



Commission for
Communications Regulation

Pro-Forma Television Deflector Licence

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An Coimisiún um Rialáil Cumarsáide
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The Commission for Communications Regulation

WIRELESS TELEGRAPHY ACT, 1926

**PROGRAMME SERVICES DISTRIBUTION LICENCE
ISSUED PURSUANT TO THE WIRELESS TELEGRAPHY ACT,
1926**

**AND THE WIRELESS TELEGRAPHY (UHF TELEVISION
PROGRAMME RETRANSMISSION) REGULATIONS, 1999.**

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PROGRAMME RETRANSMISSION) REGULATIONS, 1999.**

The Commission, in exercise of the powers conferred on it by the Wireless Telegraphy Act, 1926 as applied by the Telecommunications (Miscellaneous Provisions) Act, 1996 and the Communications Regulations Act 2002 and in accordance with the Wireless Telegraphy (UHF Television Programme Retransmission) Regulations, 1999 hereby grants to _____ a UHF Television Programme Retransmission Licence subject to the Conditions set out hereunder.

***SIGNED ON BEHALF OF
THE COMMISSION FOR
COMMUNICATIONS
REGULATION***

DATED

Wireless Telegraphy Act, 1926

UHF TELEVISION PROGRAMME RETRANSMISSION LICENCE

1. (1) Subject to sub-paragraph (2) the licensee is authorised to keep, have possession of, maintain, work and use the retransmission stations having the characteristics set out in Part I of this licence to retransmit licensed programme services.

(2) The licensee is not licensed in respect of any area or areas where interference, of any type whatsoever, from the lawful use or operation of any apparatus for wireless telegraphy, any broadcasting station, or any television broadcasting transmitter, is caused to the reception of any of the licensed programme services retransmitted by the licensee.

2. The licensee shall be responsible for obtaining such way leave and other approvals, consents, licences, permissions and authorities as may be necessary for the installation, maintenance, work and use of a retransmission station.

3. This licence shall come into operation on the date specified in Part II and shall, unless previously surrendered by the licensee or unless or until it is revoked or renewed by the Commission, and subject to any suspension thereof, continue in force from the date specified in Part II until the 31st of December 2000 and shall then expire.

4. (1)(a) The licensee shall ensure that every retransmission station, or part thereof, shall be designed, constructed, installed, maintained, operated and used so as not to cause interference, of any type whatsoever, with any wireless telegraphy apparatus used for the purpose of any safety of life service or for any purpose on which the safety of any person or of any vessel, aircraft or vehicle may depend.

(b) If the Commission is satisfied that the licensee has failed to comply with sub-paragraph (a) and serves on the licensee a notice requiring that the use of such retransmission station, or part thereof, as may be specified in the notice, cease forthwith, or on or before such date and time as may be so specified, the licensee shall cease to use the retransmission station, or part thereof, unless and until such notice has been withdrawn by the Commission and shall otherwise take such measures (if any) as may be specified by the Commission in the notice.

(2)(a) The licensee shall ensure that every retransmission station, or part thereof, shall be designed, constructed, installed, maintained, operated and used so as not cause interference, of any type whatsoever, to the lawful use or operation of any apparatus for wireless telegraphy, any broadcasting station, any television broadcasting transmitter, any telegraphic line or any telecommunications service.

(b) If the Commission is satisfied that the licensee has failed to comply with sub-paragraph (a) and serves on the licensee a notice requiring that the use of such retransmission station, or part thereof, as may be specified in the notice cease forthwith, or on or before such date and time as may be so specified, the licensee shall cease to use the retransmission station, or part thereof, unless and until such notice has been withdrawn by the Commission and shall otherwise take such measures (if any) as may be specified by the Commission in the notice.

5. (1) Where the licensee is licensed to retransmit licensed programme services on a frequency channel or channels that are part of the reserved spectrum the Commission shall revoke the licence with respect to the reserved spectrum where he or she is satisfied that continued operation would cause interference, of any type whatsoever, with test transmissions of DTT.

(2) Where the licensee is licensed to retransmit licensed programme services on non-reserved spectrum and such retransmission causes interference of any type whatsoever with the test transmissions of DTT the Commission may suspend, revoke or vary the licence.

(3) Subject to paragraph 1(2) where the licensee is licensed to retransmit licensed programme services on non-reserved spectrum, the Commission may suspend, revoke or vary the licence where the licensee suffers interference, of any type whatsoever, from the test transmissions of DTT.

6. Nothing in this licence shall authorise the licensee to do any act which is an infringement of any copyright or other legal right.

7. The licensee shall maintain separate accounts in respect of the retransmission by him or her of licensed programme services.

8. The licensee shall comply with the technical conditions for retransmission stations set out in Part IV and with any alterations or additions thereto notified to the licensee in writing by or on behalf of the Commission.

9. The provisions of the Wireless Telegraphy (UHF Television Programme Retransmission) Regulations, 1999, and the conditions set out and referred to in the licence supersede any prior communications with the Commission regarding licensed programme services and nothing in any guidance notes or other prior communications with the Commission shall be deemed incorporated into those Regulations or into the licence.

10. In this licence -

“The Commission” means the Commission for Communications Regulation established under the Communications Regulation Act, 2002 (No. 20 of 2002)

“DTT” means Digital Terrestrial Television;

“licensed programme service” means any of the following programme services:

(a) television broadcasts (within the meaning of the Wireless Telegraphy (Television Programme Retransmission and Relay) Regulations, 1991 (S.I. No. 252 of 1991)) that originate in another Member State of the European Communities and that fall within the fields co-ordinated by Council Directive 89/552/EEC¹ of 3 October 1989 as amended by Council Directive 97/36/EEC² of 30 June 1997;

¹ O.J. No. L298 of 17 October 1989, pp. 23-30

² O.J. No. L202 of 30 July 1997, pp. 60-71

(b) a television programme service (within the meaning of the Regulations referred to in paragraph (a)) that originates in a state (other than a Member State of the European Communities) being a party to the European Convention on Transfrontier Television done at Strasbourg on the 5th day of May, 1989 and that complies with the terms of the Convention;

(c) a television programme service that originates in the State, other than a programme service to which paragraph (a) or (b) relates, authorised, for the time being, by law;

"licensee" means the holder of a licence;

“non-reserved spectrum” means those frequency channels that are not part of the reserved spectrum;

“reserved spectrum” means those frequency channels which are currently used to broadcast national analogue services and reserved for DTT and/or the further rollout of national analogue services at particular locations and with particular characteristics as specified in a document published periodically by the Commission;

"retransmission" means the reception by means of wireless telegraphy of a licensed programme service and the subsequent transmission in the UHF broadcasting band (470.0 – 862.0 MHz) of that programme service, and cognate words shall be construed accordingly;

"UHF" means Ultra High Frequency.

Part I

Particulars of Retransmission Stations

For details see Document No [00/25](#)

Part II

Licence Commencement Date

For details see Document No [00/39](#)

Part III

Addresses for Notices

For details see Document No [00/39](#)

Part IV

CONDITIONS RELATING TO THE ESTABLISHMENT AND OPERATION OF AN ANALOGUE UHF TELEVISION RETRANSMISSION SERVICE IN THE FREQUENCY BAND 470.0 - 862.0 MHz

1 PURPOSE

This document specifies the general conditions attached to a licence issued by the Commission for Communications Regulation for the establishment and operation of UHF-TV retransmission stations in the Frequency Band 470.0 to 862.0 MHz.

2 GENERAL

- 2.1 These conditions detail the characteristics of the equipment that need to be considered for the purposes of frequency spectrum management and safety and do not include detailed equipment specifications.
- 2.2 The technical parameters specified in this document are in accordance with the values specified in the Radio Regulations (Edition 1998), by ITU-R study group 11 (television), in the Final Acts of the European Broadcasting Conference Stockholm 1961 and in the Multilateral Co-ordination Agreement of 1997.
- 2.3 The Commission does not require evidence of type approval of equipment. Instead a procedure of station certification, by a suitably qualified person, will apply.
- 2.4 These conditions specify the procedures for making an application for frequency assignment and the conditions which will apply to the operations of a licensed retransmission service.
- 2.5 The conditions specified in this document may be varied from time to time.
- 2.6 In cases of doubt regarding the interpretation of the conditions, the decision of the Commission will be final.

3 DEFINITIONS AND GLOSSARY OF TERMS

3.1 Radio Regulations

Radio Regulations, Edition of (1998), as published by the International Telecommunications Union (ITU).

3.2 Assignment (of a radio frequency or radio frequency channel):

A radio frequency or radio frequency channel for which authorisation by the Commission has been received for its use at a specified station with specified characteristics.

3.3 Stockholm 1961 Agreement

The Final Acts of the European VHF/UHF Broadcasting Conference, Stockholm 1961. An updated plan of assignments constitutes part of this agreement.

3.4 Nominal Television Channel

A radio frequency channel containing a vision modulated carrier (including a colour sub-carrier) and one or more sound modulated carriers. The standard channels and carrier frequencies are listed in Annex 1.

3.5 Offset.

The difference between the actual frequency of the vision carrier and the frequency of the vision carrier of the nominal television channel. This frequency difference is usually chosen to be a positive or negative whole number of units of one twelfth of the television horizontal line scanning frequency.

3.6 Station

One or more transmitters or receivers or a combination of transmitters and receivers, including the associated equipment, necessary at one location for carrying on a television retransmission service.

3.7 Effective Radiated Power (e.r.p.) (in a given direction)

The product of the power supplied to the antenna and its gain in a given direction relative to a half-wave dipole. For the vision carrier of the television retransmission it is the peak envelope power. For the sound carrier of the television retransmission it is the unmodulated carrier power. This is usually expressed in decibels relative to one watt (dBW).

3.8 Maximum Effective Radiated Power

The maximum effective radiated power in any direction

3.9 Effective Antenna Height (Eff. Ht.)

The height in metres above the average level of the ground between distances of 3 and 15 km from the transmitter. This is calculated for each of 36 evenly spaced radials (10 degree separation) starting from true North¹.

¹This can be calculated by the Commission using the national grid reference, consisting of one letter and six digits, for the transmitting station, provided the site height above sea level and the antenna height above ground level are supplied.

3.10 Maximum Effective Antenna Height

The maximum value in metres for the Effective Antenna Height in any one of the 36 directions referred to in section 3.7.

3.11 Omnidirectional Antenna.

An antenna having a horizontal radiation pattern with variations of 2 dB or less over 360 degrees.

3.12 ComReg

The Commission for Communications Regulation.

3.13 Commission

The Commission for Communications Regulation.

4 **TRANSMITTER CONSTRUCTION.**

4.1 General

All controls, meters, indicators and terminals shall be clearly labelled. Details of the main and any auxiliary power supply from which the equipment is intended to operate shall be clearly indicated. The equipment should be housed in one complete unit.

4.2 Controls

Controls which, when wrongly adjusted, increase the risk of causing interference or of improper functioning of the transmitter shall be immediately accessible to qualified personnel only.

4.3 Manufacturer's Identification.

The transmitter and associated equipment shall be labelled with the manufacturer's trademark, type designation and serial number. The label shall be fitted on the outside of the transmitter and associated equipment, and shall be clearly readable, non-removable and indelible.

5. **SAFETY AND WEATHER PROTECTION**

5.1 General Safety

The station and its premises must comply with the relevant statutory safety regulations.

5.2 Safety Controls

There shall be a single control to isolate power for the entire installation. If a form of auxiliary power (such as; diesel generators or an Un-interruptable Power Supply) is provided, then the same control should isolate these. The 'on' position of such a device

must be clearly indicated. Guards may be fitted to the device to prevent accidental operation.

5.3 Safety Standards

The system must comply with the following requirements:

- I.S./EN 60215 : 1990
Safety Requirements for Radio Transmitting Equipment.
- ENV50166-2
Human exposure to electromagnetic fields. High frequency (10 kHz to 300 GHz)

These standards are available from the National Standards Authority of Ireland².

5.4 Weather Protection.

All apparatus and cables exposed to weather, corrosive atmosphere or other adverse conditions shall be so constructed or protected as may be necessary to prevent danger or interference to other services arising from such exposure.

6. SITE ENGINEERING.

6.1 General

The practice of good site engineering is a necessary requirement to ensure good coverage, safety of personnel and minimum interference to other services. Careful consideration is required for other services, when operating from the same site or operating in close proximity to them.

6.2 Spurious Emissions and Transmitter Filtering

Careful consideration should be given to the levels of spurious emissions specified in Section 7.2.

7. TRANSMISSION CHARACTERISTICS.

7.1 Frequency Aspects.

The equipment shall be designed to operate on the assigned frequency in the frequency Band 470.0 to 862.0 MHz only.

The frequency tolerance shall be

- ± 500 Hz,

Except for stations of 0dBW (Vision Peak Envelope power) or less where it may be

- ± 10 kHz.

²Please note that the standard ENV 50166-2 is a European Pre standard and shall be replaced by the respective European Standard when it becomes available.

The transmit frequency shall be derived from a crystal oscillator. If use is made of a synthesiser and/or a phase locked loop system, the transmitter shall be inhibited when synchronisation is absent. The transmitter frequency adjustment control shall be accessible to qualified personnel only.

7.2 Maximum Permitted Levels of Spurious Emissions

The maximum permitted level of spurious emission for a transmitting station shall be;

- at least 40 dB below the transmitting station e.r.p. and shall not in any case exceed -46 dBW for a transmitter station e.r.p. less than or equal to 14dBW.
- at least 60dB below the transmitting station e.r.p. and shall not in any case exceed -17 dBW for transmitter station e.r.p. above 14 dBW.

7.3 Class of Emission, Bandwidth, and Modulation Standards.

7.3.1 Designation of Emission and Maximum permitted Bandwidth.

The total bandwidth of the radiated signal shall not exceed 8 MHz. The emissions shall comply with the following designations,

A) 7M25C9FNW where,

7M25	=	necessary bandwidth	=	7.25 MHz
C	=	type of modulation	=	Vestigial sideband
9	=	Modulating signal	=	Composite analogue/digital signal
F	=	Information type	=	Television (video)
N	=	Colour	=	
W	=	Combination of frequency-division and time-division multiplex	=	

B) 750KF3EGN where,

750K	=	necessary bandwidth	=	750 kHz
F	=	type of modulation	=	Frequency modulation
3	=	modulating signal	=	a single channel containing analogue information
E	=	information type	=	Sound broadcasting
G	=	Sound of broadcasting quality (monophonic)	=	
N	=	Nature of multiplex	=	None

7.3.2 Television Standard

The television standard used shall be PAL system I. or the PALPlus system.

Summary list of parameters (for PAL I only):-

Frequency spacing

Nominal radio-frequency channel bandwidth	8 MHz
Vision/Sound Carrier separation	5.9996MHz (± 0.0005 MHz)
Nearest edge of channel relative to vision carrier	-1.25MHz
Nominal width of vestigial sideband	1.25 MHz
Nominal width of main sideband	5.5 MHz

Modulation

Type and polarisation of vision modulation	C9F neg.
Type of sound modulation	F3E
Maximum frequency deviation	± 50 kHz
Pre-Emphasis for modulation	50 μ S

Levels in the radiated signal (% of peak vision carrier)

Synchronising level	100
Blanking level	76 ± 2
Difference between black level and blanking level (nominal)	0
Peak white level	20 ± 2
Ratio of vision to sound effective radiated powers	10/1 ³

7.3.3. Permitted second sound carrier for the transmission of stereo or bilingual sound.

An additional carrier at 6.552 MHz above the vision carrier for the NICAM 728 multi channel sound system as specified in ITU-R Rec. 707 is permitted.

³ In certain cases an alternative vision to sound carrier ratio may be specified by Commission

7.4 Additional Services

7.4.1. Permitted Additional Services.

The retransmission of a teletext service during the field blanking interval is permitted. The system used must conform to Teletext System B parameters described in ITU-R Rec. 653-1. Insertion reference signals may be carried on lines 17 and 330 as outlined in ITU-R Rep. 628-4. Insertion test signals for automatic monitoring of the television system may also be carried on other blank lines.

A widescreen television service may operate in the 16:9 aspect ratio using the PALPlus system as described in ITU-R BT 1197-1 ensuring compatibility with the current PAL I system.

7.5 Power and Polarisation.

For a given assignment the radio frequency power and polarisation are specified in the licensed station characteristics. The power is given in terms of the maximum effective radiated power for the vision carrier (peak envelope power) and the sound carrier (unmodulated carrier power). The effective radiated power in a given azimuth is the maximum effective radiated power (in dBW) less the radiation restriction (in dB) at the azimuth due to the antenna radiation pattern.

As the effective radiated power in a given azimuth is the sum of the transmitter output power (in dBW) and the gain of the antenna (in dB) in that azimuth, the output carrier power of the transmitter shall be adjustable so that the effective radiated power permitted for each station is not exceeded.

If the equipment is designed to operate with different levels of carrier power, the rated output power of each power level must be declared by the manufacturer and clearly labelled on the equipment.

8. OVERVIEW OF NATIONAL BAND PLAN

8.1 Frequency Channels

The UHF frequency band for broadcasting is 470 to 862 MHz. The designated television frequency channels for the UHF band are detailed in Annex 1.

Due to the phased development of UHF television broadcasting including the introduction of additional stations it is expected that the initial coverage of retransmission stations may be reduced as further broadcasting stations are introduced.

8.2 Assignment List

A list of the Assignments, which constitute the UHF plan for national television services, will be maintained by the Commission.

8.3 Planning Parameters

The planning parameters used by the Commission correspond to those recommended by the ITU-R. However the Commission cannot guarantee protection for RBL stations in a television retransmission service. A summary of these parameters is given below.

Parameter	Description	Value used
Propagation using terrain data	Wanted Signal: Unwanted Signal, Domestic: Unwanted Signal, RBL ⁴ :	50% location, 50% time 50% location, 5% time 50% location, 1% time
Quality of service	Continuous Interference: Tropospheric Interference:	Grade 4 ⁵ Grade 3 ⁶
Polarisation Discrimination	Domestic: RBL:	15 dB 20 dB
Maximum Receive antenna directivity	Domestic: RBL:	16 dB 20 dB

⁴Radio Broadcasting Link, The Commission cannot guarantee protection for such links used in television retransmission services

⁵Grade 4: Perceptible, but not annoying

⁶Grade 3: Slightly annoying

Protection Ratio	
Co-channel, continuous:	52 dB ,no offset 40 dB, 4/12 line offset
Co-channel, continuous: (PAL I interfered with by DVB-T 8 MHz)	41 dB
Co-channel, tropospheric:	45 dB, no offset 30 dB, 4/12 line offset
Co-channel, tropospheric: (PAL I interfered with by DVB-T 8 MHz)	37 dB
Lower adjacent channel	-9 dB, tropospheric 1dB, continuous
Analogue vision signal interfered with by lower adjacent channel DVB-T 8MHz	-8 dB, tropospheric -4 dB, continuous
Upper adjacent channel	-12 dB, tropospheric -2dB, continuous
Analogue vision signal interfered with by upper adjacent channel DVB-T 8MHz	-10 dB, tropospheric -6 dB, Continuous
Image channel and Local oscillator channel	-10 dB, tropospheric 0 dB, continuous

8.4 Minimum Field Strength

The minimum field strengths used in planning national services are:

- 1). +65dB ($\mu\text{V/m}$) for band IV
(470 MHz to 582 MHz)
- 2). +70dB ($\mu\text{V/m}$) for band V
(582 MHz to 862 MHz)

The above values are for 10 metres above ground level.

9. ASSIGNMENTS.

9.1 Requisite information

The Commission shall be provided with all the necessary details in support of an application for an assignment. Annex 2 contains details of the format in which such information is to be provided.

9.2 Field Strength Measurements

It may be necessary to supply the Commission with field strength measurements in connection with an interference complaint.

9.3 International Agreements

The Commission is bound by the provisions of the Radio Regulations and the Final Acts of the European VHF/UHF Broadcasting Conference, Stockholm 1961, in relation to the use of the UHF broadcasting bands. These agreements require the Commission to undertake certain co-ordination procedures when considering additions/modifications of the assignment plan.

A minimum of three months is allowed for co-ordination. However, co-ordination can not be guaranteed. An applicant for a licence should be aware of this feature and provide the Commission with all relevant information, to ensure compliance with these agreements.

10. STATION CERTIFICATION AND MAINTENANCE.

10.1 Access and Personnel

Only authorised personnel shall have access to the station equipment for the purpose of adjustment / maintenance of that equipment.

The licensee shall ensure that all authorised personnel are adequately trained for the functions they are to undertake.

10.2 Facilities for testing transmitter installation

Adequate and accurately calibrated test equipment shall be available for non radiative measurements of transmitter power, modulation characteristics and spurious emissions whilst the station is undergoing initial alignment and regular maintenance.

10.3 Certification

On commencement of operation the licensee shall inform the Commission of the date of commencement and provide certification indicating that the station is operating in accordance with the specified conditions and characteristics.

10.4 Maintenance

The station equipment and associated installations shall be so maintained as to always comply with these conditions. The licensee shall ensure that a suitably qualified person has the necessary technical training, knowledge and practical experience so as to be able to certify that the installation and maintenance of the station complies with these conditions. The licensee shall examine a station on a quarterly basis to ensure compliance and shall keep a log indicating the dates and results of these examinations.

TABLE OF CHANNEL FREQUENCIES
and
CHANNEL GROUPS

NOTE

The carrier frequencies do not include offsets.
The offsets to be used will be specified in the licence.

TABLE 1**BAND IV CHANNELS****Frequency Band 470.00 to 582.00 MHz**

Channel Number	Channel Frequencies (MHz)	Vision Carrier (MHz)	Sound Carrier (MHz)
21	470 – 478	471.25	477.25
22	478 – 486	479.25	485.25
23	486 – 494	487.25	493.25
24	494 – 502	495.25	501.25
25	502 – 510	503.25	509.25
26	510 – 518	511.25	517.25
27	518 – 526	519.25	525.25
28	526 – 534	527.25	533.25
28	534 – 542	535.25	541.25
30	542 – 550	543.25	549.25
31	550 – 558	551.25	557.25
32	558 – 566	559.25	565.25
33	566 – 574	567.25	573.25
34	574 – 582	575.25	581.25

TABLE 2**BAND V CHANNELS****Frequency Band 582.00 to 862.00**

Channel Number	Channel Frequencies (MHz)	Vision Carrier (MHz)	Sound Carrier (MHz)
35	582 - 590	583.25	589.25
36	590 - 598	591.25	597.25
37	598 - 606	599.25	605.25
38	606 - 614	607.25	613.25
39	614 - 622	615.25	621.25
40	622 - 630	623.25	629.25
41	630 - 638	631.25	637.25
42	638 - 646	639.25	645.25
43	646 - 654	647.25	653.25
44	654 - 662	655.25	661.25
45	662 - 670	663.25	669.25
46	670 - 678	671.25	677.25
47	678 - 686	679.25	685.25
48	686 - 694	687.25	693.25
49	694 - 702	695.25	701.25
50	702 - 710	703.25	709.25
51	710 - 718	711.25	717.25
52	718 - 726	719.25	725.25
53	726 - 734	727.25	733.25
54	734 - 742	735.25	741.25

TABLE 2 (continued)

BAND V CHANNELS

Channel Number	Channel Frequencies (MHz)	Vision Carrier (MHz)	Sound Carrier (MHz)
55	742 - 750	743.25	749.25
56	750 - 758	751.25	757.25
57	758 - 766	759.25	765.25
58	766 - 774	767.25	773.25
59	774 - 782	775.25	781.25
60	782 - 790	783.25	789.25
61	790 - 798	791.25	797.25
62	798 - 806	799.25	805.25
63	806 - 814	807.25	813.25
64	814 - 822	815.25	821.25
65	822 - 830	823.25	829.25
66	830 - 838	831.25	837.25
67	838 - 846	839.25	845.25
68	846 - 854	847.25	853.25
69	854 - 862	855.25	861.25

Information on Retransmission Station to accompany Application

- 1 Name of Retransmission Station: _____
- 2 Geographic Coordinates: Lat: _____ Long: _____
- 3 National Grid Reference: _____
- 4 Channel(s): _____
- 5 Offset(s)(twelfth line): _____
- 6 Frequency (MHz)

<u>Programme Services</u>	<u>Vision</u>	<u>Sound</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
- 7 Altitude of Site above sea level(m): _____
- 8 Height of Antenna above ground level (m): _____
- 9 Polarisation: _____
- 10 Maximum Effective Radiated Power (dBW): _____
- 11 Directivity of Antenna (D or ND): _____

