Decision No. 62/2016

Amending Some Provisions of the Regulation Organizing the Registration and Utilization of - Frequencies and Radio Equipment and their Pricing issued by Decision No. 133/2008 and amending some provisions of the regulation attached to this decision.

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 Decision No.144/2008; and
The Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing issued by Decision No. 133/2008; and
The approval of TRA Board; and
The approval of Ministry of Finance; and
Based on the exigencies of the public interest;

It is decided:

Article 1: Article (8) of TRA Decision No 133/2008 issuing Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing, shall be replaced with the following text:

Article (8) A One-month grace period starting from the license expiry date shall be granted for payment of the prescribed fees for renewal of the radio license. In case of delay of fees payments, the penalty set out in Article (7) of 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 of fees and penalties is made during this period, the radio license will be revoked and legal action stipulated in Article (51) Repeated of the Telecom Act will be taken.

Article 2: The enclosed amendments shall apply to some of the Provisions of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to.

Article 3: All that is contradicting or conflicting with the provisions of this Decision or the attached amendments is hereby repealed.

Article 4: This Decision shall be published in the Gazette and shall become operative from the date following its publication, with the exception of Articles (5,6,7,9,10,11,12,14 &25) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to which shall become operative on 1st January 2017.

Issued on: 25 Thu Al-Heja 1437 H.
Corresponding to: 27 September 2016

Mohammed bin Hamed AL Rumhi
Board Chairman, Telecommunications Regulatory Authority

Amendments to some Provisions of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing

Article (1): Both definitions (Number of Locations) & (Bandwidth) mentioned in Article (1) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to, shall be replaced with the following:

- **Number of Locations:** The number of locations is to be determined as follows:

  1- In case of fixed stations, "number of locations" is the total number of fixed stations at different sites (geographical locations).
  2- In case of mobile stations, "number of locations" refers to the number of Wilayats where the mobile stations are licensed to be operated. A list of the Wilayats can be found in Annex A.
  3- In case of fixed stations with wide coverage, VSAT and PMR – Allotment – number of locations shall be the number of Governorates covered within the license area.

- **Bandwidth:** is defined as the difference in kHz or MHz between the uppermost and lowermost frequencies of a band of an electromagnetic emission.

Article (2): The first paragraph of clause (2-4 Spectrum Utilization Fee) of Article 2 of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to, shall be replaced with the following:

- Spectrum Utilization Fee to be paid in advance for the license duration.

Article (3): Article 7 of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to, shall be replaced with the following:

Article (7): In case of non-renewal of the license or payment delay on renewal fees or any other fees, a penalty of 5% per month is applicable and it is calculated up to twelve months i.e. 60% from the total due amount of the fees and after that the license will be cancelled, and any of the legal actions stipulated in Article (51) Repeated of the Telecom Act will be taken.

Article (4): Table No. (39: Utilization Fees of Satellite Service Hub) , stipulated in Article (8) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to , shall be replaced with the following table:

Utilization Fee/year = OMR 4,500(Four Thousands Five Hundred Omani Riyals)* (total bandwidth (Tx +Rx))/2 in MHz, frequency band 6/4 GHz)
Utilization Fee/year = OMR 3,000 (Three Thousands Omani Riyals) * (total bandwidth (Tx +Rx))/2 in MHz, frequency band 14/11 GHz)

Table 39: Satellite Service – Hub, Utilization Fee

Article (5): Table No. (46 : GSM Service, Registration Fee per 2 x 200 kHz) , stipulated in Article (8) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to , shall be replaced with the following table:

Registration Fee = Number of Channels * Coverage Factor * OMR 4,000 (Four Thousands Omani Riyals)

Table 46: GSM Service, Registration Fee per 2 x 200 kHz

Article (6): Table No. (47: GSM Service, Utilization Fee per 2 x 200 kHz), stipulated in Article (8) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to , shall be replaced with the following table:

Utilization Fee = Number of Channels * Coverage Factor * OMR 4,000 (Four Thousands Omani Riyals)

Table 47: GSM Service, Utilization Fee per 2 x 200 kHz

Article (7): Table No. (48: GSM, Coverage Factor), stipulated in Article (8) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to, shall be replaced with the following table:

Coverage	**Coverage Factor**
Three Governorates or less	(0.30) per Governorate
Four Governorates or more	1,00

Table 48: GSM, Coverage Factor

Article (8): The paragraph above table No. (49) registration fee of Mobile Communications On-board Aircraft (MCA) Service, stipulated in Article (8) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to, shall be replaced with the following text:

The registration fee for MCA service providers shall be applicable in accordance with the following formula:

Article (9): Table No. (51: Registration Fee of International Mobile Telecommunications (IMT)), stipulated in Article (8) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to, & its above text shall be replaced with the following table:

The following registration fee for IMT services shall be applicable:

Registration Fee = Total Bandwidth (MHz) * Coverage Factor * OMR 4,000 (Four Thousands Omani Riyals)

Table 51: IMT Services, Registration Fee

Article (10): Table No. (52 : Utilization Fee of International Mobile Telecommunications (IMT)) , stipulated in Article (8) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to , & its above text shall be replaced with the following table:

The following annual utilization fee for IMT services shall be applicable:

Utilization Fee = Total Bandwidth (MHz) * Coverage Factor * OMR 10,000 (Ten Thousands Omani Riyals)

Table 52: IMT Services Utilization Fee

Article (11): Table No. (53 : IMT Services- Coverage Factor), stipulated in Article (8) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to , shall be replaced with the following table:

Coverage	Coverage Factor
Three Governorates or less	(0.30) per Governorate
Four Governorates or more	1,00

Table 53: IMT Services, Coverage Factor

Article (12): Clause No (8-6-2-7: Wireless Broadband Services) , stipulated in Article (8) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to , shall be replaced with the following:

(8-6-2-7: Wireless Broadband Services)

Registration Fee

The following registration fee for wireless broadband services shall be applicable:

Registration Fee = Total Bandwidth (MHz) * Coverage Factor * OMR 4,000 (Four Thousands Omani Riyals)

Table 62: Wireless Broadband Service, Registration Fee

Utilization Fee

The following utilization fee for wireless broadband services shall be applicable:

Utilization Fee = [Total Bandwidth (MHz) / (2 * 5 MHz)] * Coverage Factor * OMR 10,000 (Ten Thousands Omani Riyals)

Table 63: Wireless Broadband Service, Utilization Fee

In this formula, the coverage factor is determinedas follows:

Coverage	**Coverage Factor**
Three Governorates or less	(0.30) per Governorate
Four Governorates or more	1,00
Universal Service Obligations (USO) Area	0,10

Article (13): The first paragraph of Clause (9-3 Handling of Standby Equipment) of Article 9 of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to , shall be replaced with the following:

The radio license may include, in addition to the operational equipment, One (1) standby equipment without extra charge; provided that the standby equipment is with identical technical specifications and shall be located at the same geographical location of the operational equipment for all radio services.

Hub Stations in Satellite Services shall not be subject to those two conditions.

The licensee shall not transmit any signals from the standby equipment included in the license unless the operational equipment malfunctions.

Article (14): In Annex (A. Population Density), the word **"**low**"** next to the Wilayat of Liwa in Al-Batinah North Governorate of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to , shall be replaced with the word "high".

Article (15): Annex (C) Fee and License-exempted Radio Services and Equipment of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to, shall be replaced with the following Annex:

Annex (C): Fee and License-exempted Radio Services and Equipment

- Use of IMT, 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 and attached in Annex (K) of this Regulation.
- WAS/RLANs (defined in the Annex F) after meeting the conditions, specifications and technical standards listed in the aforesaid 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.
  - The use of (WAS/RLANs) systems operating in the bands indicated in this clause that do not meet the conditions

listed in annex F is subject to licensing fees according to Chapter 8.4.1

- 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.

- Fee and License-exempted Radio Services and Equipment shall be on a non-interference, non-protection basis.

Article (16): Annex (D) Short Range Devices (SRD), Frequency Ranges and Power Limitations of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to , shall be replaced with the following Annex:

Annex (D) Short Range Devices, Frequency Ranges and Power Limitations

SRDs may be fixed, mobile or portable stations which have a radio frequency output connector and dedicated antenna or an integral antenna. Applications include tele-command, alarms, data communication, detection of avalanche victims, meter reading, asset tracking, hearing aids, movement detection and alert, remote controls, inductive systems, and many other applications. These devices may employ different types of modulation and may have speech application.

- SRDs shall be designed to meet the following basic objectives:

- The device is intended to operate in unprotected and shared frequency bands. Its operation shall not cause interference with other authorized radio-communication services, and be able to tolerate any interference caused by other radio-communication services, electrical or electronic equipment.
- The device shall not be constructed with any external or readily accessible control which permits the adjustment of its operation in a manner that is inconsistent with these Requirements.
- The device shall be marked with the supplier/manufacturer's name or identification mark, and the supplier/manufacturer's model or type reference. The markings shall be legible, indelible and readily visible.

- Regulatory Requirements
  - All SRDs that are intended to be manufactured and/or imported shall be type approved by the Telecommunications Regulatory Authority (TRA) of the Sultanate of Oman before they are placed on the Omani market.
  - The operation of SRDs that meet these requirements and are appropriately type approved are exempted from individual licensing if other conditions are not stated hereinafter.
  - Local companies selling, manufacturing and/or importing SRDs are requested to register with TRA as dealers of telecommunications equipment.

- Type-Approval Requirements

  Along with application for type approval, the applicant shall present the documents that provide the full technical specifications of the equipment and the documents that prove its conformity to the technical standards adopted (or required) in the Sultanate like ETSI and IEC standards or alternative

national standards. These documents shall be obtained from accredited bodies and may include, but not limited to:

- EMC, Safety, RF and Specific Absorption Rate (SAR) conformity test reports.
- Manufacturer’s Declaration of Conformity
- Certificates of Conformity.
- Equipment Technical Specifications

Further details regarding frequency ranges, radiated power and typical applications are provided in the table below.

No.	Authorized Frequency bands / Frequencies	Power /Magnetic Field	Channel Spacing	Duty Cycle (%)	Examples of SRD Applications	Remarks
1	13.553-13.567 MHz	**42 dBµA/m at 10m**	no channel spacing – the whole stated frequency band may be used	no duty cycle restriction	Non-specific Short Range Devices[1] (Telemetry, Telecommand, Alarms and Data in general and other similar applications)	
1.1	26.957-27.283 MHz	**42 dBµA/m at 10 metres or 10 mW ERP**				
2	40.660-40.700 MHz	**10 mW ERP**				
3	433.050-434.790 MHz (note 3)	**10 mW ERP**		below 10 %		Applications providing audio should be excluded. See Note 4 for voice applications
4	433.050-434.790 MHz (note 4)	**1 mW ERP -13** dBm/10 kHz for wide band channels[2]		no duty cycle restriction		
5	434.040-434.790 MHz (Note 4)	**10 mW ERP**	up to 25 kHz			
6	868.0 – 868.6 MHz (note 3)	**25 mW ERP**	no spacing, for 1 or more channels (note 2)	below 1 % or LBT (note 1)		Narrow/ wide-band modulation No channel spacing, however the whole stated frequency band may be used
7	868.7-869.2 MHz (note 3)	**25 mW ERP**		below 1 % or LBT (note 1)		
8	869.4-869.65 MHz (note 3)	**500 mW ERP**	25 kHz[3]	below 10% or LBT (note 1)		Narrow/ wide-band modulation The whole stated frequency band may be used as 1 channel for high speed data transmission
9	869.7-870 MHz (Note 4)	**5 mW ERP**	no channel spacing, for 1 or more channels)			Narrow/ wide-band modulation no channel spacing – the whole stated frequency band may be used
9.1	863-870 MHz (Note 3 and 6)	**25 mW ERP**	≥100 kHz, for 47 or more channels (note 2)	below 10% or LBT (note 1 and 5)		FHSS modulation
		25 mW ERP note 6)		below 10% or LBT (note 1, 5		DSSS and other wideband

[1] Video applications should only be used above 2.4 GHz

[2] For the purpose of this Technical Specification wideband channels are those with a bandwidth greater than 250khz.

[3] The center frequency of the first channel is at a distance of channel spacing/2 from the lower frequency band edge.

		Power density: -4.5 dBm/100 kHz (note 7)		and 6)		modulation other than FHSS
		25 mW ERP	≥100 kHz, for 1 or more channels (note 2)	below 10% or LBT (note 1 and 5)		Narrow/ wide-band modulation
9.2	2400-2483.5 MHz	**10 mW ERP**				
9.3	5725-5875 MHz	**25 mW ERP**				
10	457 kHz	**7 dBµA/m at 10m**	continuous wave (CW) – no modulation	no duty cycle restriction	Detection of avalanche victims	
11	169.4-169.475 MHz	**500 mW ERP**	12.5 kHz, 25 kHz, Max 50 kHz	below 10 %	Meter reading	
				below 1 %	Asset Tracking and Tracing Systems	
12	169.4875-169.5875 MHz	**10 mW ERP**	12.5 kHz, 25 kHz, Max 50 kHz	no duty cycle restriction	Aids for hearing impairment	
13	2400-2483.5 MHz	**25 mW EIRP**	no channel spacing – the whole stated frequency band may be used	no duty cycle restriction	Radio Determination Applications (Movement Detection and Alert)	
14	169.481250 MHz, 169.593750 MHz	**10 mW ERP**	12.5 kHz	below 1 %	Alarm systems, social alarms, alarms for security and safety	
15	868.6-868.7MHz		25 kHz[4] or the whole frequency band may also be used as one channel for high speed data	below 0.1%		

[4] The center frequency of the first channel is at a distance of channel spacing/2 from the lower frequency band edge.

			transmission			
16	869.250-869.3MHz					
17	869.650-869.7MHz	**25 mW ERP**		below 10 %		
17.1	869.2-869.25MHz	**10 mW ERP**	25 kHz[4]	below 0.1%		Social alarms
17.2	869.3-869.4MHz			below 1 %		
18	26.995, 27.045, 27.095, 27.145, 27.195 MHz	**100 mW ERP**	10 kHz[4]	no duty cycle restriction	Model control (control movement of this model on air, on the ground, over and underwater)	
19	34.995-35.225 MHz					only for flying models
20	40.665, 40.675, 40.685, 40.695 MHz					
21	9 – 59.750 kHz	**72 dBµA/m at 10 metres** 5 (at 30 kHz descending 3 dB/oct)	no channel spacing – the whole stated frequency band may be used	no duty cycle restriction	Inductive applications	in case of external antennas only loop coil antennas shall be employed
22	59.750 – 60.250 kHz	**42 dBµA/m at 10 metres**				
23	60.250 – 70 kHz	72 dBµA/m at 10 metres[5]				

[5] In the case of loop antennas (integral or dedicated) with an area between 0.05 m2 and 0.16 m2, field strength is reduced by 10 * log (area/0.16 m2); for an antenna area less than 0.05 m2 field strength is reduced by 10 dB.

		(at 30 kHz descending 3 dB/oct)				
24	70 – 119 kHz	**42 dBµA/m at 10 metres**				
25	119 – 135 kHz	72 dBµA/m at 10 metres[5] (at 30 kHz descending 3 dB/oct)				
26	7400 – 8800 kHz	**9 dBµA/m at 10 metres**				
27	26.957 – 27.283 MHz	**42 dBµA/m at 10 metres**				
27.1	10.2-11 MHz	**9 dBµA/m at 10 metres**				
27.2	3155 – 3400 MHz	**13.5 dBµA/m at 10m**	no channel spacing.	no duty cycle restriction	Radio communication systems for persons with impaired hearing aid devices and more generally SRD's/Inductive systems.	in case of external antennas only loop coil antennas shall be employed
27.3	148.5-5 MHz	-15 dBµA/m at 10m	no channel spacing.	no duty cycle restriction	Inductive applications	in case of external antennas only loop coil antennas may beemployed. Maximum field strength is set at 10 KHz bandwidth. The maximum allowed total field strength is -5 dBµA/m at 10 m for systems operating on a bandwidth larger than 10 KHz whilst keeping the density limit (-15 dBµA/m)at 10 KHz bandwidth .
27.4	5 - 30 MHz	-20 dBµA/m at 10m	no channel spacing.	no duty cycle restriction	Inductive applications	in case of external antennas only loop

						coil antennas may be employed. Maximum field strength is set at 10 KHz bandwidth. The maximum allowed total field strength is -5 dBµA/m at 10 m for systems operating on a bandwidth larger than 10 KHz whilst keeping the density limit (-20 dBµA/m)at 10 KHz bandwidth.
28	863-865 MHz	**10 mW ERP**	no channel spacing – the whole stated frequency band may be used.[7]	no duty cycle restriction	Wireless Audio Applications	There shall be no transmission of an RF carrier in the absence of an audio input
29	87.5-108 MHz (note 10)	**50 nW ERP**	200 kHz			
29.1	470-694 MHz)	**50 mW ERP**	no channel spacing.	no duty cycle restriction		Radio microphones and Assistive Listening Devices
30	865-868 MHz	**20 µW ERP** (note 8)	200 kHz	LBT, max. Period of continuous transmission on channel is 4 seconds.	Radio Frequency Identification (RFID) Applications (e.g. automatic article identification, asset tracking, alarms systems, waste management, personal identification, access control, proximity sensors, anti-theft systems, location systems, data transfer to handheld devices and wireless control systems etc.))	RFID tags may respond on any channel within the band Interrogators are not required to use LBT in the 4 high power channels
30.1	13.553-13.567 MHz	**42 dBµA/m at 10 metres**	no channel spacing.	no duty cycle restriction		For inductive applications
30.2	13.553-13.567 MHz	**60 dBµA/m at 10 metres**	no channel spacing.	no duty cycle restriction		For RFID and EAS only
31	2446-2454 MHz (note 9)	**≥500 mW EIRP**	no channel spacing.	No requirement		
		>(500mW-4 W) EIRP		≥15% duty cycle FHSS technology must be used		Power levels above 500 mW are restricted to use inside the boundaries of a building and the duty cycle of all

[7] In the case of analogue systems the maximum occupied bandwidth shall not exceed 300 kHz.

						transmissions shall in this case be ≥15% in any 200 ms period (30 ms on /170 ms off)
31.1	76-77 GHz	55 dBm EIRP peak	no channel spacing.	no duty cycle restriction	Road Transport and Traffic Telematics (RTTT) Applications to detect obstructions/ cars through radar sensors.	50 dBm average power or 23.5 dBm average power for pulse radar only. Long Range Radars sensors to control vehicles.
32	77-81 GHz	(note 11)	(note 11)		Road Transport and Traffic Telematics (RTTT)	Short Range Radars (SRD)
32.1	27.090-27.100 MHz	**42 dBµA/m at 10 metres**	no channel spacing.	no duty cycle restriction	Telemetry of information and data from train to ground (Down-link Balise)	Center frequency 27.095 MHz
32.2	4059 – 4409 KHz	**9 dBµA/m at 10 metres**	no channel spacing.	≥10 % duty cycle	Telemetry of information and data from ground to train (Up-link Balise)	Center frequency 4234 KHz
33	9 – 315 KHz	30 dBµA/m at 10m	no channel spacing.	≥10 % duty cycle	Medical Implants	Application for Ultra Low Power Active Medical Implant systems using inductive loop techniques for telemetry purposes.
33.1	2483.5-2500 MHz	10 dBm e.i.r.p	1 MHz	≥10 % duty cycle Application for Listen Before Talk (LBT) / Frequency Agility (AFA) technology	Medical Implants	Indoor use only
33.2	402 - 405 MHz	**25 µW ERP**	25 KHz[4] or individual transmitters may combine adjacent channels for an	no duty cycle restriction	Medical Implants	

			increased bandwidth of up to 300 kHz.			

Table 124: SRD, Frequency Ranges, Radiated Power and Typical Applications

Note 1: For frequency agile devices the duty cycle limit applies to the total transmission unless LBT is used. For LBT devices without frequency agility, the duty cycle limit applies.

Note 2: The preferred channel spacing is 100 kHz allowing for a subdivision into 50 kHz or 25 kHz.

Note 3: The duty cycle, LBT or equivalent technique shall not be user dependent and shall therefore be guaranteed by appropriate technical means.

Note 4: Audio applications should be excluded. Voice applications allowed with spectrum access technique such as LBT or equivalent technique, the transmitter shall include a power output sensor controlling the transmitter to a maximum transmit period of 1 minute.

Note 5: Duty cycle may be increased to 1% if the band is limited to 865-868 MHz.

Note 6: For other wide-band modulation than FHSS and DSSS with a bandwidth of 200 kHz to 3 MHz, duty cycle can be increased to 1% if the band is limited to 865-868 MHz and power to ≥10 mW e.r.p.

Note 7: The power density can be increased to +6.2 dBm/100 kHz and +0.8 dBm/100 kHz, if the band of operation is limited to 865-868 MHz and 865-870 MHz respectively.

Note 8: Maximum radiated power is 2 W ERP in four high power channels (4, 7, 10 and 13) (865.7, 866.3, 866.9 and 867.5) MHz

respectively. Channel center frequencies are 864.9 MHz + (0.2 MHz * channel number)

Note 9: Frequency Hopping Spread Spectrum (FHSS) techniques should be used as means of mitigation when more than 500 mW EIRP is used.

Note 10: Systems should be designed so that when not in use there should be no transmission of an RF carrier. When audio signals are not present, apparatus must employ a transmission time out facility. Pilot tones that ensure continuity of transmission are not permitted. The user interface of SRD shall permit as a minimum the selection of any and all possible frequencies within the 88.1 MHz to 107.9 MHz and as a maximum 87.6 MHz to 107.9 MHz.

Note 11: Maximum mean power density of -3 dBm/MHz e.i.r.p. associated with a peak limit of 55 dBm EIRP. Maximum mean power density outside a vehicle resulting from the operation of one SRR equipment shall not exceed -9 dBm/MHz EIRP.

Article (17): Annex (E) Technical Specifications of Short Range Devices (SRD), of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to , shall be replaced with the following Annex:

Annex (E) Technical Specifications of Short Range Radar(SRR):

SRR is defined as a radio communication equipment that falls in the general category of vehicular radar systems and provides collision mitigation and traffic safety applications;

Technical specifications	Short Range Radars (SRR)
Frequency Band:	21.65-26.65 GHz
EIRP max	-41.3 dBm/MHz maximum mean power density 0 dBm/50MHz peak powerdensity
References	ECC DEC (04) 10 ETSI EN 302 288-2 and ETSI EN 302 288-1

Table 125: Ultra Wideband Component, Technical Specifications

Technical specifications	Short Range Radars (SRR)
Frequency Band:	24.05-24.25 GHz
EIRP max	20 dBm maximum peak power
Duty Cycle (%)	10% for peak emissions higher than -10 dBm EIRP
References	ECC DEC (04) 10 ETSI EN 302 288-2 and ETSI EN 302 288-1

Table 126: Narrowband Component, Technical Specifications

Operation of SRR equipment is on a non-interference and non-protected basis; Emissions within the 23.6-24 GHz band that appear 30° or greater above the horizontal plane shall be attenuated by at least 30 dB for equipment approved by TRA before 1 July 2013 for above SRR systems;

Frequency band 21.65 - 26.65 GHz may only be used in Oman for SRR systems that were type-approved by TRA before 1 July 2013; whereas frequency band 24.25 - 26.65 GHz may be used until 1 January 2018 (this reference date was extended by four years for

vehicular SRR systems to be type-approved by TRA before 1 January 2018). After this date, the 79 GHz range for new SRR systems or alternative permitted technical solutions must be used for road vehicle collision mitigationand traffic safety applications, while existing 24 GHz equipment may still operate to the end of the lifetime of the vehicles;

Any type of SRR equipment shall be type approved by the TRA.

Article (18): Annex (G) Technical Specifications of Mobile Communications Onboard Aircraft (MCA), of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to, shall be replaced with the following Annex:

Annex (G) Technical Specifications of Mobile Communications Onboard Aircraft (MCA):

1- Mobile Communications onboard Aircraft (MCA) shall fulfill the requirements of Decision Amended ECC/ DEC(06)07 of the Electronic Communications Committee (ECC) amended on 14th March 2014, particularly the following:

1.1: GSM 1800 MHz band:

- The absolute minimum height above ground for any transmission from the system in operation shall be 3,000 meters;
- Total EIRP defined outside the aircraft resulting from the base station (BTS)/network control unit (NCU) within the aircraft shall not exceed -13 dBm/channel at 3,000 m (height above ground level);
- EIRP defined outside the aircraft, resulting from the GSM mobile terminal transmitting at 0 dBm shall not exceed -3.3 dBm/channel at 3,000 m;

- The aircraft-BTS shall control the transmit power of all GSM mobile terminals, transmitting in the GSM 1800 band, to the minimum nominal value of 0 dBm at all stages of communication, including initial access;

1.2: UMTS 2100 MHz band:

- The transmit power of the UMTS terminals must not exceed -6 dBm/3.84MHz, and the maximum number of users should not exceed 20 .
- Total EIRP of the ac-UE defined outside the aircraft must not exceed 3.1 dBm/3.84 MHz at 3,000 m;

1.3: LTE 1800 MHz band:

- Total EIRP defined outside the aircraft resulting from LTE onboard base station (BTS) transmitting at 5 dBm/5 MHz, inside the aircraft shall not exceed 1 dBm/5 MHz at 3,000 m;
- Total EIRP defined outside the aircraft resulting from LTE terminals transmitting at 5 dBm/5 MHz inside the aircraft must not exceed 1.7 dBm/5MHz at 3,000 m;

2- The companies licensed shall comply with the following:

- The equipment installed in aeroplanes must not cause harmful interferences to the terrestrial services, particularly the Public Mobile Telecommunications Services.
- To meet requirements of national security by enabling the competent authorities to obtain all the information and data upon requesting traffic of calls and communications that take place within the Omani airspace when crossed by aeroplanes.

- Not to use the equipment installed in aeroplanes except above the altitude of 3000 meters above the earth's surface, and to switch them off upon landing.

Article (19): Item "F" of Annex H: Cross-Reference Index of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to, shall be replaced with the following item:

Item "F" of Annex H: **Cross-Reference Index**

Code	**Name of the Radio Communication Service**	**Class of Station Code**	**Name of the Class of Station**	**Systems/ Technologies**	**Systems Example**	**Fee as per Chapter**
F	Fixed	FX	Fixed station, i.e. station in the fixed service	MWS; Scanning telemetry; Subscriber access excluding MWS; Unplanned, uncoordinated fixed links; SAP/SAB P2P audio links; SAP/SAB P2P video links;	P2P links incl. microwave	8-4-2

				Private fixed networks; *Different* mesh systems;	P2MP including FWA systems	8-4-1
				Public fixed networks; MultiPoint-to-MultiPoint Fixed links;		8-6-2-7
				Fixed radio relay (military); Tactical radio relay		Article 2 of the Decision

Article (20): The following definitions shall be added to Article 1 of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to as follows:

- **Test Station**: A station that uses Radio Waves for purposes related to scientific and technical advancement.
- **Radar:** A radio determination system based on the comparison of reference signals with radio signals reflected, or retransmitted, from the position to be determined (RR 100.1).
- **International Mobile Telecommunications (IMT) systems**: International Mobile Telecommunications (IMT) systems are mobile systems that provide access to a wide range of telecommunication services , supported by mobile and fixed networks. IMT systems support low to high mobility applications and a wide range of data rates in accordance with user and service demands in multiple user environments. IMT also has capabilities for high quality

multimedia applications within a wide range of services and platforms, providing a significant improvement in performance and quality of service. (ITU-R M.1224-1)

- **3G Mobile Telecommunications Systems (International Mobile Telecommunications) - IMT**: A number of terrestrial radio interfaces conforming to the requirements of the IMT as per the definition of ITU, and includes the following:
  - IMT CDMA Direct Spread, developed by 3GPP partnership project.
  - IMT CDMA Multi-Carrier, developed by 3GPP2partnership project
  - IMT CDMA TDD, developed by 3GPP partnership project.
  - IMT TDMA Single-Carrier with EDGE technology, developed by 3GPP and ATIS.
  - IMT FDMA/TDMA (Digital European Cordless Telecommunications, based on European Telecommunications Standards Institute)
  - IMT OFDMA TDD WMAN, also known as mobile WiMAX and developed by Institute of Electrical and Electronics Engineers - IEEE 802-16 standards.
- **High Speed Packet data Access (HSPA):** HSPA has been an upgrade to WCDMA networks (both FDD, and TDD) used to increase packet data.
- **IMT-Advanced Systems:** Systems with enhanced peak data rates to support advanced services and applications and operate through LTE and Wireless MAN technologies.
- **Long Term Evolution (LTE):** One of the latest wireless broadband telecommunications standards that relies on Internet Protocol and uses OFDMA technology. LTE is designed to support communication that is based on data packets more effectively. This standard was developed by the Third Generation Partnership Project (3GPP) to be part of 4G standards.

Article (21): The following paragraph to be added below table 4 (Weighting Factors), stipulated in Article (3) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to:

Number of channels is determined by dividing total occupied bandwidth by the Channel Unit value corresponding to the respective frequency range in table 3 (Channel Units).

If the outcome is a value that is not listed in table 4 – Weighting Factors, it has to be rounded to the next higher number listed in the table.

Article (22): The following paragraph to be added below table 30 (Microwave Links Service, Registration Fee), stipulated in Article (8) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to:

"If the microwave link has a passive repeater, the repeater location shall be considered in the above formula".

Article (23): A new article shall be added to Article 8 of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to as follows:

8-6-2-3 Repeated: Private Mobile Radio (PMR) Service Providers

Registration Fee:

The registration fee for the PMR Service Providers shall be applicable in accordance with the following formula:

Registration Fee = Number of Channels * OMR 1500 (One Thousand Five Hundred Omani Riyal) (for every 2 x6.25 KHz)
Registration Fee = Number of Channels * OMR 3500 (Three Thousands Five Hundred Omani Riyals) (for every 2 x12.5 KHz)
Registration Fee = Number of Channels * OMR 7500 (Seven

Thousands Five Hundred Riyals) (for every 2 x25 KHz)

Table 54 Repeated: PMR Service Providers – Registration Fee

Utilization Fee:

The utilization fee for the PMR Service Providers shall be applicable in accordance with the following formula:

Utilization Fee = Number of Channels * OMR 1500 (One Thousand Five Hundred Omani Riyal) (for every 2 x6.25 KHz)
Utilization Fee = Number of Channels * OMR 3500 (Three Thousands Five Hundred Omani Riyal) (for every 2 x12.5 KHz)
Utilization Fee = Number of Channels * OMR 7500 (Seven Thousands Five Hundred Omani Riyal) (for every 2 x25 KHz)

Table 54 Repeated (1): PMR Service Providers, Utilization Fee

Article (24): The following raw shall be added to the Annex F (Technical Specifications for Wideband and Broadband Data Transmission Systems) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to as follows:

57-66 GHz	40 dBm [5] max. mean EIRP 13 dBm/ MHz max. mean EIRP density	Multiple Gigabit WAS/RLANs	Indoor use only	DAA/LBT Integral antenna	Fixed wireless point-to-point systems including (FLANE) for outdoor use are not permitted, and they shall be subject to the provisions of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing.

5: This refers to the highest power level of the transmitter power control range during the transmission burst if transmitter power control is implemented.

Article (25): Table No. (53: IMT Services- Coverage Factor) , stipulated in Article (8) of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to, shall be revoked.

Article (26): All tables after Table 112 (Receive-Only Equipment (protected Services), Utilization Fee of the Regulation Organizing the Registration and Utilization of Frequencies and Radio Equipment and their Pricing referred to) shall be numbered as follows :
(113,114,115,116,117,118,119,120,121,122,123,124,125,126 ,127,128,129 &130)