Resolution No. 25/2012 on Amendments of Some provisions of the Resolution No 133/2008 issuing Regulation Organizing the Registration and Usage of Frequencies and Radio Equipment and Their Pricing and Amendments of some Provisions of the Attached Regulation

Pursuant to the Telecommunications Regulatory Act issued by the Royal Decree No. 30/2002 and;
The Executive Regulation of the Telecommunications Regulatory Act issued by Resolution No. 144/2008 and;
The Resolution No. 133/2008 on the regulation organizing the registration and usage of frequencies and radio equipment and their pricing and;
The Authority Board's approval at its meeting No. 4/2011 dated 3.12.2011 and;

Based on the exigencies of the public interest;

It is resolved:

Article 1: The enclosed amendments on the Resolution No. 133/2008 and some provisions of regulations attached shall be implemented.

Article 3: This Resolution shall be published in the Gazette and shall come into force from the date following its publication.

Mohammed Hamed Al-Rumhi
Chairman of Telecommunication Regulatory Authority

Issued on: 28th Safar 1433 A.H.
Corresponding to: 22nd January 2012 A.D.

A. Amendments of Some provisions of the Resolution No 133/2008 issuing Regulation Organizing the Registration and Usage of Frequencies and Radio Equipment and Their Pricing and Amendments of some Provisions of the Attached Regulation

The text of the following Articles: three, four, eight, nine, from Resolution 133/2008 mentioned above shall be replaced with the following:

Article 3: the following shall be exempted from the provisions of Article 1 of this Decision:

1. Traditional fishing & coastal boats owned by individual provided that the maximum load capacity does not exceed 50 tons and length does not exceed 30meters.

2. Users of radio frequencies when alternative frequencies are assigned instead of the frequencies decided to be vacated by the Authority.

Article 4: Duration of the license to use or possess radio equipment shall be for one year (Twelve months). The validity of the license to use radio equipment may be extended for a maximum period of five (5) years after an advance payment of fees is made for the whole period on the approval of the application. The radio license may also be issued for a period of less than a year, based on the exigencies of the public interest or upon the request of the licensee to unify the expiry dates of all or some of the radio licenses issued to the licensee. The Authority shall not be bound by the date specified in the application submitted by the licensee, where license fees shall be calculated for the remaining period on the basis of a pro-rata annual usage fees according to the radio services.

The effective licensing date shall start from the purchasing date of the equipment from the dealers in radio equipment that are registered with the Authority or from the arrival date of the equipment to the Omani soil in case of importation from abroad.

Article 8: A one month grace period starting from the license expiry date shall be granted for payment of prescribed fees for renewal of the radio license. In case of delay in payment of the fees, the penalty set out in the attached regulation shall be applicable for each month of delay up to twelve months, where the delay is part of a month, the fee shall be calculated proportionately based on the period of delay to a month. If no payment is made during this period, the license will be revoked and the radio equipment will be seized and legal actions stipulated in the Act will be taken.

Article 9: A grace period of two months shall be given for payment of fees forregistration of assigning new frequencies and licensing new radio equipment. If no payment is made during this period, the application shall be deemed cancelled and the applicant will be required to file a new application for assignment and usage of frequencies radio equipment.

B. Amendments of some Provisions of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and Their Pricing

First: the text of the Articles (2) Para 3, (2) Clause (2-1) & (2-2), (6) Para (1), (9) Clauses (9-1) last para, (9-2 last two paragraphs & (9-5) first Para of the indicated Regulation shall be replaced with the following texts:

Article 1
Para 3
Governorate are to be understood as the governorates of the Sultanate of Oman (as per Annex B)

Article 2
2-1: Application Fees:
The Application Fee is a service-independent one-time fee and is to be paid on submission of an application according to the following:

-

- (50) Fifty Riyal for each application for the usage of aircraft and ship stations.
- (50) Fifty Riyal for each frequency per location for other services.

It is non-refundable in case the applicant does not wish to continue the licensing procedure.

2-2 Survey Fee
A Survey Fee shall be collected for the actual visit of any number of locations for one application in any wilayat of any governorate according to the following:

Governorate	Survey Fee (OMR)
Muscat Governorate	50
Al-Batinah North Governorate, Al-Batinah South Governorate, Al-Buraimi Governorate, Al-Dakhliyah Governorate, Al-Dhahirah Governorate, Al-Sharqiyah North Governorate, Al-Sharqiyah South Governorate and Al-Wusta Governorate	100
Dhofar Governorate and Musandam Governorate	200

Table: Survey Fee

Article 6
Para 1
The following fees are collected in advance in case of application of license modification or cancellation or issue of duplicate license or retention of the radio equipment. If the fees were not collected in advance and prior to the expiry of the radio license, the application shall be deemed void

and the license shall be automatically renewed.

Article 9

9-1 Last Para:

Spectrum charges for experimental stations shall be calculated on a pro-rata basis of the annual charges in accordance with the relevant service. A minimum period of one month or a minimum fee of OMR 50 shall apply, whichever is higher. The maximum period for the experimental stations shall be two months.

9-2 Last Two Para

Spectrum charges for temporary licensing shall be calculated on a pro-rata basis of the annual charges in accordance with the relevant radio service.

The maximum period for the temporary authorisation shall be three months.

Renewal of a temporary authorisation is possible once for the same period as the one initially requested. Thereafter, annual fees apply.

9-5 Para 1:

The following registration fee for data acquisition systems in areas of low population density which consist of a central data collection station and several data acquisition stations shall be applicable:

Second: the following tables No: 48 Clause (8-6-2-1), 53 Clause (8-6-2-3), 60 Clause (8-6-2-6), 61 Clause 9(8-6-2-6), 64 Clause (8-6-2-7), 89 Clause (8-10-2) from Article (8), and 104 Clause (9-2) from Article (9), from the above mentioned regulations shall be replaced with the following:

Article 8:

Clause (8-6-2-1)

Coverage	Coverage Factor
All country	1.00
One Governorate	0.30

Table 48 – GSM, Coverage Factor

Clause (8-6-2-3)

Coverage	Coverage Factor
All country	1.00
One Governorate	0.30

Table 53 – IMT-2000 Services, , Coverage Factor

Clause (8-6-2-6)

Registration Fee = Number of Channels * 400 (per Governorate)
Registration Fee = Number of Channels * 1.400 (more than 3 Governorates, all country)

Table 60 – PMR Services – Per Governorate/National Allotments, Registration Fees

Clause (8-6-2-6)

Utilisation Fee = Number of Channels * 7,500 (per governorate)
Utilisation Fee = Number of Channels * 25,000 (more than 3 governorates, all country)

Table 61 – PMR Services – Per Governorate/National Allotments, Utilisation Fees

Clause (8-6-2-7)

Coverage	Coverage Factor
All country	1.00
One governorate	0.30
Universal Service Obligations (USO) Area	0.1

Table 64– Wireless Broadband Service, Coverage Factor

Clause (8-10-2)

Registration Fee = Weighting Factor * OMR 4*No. of Locations **(OMR 20 for international co-ordination)**

Table 89 – Radiolocation Service –, Registration Fee

Article 9
Clause (9-2)

Utilisation Fee = pro-rata of the annual charges for the respective service Minimum Fee if: A. Annual fee greater or equal to OMR 50: One month's charge or OMR 50 whichever is higher. B. Annual fee less than OMR 50: Full annual fee.

Table 104 – Temporary (short-term) Licensing, Utilisation Fee

Third: Annexes (A), (B), & (C) of the said regulation shall be replaced with the following:

Governorate	Wilayat	Population Density
Muscat Governorate	Muscat	High
Muscat Governorate	Mutrah	High
Muscat Governorate	Al-Amrat	Medium
Muscat Governorate	Bawshar	High
Muscat Governorate	As Seeb	High
Muscat Governorate	Quriyat	Medium
Dhofar Governorate	Salalah	High
Dhofar Governorate	Taqah	Low
Dhofar Governorate	Mirbat	Low
Dhofar Governorate	Rakhyut	Low
Dhofar Governorate	Thumrait	Low
Dhofar Governorate	Dhalkut	Low
Dhofar Governorate	AL-Mazyunah	Low
Dhofar Governorate	Muqshin	Low
Dhofar Governorate	Shalim wa Juzur Al-Hallaaniyat	Low
Dhofar Governorate	Sadah	Low
Musandam Governorate	Khasab	Low
Musandam Governorate	Daba	Low
Musandam Governorate	Bukha	Low
Musandam Governorate	Madha	Low
Al-Buraimi Governorate	Al-Buraimi	Medium
Al-Buraimi Governorate	Mahadh	Low
Al-Buraimi Governorate	AL-Sunainah	Low
AL-Dakhiliya Governorate	Nizwa	Medium
AL-Dakhiliya Governorate	Bahla	Medium
AL-Dakhiliya Governorate	Maneh	Low
AL-Dakhiliya Governorate	Al-Hamra	Low
AL-Dakhiliya Governorate	Adam	Low
AL-Dakhiliya Governorate	Izki	Low
AL-Dakhiliya Governorate	Samail	Low
AL-Dakhiliya Governorate	Bidbid	Low
Al-Batinah North Governorate	Sohar	High
Al-Batinah North Governorate	Shinas	Low
Al-Batinah North Governorate	Liwa	Low
Al-Batinah North Governorate	Saham	Low
Al-Batinah North Governorate	AL-Khabourah	Medium
Al-Batinah North Governorate	Al-Suwaiq	Medium
Al-Batinah South Governorate	Al-Rustaq	Medium

Al-Batinah South Governorate	Al-Awabi	Low
Al-Batinah South Governorate	Nakhal	Low
Al-Batinah South Governorate	Wadi AL-Mawel	Low
Al-Batinah South Governorate	Barka	Medium
Al-Batinah South Governorate	Al-Musanah	Low
Al-Sharqiyah South Governorate	Sur	Medium
Al-Sharqiyah South Governorate	AL-Kamil Wa Al-Wafi	Low
Al-Sharqiyah South Governorate	Galan Bani Bu Hassan	Low
Al-Sharqiyah South Governorate	Galan Bani Bu Ali	Medium
Al-Sharqiyah South Governorate	Masirah	Low
Al-Sharqiyah North Governorate	Ibra	Low
Al-Sharqiyah North Governorate	Al-Mudhaybi	Low
Al-Sharqiyah North Governorate	Bidiyah	Low
Al-Sharqiyah North Governorate	AL-Qabel	Low
Al-Sharqiyah North Governorate	Wadi Bani Khalid	Low
Al-Sharqiyah North Governorate	Dama Wa Al-Taiyyin	Low
Al-Dhahirah Governorate	Ibri	Medium
Al-Dhahirah Governorate	Yanquil	Low
Al-Dhahirah Governorate	Dhank	Low
Al-Wusta Governorate	Haima	Low
Al-Wusta Governorate	Mahut	Low
Al-Wusta Governorate	AL-Duqum	Low
Al-Wusta Governorate	AL-Gazer	Low

Annex B: Governorates

Governorate
Muscat Governorate
Dhofar Governorate
Musandam Governorate
Al-Buraimi Governorate
AL-Dakhiliya Governorate
Al-Batinah North Governorate
Al-Batinah South Governorate
Al-Sharqiyah South Governorate
Al-Sharqiyah North Governorate
Al-Dhahirah Governorate
Al-Wusta Governorate

Annex C: Services and radio equipment are exempted from licensing requirements and fees:

- Use of GSM, UMTS, GMPCS and DECT terminals and pagers;
- Point-to-Multipoint and Multipoint-to-Multipoint Telecommunication Terminals;

- Short Range Devices (defined in Annex D);
- Short range radars (defined in Annex E);
- Receive-only equipment (public services) as defined in Article (9) Provision (9.6) of this regulation;
- Radio equipment designed for safety services including equipment designed for persons with special needs and for safety of patients for which the Authority shall approve the bands and type of equipment. Attached in Annex (K) of this regulation.
- WAS/RLANs (defined in Annex F) after meeting the conditions, specifications and standards listed in said annex. Users of these systems shall avoid harmful interference with other users and shall not be entitled to protection from this interference.
    - If these systems are used for the provision of telecommunications services to others or are installed in public places proper licensing in accordance with the Telecommunications Regulatory Act is required.
    - As an exception, use of systems operating in the bands indicated in this clause that do not meet the technical conditions and specifications listed in annex (F) is authorised until 2012. For these systems, fees according to Chapter 8 clause 8.4.1 apply.
- PMR 446 that are not reprogrammable operating in the bands 446 – 446.2 MHz (defined in Annex J) after meeting the conditions, specifications and standards listed in Annex J. Users of these systems shall avoid harmful interference with other users and shall not be entitled to protection from this interference.

Fourth: The following definitions shall be added to Article (1):

Aeronautical Mobile Service

a mobile service between aeronautical stations and aircraft stations or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

Aeronautical Mobile (OR) Service

an aeronautical mobile service intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes.

Aeronautical Mobile (R) Service

an aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.

Aeronautical Mobile-Satellite Service

a mobile-satellite service in which mobile earth stations are located on board aircraft; survival craft stations and emergency position-indicating radio beacon stations may also participate in this service.

Aeronautical Mobile-Satellite (OR) Service

an aeronautical mobile-satellite service intended for communications, including those relating to flight coordination, primarily outside national and international civil air routes.

Aeronautical Mobile-Satellite (R) Service

an aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.

Aeronautical Radio Navigation Service

a radio navigation service intended for the benefit and for the safe operation of aircraft.

Aeronautical Radio Navigation-Satellite Service

a radio navigation-satellite service in which earth stations are located on board aircraft.

Aeronautical Station

a land station in the aeronautical mobile service.

Aircraft Station

a mobile station in the aeronautical mobile service, other than a survival craft station, located on board of an aircraft.

Amateur Service

a radio communication service for the purpose of self-training, intercommunication and technical investigations carried out by an amateur, that are duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

Amateur-Satellite Service

a radio communication service using space stations on earth satellites for the same purpose as for amateur services.

Broadcasting Service

a radio communication service in which the transmissions are intended for direct reception by the general public. This service may include sound transmission, television transmission or other types of transmission.

Broadcasting-Satellite Service

a radio communication service in which signals transmitted by space stations are intended for direct reception by the general public.

Coast Station

a land station in the maritime mobile service.

DECT

an ETSI standard for portable phones, commonly used for domestic or corporate applications. DECT can also be used for wireless data transfer. It works like a cellular system. DECT shows one major difference when compared to GSM: the cell radius is only 25 – 100 m, while GSM operates in a 2 – 10 km range. The system operates with 10 carriers in the range 1,880 – 1 900 MHz.

Earth Exploration-Satellite Service

a radio communication service between earth stations and one or more space stations, which may include links between space stations, in which:

Information relating to the characteristics of the Earth and its natural phenomena, including data relating to the state of the environment, is obtained from active sensors or passive sensors on earth satellites;

Similar information is collected from air-borne or earth-based platforms;

Such information may be distributed to earth stations within the system concerned;

Platform interrogation may be included.

This service may also include feeder links necessary for its operation.

Feeder Link

a radio link from an earth station at a given location to a space station, or vice versa, conveying information for a space radiocommunication service other than for the fixed-satellite service. The given location may be at a specified fixed point, or at any fixed point within specified areas.

Fixed Service

a radio communication service between specified fixed points.

Fixed-Satellite Service

a radio communication service between earth stations at given positions, when one or more satellites are used; the given position may be a specific point or any fixed point within specified area; in some cases this service includes satellite-to-satellite links, which may also be

operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radio communication services.

GMPCS

GMPCS is a personal communication system providing transnational, regional or global coverage from a constellation of satellites accessible with small and easily transportable terminals. Regardless of the GMPCS satellite systems being geostationary or non-geostationary, fixed or mobile, broadband or narrowband, global or regional, they are capable of providing telecommunication services directly to end users. GMPCS services include two-way voice, fax, messaging, data and even broadband multimedia. E.g., Inmarsat, Thuraya, Globalstar and Iridium are to be treated in line therewith.

GSM

GSM is a cellular network of the second generation (2G). Mobile phones connect to it by searching for cells in the immediate vicinity. GSM networks operate mainly in two different frequency ranges in the 900 MHz or 1800 MHz band.

In the 900 MHz band, the uplink frequency band is 890 – 915 MHz, and the downlink frequency band is 935 – 960 MHz. These 25 MHz bandwidth are subdivided into 124 carrier frequency channels, each spaced 200 kHz apart. Time division multiplexing is used to allow eight full-rate or sixteen half-rate speech channels per radio frequency channel. There are eight radio timeslots (giving eight burst periods) grouped into what is called a TDMA frame. Half rate channels use alternate frames in the same timeslot. The channel data rate is 270.833 kbit/s, and the frame duration is 4.615 ms.

The 1800 MHz band uses 1,710 – 1,785 MHz for uplink and 1,805 – 1,880 MHz for downlink; the resulting bandwidth of 75 MHz is subdivided into 374 channels with similar specifications as above.

The transmission power of the handset is limited to a maximum of 2 W in the GSM900 band and to 1 W in the GSM1800 band.

Inter-Satellite Service

a radio communication service providing links between artificial earth satellites.

Land Mobile Service

a mobile service between base stations and land mobile station or between land mobile stations.

Land Mobile-Satellite Service

a mobile-satellite service in which mobile earth stations are located on land.

Maritime Mobile Service

a mobile service between coast stations and ship stations, or between ship stations, or between associated on-board communication stations; survival craft stations and emergency position-indicating radio beacon stations may also participate in this service.

Maritime Mobile-Satellite Service

a mobile-satellite service in which mobile earth stations are located on board ships; survival craft stations and emergency position-indicating radio beacon stations may also participate in this service.

Maritime Radio Navigation Service

a radio navigation service intended for the benefit and for the safe operation of ships.

Maritime Radio Navigation-Satellite Service

a radio navigation-satellite service in which earth stations are located on board ships.

Meteorological Aids Service

a radio communication service used for meteorological, including hydrological, observations and exploration.

Meteorological-Satellite Service

an earth exploration-satellite service for meteorological purposes.

Mobile Service

a radio communication service between mobile and land station, or between mobile stations.

Mobile-Satellite Service

a radio communication service: Between mobile earth stations and one or more space stations, or between space stations used by this service; this service may also include feeder links necessary for its operation.

Model Radio Control

radio control (sometimes abbreviated R/C) is the use of radio signals to remotely control a device. The term is used frequently to refer to the control of model cars, boats, airplanes, and helicopters from a hand-held radio transmitter. Industrial, military, and scientific research organisations make use of radio-controlled vehicles as well.

Near-Field Communication (NFC)

a short-range, high frequency, wireless communication technology which enables the exchange of data between devices over an about 10 cm distance. It operates at 13.56 MHz and transfers data at up to 424 kbit/s.

Pager

a pager is a simple personal telecommunications device for short messages. A one-way numeric pager can only receive a message consisting of a few digits, typically a phone number that the user is then expected to call. Alphanumeric pagers are also available, and two-way ones can send email or text messages as well as receive them.

Port Station

a coast station in the port operations service.

Public Service

services to be received by the general public (audio, video and data transmissions). The definition includes presentations transmitted in encoded form or receivable for a special payment.

Radio Astronomy Service

a service involving the use of radio astronomy.

Radio Determination Service

a radio communication service for the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to those parameters, by means of the propagation properties of radio waves.

Radio Navigation Service

a radio determination service for the purpose of navigation, including obstruction warning.

Radio Navigation-Satellite Service

a radio determination-satellite service for the purpose of radio navigation.

Radio Service

a service involving the transmission, emission and/or reception of radio waves to specific telecommunication purposes.

Radiocommunication Service

a service involving the transmission, emission and/or reception of radio waves for specific telecommunication purposes. Unless otherwise stated, any radiocommunication service relates to terrestrial radiocommunication.

Radiodetermination-Satellite Service

a radiocommunication service for the purpose of radiodetermination involving the use of one or more space stations. This service may also include feeder links necessary for its own operation.

Radiolocation Service

a radiodetermination service for the purpose of radiolocation.

Radiolocation-Satellite Service

a radiodetermination-satellite service used for the purpose of radiolocation. This service may also include the feeder links necessary for its operation.

RFID

an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders.

An RFID tag is an object that can be applied to or incorporated into a product, animal, or person for the purpose of identification using radio waves. Some tags can be read from several meters away and beyond the line of sight of the reader.

RLAN

an apparatus/method for routing data in a radio data communication system having one or more host computers, one or more intermediate base stations, and one or more RF terminals. It organises the intermediate base stations into an optimal spanning-tree network to control the routing of data to and from the RF terminals and the host computer efficiently and dynamically. Communication between the host computer and the RF terminals is achieved by using the network of intermediate base stations to transmit the data.

Safety Service

a radiocommunication service used permanently or temporarily for the safeguarding of human life and property.

Ship Station

a mobile station in the maritime mobile service located on board a vessel which is not permanently moored, other than a survival craft station.

Short Range Radar

typically, such applications are found in the road traffic field, either from fixed stations to control velocity of land vehicles or from vehicles to check the distance to obstacles (fixed or moving).

Space Operation Service

a radio communication service concerned exclusively with the operation of space craft, in particular space tracking, space telemetry and space telecomm and…..

Space Research Service

a radiocommunication service in which spacecraft or other objects in space are used for scientific or technological research purposes.

Special Service

a radiocommunication service, not otherwise defined, carried on exclusively for specific needs of general utility, and not open to public correspondence.

Standard Frequency and Time Signal Service

a radiocommunication service for scientific, technical and other purposes, providing the transmission of specified frequencies, time signals, or both, of stated high precision, intended for general reception.

Standard Frequency and Time Signal-Satellite Service

a radiocommunication service using space stations on earth satellites for the same purpose as those of standard frequency and time signal service. This service may also include feeder links necessary for its operation.

UMTS

UMTS, the third generation (3G) of cellular networks combines several air interfaces, GSM's Mobile Application Part (MAP) core, and the GSM family of speech codecs. In the most popular cellular mobile telephone variant of UMTS, W-CDMA is currently used.

UMTS over W-CDMA uses a pair of 5 MHz channels. The specific frequency bands originally defined by the UMTS standard are 1,885 – 2,025 MHz for the mobile-to-base (uplink) and 2,110 – 2,200 MHz for the base-to-mobile (downlink).

A major difference between UMTS and GSM is the air interface forming GSM/EDGE Radio Access Network (GeRAN). It can be connected to various backbone networks like the Internet, ISDN, GSM or to a UMTS network. GeRAN includes the three lowest layers of the OSI model. The network layer (OSI 3)

protocols form the Radio Resource Management protocol (RRM). They manage the bearer channels between the mobile terminals and the fixed network including the handovers.

UMTS-TDD

a mobile data network standard built upon the UMTS 3G cellular phone standard, using a TD-CDMA or TD-SCDMA or other 3 GPP approved air interface which uses time division multiplexing to duplex spectrum between the uplink and the downlink.

WAS

an end-user radio connection to public or private core networks. Technologies in use today for implementing wireless access include cellular, cordless telecommunication, and wireless local area network systems.

Fifth: a new category shall be added to Table 68 of Article (8) Clause (8-6-3-2) as follows:

Commercial Coastal fishing boats and ships (maximum load capacity (50 tons) and maximum length of 30meters.	100 OMR

Six: Two new Clauses numbered (9-7 &9-8) shall be added to Article 9 of the said regulation as follows:

9-7 Space Diversity:

50 % of fees calculated for main equipment.

9-8 Other equipment & station not included in this Regulations.

- **Registration Fee**

  The following registration fee shall be applicable:

Registration Fee = Weighting Factor * OMR 4 * No. Of Locations (OMR 20 for int. co-ord.)

Table 113 – Other Equipment and Stations not Included in the Regulation, Registration Fee

In this formula, the Weighting Factor is determined as per tables 3 & 4.

- **Utilisation Fee**

  The following annual utilisation fee shall be applicable:

Utilisation Fee = Basic Fee * Weighting Factor

Table 114 – Other Equipment and Stations not Included in the Regulation, Utilisation Fee

In this formula, the Basic Fee and Weighting Factor are determined as per tables 2, 3 & 4.

Seventh: 4 new Annexes shall be added to the above mentioned Regulations as follows:

Annex I. Technical Specifications of the Operation of Ku-Band Aircraft Earth Stations (AES) On Board Aircrafts

1. Aircraft Earth Stations are allowed to operate in Ku-Band on board aircrafts in the uplink Band (14-14.5 GHz) Earth-to-Space, provided that:

    - Aircraft Earth Stations are operated via recognized satellites that provide Fixed Satellite Services (FSS) and Aeronautical Mobile Satellite Services (AMSS) and that have successfully finalized coordination and notification procedures pursuant to the procedures followed in ITU Radio Regulations.
    - The technical and operational requirements of (AES) contained in ITU recommendation (ITU-R M. 1643) are complied with.
    - The (AES) is in compliance with the requirements of European Telecommunication Standards No. (ETSI EN 302 186).
    - (AES) are operated at a height not less than 3000 m above sea level.
    - The operation of (AES) is on a secondary basis.
    - The radiated power does not exceed 50 dB.
    - Foreign (AES) are allowed if they have a valid license issued by the registering countries.
    - An annual usage fee is imposed on aircrafts registered under the Omani flag.
    - Downlink Band (10.7-12.75) Space–to-Earth shall be on the basis of non-protection and non-interference to other protected services.

2. The same fees approved for the provision of GSM services on board aircrafts using GSM-1800 Band shall be applicable, where a registration fee of one thousand Omani Rials (1000) is imposed on the service provider, an annual usage fee of hundred Omani Rials (100) is applicable on aircrafts with (AES) located on board that are registered under the Omani flag.

Annex J. The technical specifications to operate PMR 446

PMR that are not reprogrammable operating in the band 446 – 446.2 MHz shall be exempted from radio licensing on condition that the conditions, specifications and standards listed in table 129 are met. Users of these systems shall avoid harmful interference with other users and shall not be entitled to protection from this interference.

Requirement	Analogue PMR 446	Digital PMR 446	Remark
Operational Frequency band, MHz	446.0-446.1	446.1-446.2	
Channel spacing, kHz	12.5	12.5 or 6.25	
Lowest carrier/center frequency, MHz	446.00625	$446.1 - \frac{channel\ spacing}{2}$	
Effective radiated power, mW	≤ 500	≤ 500	
Standard to comply with	ETS 300 296	EN 300 113-2 or EN 301 166-2	Or equivalent technical specifications
Maximum transmitter time/out time	-	180 seconds	
Individual radio license	Not required	Not required	
Type approval	Required	Required	
Protection from interferences	Not offered	Not offered	
Operation in border areas	Not allowed in distances less than 20 km		
Design	hand portable , and with integral antennas only		

Table 129 - Technical and Regulatory Requirements for PMR 446

Annex K: List of the systems of safety of life services and associated frequency bands

Safety of Life systems/services	Brief definition of service	Frequency Band or channel
Navigational Telex (NAVTEX)	Navigational Telex is an international automated medium frequency direct-printing service for delivery of navigational and meteorological warnings and forecasts, as well as urgent marine safety information to ships.	518 kHz - the main NAVTEX channel 490 kHz - used for broadcasts in local languages (ie: non-English) 4209.5 kHz - allocated for NAVTEX broadcasts in tropical areas - not widely used at the moment.
Automatic Identification System (AIS)	The Automatic Identification System (AIS) is an automated tracking system used on ships and by Vessel Traffic Services (VTS) for identifying and locating vessels by electronically exchanging data with other nearby ships and VTS stations.	161.975 MHz 162.025 MHz
Distress Radio Beacons	Distress radio beacons are tracking transmitters which aid in the detection and location of boats, aircraft, and people in distress. Strictly, they are radiobeacons that interface with worldwide offered service of Cospas-Sarsat which is an international satellite system for search and rescue (SAR). There are three types of distress radio beacons compatible with the Cospas-Sarsat system: • EPIRBs (emergency position-indicating radio beacons) signal maritime distress. • ELTs (emergency locator transmitters) signal aircraft distress.	121.45 MHz-121.55 MHz 243 MHz 406 MHz-406.1 MHz

Safety of Life systems/services	Brief definition of service	Frequency Band or channel
	• PLBs (personal locator beacons) are for personal use and are intended to indicate a person in distress who is away from normal emergency services	
Emergency Position-Indicating Radio Beacons (EPIRB)	Used for the Global Maritime Distress & Safety System (GMDSS) (Space to Earth)	1544-1545 MHz
RACON (Radar Transponder)	Racon is a radar transponder commonly used to mark maritime navigational hazards. The word is a portmanteau of RAdar and beaCON.	2920-3100 MHz 9200-9500 MHz
Global Maritime Distress & Safety System (GMDSS)	GMDSS frequencies for distress and safety calling using DSC techniques	2 187.5 KHz, 4 207.5 KHz, 6 312 KHz, 8 414.5 KHz, 12 577 KHz, 16 804.5 KHz and 156.525 MHz
	GMDSS frequencies for distress and safety traffic by NBDP telegraphy	2 174.5 KHz, 4 177.5 KHz, 6 268 KHz, 8 376.5 KHz, 12 520 KHz and 16 695 KHz
	GMDSS frequencies for distress and safety traffic by radiotelephony	2 182 KHz, 4 125 KHz, 6 215 KHz, 8 291 KHz, 12 290 KHz, 16 420 KHz and 156.8 MHz
Search and Rescue (SAR) Operations	International frequencies for search and rescue operations	2 182 KHz, 3 023 KHz, 5 680 KHz, 8 364 KHz, 10 003 KHz, 14 993 KHz, 19 993 KHz, 121.5 MHz, 123.1 MHz, 156.3 MHz, 156.8 MHz, 161.975 MHz, 162.025 MHz and 243 MHz

Annex L. Abbreviations

A

ADS	Automatic Dependent Surveillance (Aeronautical)
AGA	Air–Ground-Air
AIS	Universal Shipborne Automatic Identification System
ASDE	Airport Surface Detection Equipment

C

CB	Citizen's Band
CDMA	Code Division Multiple Access
CZF	Coverage Zone Factor

D

DAB	Digital Audio Broadcasting
DECT	Digital European Cordless Telecommunications
D-GPS	Differential Global Positioning System
DMB	Digital Multimedia Broadcasting
DME	Distance Measuring Equipment
DRM	Digital Radio Mondiale
DSC	Digital Selective Calling
DVB-H	Digital Video Broadcasting - Handheld
DVB-T	Digital Video Broadcasting – Terrestrial

E

EDGE	Enhanced Data rates for GSM Evolution
EIRP	Equivalent Isotropically Radiated Power
ERP	Effective Radiated Power
ESV	Earth Stations on-board Vessels
ETSI	European Telecommunications Standards Institute

F

FM	Frequency Modulation
FSS	Fixed-Satellite Service
FWA	Fixed Wireless Access

G

GHz	Giga Hertz
GMDSS	Global Maritime Distress and Safety System
GMPCS	Global Mobile Personal Communications Systems via Satellite
GSM	Global System for Mobile Communications

H

HAPS	High Altitude Platform Station

I

IFF	Identification Friend or Foe

IMT-2000	International Mobile Telecommunications-2000
INMARSAT	International Marine/Maritime Satellite (organisation)
ISM	Industrial, Scientific and Medical
ITU	International Telecommunications Union
J	
JTIDS	Joint Tactical Information and Distribution System
K	
kHz	Kilo Hertz
kW	Kilowatt
L	
LPD	Low Power Devices
M	
m	Meter
MHz	Mega Hertz
MIDS	Multifunctional Information Distribution System
MLS	Microwave Landing System
MSS	Mobile-Satellite Service
mW	Milliwatt
MW	Megawatt
MWS	Multimedia Wireless System
N	
n/a	not applicable
NAVTEX	Narrow-band direct-printing telegraphy system for transmission of navigational and meteorological warnings and urgent information to ships
NBDP	Narrowband Direct Printing
O	
OMR	Omani Rial
P	
P	Power
PAMR	Public Access Mobile Radio
PMR	Private (Professional) Mobile Radio
R	
RDBN	Radiolocation System for Short Range Navigation
RF	Radio Frequency
RFID	Radio Frequency Identification
S	
SAB	Service Ancillary to Broadcasting
SAP	Service Ancillary to Programme making
SAR	Synthetic Aperture Radar
SIT/SUT	Satellite Interactive Terminal / Satellite User Terminal
SNG	Satellite News Gathering
SRDs	Short Range Devices

SRR	Short Range Radar
SSR	Secondary Surveillance Radar
SW	Short Wave

T

TACAN	Tactical Air Navigation
TRA	Telecommunications Regulatory Authority
TV	Television

U

UMTS	Universal Mobile Telecommunications System

V

VLBI	Very Long Baseline Interferometry
VOR	VHF Omnidirectional Radio Range
VSAT	Very Small Aperture Terminal

W

W	Watt
WLAN	Wireless Local Area Network