GRANTED
for the reasons indicated below
1/26/09

THALES

THALES AVIONICS Ltd.
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Federal Communications Commission,
Wireless Bureau Applications,
P.O. Box 358 130,
Pittsburgh, PA 15251-5130,
4 August, 2008

Re: Request for a Waiver of Part 87 Rules to Allow Certification of Thales Top Flight External High Power Amplifier KV6TFS-HPA82166A for Inmarsat SwiftBB QAM channels

Dear Sir,

Thales Avionics Ltd. ("Thales") hereby requests a waiver of sections 87.131, 87.137(a), and 87.141(j) of the Federal Communications Commission's ("FCC's") rules to permit certification of this transceiver to support Inmarsat SwiftBroadband (SwiftBB) 16QAM (Quadrature Amplitude Modulation) channels.

Thales requests the FCC to certify the external High Power Amplifier (HPA) based upon technical data submitted, demonstrating that the unit complies with the technical requirements established by Inmarsat for this service rather than the above referenced rules. The external HPA is intended to be used with the Satellite Data unit KV6TFS-SDU82155D for which Thales is also requesting a waiver for use of QAM.

SwiftBB as envisaged in this application will not be used for services to support any cockpit communications for safety related applications. Permitting the use of SwiftBB for aeronautical satellite communications use will not cause any harmful interference to safety-of-life satellite users, radio astronomy or other aeronautical satellite users.

Background

Current Part 87 aeronautical mobile satellite communications were written specifically for the Inmarsat "Aero-H" and "Aero-L" services. Inmarsat is now offering a new aeronautical mobile satellite service which offers significantly higher data rates than that accommodated, at present, under Part 87. The channels that are the subject of this waiver request have a class of emission of D1W (the type of usage includes data transmission, and digital telephony). The channels are:

Class of Emission	Emission Designator	Allocated Bandwidth, kHz	Symbol Rate, ksym/s
D1W	50K0D1W	50	33.6
D1W	100KD1W	100	67.2
D1W	200KD1W	200	151.2

The channels all employ 16QAM, this is a more spectrally efficient modulation than Quadrature Phase Shift Keying (QPSK) – already certified for use. The use of 16QAM will support higher data rates with an overall maximum data rate of 492.8 Kbits/s, which is about twice that available for QPSK.

Technical Discussion

As noted above, current Aeronautical Mobile Satellite Part 87 regulations are based on the existing Inmarsat Aero-H and Aero-L services. The Inmarsat Swift BroadBand (SBB) service also operates in the Aeronautical Mobile Satellite Service and is designed to provide significantly higher data rates through the use of 16-QAM waveforms at symbol rates up to 151.2Ksym/s, using allocated bandwidths up to 200 KHz.

87.131 Power and Emissions
The authorised emissions do not include 50K0D1W, 100KD1W or 200KD1W. Thales requests a waiver to permit the use of these emission types.

87.137 Types of Emission
The authorised emissions do not include 50K0D1W, 100KD1W or 200KD1W. Thales requests a waiver to permit the use of these emission types.

87.141 Modulation Requirements
The authorised emissions do not include QAM. Thales requests a waiver to permit the use of this emission type.

Conclusion

As outlined above, Thales requests that the FCC waive the regulations discussed above and certify the KV6TFS-HPA82166A for the additional QAM channels. Granting certification will allow aircraft passengers to connect to the internet at higher data rates, approaching 500 kbits/s, without causing harmful interference to other services, and is therefore in the public interest.

Thales respectfully requests expedited review of this request

Sincerely,

Jennifer Livingstone
Topflight Satcom System Project Leader
Direct line: (44) 208 971 5330
Email: Jennifer.Livingstone@uk.thalesgroup.com

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Federal Communications Commission,
Wireless Bureau Applications,
P.O. Box 358 130,
Pittsburgh, PA 15251-5130,
1 August, 2008

Re: Request for a Waiver of Part 87 Rules to Allow Certification of Thales Top Flight Satellite Data Unit KV6TFS-SDU82155A1 for Inmarsat SwiftBB QAM channels

Dear Sir,

Thales Avionics Ltd. ("Thales") hereby requests a waiver of sections 87.131, 87.137(a), and 87.141(j) of the Federal Communications Commission's ("FCC's") rules to permit certification of this transceiver to support Inmarsat SwiftBroadband (SwiftBB) 16QAM (Quadrature Amplitude Modulation) channels.

Thales requests the FCC to certify the Satellite Data Unit (SDU) based upon technical data submitted, demonstrating that the unit complies with the technical requirements established by Inmarsat for this service rather than the above referenced rules. Attached is a letter from Inmarsat providing support for the waiver.

SwiftBB as envisaged in this application will not be used for services to support any cockpit communications for safety related applications. Permitting the use of SwiftBB for aeronautical satellite communications use will not cause any harmful interference to safety-of-life satellite users, radio astronomy or other aeronautical satellite users.

Background

Current Part 87 aeronautical mobile satellite communications were written specifically for the Inmarsat "Aero-H" and "Aero-L" services. Inmarsat is now offering a new aeronautical mobile satellite service which offers significantly higher data rates than that accommodated, at present, under Part 87. The channels that are the subject of this waiver request have a class of emission of D1W (the type of usage includes data transmission, and digital telephony). The channels are:

Class of Emission	Emission Designator	Allocated Bandwidth, kHz	Symbol Rate, ksym/s
D1W	50K0D1W	50	33.6
D1W	100KD1W	100	67.2
D1W	200KD1W	200	151.2

The channels all employ 16QAM, this is a more spectrally efficient modulation than Quadrature Phase Shift Keying (QPSK) – already certified for use. The use of 16QAM will support higher data rates with an overall maximum data rate of 492.8 Kbits/s, which is about twice that available for QPSK.

Technical Discussion

As noted above, current Aeronautical Mobile Satellite Part 87 regulations are based on the existing Inmarsat Aero-H and Aero-L services. The Inmarsat Swift BroadBand (SBB) service also operates in the Aeronautical Mobile Satellite Service and is designed to provide significantly higher data rates through the use of 16-QAM waveforms at symbol rates up to 151.2Ksym/s, using allocated bandwidths up to 200 KHz.

87.131 Power and Emissions
The authorised emissions do not include 50K0D1W, 100KD1W or 200KD1W. Thales requests a waiver to permit the use of these emission types.

87.137 Types of Emission
The authorised emissions do not include 50K0D1W, 100KD1W or 200KD1W. Thales requests a waiver to permit the use of these emission types.

87.141 Modulation Requirements
The authorised emissions do not include QAM. Thales requests a waiver to permit the use of this emission type.

Conclusion

As outlined above, Thales requests that the FCC waive the regulations discussed above and certify the KV6TFS-SDU82155A1 for the additional QAM channels. Granting certification will allow aircraft passengers to connect to the internet at higher data rates, approaching 500 kbits/s, without causing harmful interference to other services, and is therefore in the public interest.

Thales respectfully requests expedited review of this request

Sincerely,

Jennifer Livingstone
Topflight Satcom System Project Leader
Direct line: (44) 208 971 5330
Email: Jennifer.Livingstone@uk.thalesgroup.com

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Federal Communications Commission,
Wireless Bureau Applications,
P.O. Box 358 130,
Pittsburgh, PA 15251-5130,
4 August, 2008

Re: Request for a Waiver of Part 87 Rules to Allow Certification of Thales Top Flight Satellite Data Unit KV6TFS-SDU82155D for Inmarsat SwiftBB QAM channels

Dear Sir,

Thales Avionics Ltd. ("Thales") hereby requests a waiver of sections 87.131, 87.137(a), and 87.141(j) of the Federal Communications Commission's ("FCC's") rules to permit certification of this transceiver to support Inmarsat SwiftBroadband (SwiftBB) 16QAM (Quadrature Amplitude Modulation) channels.

Thales requests the FCC to certify the Satellite Data Unit (SDU) based upon technical data submitted, demonstrating that the unit complies with the technical requirements established by Inmarsat for this service rather than the above referenced rules. Attached is a letter from Inmarsat providing support for the waiver.

SwiftBB as envisaged in this application will not be used for services to support any cockpit communications for safety related applications. Permitting the use of SwiftBB for aeronautical satellite communications use will not cause any harmful interference to safety-of-life satellite users, radio astronomy or other aeronautical satellite users.

Background

Current Part 87 aeronautical mobile satellite communications were written specifically for the Inmarsat "Aero-H" and "Aero-L" services. Inmarsat is now offering a new aeronautical mobile satellite service which offers significantly higher data rates than that accommodated, at present, under Part 87. The channels that are the subject of this waiver request have a class of emission of D1W (the type of usage includes data transmission, and digital telephony). The channels are:

Certified No: 920240

Class of Emission	Emission Designator	Allocated Bandwidth, kHz	Symbol Rate, ksym/s
D1W	50K0D1W	50	33.6
D1W	100KD1W	100	67.2
D1W	200KD1W	200	151.2

The channels all employ 16QAM, this is a more spectrally efficient modulation than Quadrature Phase Shift Keying (QPSK) – already certified for use. The use of 16QAM will support higher data rates with an overall maximum data rate of 492.8 Kbits/s, which is about twice that available for QPSK.

Technical Discussion

As noted above, current Aeronautical Mobile Satellite Part 87 regulations are based on the existing Inmarsat Aero-H and Aero-L services. The Inmarsat Swift BroadBand (SBB) service also operates in the Aeronautical Mobile Satellite Service and is designed to provide significantly higher data rates through the use of 16-QAM waveforms at symbol rates up to 151.2Ksym/s, using allocated bandwidths up to 200 KHz.

87.131 Power and Emissions
The authorised emissions do not include 50K0D1W, 100KD1W or 200KD1W. Thales requests a waiver to permit the use of these emission types.

87.137 Types of Emission
The authorised emissions do not include 50K0D1W, 100KD1W or 200KD1W. Thales requests a waiver to permit the use of these emission types.

87.141 Modulation Requirements
The authorised emissions do not include QAM. Thales requests a waiver to permit the use of this emission type.

Conclusion

As outlined above, Thales requests that the FCC waive the regulations discussed above and certify the KV6TFS-SDU82155D for the additional QAM channels. Granting certification will allow aircraft passengers to connect to the internet at higher data rates, approaching 500 kbits/s, without causing harmful interference to other services, and is therefore in the public interest.

Thales respectfully requests expedited review of this request

Sincerely,

Jennifer Livingstone
Topflight Satcom System Project Leader
Direct line: (44) 208 971 5330
Email: Jennifer.Livingstone@uk.thalesgroup.com

U.S. Department
of Transportation
**Federal Aviation
Administration**

DEC 11 2006

Mr. Andy Leimer
Federal Communications Commission
Equipment Authorization Branch
7435 Oakland Mills Road
Columbia, Maryland 21046

Dear Mr. Leimer:

The Federal Aviation Administration (FAA), Office of ATC Spectrum Engineering Services, has reviewed the Type Acceptance Certification request from Thales Avionics Limited, for the SDU-82155A1 satellite data unit (FCC ID Number KV6TFS-SDU-82155A1), the SDU-82155D satellite data unit (FCC ID Number KV6TFS-SDU-82155D), and the HPA-82166A high power amplifier (FCC ID Number KV6TFS-HPA-82166A). The FAA has no objections to the certification of this equipment that transmits in the 1626.5-1660.5 MHz frequency band and receives in the 1525-1559 MHz frequency band, subject to the applicant's equipment operating in accordance with the footnotes in the International Telecommunications Union Table of Frequency Allocations and the United States (U.S.) Table of Frequency Allocations.

Applicable International footnotes as follows:

1. 5.351 – The bands 1525-1544 MHz, 1545-1559 MHz, 1626.5-1645.5 MHz and 1646.5-1660.5 MHz shall not be used for feeder links of any service.
2. 5.356 – The use of the band 1544-1545 by the mobile –satellite service (Earth-to-space) is limited to distress and safety communications.
3. 35.375 – The use of the band 1645.5-1646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications.

Applicable U.S. footnotes as follows:

1. US308 – In the frequency bands 1549.5-1558.5 MHz and 1651-1660 MHz, the Aeronautical-Mobile-Satellite (R) requirements that cannot be accommodated in the 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz, and 1660-1660.5 MHz bands shall have priority access with real-time preemptive capability for communications in the mobile-satellite service. Systems not interoperable with aeronautical mobile-satellite (R) service shall operate on a secondary basis. Account shall be taken of the priority of safety-related communications in the mobile-satellite service.
2. US315 – In the frequency band 1530-1544 MHz and 1626.5-1645.5 MHz maritime mobile-satellite distress and safety communications, e.g. global maritime distress and

safety system (GMDSS), shall have priority access with real-time preemptive capability in the mobile-satellite service. Communications of mobile-satellite system stations not participating in GMDSS shall operate on a secondary basis to distress and safety communications of stations operating in the GMDSS. Account shall be taken of the priority of safety-related communications in the mobile-satellite service.

Should you have any questions or concerns, please contact Mr. Donald Nellis, Electronics Engineer, Spectrum Planning and International Office, at (202) 267-9779.

Sincerely,

Oscar Alvarez,
Director, ATC Spectrum
Engineering Services

cc:
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September 29, 2008

Re: Request for Waiver of Part 87 Rules to allow Type Acceptance of Thales Avionics Ltd Aeronautical Satellite Communications System utilizing Inmarsat's SwiftBroadBand service. FCC Reference ID Nos. KV6TFS-SDU82155A1, KV6TFS-SDU82155D, KV6TFS-HPA82166A.

Inmarsat Inc. is writing in support of a request for waiver filed by Thales Avionics Ltd ("Thales") of sections 87.131, 87.173(a), and 87.141(j) of the Federal Communication Commission's rules to permit certification of its Top Flight Satellite Data Unit (SDU) transceiver, to support Inmarsat SwiftBroadband (SwiftBB) 16QAM (Quadrature Amplitude Modulation) channels. The FCC reference IDs are KV6TFS-SDU82155A1, KV6TFS-SDU82155D, KV6TFS-HPA82166A. Thales wishes to market and sell this transceiver to support a new aeronautical data and voice communications service offered by Inmarsat under the trade name SwiftBroadBand (SwiftBB). Inmarsat submits that the grant of this waiver would be in the public interest and urges the Commission to grant Thales' request.

Permitting the use of SwiftBroadBand services in the Aviation Service will not cause harmful interference to safety-of-life satellite users, Radio Astronomy or other aeronautical mobile satellite users as the technical requirements related to spurious emissions in relevant frequency bands, and Priority and Pre-emption as currently stated in Part 87 are met. This waiver request is only to allow for the use of 16QAM, as the authorised emissions do not include QAM. Thales seeks a waiver specifically for 50K0D1W, 100KD1W and 200KD1W for the two new types of SDU.

Inmarsat has designed the SwiftBB service specifically for aeronautical use. SwiftBroadBand is designed to work co-operatively with the Aero H/H+ safety service without impairing the priority and pre-emption mechanisms.

inmarsat

In summary, we believe that the introduction of the Inmarsat SwiftBB service is a significant step forward in the provision of aircraft communications service, both in performance and cost, and that the technical issues involved as outlined in the Thales request have been adequately dealt with. Granting the waivers and ultimately certification will allow aircraft passengers to connect to obtain data services at higher rates, approaching 500 kbps. Accordingly, we fully support the Thales request for a waiver of Part 87 rules.

Respectfully Submitted,

Diane Cornell

Diane Cornell

Vice President, Government Affairs

Cc: Jeffrey Tobias