG-599/U	EAR99
FMW28TR1003 	WR-28	26.5 - 40	1	1.03:1	2	Square Cover UG-599/U	EAR99
FMW28TR1004 	WR-28	26.5 - 40	50	1.25:1	4	Square Cover UG-599/U	EAR99
FMW28TR1005 	WR-28	26.5 - 40	100	1.25:1	5	Square Cover UG-599/U	EAR99
FMW28TR1002 	WR-28	29.4 - 31	2	1.15:1	1	Square Cover UG-599/U	EAR99
FMW34TR1001 	WR-34	19.6 - 21.2	1	1.15:1	1	Square Cover UG-597/U	EAR99
FMWTR1001 	WR-34	22 - 33	1	1.25:1		Square Cover UG-1530/U	EAR99
FMWTR1002 	WR-42	18 - 26.5	1	1.02:1		Square Cover UG-595/U	EAR99
SMW42TR1001 	WR-42	18 - 26.5	6	1.08:1	3	Square Cover UG-595/U	EAR99
FMW42TR1002 	WR-42	19.6 - 21.2	1	1.15:1	1	Square Cover UG-597/U	EAR99
FMWTR1003 	WR-51	15 - 22	1	1.02:1		Square Cover	EAR99
FMW62TR1001 	WR-62	11.9 - 18	2	1.03:1	4	Square Cover	EAR99
FMWTR1004 	WR-62	12.4 - 18	1.5	1.02:1		Square Cover UG-419/U	EAR99
FMW62TR1003 	WR-62	14.5 - 17.8	1	1.05:1	1	Square Cover UG-1665/U	EAR99











Waveguide Terminations Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Input Power (Watts)	Maximum VSWR	Length (in)	Flange Type	ECCN
FMWTR1005 	WR-75	10 - 15	2.5	1.02:1		Square Cover	EAR99
FMWTR1006 	WR-90	8.2 - 12.4	4	1.02:1		Square Cover UG-39/U	EAR99
FMWTR1007 	WR-90	8.2 - 12.4	4	1.02:1		CPR-90G	EAR99
FMW90TR1002 	WR-90	8.2 - 12.5	50	1.25:1	4	Square Cover UG-135/U	EAR99
FMW90TR1001 	WR-90	9 - 10	2	1.05:1	1	Square Cover UG-135/U	EAR99
FMWTR1008 	WR-112	7.05 - 10	5	1.02:1		Square Cover UG-51/U	EAR99
FMWTR1009 	WR-112	7.05 - 10	5	1.02:1		CPR-112G	EAR99
FMW137TR1001 	WR-137	5.38 - 8.17	500	1.25:1	14	CPR-137F	EAR99
FMWTR1010 	WR-137	5.85 - 8.2	6	1.02:1		Round Cover UG-344/U	EAR99
FMWTR1011 	WR-137	5.85 - 8.2	6	1.02:1		CPR-137G	EAR99
FMW159TR1002 	WR-159	4.64 - 7.05	5	1.03:1	8	CPR-159F	EAR99
FMW159TR1001 	WR-159	4.8 - 5.2	50	1.2:1	4	CPR-159F	EAR99
FMW187TR1002 	WR-187	3.94 - 5.99	5	1.03:1	9	CPR-187F	EAR99
FMW187TR1001 	WR-187	4.4 - 5	70	1.1:1	3	CPR-187F	EAR99
FMW229TR1001 	WR-229	3.22 - 4.9	5	1.03:1	10	CPR-229F	EAR99
FMW229TR1002 	WR-229	3.22 - 4.9	5	1.2:1	3	CPR-229F	EAR99









Waveguide Terminations Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Input Power (Watts)	Maximum VSWR	Length (in)	Flange Type	ECCN
FMWR284TR1001 	WR-284	2.6 - 3.95	5	1.03:1	12	CPR-284F	EAR99
FMWRD180TR1000 	WRD-180	18 - 40	0.5	1.15:1		Square Cover UG	EAR99
FMWRD650TR1000 	WRD-650	6.5 - 18	1	1.15:1		Square Cover UG	EAR99
FMWRD750TR1000 	WRD-750	7.5 - 18	1	1.15:1		Square Cover UG	EAR99





Waveguide Transitions

FM P/N	Waveguide 1 Type	Flange 1 Type	Waveguide 2 Type	Flange 2 Type	VSWR	ECCN
SMW10TS12001A 	WR-10	Round Cover UG-387/U-Mod	WR-12	Round Cover UG-387/U	1.6:1	EAR99
SMW10TS15001 	WR-10	Round Cover UG-387/U-Mod	WR-15	Round Cover UG-385/U	1.45:1	EAR99
SMW10TS19001 	WR-10	Round Cover UG-387/U-Mod	WR-19	Round Cover UG-383/U-Mod	1.4:1	EAR99
SMW12TS15001 	WR-12	Round Cover UG-387/U	WR-15	Round Cover UG-385/U	1.2:1	EAR99
SMW15TS19001 	WR-15	Round Cover UG-385/U	WR-19	Round Cover UG-383/U-Mod	1.1:1	EAR99
SMW15TS22001 	WR-15	Round Cover UG-385/U	WR-22	Round Cover UG-383/U	1.15:1	EAR99
SMW19TS22001 	WR-19	Round Cover UG-383/U-Mod	WR-22	Round Cover UG-383/U	1.5:1	EAR99
SMW19TS28001 	WR-19	Round Cover UG-383/U-Mod	WR-28	Square Cover UG-599/U	1.35:1	EAR99
SMW22TS42001 	WR-22	Round Cover UG-383/U	WR-42	Square Cover UG-595/U	1.35:1	EAR99
SMW28TS42001 	WR-28	Square Cover UG-599/U	WR-42	Square Cover UG-595/U	1.2:1	EAR99
















Waveguide Transitions Continued

FM P/N	Waveguide 1 Type	Flange 1 Type	Waveguide 2 Type	Flange 2 Type	VSWR	ECCN
SMW28TS51001 	WR-28	Square Cover UG-599/U	WR-51	UBR-180/U-Mod	1.38:1	EAR99
FMWTS1010 	WR-34	Square Cover UG-1530/U	WR-28	Square Cover UG-599/U	1.08:1	EAR99
FMWTS1009 	WR-42	Square Cover UG-595/U	WR-34	Square Cover UG-1530/U	1.08:1	EAR99
FMWTS1006 	WR-75	Square Cover	WR-62	Square Cover UG-1665/U	1.08:1	EAR99
FMWTS1004 	WR-90	Square Cover UG-39/U	WR-75	Square Cover	1.08:1	EAR99
FMWTS1005 	WR-90	CPR-90G	WR-75	Square Cover	1.08:1	EAR99
FMWTS1002 	WR-112	Square Cover UG-51/U	WR-90	Square Cover UG-39/U	1.08:1	EAR99
FMWTS1003 	WR-112	CPR-112G	WR-90	CPR-90G	1.08:1	EAR99
FMWTS1000 	WR-137	Round Cover UG-344/U	WR-112	Square Cover UG-51/U	1.08:1	EAR99
FMWTS1001 	WR-137	CPR-137G	WR-112	CPR-112G	1.08:1	EAR99




Waveguide Twists

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Waveguide Offset Angle (Degrees)	Length (in)	Flange Type	ECCN
SMW10TW1002 	WR-10	75 - 110	1.1:1	45 Left-hand	1	Round Cover UG-387/U-Mod	EAR99
SMW10TW1003 	WR-10	75 - 110	1.1:1	45 Right-hand	1	Round Cover UG-387/U-Mod	EAR99
SMW12TW1002 	WR-12	60 - 90	1.16:1	45 Left-hand	1	Round Cover UG-387/U	EAR99
SMW12TW1003 	WR-12	60 - 90	1.16:1	45 Right-hand	1	Round Cover UG-387/U	EAR99







Waveguide Twists Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Waveguide Offset Angle (Degrees)	Length (in)	Flange Type	ECCN
<u>FMW12TW001</u> 	WR-12	60 - 90		90 Right-hand	1	Round Cover UG-387/U-Mod	EAR99
<u>SMW12TW1001</u> 	WR-12	60 - 90	1.12:1	90	1	Round Cover UG-387/U	EAR99
<u>SMW15TW1002</u> 	WR-15	50 - 75	1.11:1	45 Left-hand	2	Round Cover UG-385/U	EAR99
<u>SMW15TW1003</u> 	WR-15	50 - 75	1.11:1	45 Right-hand	2	Round Cover UG-385/U	EAR99
<u>SMW15TW1001A</u> 	WR-15	50 - 75	1.11:1	90		Round Cover UG-385/U	EAR99
<u>SMW19TW1002</u> 	WR-19	40 - 60	1.25:1	45 Left-hand	2	Round Cover UG-383/U-Mod	EAR99
<u>SMW19TW1003</u> 	WR-19	40 - 60	1.25:1	45 Right-hand	2	Round Cover UG-383/U-Mod	EAR99
<u>SMW19TW1001</u> 	WR-19	40 - 60	1.22:1	90	2	Round Cover UG-383/U-Mod	EAR99
<u>SMW22TW1002</u> 	WR-22	33 - 50	1.02:1	45 Left-hand	2	Round Cover UG-383/U	EAR99
<u>SMW22TW1003</u> 	WR-22	33 - 50	1.02:1	45 Right-hand	2	Round Cover UG-383/U	EAR99
<u>FMW22TW001</u> 	WR-22	33 - 50	1.15:1	90	2	Round Cover UG-383/U	EAR99
<u>SMW22TW1001</u> 	WR-22	33 - 50	1.02:1	90	2	Round Cover UG-383/U	EAR99
<u>FMW28TW001</u> 	WR-28	26.5 - 40	1.1:1	45 Right-hand	2	Square Cover UG-595/U	EAR99
<u>SMW28TW1002</u> 	WR-28	26.5 - 40	1.09:1	45 Left-hand	2	Square Cover UG-599/U	EAR99
<u>SMW28TW1001A</u> 	WR-28	26.5 - 40	1.07:1	90		Square Cover UG-599/U	EAR99

Waveguide Accessories-Gasket Kits Continued

FM P/N	Waveguide Type	RF Frequency Range (GHz)	Maximum VSWR	Waveguide Offset Angle (Degrees)	Length (in)	Flange Type	ECCN
SMW42TW1003 	WR-42	18 - 26.5	1.25:1	45 Right-hand	3	Square Cover UG-595/U	EAR99
SMW42TW1001A 	WR-42	18 - 26.5	1.07:1	90		Square Cover UG-595/U	EAR99
FMWRD750TW1001 	WRD-750	7.5 - 18	1.25:1	90		Square Cover UG	EAR99


Waveguide Accessories-Gasket Kits

FM P/N	Description
FMWGK1014 	WR-28 Waveguide Electrically Conductive Gasket kit Square Cover, Choke Flange
FMWGK1000 	WR-28 Waveguide Gasket kit Square Cover, Choke Flange, Non-Conductive
FMWGK1015 	WR-42, WR-34 Waveguide Electrically Conductive Gasket kit Square Cover, Choke Flange
FMWGK1001 	WR-42, WR-34 Waveguide Gasket kit Square Cover, Choke Flange, Non-Conductive
FMWGK1016 	WR-51 Waveguide Electrically Conductive Gasket kit Square Cover, Choke Flange
FMWGK1002 	WR-51 Waveguide Gasket kit Square Cover, Choke Flange, Non-Conductive
FMWGK1017 	WR-62 Waveguide Electrically Conductive Gasket kit Square Cover, Choke Flange
FMWGK1003 	WR-62 Waveguide Gasket kit Square Cover, Choke Flange, Non-Conductive
FMWGK1018 	WR-75 Waveguide Electrically Conductive Gasket kit Square Cover, Choke Flange
FMWGK1004 	WR-75 Waveguide Gasket kit Square Cover, Choke Flange, Non-Conductive
FMWGK1019 	WR-90 Waveguide Electrically Conductive Gasket kit Square Cover, Choke Flange














Waveguide Accessories-Gasket Kits Continued

FM P/N	Description
FMWGGK1021 	WR-90 Waveguide Electrically Conductive Gasket kit, CPR Flat Flange
FMWGGK1020 	WR-90 Waveguide Electrically Conductive Gasket kit, CPR Grooved Flange
FMWGGK1005 	WR-90 Waveguide Gasket kit Square Cover, Choke Flange, Non-Conductive
FMWGGK1007 	WR-90 Waveguide Gasket kit, CPR90 Flat Flange, Non-Conductive
FMWGGK1006 	WR-90 Waveguide Gasket kit, CPR90 Grooved Flange, Non-Conductive
FMWGGK1022 	WR-112 Waveguide Electrically Conductive Gasket kit Square Cover, Choke Flange
FMWGGK1023 	WR-112 Waveguide Electrically Conductive Gasket kit, CPR Grooved Flange
FMWGGK1008 	WR-112 Waveguide Gasket kit Square Cover, Choke Flange, Non-Conductive
FMWGGK1010 	WR-112 Waveguide Gasket kit, CPR112 Flat Flange, Non-Conductive
FMWGGK1009 	WR-112 Waveguide Gasket kit, CPR112 Grooved Flange, Non-Conductive
FMWGGK1026 	WR-137 Waveguide Electrically Conductive Gasket kit, CPR Grooved Flange
FMWGGK1027 	WR-137 Waveguide Electrically Conductive Gasket kit, CPR Grooved Flange
FMWGGK1025 	WR-137 Waveguide Electrically Conductive Gasket kit, Round Cover, Choke Flange
FMWGGK1011 	WR-137 Waveguide Gasket kit Round Cover, Choke Flange, Non-Conductive
FMWGGK1013 	WR-137 Waveguide Gasket kit, CPR137 Flat Flange, Non-Conductive

Waveguide Accessories-Gasket Kits Continued

FM P/N	Description
FMWGK1012 	WR-137 Waveguide Gasket kit, CPR137 Grooved Flange, Non-Conductive

Waveguide Accessories-Shims

FM P/N	Description
FMW10FS2 	WR-10 Waveguide Shim, UG-Cover Round flange, 2mm Brass
FMW12FS2 	WR-12 Waveguide Shim, UG-Cover Round flange, 2mm Brass
FMW15FS2 	WR-15 Waveguide Shim, UG-Cover Round flange, 2mm Brass
FMW19FS3 	WR-19 Waveguide Shim, UG-Cover Round flange, 3mm Brass
FMW22FS3 	WR-22 Waveguide Shim, UG-Cover Round flange, 3mm Brass
FMW28FS3 	WR-28 Waveguide Shim, UG-Cover Square flange, 3mm Brass
FMW34FS4 	WR-34 Waveguide Shim, UG-Cover Square flange, 4mm Brass
FMW42FS4 	WR-42 Waveguide Shim, UG-Cover Square flange, 4mm Brass
FMW62FS5 	WR-62 Waveguide Shim, UG-Cover Square flange, 5mm Brass
FMW75FS5 	WR-75 Waveguide Shim, UG-Cover Square flange, 5mm Brass
FMW90FS5 	WR-90 Waveguide Shim, UG-Cover Square flange, 5mm Brass
FMW112FS5 	WR-112 Waveguide Shim, UG-Cover Square flange, 5mm Brass
FMW137FS7 	WR-137 Waveguide Shim, CPR-137F flange, 7mm Brass











Waveguide Accessories-Shims Continued

FM P/N	Description
FMW159FS7	WR-159 Waveguide Shim, CPR-159F flange, 7mm Aluminum
	
FMW187FS7	WR-187 Waveguide Shim, CPR-187F flange, 7mm Aluminum
	
FMW284FS8	WR-284 Waveguide Shim, CPR-284F flange, 8mm Aluminum
	
FMW340FS10	WR-340 Waveguide Shim, CPR-340F flange, 10mm Aluminum
	
FMW430FS10	WR-430 Waveguide Shim, CPR-430F flange, 10mm Aluminum
	





Waveguide Accessories-Shorts

FM P/N	Description
FMW10SP4	WR-10 Waveguide Short Plate, UG-Cover Round Flange, 4mm Copper
	
FMW12SP4	WR-12 Waveguide Short Plate, UG-Cover Round Flange, 4mm Copper
	
FMW15SP4	WR-15 Waveguide Short Plate, UG-Cover Round Flange, 4mm Copper
	
FMW19SP4	WR-19 Waveguide Short Plate, UG-Cover Round Flange, 4mm Copper
	
FMW22SP4	WR-22 Waveguide Short Plate, UG-Cover Round Flange, 4mm Copper
	
FMW28SP4	WR-28 Waveguide Short Plate, UG-Cover Square Flange, 5mm Copper
	
FMW34SP4	WR-34 Waveguide Short Plate, UG-Cover Square Flange, 4mm Copper
	
FMW42SP4	WR-42 Waveguide Short Plate, UG-Cover Square Flange, 4mm Copper
	





Waveguide Accessories-Shorts Continued

FM P/N	Description
FMW62SP5	WR-62 Waveguide Short Plate, UG-Cover Square Flange, 5mm Copper 
FMW75SP5	WR-75 Waveguide Short Plate, UG-Cover Square Flange, 5mm Copper 
FMW90SP5	WR-90 Waveguide Short Plate, UG-Cover Square Flange, 5mm Brass 
FMW112SP5	WR-112 Waveguide Short Plate, UG-Cover Square Flange, 5mm Copper 
FMW137SP7	WR-137 Waveguide Short Plate, CPR-137F Flange, 7mm Copper 
FMW159SP7	WR-159 Waveguide Short Plate, CPR-159F Flange, 7mm Aluminum 
FMW187SP7	WR-187 Waveguide Short Plate, CPR-187F Flange, 7mm Aluminum 
FMW284SP8	WR-284 Waveguide Short Plate, CPR-284F Flange, 8mm Aluminum 
FMW340SP10	WR-340 Waveguide Short Plate, CPR-340F Flange, 10mm Aluminum 
FMW430SP10	WR-430 Waveguide Short Plate, CPR-430F Flange, 10mm Aluminum 

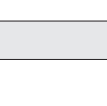


Waveguide Accessories-Pressure Windows

FM P/N	Description
FMWGP1014	WR-28 Waveguide Pressure Window, UG-599/U and UG-599/U-Grooved Flanges, Brass 
FMWGP1013	WR-34 Waveguide Pressure Window, UG Cover and UG Grooved Flanges, Brass 
FMWGP1012	WR-42 Waveguide Pressure Window, UG-595/U and UG-595/U-Grooved Flanges, Brass 
FMWGP1011	WR-51 Waveguide Pressure Window, UG Cover and UG Grooved Flanges, Brass 

Waveguide Accessories-Pressure Windows Continued

FM P/N	Description
FMWGP1010	WR-62 Waveguide Pressure Window, UG-419/U and UG-419/U-Grooved Flanges, Brass 
FMWGP1009	WR-75 Waveguide Pressure Window, UG Cover and UG Grooved Flanges, Brass 
FMWGP1008	WR-90 Waveguide Pressure Window, UG-39/U and UG-39/U-Grooved Flanges, Brass 
FMWGP1006	WR-112 Waveguide Pressure Window, CPR112F and CPR112G Flanges, Brass 
FMWGP1007	WR-112 Waveguide Pressure Window, UG-51/U and UG-51/U-Grooved Flanges, Brass 
FMWGP1005	WR-137 Waveguide Pressure Window, CPR137F and CPR137G Flanges, Brass 
FMWGP1004	WR-159 Waveguide Pressure Window, CPR159F and CPR159G Flanges, Aluminum 
FMWGP1003	WR-187 Waveguide Pressure Window, CPR187F and CPR187G Flanges, Aluminum 
FMWGP1002	WR-229 Waveguide Pressure Window, CPR229F and CPR229G Flanges, Aluminum 
FMWGP1001	WR-284 Waveguide Pressure Window, CPR284F and CPR284G Flanges, Aluminum 
FMWGP1000	WR-340 Waveguide Pressure Window, CPR340F and CPR340G Flanges, Aluminum 

Waveguide Accessories-Miscellaneous

FM P/N	Description
FMWGHW9000	4-40 with 3/32 inch Hex, Stainless Steel Waveguide Flange Screw 
FMWGHW1001	Waveguide Table Jack, Large 
FMWGHW1000	Waveguide Table Jack, Medium 

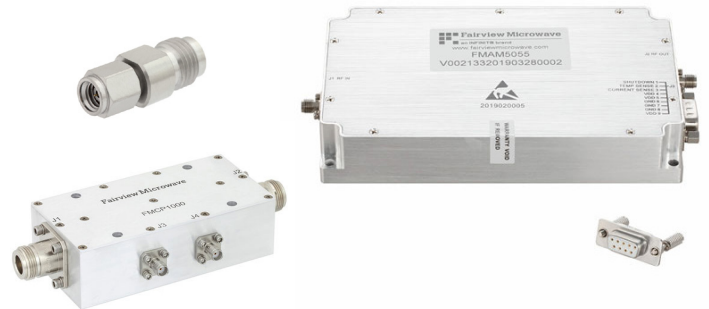
Waveguide Size

EIA WR-(size)	IEC R(size)	Minimum Frequency	Maximum Frequency	Cutoff Frequency TE10 (GHz)	Cutoff Frequency TE20 (GHz)	Inside Dimension "a" (in)	Inside Dimension "b" (in)	Inside Tolerance (±)	Wall Thickness (in)
2300	3	0.32	0.49	0.256	0.51	23	11.5	0.02	0.15
2100	4	0.35	0.53	0.28	0.56	21	10.5	0.02	0.125
1800	5	0.41	0.62	0.32	0.65	18	9	0.02	0.125
1500	6	0.49	0.75	0.39	0.78	15	7.5	0.015	0.125
1150	8	0.64	0.96	0.51	1.02	11.5	5.75	0.015	0.125
975	9	0.75	1.12	0.6	1.21	9.75	4.875	0.01	0.125
770	12	0.96	1.46	0.76	1.53	7.7	3.85	0.01	0.125
650	14	1.12	1.7	0.908	1.82	6.5	3.25	0.01	0.08
510	18	1.45	2.2	1.157	2.31	5.1	2.55	0.01	0.08
430	22	1.7	2.6	1.372	2.74	4.3	2.15	0.008	0.08
340	26	2.2	3.3	1.736	3.47	3.4	1.7	0.005	0.08
284	32	2.6	3.95	2.078	4.15	2.84	1.34	0.005	0.08
229	40	3.3	4.9	2.577	5.15	2.29	1.145	0.005	0.064
187	48	3.95	5.85	3.152	6.3	1.872	0.872	0.005	0.064
159	58	4.9	7.05	3.711	7.42	1.59	0.795	0.004	0.064
137	70	5.85	8.2	4.301	8.6	1.372	0.622	0.004	0.064
112	84	7.05	10	5.259	10.51	1.122	0.497	0.004	0.064
102		7	11	5.785	11.57	1.02	0.51	0.003	0.064
90	100	8.2	12.4	6.557	13.11	0.9	0.4	0.003	0.05
75	120	10	15	7.868	15.73	0.75	0.375	0.003	0.05
62	140	12.4	18	9.486	18.97	0.622	0.311	0.002	0.04
51	180	15	22	11.574	23.14	0.51	0.255	0.002	0.04
42	220	18	26.5	14.047	28.1	0.42	0.17	0.002	0.04
34	260	22	33	17.328	34.71	0.34	0.17	0.002	0.04
28	320	26.5	40	21.08	42.15	0.28	0.14	0.002	0.04
22	400	33	50	26.34	52.69	0.224	0.112	0.001	0.04
19	500	40	60	31.36	62.78	0.188	0.094	0.001	0.04
15	620	50	75	39.86	79.74	0.148	0.074	0.001	0.04
12	740	60	90	48.35	96.74	0.122	0.061	0.0005	0.04
10	900	75	110	59.01	118	0.1	0.05	0.0005	0.04
8	1200	90	140	73.6	147.53	0.08	0.04	0.0003	0.02
7	1400	110	170	90.9	181.5	0.065	0.0325	0.0002	0.02
5	1800	140	220	115.7	231.42	0.051	0.0255	0.0002	0.02
4	2200	172	260	137.243	274.485	0.043	0.0215	0.0002	0.02
3	2600	220	330	173.571	347.143	0.034	0.017	0.0002	0.02

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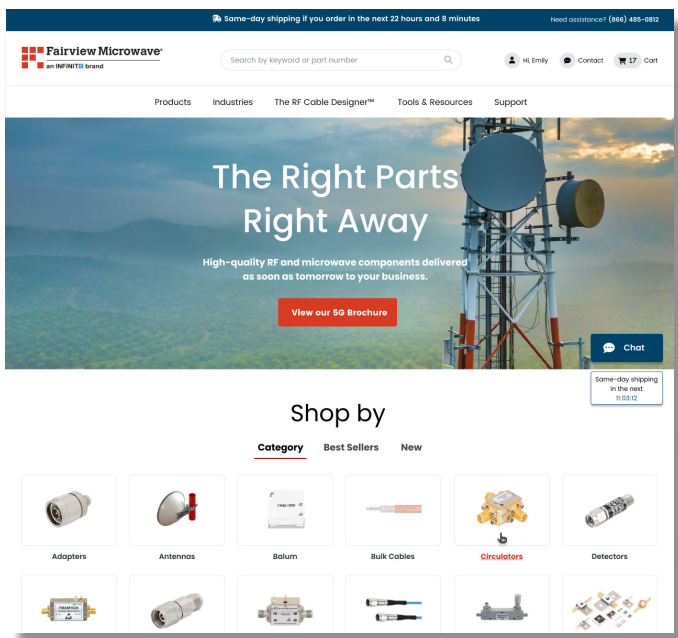


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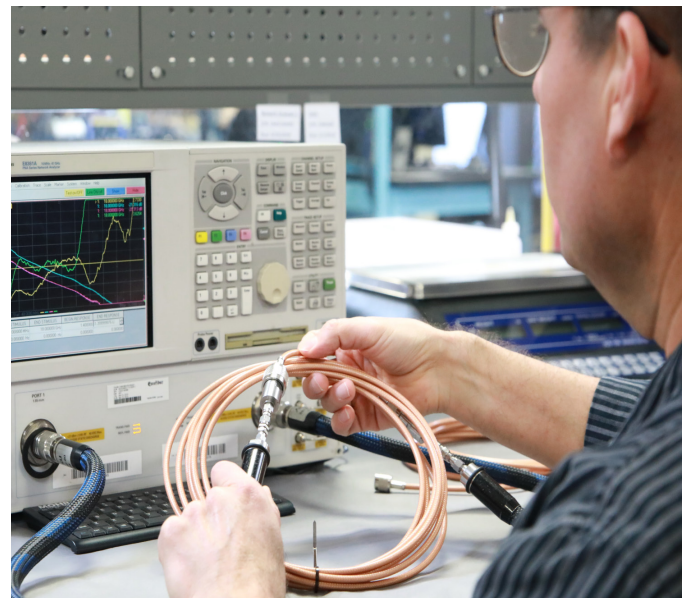
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