



FM4 TUNER

INSTRUCTION BOOK

Quad Electroacoustics Limited Huntingdon PE18 7DB United Kingdom
Telephone 0480 52561 Telex 32348 QUAD G Fax 0480 413403

QUAD is a registered Trade Mark

QUAD

QUAD FM4

Tuner

INSTRUCTION BOOK

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QUAD ELECTROACOUSTICS LTD.,
HUNTINGDON,
Cambs.,
PE18 7DB.

Telephone No.: Huntingdon (0480) 52561
Telex: 32348 QUAD G

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Accessories

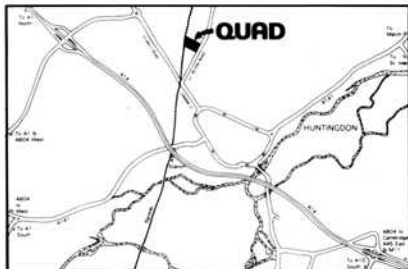
The FM4 is supplied with

- | | |
|----------------------|---------|
| 1 x A.C. Lead | QSPESA |
| 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 ft aerial.

Switch on.

Press **FM**.

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

Press and hold **FM** 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.

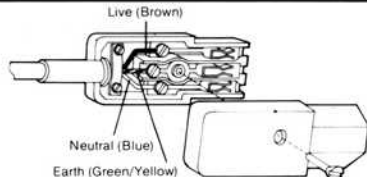


Fig. 1

A.C. Input Connector CEE22

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.

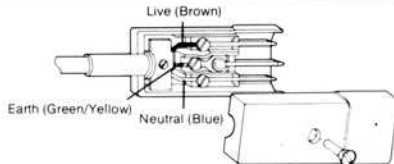


Fig. 3

A.C. Output Connector CEE22 cable ended plug.

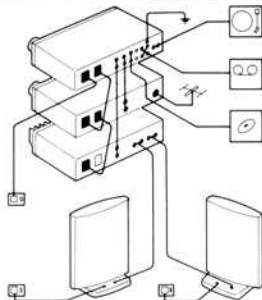


Fig. 4

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 75 Ω 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  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 1mV).

Bar Graph	Approximate Signal Strength	Signal/Noise Stereo
	1mV (60 dBf)	70dB
	100 μ V (40 dBf)	55dB
	10 μ V (20 dBf)	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 **PRE**, 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 **PRE** until the green LED lights.

Release **TUNE** and **PRE**.

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 50µsec and for North America 75µsec. Normally this will have been correctly set prior to purchase but the 50µsec equalisation can be easily converted to 75µsec 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 1µV
50dB quieting	Mono 2.7µV
	Stereo 25µV
Full Limiting	< 1µV
Signal/Noise - Input signal 1kHz at 1mV. A weighted	Mono 76dB
	Stereo 70dB
Distortion - Input signal 1kHz ± 75kHz	Mono 0.15%
	Stereo 0.15%
	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 1kHz	-40dB
Frequency Response - 20Hz-15kHz	+0 -1dB
Output Level 30% Modulation	100mV
Source Impedance	100Ω
Recommended Load Impedance	> 20kΩ
Aerial Input	75Ω unbalanced
De-emphasis	50µSec or 75µSec
Power input	100-125 or 200-250V.
	50-60Hz 6VA.
Dimensions	321mm wide 64mm high
	207mm deep.
Weight	3Kg.

QUAD FM4



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		R.1	R.1/2	R.3	R.4
ENGLAND, ISLE OF MAN AND CHANNEL ISLANDS									
Bolton	88.8	90.9	93.1		Winter Hill	88.6	90.8	93.0	
Holme Moss	89.3	91.5	93.7		Wrotham	89.1	91.3	93.5	
					Brighton (Whitehawk Hill)	90.1	92.3	94.5	
Kendal	98.8*	89.0	91.2	93.4	Caterham	89.7	91.9	94.1	
Morecambe Bay		90.0	92.2	94.4	Crystal Palace	104.8	88.1	90.3	92.5
Olivers Mount*		89.9	92.1	94.3	Guildford		89.9	92.1	94.3
Pendle Forest		90.2	92.6	94.6	High Wycombe		88.4	90.6	92.8
Scarborough**		89.9	92.1	94.3	Kenley		89.7	91.9	94.1
Sheffield (Crosspool)		89.9	92.1	94.3	Mickleham*		88.3	90.5	92.7
Stanton Moor		89.8	92.0	94.2	Woodburn*				
Wensleydale		88.3	90.5	92.7					
Wharfedale		88.4	90.6	92.8					
Widmeres		88.3	90.5	92.7					
Las Platas (C)		91.1	94.8	97.1					
Manningtree*		88.1	90.3	92.5					
North Hensay 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*	98.2	88.6	90.8	93.0					
Cambridge (Maddingley)		88.9	91.1	93.3					
Pontop Pike		88.5	90.7	92.9					
Chilton		90.1	92.3	94.5					
Fenham		89.8	92.0	94.2					
Wardale		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					
Ronridge		88.5	90.7	92.9					
Newhaven*	99.3	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	98.4*	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					
Wenlock	98.7*	89.9	92.1	94.3					
Barnstaple		88.5	90.7	92.9					
Bath		88.8	91.0	93.2					
Ichester Crescent		89.3	91.5	93.7					

	R.1	R.1/2	R.3	R.4		R.1	R.1/2	R.3	R.4
Wales					R. Cymru				
Blaenpwyl		88.7	90.9	93.1					
Dolgellau		90.1	92.3	94.5					
Ffestiniog		88.1	90.3	92.5					
Llandyfriog		90.1	92.3	94.5					
Maenllwyt		89.4	91.6	93.8					
Mynydd Penrhag		91.9	94.1	96.3					
Neerfordwest		89.3	91.5	93.7					
Llanddona		89.8	92.0	94.2					
Betws-y-Coed		88.2	90.4	92.6					
Llangollen		88.9	91.1	93.3					
Llandrindod		90.1	92.3	94.5					
Llanfyllin		89.1	91.3	93.5					
Llanrhaeadr-y-Mochnant		89.8	92.0	94.2					
Long Mountain		89.6	91.8	94.0					
Wenlock	98.7*	89.9	92.1	94.3					
Aberdare		89.2	91.4	93.6					
Aberystwyth		88.7	90.9	93.1					
Blaenavon		88.5	90.7	92.9					
Brecon		88.9	91.1	93.3					
Caerphilly		88.9	91.1	93.3					
Carmarthen		88.4	90.6	92.8					
Carmarthen		88.4	90.6	92.8					
Ebbw Vale		88.4	90.6	92.8					
Kilvey Hill		89.5	91.7	93.9					
Llandindod Wells		89.1	91.3	93.5					
Llandrindod		88.1	90.3	92.5					
Pontypool		89.2	91.4	93.6					
Ton Pentre*		88.8	91.0	93.2					
Varteg Hill		88.9	91.1	93.3					
					R. Gwent				
Blaenavon									
Christchurch									

- * 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	R.1	R.1/2	R.3	R.4	R.Scotland		R.1	R.1/2	R.3	R.4	R.Scotland
SCOTLAND											
Ashkirk		89.1	91.3	93.5		Meldrum	88.7	90.9	93.1		
Innerleithen		89.5	91.7	93.9		Durns	89.4	91.6	93.8		
Peebles	98.6	88.4	90.6	92.8		Tullich	90.1	92.3	94.5		
Black Hill*		88.3	90.5	92.7	95.8	Melvaig	89.1	91.3	93.5		
Bressay		89.5	91.7	93.9							
Forfar		88.3	90.5	92.7		Pentfryn	89.5	91.7	93.9		
Pitlochry		89.2	91.4	93.6							
Fort William		88.3	90.5	92.7		Skiniaig	88.5	90.7	92.9		
Ballaichulish		88.1	90.3	92.5		Rosemarkie	89.6	91.8	94.0		
						Grantown	89.8	92.0	94.2		
Glenngorm		89.5	91.7	93.9		Kingussie	89.1	91.3	93.5		
Kilnlochleven		89.7	91.9	94.1		Knock More	88.2	90.4	92.6		
Mailg		88.1	90.3	92.5		Rumster Forest	90.1	92.3	94.5		
						Sandale	88.1	90.3	92.5	94.7	
Oban (In)		88.9	91.1	93.3		Cambel Hill	88.7	90.9	93.1		
						Stranraer	89.7	91.9	94.1		
Keelylang Hill		89.3	91.5	93.7							
Kirk o' Shotts**		89.9	92.1	94.3							
Bowmore		88.1	90.3	92.5							
Campbelltown		88.4	90.6	92.8							
Girvan		88.9	91.1	93.3							
Kirton Maier		89.0	91.2	93.4							
Lethamhill		88.3	90.5	92.7							
Lochgillhead		88.3	90.5	92.7							
Port Bannock		88.8	91.0	93.2							
Port Ellen*		88.3	90.5	92.7							
Rosneath		89.0	91.2	93.4							
Rothsay		88.2	90.4	92.6							
South Knapdale		88.5	90.7	92.9							
		89.3	91.5	93.7							
Strachur		88.6	90.8	93.0							

	R.1	R.1/2	R.3	R.4	R.Ulster
NORTHERN IRELAND					
Brougher Mountain	89.4	91.6	93.8		
Divis	90.1	92.3	94.5		
Ballycastle	88.8	91.0	93.2		
Kilkeel	89.4	91.6	93.8		
	89.1	91.3	93.5		
Rostrevor Forest	88.6	90.8	93.0		
Limavady	89.6	91.8	94.0		
Londonderry	88.7	90.9	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)	AREA	Transmitter	Frequency (MHz)
R. Bedfordshire	Luton†	103.8	R. Leicester	Anstey Lane	95.1
	Zouches Farm*	103.8	R. Lincolnshire	Belmont	94.9
	Sandy Heath	95.5	R. London	Crystal Palace	94.9
	Bow Brickhill†	104.5	R. Manchester	Holme Moss	95.1
R. Bristol	Ilchester Crescent	94.9	R. Merseyside	Allerton Park	95.8
	Mendip	95.5	R. Newcastle	Chaton	96.0
	Bath	104.6		Pontop Pike	95.4
R. Cambridgeshire	Cambridge (Madingley)	96.0		Fenham	104.4
	Peterborough	95.7	R. Norfolk	Gt. Massingham	104.4
R. Cleveland	Bilsdale W. Moor	95.0		Tacolneston	95.1
	Whitby	95.8	R. Northampton	Geddington	103.6
R. Cornwall	Caradon Hill	95.2		Northampton	104.2
	Isles of Scilly	96.0	R. Nottingham	Colwick Park**	103.8
	Redruth	103.9		Mappesley Ridge*	103.8
R. Cumbria	Sandale	95.6		Fishponds Hill†	95.5
(R. Furness)	Morecambe Bay	96.0	R. Oxford	Oxford	95.2
(R. Furness)	Kendal	95.2	R. Sheffield	Holme Moss	104.1
(R. Furness)	Windermere	104.2		Sheffield (Crosspool)	88.6
R. Derby	Derby	94.2	R. Shropshire	Ludlow	95.0
	Sutton Coldfield	104.5		The Wrekin	96.0
	Stanton Moor	95.3	R. Solent	Rowridge	96.1
R. Devon	Huntshaw Cross	94.8	R. Stoke-on-Trent	Aspagers Bank	94.6
	North Hessary Tor	103.4	R. Suffolk*	Manningtree	103.9
	Okehampton	96.0		Great Barton	104.6
	St Thomas (Exeter)	95.8	R. Surrey and Berkshire*	Henley	94.6
BBC Essex	Great Braxted	103.5		High Wycombe	104.9
	South Benfleet	95.3		Guildford	104.6
R. Gloucestershire*	Stroud	95.0	R. Sussex	Brighton (Whitehawk Hill)	95.3
	Churchdown Hill	104.7		Heathfield	104.5
R. Guernsey	Les Touillets	93.2		Reigate	104.0
R. Hereford and	Ridge Hill	94.7		Newhaven*	95.0
Worcester*	Great Malvern	104.0	R. Warwickshire*	Morden	94.8
R. Humberside	High Hunsley	95.9		Lark Stoke	103.7
R. Jersey	Les Platons	88.8	R. Wiltshire*	Blunsdon	103.6
R. Kent	Swingate	104.2		Naish Hill	95.6
	Wrotham	96.7	R. WM	Sutton Coldfield	103.7
R. Lancashire	Hameldon Hill	95.5		Acklam Wood	95.5
	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	Morley	96.3	Sheffield & Rotherham	Tapton Hill	97.4
Beacon Radio	(BEA)			Rotherham	96.1
Wolverhampton & Black Country	Turners Hill	97.2	Barnsley	Ansley	102.9
Shrewsbury & Telford	The Wrekin	103.1	Doncaster	Clifton	103.4
BRMB Radio	(BBR)		Hereford Radio	(HER)	
Birmingham	Lichfield	96.4	Peterborough	Gunthorpe	102.7
Radio Broadland	(BLD)		Invicta Radio	(INV)	
Great Yarmouth & Norwich	Stoke Holy Cross	102.4	Malden & Medway	Bluebell Hill	103.1
Capital Radio	ICAP		East Kent	Dunkirk	102.8
London-General & Entertainment	Croydon	95.8		Wye (Ashford)	96.1
Chiltern Radio	(CLT)			Dover	97.0
Luton	Dunstable	97.6		Thanet	95.9
Bedford	Sandy Heath	96.9	(BBC) London Broadcasting Company	Croydon	97.3
Northampton	Northampton	96.6	London-News and Information	(LEI)	
Radio City	Allerton Park	96.7	Leicester	Anstey Lane	103.2
Liverpool			Marcher Sound	(MAR)	
Radio Clyde	(CLY)		Wrexham & Deeside	Wrexham	103.4
Glasgow	Black Hill	102.5	Mercia Sound	(MER)	
County Sound Radio	(COS)		Cowenry	Shilton	97.0
Guildford	Guildford	96.4	Radio Mercury	(MR)	
Devon Air Radio			Reigate & Crawley	Reigate	102.7
Exeter	St Thomas	97.0		Horsham	97.5
Torbay	Beacon Hill	96.4	Metro Radio	(MET)	
Downtown Radio			Tyne & Wear	Burnhope	97.1
Belfast	Black Mountain	97.4	Moray Firth Radio	(MFR)	
Omagh & Enniskillen	Brougher Mountain	96.6	Inverness	Mountaigle	97.4
Londonberry	Londonberry	102.4	North Sound Radio	(NOR)	
Limavady	Limavady	96.4	Aberdeen	Granite Hill	96.9
Essex Radio	(ESX)		Portsmouth	Fort Widley	97.5
Southend	Benfleet	96.3	Southampton	Chilerton Down	103.2
Chelmsford	Bakers Wood	102.6	Winchester	Winchester	96.7
Radio Forth	(FOR)		Radio Orwell	(ORW)	
Edinburgh	Craigkelly	97.3	Ipswich	Foxhall Heath	97.1
GWR	(GWR)		Pennine Radio	(PEN)	
Bath	Bath	103.0	Bradford	Idle	97.5
Bristol	Dundry	96.3	Huddersfield & Halifax	Vicars Lot	102.5
Swindon	Blunsdon	97.2			
West Wiltshire	Naish Hill	102.6			

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

INDEPENDENT LOCAL RADIO

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