



INMARSAT Interference Information

September 2001

The following information is provided to help explain the interference which may be experienced when using an Iridium handset in the presence of an active INMARSAT terminal. When the problem occurs, it is attributable to the fact that the INMARSAT transmitter power overloads the Iridium receiver which can degrade Iridium handset performance. Hence, it is only an actively transmitting INMARSAT unit that poses any interference to an Iridium unit.

The 9505 handset was designed to minimize this INMARSAT interference problem and significantly improves handset performance in the presence of an INMARSAT terminal. The following tables indicate the general protection or separation distances from an active INMARSAT unit for the 9500 and 9505 units to avoid interference.

9500 Handset Information

In the presence of INMARSAT interference, the 9500 handset can experience degradation in two functional areas; voice quality degradation and system access/call drop degradation. Typically, the 9500 phone is more sensitive in the call access/call drop areas than in the voice quality areas. The table below characterizes the protection distances needed to avoid these two conditions as a function of distance for each INMARSAT beam. These are worst case assumptions to effectively bound the protection distances needed for each type of INMARSAT unit identified in the table below. Note that obstructions such as structures between the Iridium phone and the INMARSAT unit can reduce the interference and decrease the needed protection distances. In addition, there are external filters available that can significantly reduce this interference if separation and location alone is not sufficient. The improvement provided by the use of these filters is also included in the Table below.

9500 ISU Protection Distance	Main Lobe (Meters)	Side Lobe (Meters)	Back-Lobe (Meters)	
No Filter	140	42	42	INMARSAT (Mini-M)
No Filter	245	39	39	INMARSAT (Std - M)
No Filter	840	196	196	INMARSAT A
No Filter	700	161	161	INMARSAT B
No Filter	140	140	140	INMARSAT C
With Filter	3	1	1	INMARSAT (Mini-M)
With Filter	5	1	1	INMARSAT (Std - M)
With Filter	17	4	4	INMARSAT A
With Filter	14	3	3	INMARSAT B
With Filter	3	3	3	INMARSAT C



9505 Handset Information

The 9505 handset has been designed to perform significantly better in the presence of INMARSAT interference. The table below characterizes the protection distances needed to avoid interference degradation as a function of INMARSAT distance for each INMARSAT beam. These are worst case assumptions to effectively bound the protection distances needed for each INMARSAT unit identified in the table below. Note that obstructions such as structures between the Iridium phone and the INMARSAT unit can reduce this interference and decrease the needed protection distances. In addition, there are external filters that can significantly reduce this interference if separation and location alone is not sufficient. The improvement provided by the use of these filters is included in the Table below.

9505 ISU Protection Distance	Main Lobe (Meters)	Side Lobe (Meters)	Back-Lobe (Meters)	
No Filter	14	4	4	INMARSAT (Mini-M)
No Filter	25	4	4	INMARSAT (Std - M)
No Filter	84	20	20	INMARSAT A
No Filter	70	16	16	INMARSAT B
No Filter	14	14	14	INMARSAT C
With Filter	1	1	1	INMARSAT (Mini-M)
With Filter	1	1	1	INMARSAT (Std - M)
With Filter	4	1	1	INMARSAT A
With Filter	4	1	1	INMARSAT B
With Filter	1	1	1	INMARSAT C

Filter Information:

The filters currently in use by the US Navy are made by K&L Microwave. Filter characteristics and contact details are included below:

K&L Microwave
 408 Coles Circle
 Salisbury, MD 21804
 (410) 749-2424 (ask for sales)

Part number: 6FVSP-1622.375/X8.25-NP/N
 Passband: 1618.25Mhz-1626.5 Mhz
 Center Frequency: 1622.375 Mhz
 Insertion Loss: 1.1 dB
 40 dB rejection (1616.25-1628.375)
 Physical Size: 7.8"Lx1.8"Wx0.8"H
 Cost: 1-5: \$895, 6-10: \$850, 11-24: \$807, 25+: contact K&L
 Lead Time: 10 to 12 weeks