

FM4 TUNER

INSTRUCTION BOOK

QUAD

QUAD FM4

Tuner

INSTRUCTION BOOK

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QUAD ELECTROACOUSTICS LTD.,
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OIF45EC ISS 6

Accessories

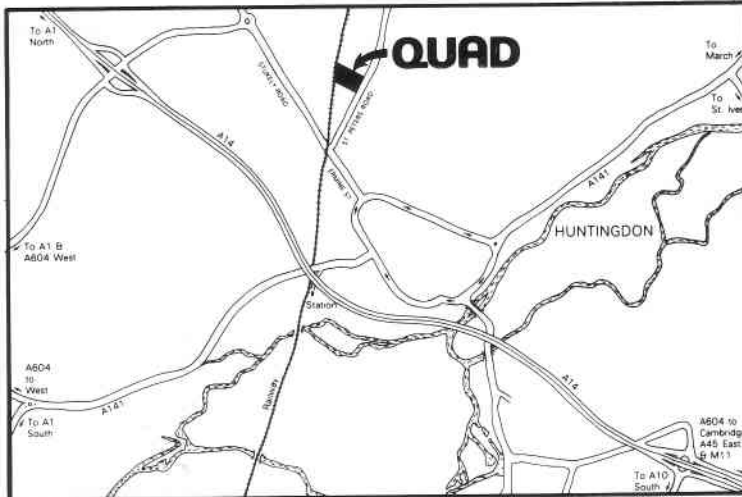
The FM4 is supplied with

1 x A.C. Lead	QSPSSA
1 x Signal Lead	QP2P2SA
1 x Aerial Connector	PPL734A

Service

If servicing is required the tuner should be returned to the supplier, the distributor for the country of purchase or to Quad Electroacoustics Ltd. A brief note should be enclosed giving your name and address and the reason for returning it.

QUAD offers same-day service from Monday to Friday except for bank holidays. The map below shows where to find us. Please call 0480 52561 to make an appointment.



IMPORTANT

THE CARDBOARD CARTON AND EXPANDED POLYSTYRENE PACK SHOULD BE RETAINED IN CASE THE UNIT HAS TO BE RETURNED TO THE MANUFACTURER OR DISTRIBUTOR FOR SERVICE.

Guarantee

This tuner is guaranteed against any defect in material and workmanship for a period of twelve months from the date of purchase.

Within this period we undertake to supply replacement parts free of charge provided that failure was not occasioned by misuse, accident or negligence. Freight and labour costs are not covered unless by local agreement.

Within the U.K. the guarantee offered with this equipment does not limit the consumer's existing statutory rights. A separate guarantee card is not supplied with your Quad unit. Your guarantee begins on the day on which you take delivery.

Circuit diagrams and service data for this Quad product are available from the manufacturer or distributor for a small charge.

INTRODUCTION

The Quad FM4 is a self powered stereo tuner covering the FM band (88 - 108 MHz) only and designed to be used in conjunction with Quad and similar high quality pre-amplifiers.

The entire operation of the tuner is controlled by a microprocessor so that the only controls on the tuner are an on/off switch, tuning knob, and pre-selector buttons.

Up to seven stations can be stored in the tuner's memory and recalled at the touch of a button.

Manual tuning is accomplished in the normal manner in the sense that the tuning knob is turned clockwise to move up the frequency band and vice versa. The frequency tuned is displayed digitally and a bar graph gives simultaneous indication of signal strength and centre channel tuning.

BRIEF INSTRUCTIONS

Plug the A.C. and signal leads supplied into the Quad Control Units and FM4.

Connect a suitable 75 Ω aerial.

Switch on.

Press .

Tune in desired station. See list at the back of this book.

Press and hold and press desired preset.

When red LED extinguishes and green LED lights, station is stored in the tuner's memory.

INSTALLATION

The Quad FM4 may either be used free standing or mounted in a cabinet panel of up to 15 mm thick.

If it is to be panel mounted cut a rectangular aperture 312 mm x 56 mm in the panel.

Remove the two screws from the rear of the cover and slide the cover off.

Insert the tuner into the aperture from the front, replace the cover from the rear, insert the two screws and tighten until finger tight and then give one additional half turn to each screw to lock securely.

The tuner requires no ventilation.

CONNECTIONS

The FM4 is supplied with leads and connectors for direct connection to the Quad Control Unit.

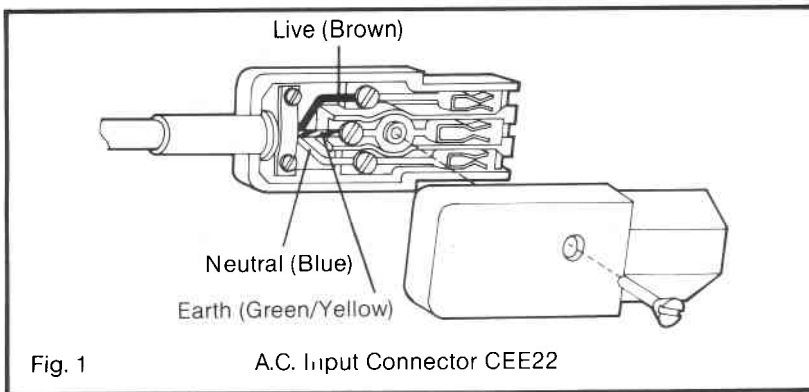
A.C. Mains Supply

This tuner is designed to operate on one range of A.C. mains voltage only, 50 or 60 Hz, either 110/120 volts or 220/240 volts.

The designed operating voltage of the tuner is clearly marked on the back.

BEFORE CONNECTING TO THE A.C. SUPPLY CHECK THAT THE VOLTAGE MARKED ON THE BACK CORRESPONDS WITH THAT OF THE A.C. SUPPLY.

The A.C. mains input is via the standard 3-pin Euro connector supplied wired in accordance with the international code (see Fig. 1) and will normally be drawn from the outlet on the rear of the Quad pre-amplifier.



A surge-resisting fuse (63mA for 220/240V, 100mA for 110/120V) housed in the mains input receptacle in the rear panel provides the usual protection. To obtain access to the fuse, unplug the mains supply and use a small screwdriver to lever open the drawer carrying the fuse. (see Fig. 2).

If a replacement fuse has to be fitted, make sure that it is of the correct type. The marking will be T63mA (T100mA for 110V).

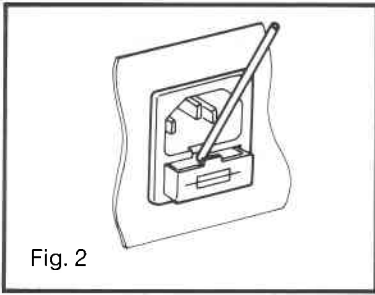


Fig. 2

An unswitched A.C. outlet supplies appropriate additional equipment and the shrouded plug supplied with the amplifier (wired as shown in Fig. 3) is for use with this outlet (see Fig. 4).

The maximum steady state current drawn from the A.C. outlet should not exceed 4 amps.

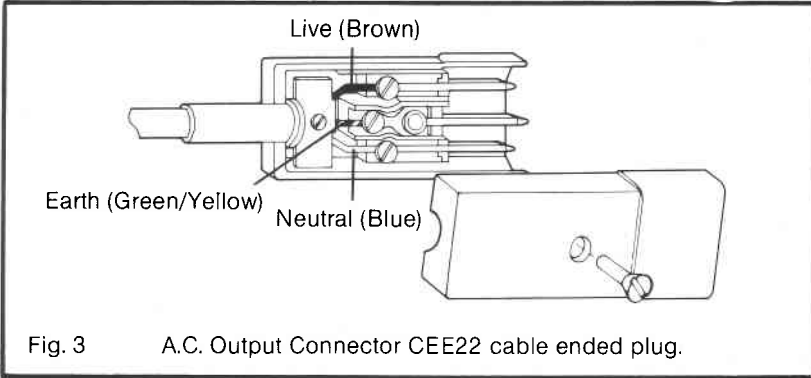


Fig. 3 A.C. Output Connector CEE22 cable ended plug.

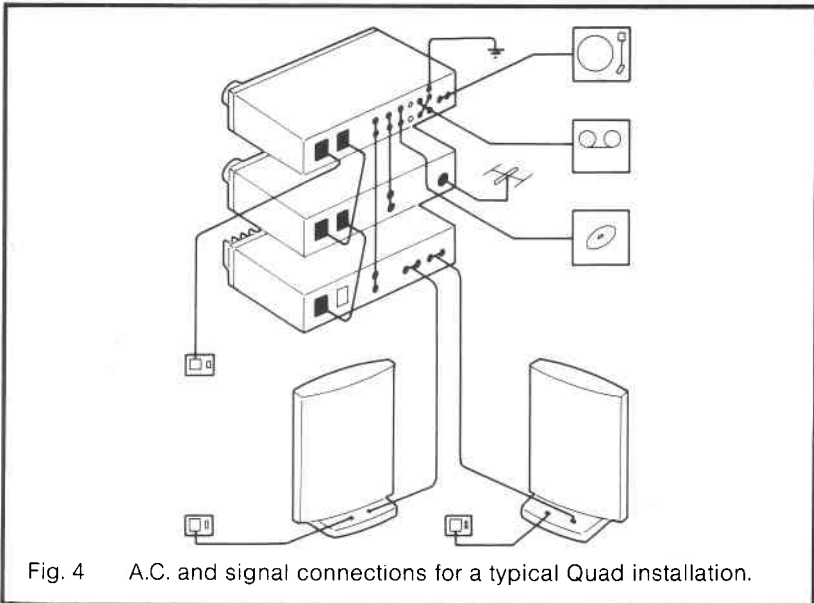


Fig. 4 A.C. and signal connections for a typical Quad installation.

Aerial

The performance of the FM4 is entirely dependent upon the signal strength received from the aerial. Optimum signal to noise will be achieved with a signal strength of between 1mV and 100mV and not in excess of 500mV.

Your local aerial contractor or Quad dealer will be able to advise on the antenna system which will give the best results in your area, but in most cases a correctly orientated external multi-element array will give best results.

The FM4 is designed to operate from a standard 75Ω co-axial feeder, and indoor ribbon aerials should not be used.

Output

Signal output is via phono sockets, clearly marked L (left) and R (right).

If the tuner is used with a Quad 33/34/44 control unit with a DIN input socket, you will need a 5-pin-DIN-to-2-phono-plugs lead. This may be obtained from QUAD, or your dealer by quoting part number QD5FP2A.

The output of the FM4 is nominally 100mV for 30% programme modulation.

Controls

The Quad FM4 is equipped with an on/off switch, a tuning knob, seven preset station selection buttons, and a manual button which is also used in conjunction with one of the preset station buttons to store a desired frequency in the tuner's memory.

The tuned frequency is displayed digitally and a twin bar graph provides simultaneous indication of signal strength and centre tuning. Stereo transmissions light the stereo indicator.

All other functions are controlled automatically by the microprocessor. With manual selected interstation muting and AFC are switched out enabling all stations, whether strong or weak to be tuned in. When a preset station is selected the tuner is automatically muted until the desired station has been correctly tuned.

The FM4 remembers the last station used and automatically reverts to it when switched on.

The FM4 supplied in the U.K. is provided with preset station buttons marked:-

- For a fourth BBC VHF Channel (where available)

- BBC Radio 1/2

- BBC Radio 3

- BBC Radio 4

- Independent local Radio 1

- Independent local Radio 2


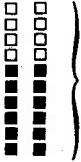
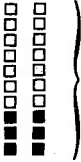
- BBC Local Radio

FM4s supplied to the rest of the world have preset buttons marked to .

OPERATION

Manual tuning

Press the **TUNE** button. The red LED will light. Any desired frequency can be tuned using the tuning knob. Interstation muting and AFC are automatically switched out and all incoming stations can be tuned in however weak the signal. The bar graph indicates the signal strength of the station and when properly tuned both sections will be of equal height. If the left section is shorter than the right it is simply necessary to tune to the right and vice versa. When all but the top segments of the bar graph are lit the incoming signal strength is sufficient to provide optimum signal to noise. (Approximately 1 mV).

Bar Graph	Approximate Signal Strength	Signal/Noise Stereo
	1 mV (60 dB)	70dB
	100 μV (40 dB)	55dB
	10 μV (20 dB)	30dB

Storing a Station

Once a station has been correctly tuned it can be stored on any of the preset positions simply by pressing and holding down the **TUNE** button and pressing the required pre-select button until the red LED extinguishes and the green LED of the chosen preset lights. This takes approximately one second. Both buttons are then released. The selected frequency is now stored in the tuner's memory and will be recalled whenever the pre-selected button is pressed. To change the frequency stored in any preset position select **TUNE**, tune in the desired station, press **TUNE** and hold, press the preset button until the green LED lights. The old station is deleted from the memory and the new one stored.

For example, to store Radio 3 Wrotham 91.3MHz on the preset **BBC 3** proceed as follows –

Press **TUNE**.

Tune to 91.3MHz. Observe that both sections of the bar graph are the same height, the height indicating signal strength (see page 7).

Press and hold **TUNE**.

Press **BBC 3** until the green LED lights.

Release **TUNE** and **BBC 3**.

A list of BBC and IBA transmitters and frequencies is given at the end of this book.

Preset tuning

Once a transmitter frequency has been selected and stored in each of the seven preset memory positions, manual tuning will be an exception and operation of the tuner is extremely simple. Switch on the Quad Control Unit and the FM4. The Control Unit will automatically select RADIO and the FM4 will tune into the station last used. To select any of the other six preset stations press the appropriate pushbutton.

When the FM4 is switched off the memory is powered by a small battery which is recharged whenever the set is on. The memory will retain stored stations for about five years if the set is not used at all.

Under normal use the life of the battery is about ten years. If for any reason, the FM4 is not used for a long period, and the battery runs down it will be necessary to reload the memory with preset stations. The battery will be automatically recharged while the set is on. If the battery is flat the tuner automatically reverts to manual TUNE.

Mono

When listening to a very weak station (typically 3 to 4 segments of the bar graph illuminated) a significant improvement in the signal to noise can be made by switching the Quad control unit to MONO and centring the balance control for minimum noise. Remember, however, to switch back to stereo when changing stations.

De-Emphasis

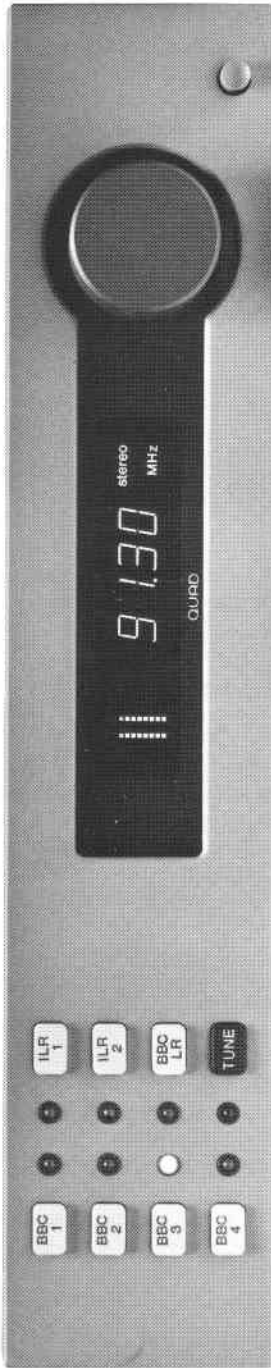
FM broadcasts are pre-emphasised (accentuation of the higher frequencies) prior to transmission and must be de-emphasised at the receiver to restore the correct tonal balance. (This is similar to the record equalisation procedure with discs). The correct de-emphasis for Britain and Europe is $50\mu\text{sec}$ and for North America $75\mu\text{sec}$. Normally this will have been correctly set prior to purchase but the $50\mu\text{sec}$ equalisation can be easily converted to $75\mu\text{sec}$ by adding a capacitor of 3.3nF in parallel with each of the existing correction capacitors C44 and C45. These additional capacitors may be most conveniently located on the underside of the printed circuit board.

SPECIFICATION

Frequency range	88-108MHz
Sensitivity – 30dB quieting	Mono $1\mu\text{V}$
50dB quieting	Mono $2.7\mu\text{V}$
	Stereo $25\mu\text{V}$
Full Limiting	$< 1\mu\text{V}$
Signal/Noise – Input signal 1 kHz at 1 mV. A weighted	Mono 76dB
	Stereo 70dB
Distortion – Input signal 1 kHz \pm 75kHz	Mono 0.15%
	Stereo 0.15%
\pm 25kHz	Mono 0.05%
	Stereo 0.10%
Selectivity	53dB
Capture Ratio	1.5dB
IF Rejection	100dB
AM Suppression	60dB
Image Rejection	80dB
Pilot Tone Suppression	60dB
Crosstalk at 1 kHz	-40dB
Frequency Response – 20Hz-15kHz	+0 -1dB
Output Level 30% Modulation	100mV
Source Impedance	100 Ω
Recommended Load Impedance	$> 20\text{k}\Omega$
Aerial Input	75 Ω unbalanced
De-emphasis	50 μSec or 75 μSec
Power Input	100-125 or 200-250V. 50-60Hz 6VA.
Dimensions	321 mm wide 64mm high 207mm deep.
Weight	3Kg.

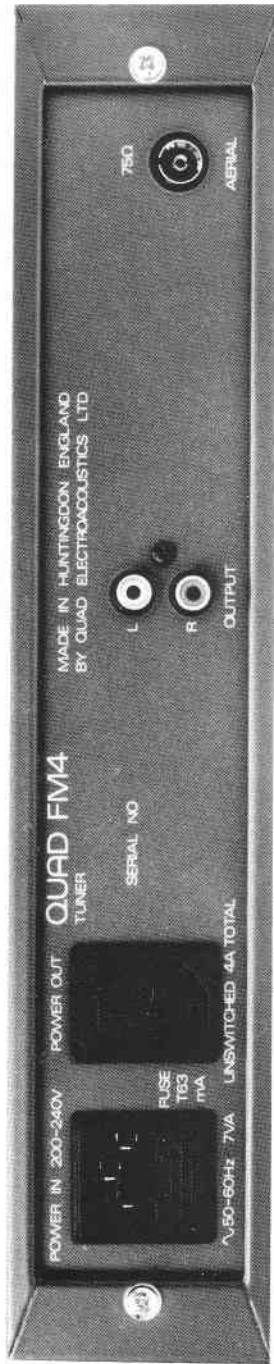
QUAD FM14

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FRONT VIEW

QUAD FM4



BACK VIEW

B.B.C. VHF TRANSMITTERS IN THE U.K.

Main stations shown in bold	R.1	R.1/2	R.3	R.4
ENGLAND, ISLE OF MAN AND CHANNEL ISLANDS				
Belmont	88.8	90.9	93.1	
Holme Moss	89.3	91.5	93.7	
Kendal	98.8*			
Morecambe Bay	89.0	91.2	93.4	
Olivers Mount*	89.9	92.1	94.3	
Pendle Forest	90.2	92.6	94.6	
Scarborough†**	89.9	92.1	94.3	
Sherfield (Crosspool)	89.9	92.1	94.3	
Stanton Moor	88.3	90.5	92.7	
Wensleydale	88.4	90.6	92.8	
Windermere	88.3	90.5	92.7	
Les Platons (CI)	91.1	94.8	97.1	
Manningtree*	88.1	90.3	92.5	
North Hessary Tor	88.1	90.3	92.5	
Okehampton	88.7	90.9	93.1	
St. Thomas (Exeter)	89.0	91.2	93.4	
Oxford	89.5	91.7	93.9	
Peterborough	90.1	92.3	94.5	
Bow Brickhill*	88.6	90.8	93.0	
Cambridge (Madingley)	88.9	91.1	93.3	
Pontop Pike	88.5	90.7	92.9	
Chatton	90.1	92.3	94.5	
Fenham	89.8	92.0	94.2	
Wearside	89.7	91.9	94.1	
Whitby	89.6	91.8	94.0	
Redruth	89.7	91.9	94.1	
Isles of Scilly	88.8	91.0	93.2	
Ridge Hill	88.6	90.8	93.0	
Rowridge	88.5	90.7	92.9	
Newhaven*	89.7	91.9	94.1	
Ventnor	89.4	91.7	93.8	
Sandale	88.1	90.3	92.5	
(See also Scotland)				
Douglas (IOM)	88.4	90.6	92.8	
Sutton Coldfield	88.3	90.5	92.7	
Churchdown Hill	89.0	91.2	93.4	
Ludlow	89.6	91.8	94.0	
Northampton	88.9	91.1	93.3	
Swingate (Dover)	90.0	92.4	94.4	
Tacolneston	89.7	91.9	94.1	
Wenboe	89.9	92.1	94.3	
Barnstaple	88.5	90.7	92.9	
Bath	88.8	91.0	93.2	
Lichester Crescent	89.3	91.5	93.7	

	R.1	R.1/2	R.3	R.4
Winter Hill		88.6	90.8	93.0
Wrotham		89.1	91.3	93.5
Brighton (Whitehawk Hill)		90.1	92.3	94.5
Caterham		89.7	91.9	94.1
Crystal Palace	104.8			
Guildford		88.1	90.3	92.5
High Wycombe		89.9	92.1	94.3
Kenley		88.4	90.6	92.8
Mickleham*		89.7	91.9	94.1
Woburn*		88.3	90.5	92.7

WALES

Blaenplwyf	88.7	90.9		
Dolgellau	90.1	92.3		
Ffestiniog	88.1	90.3		
Llandyfriog	90.1	92.3		
Machynlleth	89.4	91.6		
Mynydd Pencarreg	89.7	91.9		
Haverfordwest	89.3	91.5		
Llanddona	89.8	92.0		
Beis-y-Coed	88.2	90.4		
Llangollen	88.9	91.1		
Llandnam	90.1	92.3		
Llanfyllin	89.1	91.3		
Llanrhaeadr-ym-Mochnant	89.8	92.0		
Long Mountain	89.9	92.1		
Wenboe	98.7*	98.7	94.3	
Aberdare	89.2	91.4		
Abergavenny	88.7	90.9		
Blaenavon	88.5	90.7		
Brecon	88.9	91.1		
Carmarthen	88.9	91.1		
Carmel	88.4	90.6		
Ebbw Vale	88.4	90.6		
Kilvey Hill	89.5	91.7		
Llanrindod Wells	89.1	91.3		
Llanidloes	88.1	90.3		
Pontypool	89.2	91.4		
Ton Pentre*	88.8	91.0		
Varteg Hill	88.9	91.1		

R. Gwent

Blaenavon	95.1			
Christchurch	95.9			

* proposed but not in service at date of publication
† to be discontinued
** to be replaced by Olivers Mount
*** to be replaced by Black Hill

B. B. C. VHF TRANSMITTERS IN THE U. K.

Main stations shown in bold

SCOTLAND

Ashkirk 89.1 91.3 93.5
 Innerleithen 89.5 91.7 93.9
 Peebles 88.4 90.6 92.8
Black Hill* 89.9 92.1 94.3
Bressay 88.3 90.5 92.7
Darvel 89.5 91.7 93.9
Forfar 88.3 90.5 92.7
 Pitlochry 89.2 91.4 93.6
Fort William 89.3 91.5 93.7
 Ballachulish 88.1 90.3 92.5
 Glengorm 89.5 91.7 93.9
 Kinlochleven 89.7 91.9 94.1
 Mallaig 88.1 90.3 92.5
 Oban (m) 88.9 91.1 93.3
Keelylang Hill 89.3 91.5 93.7
Kirk o' Shotts†*** 89.9 92.1 94.3
 Bowmore 88.1 90.3 92.5
 Campbeltown 88.4 90.6 92.8
 Girvan 88.9 91.1 93.3
 Kirtou Mailer 89.0 91.2 93.4
 Lethanhill 88.3 90.5 92.7
 Lochgilphead 88.3 90.5 92.7
 Milburn Muir 88.8† 91.0† 93.2
 Port Ellen* 88.3* 90.5* 92.7*
 Rosneath 89.0 91.2 93.4
 Rothesay 89.2 91.4 93.6
 South Knapdale 88.5 90.7 92.9
 Strachur 89.3 91.5 93.7
 88.6 90.8 93.0
 98.2

R.1 R.1/2 R.3 R.4 R.Scotland

93.5
93.9
92.8
94.3
92.7
93.9
92.7
93.6
93.7
98.9
92.5
97.7
93.9
99.1
94.1
99.3
92.5
97.7
93.3
98.5
93.7
94.3
92.5
92.8
93.3
93.4
92.7
92.7
97.9
93.2
92.7*
93.4
93.6
92.9
93.7
98.9
93.0
98.2

Meldrum 88.7 90.9 93.1
 Durris 89.4 91.6 93.8
 Tullich 90.1 92.3 94.5
Melvaig 89.1 91.3 93.5
 Penfiliel 89.5 91.7 94.7
 Skriaiig 88.5 90.7 92.9
Rosemarkie 89.6 91.8 94.0
 Grantown 89.8 92.0 94.6
 Kingussie 89.1 91.3 93.5
 Knock More 88.2 90.4 92.6
Rumster Forest 90.1 92.3 94.5
Sandale 88.1 90.3 92.5
 Cambret Hill 88.7 90.9 93.1
 Stranraer 89.7 91.9 94.1

R.1

88.7 90.9 93.1
89.4 91.6 93.8
90.1 92.3 94.5
89.1 91.3 93.5
89.5 91.7 94.7
88.5 90.7 92.9
89.6 91.8 94.0
89.8 92.0 94.6
89.1 91.3 93.5
88.2 90.4 92.6
90.1 92.3 94.5
88.1 90.3 92.5
88.7 90.9 93.1
89.7 91.9 94.1

R.4

93.1
93.8
94.5
93.5
94.7
93.9
92.9
98.1
94.0
94.6
93.5
92.6
94.5
94.7
93.1
94.1

R.1 R.1/2 R.3 R.4 R.Scotland

93.5
93.9
92.8
94.3
92.7
93.9
92.7
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92.5
92.8
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93.4
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92.7
97.9
93.2
92.7*
93.4
93.6
92.9
93.7
98.9
93.0
98.2

NORTHERN IRELAND

Brougher Mountain

Divis 89.4 91.6 93.8
 90.1 92.3 94.5†
 94.5*
 93.2
 93.2
 95.1
 93.8
 93.5
 93.0
 95.4
 93.1

R.1 R.1/2 R.3 R.4 R.Ulster

89.4 91.6 93.8
90.1 92.3 94.5†
94.5*
93.2
93.2
95.1
93.8
93.5
93.0
95.4
93.1

R.4

93.8
94.5†
94.5*
93.2
93.2
95.1
93.8
93.5
93.0
95.4
93.1

* proposed but not in service at date of publication
 † to be discontinued
 ** to be replaced by Olivers Mount
 *** to be replaced by Black Hill

VHF TRANSMITTERS IN THE U.K.

BBC LOCAL RADIO

AREA	Transmitter	Frequency (MHz)	Transmitter	Frequency (MHz)
R. Bedfordshire	Luton†	103.8	Anstey Lane	95.1
	Zouches Farm*	103.8	Beimont	94.9
	Sandy Heath	95.5	Crystal Palace	94.9
R. Bristol	Bow Brickhill*	104.5	Holme Moss	95.1
	Ilchester Crescent	94.9	Alerton Park	95.8
	Mendip	95.5	Chatton	96.0
	Bath	104.6	Pontop Pike	95.4
R. Cambridgeshire	Cambridge (Maddingley)	96.0	Fenham	104.4
	Peterborough	95.7	Gt. Massingham	104.4
R. Cleveland	Bilsdale W. Moor	95.0	Tacolneston	95.1
	Whitby	95.8	Geddington	103.6
R. Cornwall	Caradon Hill	95.2	Northampton	103.8
	Isles of Scilly	96.0	Colwick Park†**	103.8
	Redruth	103.9	Mapperley Ridge*	103.8
R. Cumbria	Sandale	95.6	Fishponds Hill*	95.5
(R. Furness)	Morecambe Bay	96.0	Oxford	95.2
(R. Furness)	Kendal	95.2	Holme Moss	104.1
R. Derby	Windermere	104.2	Sheffield (Crosspool)	88.6
	Derby	94.2	Ludlow	95.0
R. Devon	Sutton Coldfield	104.5	The Wrekin	96.0
	Stanton Moor	95.3	Rowridge	96.1
	Huntshaw Cross	94.8	Alsagers Bank	94.6
	North Hessary Tor	103.4	Manningtree	103.9
	Okehampton	96.0	Great Barton	104.6
BBC Essex	St. Thomas (Exeter)	95.8	Henley	94.6
	Great Braxted	103.5	High Wycombe	104.9
	South Benfleet	95.3	Guildford	104.6
R. Gloucestershire*	Stroud	95.0	Brighton (Whitehawk Hill)	95.3
	Churchdown Hill	104.7	Heathfield	104.5
R. Guernsey	Les Touillietts	93.2	Reigate	104.0
R. Hereford and	Ridge Hill	94.7	Newhaven*	95.0
Worcester*	Great Malvern	104.0	Meriden	94.8
R. Humberside	High Hunsley	95.9	Lark Stoke	103.7
R. Jersey	Les Platons	88.8	Blunsdon	103.6
R. Kent	Swingate	104.2	Naish Hill	104.3
	Wrotham	96.7	Sutton Coldfield	95.6
R. Lancashire	Hameldon Hill	95.5	Acklam Wold	103.7
	Lancaster	104.5	Oliver's Mount	95.5
	Winter Hill	103.9	Woolmoor	104.3
R. Leeds	Holme Moss	92.4		
	Wharfedale	95.3		

* proposed but not in service at date of publication

† to be discontinued

** to be replaced by Mapperley Ridge

VHF TRANSMITTERS IN THE U. K.

INDEPENDENT LOCAL RADIO

COMPANY AND AREA	Site	Frequency (MHz)	COMPANY AND AREA	Site	Frequency (MHz)
Radio Aire	(AIR)		Radio Hallam	(HAL)	
Leeds		96.3	Sheffield & Rotherham		97.4
Beacon Radio	(BEA)		Barnsley		96.1
Wolverhampton & Black Country		97.2	Barnsley		102.9
Shrewsbury & Telford		103.1	Hereward Radio	(HER)	103.4
BRMB Radio	(BBR)		Peterborough		102.7
Birmingham		96.4	Invicta Radio	(INV)	
Radio Broadland	(BLD)		Maldstone & Medway		103.1
Great Yarmouth & Norwich		102.4	East Kent		102.8
Capital Radio	(CAP)		Bluebell Hill		96.1
London-General & Entertainment		95.8	Wye (Ashford)		97.0
Chiltern Radio	(CLT)		Dover		97.0
Luton		97.6	Thanet		95.9
Bedford		96.9	LBC (London Broadcasting Company)		97.3
Northampton		96.6	London-News and Information		103.2
Radio City	(CTY)		Leicester Sound	(LEI)	
Liverpool		96.7	Leicester		103.4
Radio Clyde	(CLY)		Marcher Sound	(MAR)	
Glasgow		102.5	Wrexham & Deeside		97.0
County Sound Radio	(COU)		Mersia Sound	(MER)	
Guildford		96.4	Coventry		102.7
Devon Air Radio	(DEV)		Reigate & Crawley		97.5
Exeter		97.0	Radio Mercury	(MRY)	
Torbay		96.4	Metro Radio		97.1
Downtown Radio	(DWN)		Tyne & Wear		97.4
Beifast		97.4	Moray Firth Radio	(MFR)	
Omagh & Enniskillen		96.6	Inverness		96.9
Londonderry		102.4	North Sound Radio	(NOR)	
Limavady		96.4	Aberdeen		97.5
Essex Radio	(ESX)		Ocean Sound	(OCN)	
Southern		96.3	Portsmouth		97.1
Chelmsford		102.6	Southampton		97.5
Radio Forth	(FOR)		Winchester		103.2
Edinburgh		97.3	Radio Orwell	(ORW)	96.7
GWR	(GWR)		Ipswich		97.1
Bath		103.0	Pennine Radio	(PEN)	
Bristol		96.3	Bradford		97.5
Swindon		97.2	Huddersfield & Halifax		102.5
West Wiltshire		102.6			

B. B. C. VHF TRANSMITTERS IN THE U. K.

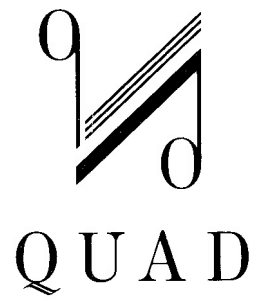
INDEPENDENT LOCAL RADIO

COMPANY AND AREA

Frequency
(MHz)

Site

Piccadilly Radio	(PIC)	Saddleworth	103.0
Manchester	(PLY)	Plympton	97.0
Plymouth Sound		Tavistock	96.6
Red Dragon Radio	(RDR)	Wenallt	103.2
Cardiff		Christchurch	97.4
Red Rose Radio	(RRR)	Winter Hill	*97.3*
Preston & Blackpool	(SAX)	Great Barton	96.4
Saxon Radio		Churchdown Hill	102.4
Bury St. Edmunds	(SEV)	Stroud	103.0
Gloucester & Cheltenham		Alsagers Bank	102.6
Signal Radio	(SIG)	Brighton	103.5
Stoke-on-Trent	(SOU)	Newhaven	96.9
Southern Sound		Kilvey Hill	96.4
Brighton	(SWS)	Tay Bridge	102.8
Newhaven		Perth	96.4
Swansea Sound	(TAY)	Blisdale	96.6
Swansea		Colwick Wood	96.2
Radio Tay		Quarndon	102.8
Dundee	(TEE)	Poolo	97.2
Perth		Butts Centre	97.0
Radio Tees	(TRE)	Hannington	102.9
Teesside		High Hunsley	96.9
Radio Trent		Darvel	96.7
Nottingham	(TCR)	Girvan	97.5
Derby	(VAL)	Ridge Hill	97.6
Two Counties		Malvern	102.8
Radio (2CR)	(VKG)		
Bournemouth	(WST)		
Radio 210			
Reading	(WYN)		
Basingstoke & Andover			
Viking Radio			
Humberside			
West Sound			
Ayr			
Radio Wyvern			
Hereford			
Worcester			



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