



This edition of RAY~Link has been sent to all registered members who have provided an e-mail address, and by post to Group Controllers who do not have e-mail facilities. Controllers are asked to ensure that all members of their group have sight of a copy of this edition

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PAI Premium

We have learned from our insurers that the premium for Personal Accident Insurance will **increase from £1.37 to £1.50** including IPT, for the year commencing 1st. May 2004. This increase is minimal, and reflects the fact that there were no claims in 2003. The premium remains excellent value for the benefits covered and the amount which could potentially be paid out.

Groups are requested to send remittance for the difference of 13p for each member / year which have been prepaid, and to ensure that the correct amount is sent for all premiums which have yet to be paid. If groups do not know how many members have pre-paid, they should check with Hunters Moon; and all renewal premiums, or differences in premium, should be received at Hunters Moon before Friday 23rd. April.

Attention Registration Officers

The Royal Mail is endeavouring to recoup its losses, at least in the Hunters Moon postal area, by "Revenue Protection" yellow stickers which charge the correct postage due and add a handling fee of one pound. Please therefore ensure that there is plenty of postage on your return envelope when sending registration forms as a first class stamp may not be sufficient for your batch of membership cards.

If the correct postage should cost 34p and you use a first class stamp, it will then cost you an additional 106p and also adds three to four days onto the delivery time!"

Change to Registered Address

The Registered Address of The Radio Amateurs' Emergency Network has changed to Hunters Moon, Station Road, Newton-le-Willows. BEDALE, DL8 1SX. All correspondence should now be sent to Hunters Moon as it is both our Registered Address and our Mail Distribution Centre.

Sunday Morning Net

Members are reminded that the Network's Sunday morning net, which includes news information and diary dates, takes place each Sunday at 08:30 hrs. clock time on 3.663MHz.

**Membership Fee 45p. per month.
PAI £1.50 per year or part year
(1st May - 30 April).**

All correspondence and membership registrations should be sent to:-
"Hunters Moon", Station Road,
Newton-le-Willows, BEDALE, North
Yorks, DL8 1SX

**Emergency 24 hour contact
line:- (0141) 621 2121**

CHAIRMAN:

Cathy Clark, G1GQJ
(01844) 351461

ZONES:

- Z1:** Tom Hanratty, G0JRT
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Z3: Roger Beever, G6CKR
01778 342 799
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Z5: Phil Williams, G6AQP
020 8460 7634
Z6: Roger Peggram, G7RUH
01344 481 668
Z7: Chris Hampson, G8RXA
(01425) 672002
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(01928) 727197
Z9: David Green, G8HPV
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Emergency Network.

RAYNET - The Future

The following article records the points raised in a presentation made by Greg, G0DUB, at the Network's AGM in Durham in November 2003. Greg is a member of the Network's Emergency Planning Team.

I want to open by reinforcing that the 'technology' we use is not that new or novel - the 'ether' through which we transmit our signals hasn't changed much since it was discovered, what we have done though is to learn to use it more effectively or in a more innovative way.

In the beginning radio was 'new' and amateurs were frequently at the cutting edge of technology. RAYNET articles from the 1950's provide articles for hand portable transmitters and discussions on the most appropriate bands for urban and rural use. Speech operation (or even CW) were the only modes in town and our strengths were seen as our diversity and resilience.

Technology and Amateur Radio have moved on but RAYNET's acceptance or deployment of the new technologies has been erratic despite us being 'ahead of the game' in comparison to the systems deployed by our User Services.

A picture has always been said to paint a thousand words. RAYNET deployment of **SSTV** though has been limited and may be said to have taken off more with the introduction of the Kenwood Visual Communicator. I would like to expand in this part of the talk the relationship between consumer electronics enabling the production of the communicator, the public demand for things like 'picture messaging' and RAYNET's seeming reluctance to deploy or offer the technology to User Services on a wide scale.

SSTV is one thing but **FSTV** is another game entirely - How many Police-Camera-Action programmes do you see where aircraft mounted cameras are used to provide feedback to ground controllers for an incident. The height of the aircraft enables the use of this technology over wide areas whereas RAYNET may see FSTV as being a point to point link having limited value to User Services, and being unduly complicated and expensive. I would argue that this is not so. The G1MFG TV modules allow a 23 cm full colour & sound solution to be made up for around the same costs that some groups would spend on a dual band rig for talkthrough use. It is getting easier to do but we need the 'killer application'. Those who have been watching the recent BBC series 'Fighting the War' on BBC2 on Sunday nights will have seen the dependence placed on Video Tele-conferencing by Strategic commanders in the UK communicating with their Tactical commanders in the Gulf. A view from the air is one thing, the ability to allow Officers in DOSEC's to communicate fully with their superiors at Police HQ is now an achievable goal we could set out to achieve.

Inevitably in today's world you are not seen to progress unless you are '**digital**'. Many people do not understand that this is still transmitting the same voice or picture but just by making ripples in the ether in a more efficient way. The rapid growth of computer power has however made this the biggest area of growth in potential RAYNET abilities but in some ways the biggest handicap.

Many **data modes** require to run on a computer (logically enough) but in many DOSEC's the space is just not available to install systems and temporary installations in an emergency may cause

more chaos than the incident being managed. However the same interface with domestic electronics that has aided the introduction of truly portable SSTV has also brought more modes into the reach of groups for practical deployment.

APRS is to RAYNET, and Amateurs generally, an old and fairly mature technology. Cheshire RAYNET used APRS to track competitor progress in the 90's but systems were slow and graphics were crude by today's standards. Equipment was also bulkier since discrete TNCs and radios had to be integrated into 'tracker units' occasionally as big as tool boxes. Nowadays the availability of APRS ready handhelds like the Kenwood THD7E means that trackers are far easier to implement. But what about the data display? Well they have shrunk too - **PALM & Windows CE** machines are able to run Pocket APRS which provides maps and stations locations literally in the palm of your hand. While we may be underselling this capability to our Users we are also missing out on a major benefit of APRS to RAYNET itself. Many groups run a variety of callout schemes. Use of repeaters, recycled pagers, telephone trees are all embedded, but RAYNET does not use the messaging capability of APRS to get a callout spread across its own members. This is using a network that has inbuilt diversity and resilience! RAYNET also misses a trick in gaining acceptance in our local amateur communities. In determining that some technology or other may have benefit (such as APRS) how about the local Group sponsoring or engineering a permanent asset to the network such as a relay. If we wish to piggy back on these systems then we should be prepared to pay our way.

Mention of Data also brings in **message handling**. Systems could be developed to pass typed messages with high reliability. What we miss here is a desire of the User Services to accept that such connections could be useful to them in an emergency.

Finally **digital technology** has the possibility of opening up more bands to RAYNET use - even the HF bands, so turning the wheel back to the 1950's. I know that I criticise data and digital modes for requiring large computers and as such the idea of a digital voice link from the field back to a control room would be derided however we can do this now! Charles Brain, G4GUO, has been involved in many digital protocols from Automatic Link Establishment through Data transfer to Digital Voice and the latter has now been taken up as a commercial product by AOR. It is now possible for any analogue voice transmitter to carry FM quality digital voice signals on any channel be it VHF or HF. You may see that a HF NVIS network could now integrate seamlessly with existing VHF/UHF networks if required making more channels available for RAYNET use in our already crowded bands.

I hope that you can see what I am trying to achieve - we have become so wrapped up in some modes of operation and think that they are the best things since sliced bread that we need a kick to see how other modes may actually be of use. However we are always a voluntary organisation. **The User Services** have a role to play as well. We need to be more open with them about technologies that we have available to deploy in reasonable quantities NOW. They should then tell us whether they see a need for them. If the demand is there then Groups should develop the capability, if not then we have better things to spend our time on. This isn't a National thing either - if my local A&E consultant says he sees no benefit for using SSTV from an incident site that is not to say that an adjacent hospital has the same opinion. Groups need to 'get out more' something that may be aided should

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Lord Mayor pays tribute to volunteers

The following Press Release was issued by Chester City Council following a visit in February.

The Lord Mayor of Chester has publicly thanked a group of amateur radio enthusiasts committed to providing a communications lifeline in the event of a major emergency.

RAYNET (The Radio Amateurs' Emergency Network) is a national network of volunteers ready to step-in and help local authorities and emergency services maintain a link with each other and the outside world in the event of a crisis incident. They would particularly come into their own in a situation where telephone communications were lost or overloaded.

Local RAYNET members recently visited the offices of all the district councils in Cheshire to test their equipment and this week the Lord Mayor of Chester, Councillor Barry Cowper, invited them to the Town Hall to thank them for their work. The Lord Mayor said: "It's important that we recognise the vital work that RAYNET does behind the scenes in Chester and I was delighted to invite members to the Town Hall to talk to them about their role and thank them officially on behalf of the district. "All of RAYNET's members are volunteers who donate their time and expertise to serve the public interest by ensuring effective communications can be maintained during an emergency."

RAYNET was set up following the East Coast Floods in 1953. Hundreds of people died and many families lost their homes during the floods, which highlighted the need for a well-organised amateur radio network to back up councils and emergency services during such incidents. Radio enthusiasts from Cheshire were among the first to join the network. Greg Mossop, RAYNET group controller for the Chester and Ellesmere Port area, said: "Cheshire was at the forefront when the network was first formed 50 years ago, so obviously we're very pleased that our work is being recognised. "Our role is to provide a fall-back system or safety net during an emergency, so even if conventional communication lines like telephone links are lost, contact can still be maintained. "We regularly test and develop our skills by taking part in emergency exercises with the local authorities and by providing back-up radio communications at public events."



From left to right
David Mullock G7GFC, Jane Mossop G1GWS, Greg Mossop G0DUB, David Hicks G6IFA,
Lord Mayor of Chester, Councillor Barry Cowper, Alan Hopkinson G8OJQ,
Graham Pemberton G7NEH, Lady Mayoress of Chester, Gwynn Cowper

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the new Civil Contingencies bill be adopted since RAYNET is one of only two Voluntary agencies mentioned in the guidance notes. RAYNET has gained a reputation over the last 50 years for providing resilient communications when other systems have failed. While the design of those 'other systems' has moved on and we may no longer be the cutting edge of technology, those systems are still vulnerable to failure and we owe it to ourselves and the Network to have as broad an offering as possible so that we can continue to serve for another 50 years.

Other themes to explore include the urbanisation of the country and the concentration of 'normal' communications in those areas,

leaving the rural areas as difficult or uneconomic to cover. This has special relevance to the specification for the **Police BT Airwave service** which is currently being rolled out nationally. A recent ARRL move directed their ARES service to develop a 'National Network' as part of their post 9/11 role is something that we had in the beginning in the 50's but which has been lost in recent years. Our logo implies we do 'what it says on the box'; we are a National Network of Voluntary Emergency Communicators but it is several years since we last undertook a National Networking exercise. Perhaps this is something we should look at in the near future.....

RAYNET Supplies 10% Discount for All Network Members

To facilitate a new stock control and accounting program, items available from RAYNET Supplies have been renumbered and re-priced to allow a common pricing schedule to be used for both Network members and those RAYNET members who are not members of the Radio Amateurs' Emergency Network. Previously there were two separate price lists but now only one will be used with Network members receiving a 10% discount which will be deducted on the Members' order form before post and packing charges are applied. Non Network members will only have access to RAYNET items which do not bear the Network logo. High viz. waistcoats, are supplied with RAYNET badges front and back and also have a transparent pocket to accommodate a RAYNET membership card on the front. High Viz. jackets have transparent badge pockets incl. an ID pocket but no badges. Supplies still has some '50 Years of Service' items, but will not be reordered, and are therefore available only whilst stocks last. The Network ties have been re-designed and are now woven instead of being printed. As well as having the Network logo in white below the knot, the new design incorporates black 'ghost' Network images throughout the fabric, and the stripes are bolder than those on the previous design.

A new simplified postage and packing system which allows for a reduction in postage when more than one item is ordered at any time has been introduced. In addition to a single postage cost for each item, a banding code gives a rate for multiple items. This allows customers to work out their postage when ordering without having to contact Katie, GMOUIG, the Supplies Manager, for a postage quote.

RAYNET Supplies will be at the Norbreck Rally in Blackpool on Sunday 21st. March, and, as usual, items ordered and paid for in advance will be taken to the Rally for collection without postage and packing charges. Orders for this service must be prepaid and should reach RAYNET Supplies no later than Thursday 12th. March.

A price list and order form accompany this edition of RAY~Link, and full Supplies details can also be obtained within the Members' Section of www.raynet-uk.net Please remember when looking at the price list that all prices are shown before the Network members' discount of 10% is applied, and that this should be deducted when ordering.

The e-mail address of RAYNET Supplies is supplies@raynet-uk.net and the telephone number is 0141-638 0732. Your completed order, together with a cheque for the discounted total plus the post & packing charge should be sent to RAYNET Supplies, 85 Eastwoodmains Road, Clarkston, GLASGOW, G76 7HG. Unfortunately as it is not possible to maintain a stock of every item because there are too many sizes and styles to make this practical, you should allow 21 days for receipt of your order. Orders for items which are in stock are usually dispatched within two or three days of receipt of your order.

APRS in Manchester Jon Mossman G7JJK

Greater Manchester RAYNET held an APRS Tracking workshop on Sunday 1st February with the intention of getting as many people interested in APRS operational as quickly as possible. Eight members took part and all went home at the end of the day with a working system. A bulk order had previously been sent for the TinyTrack3 units that are available from www.byonics.com The first task was to construct these, and members more experienced in the construction of these units assisted the less experienced participants. After a couple of incidences of dry joints, we had eight units happily beaming away!

The next task was a little more difficult. This was to interface the TinyTrack units to their own GPS units and transceivers. Luckily all had brought the instruction manuals for their radios so the differing connection diagrams were readily available. Eventually all the interface leads had been made and a laptop was put to use configuring the units with callsigns etc. The concept of the workshop was prompted by a presentation from Greg Mossop, G0DUB at the RAYNET AGM last year who suggested that we should be embracing new technology more so as to be able to offer our user services a wider ranging service than just voice links. (See the article by Greg in this edition of RAY~Link - Ed) It is important however that the new technology enhances but does not replace our service and that we retain the core skills which we do so well.

All the members who took part thought it had been well worth it and that they had benefited from working in a group. Greater Manchester RAYNET also benefited in that we got an APRS group up and running very quickly. A training exercise is now planned for the spring to test the system properly.

Mobile Antennas Jim Andrews, G1HUL

Have you ever stopped to think how well your mobile antenna performs? This type of antenna is probably the most important item in our RAYNET kit, yet very often just mounted on the vehicle in the most convenient position, with little regard to its radiation pattern or indeed if it has a good ground plane or not. But how do we know what is good or bad? Well, you could go to the Local supermarket car park and drive in circles, whilst someone sits in the corner and monitors the signal on a scanner with a big attenuator. This technique works to a basic level, but is not very scientific and cannot measure vertical radiation. In my browsing through the Internet, I stumbled across a report that had been produced in 1991 by an organisation called The Joint Radio Company - "The Spectrum Management Organisation of the UK Fuel & Power companies".

They have done some very exhaustive tests on behaviours of different mobile antennas (1/4 wave 5/8 wave, 4dB collinear and 1/2 wave - Fixed, mag-mount and glass-mount) when placed in different places on different vehicles. The number of permutations is mind-blowing but the tests are excellent reference material. If you are serious about getting the best efficiency from your system, the report is worth a serious read! It can be downloaded at <http://www.jrc.co.uk/download/library/mobant91.shtml>, but the Acrobat PDF file is 8Mb!!

How's your Firewall?

QST for March has just arrived here, and contains an interesting article about operating from small hire car on a journey in southern Mexico. The problem posed by installing an amateur station in a car for a short period without leaving any scars is always a challenging one, and I guess one that many of us face when installing equipment for an event in our own "shopping trolley!" The most difficult problem is probably getting a good DC feed to the rig nowadays where cars don't always offer easy ways through the fire-wall to the cars battery. In his article, David N6TST describes a novel solution which I think would work well for UK drivers.

Most modern vehicles have a fuse board which is accessible from the driver's compartment, and the suggestion is to tap into the fuse point for the cigarette lighter feed. The solution is to tap into the fusible link by drilling through the live side of the link to enable a soldered connection to the leg of the link, making sure that the wire is properly insulated of course. The connecting wire should be a fairly hefty gauge to ensure low losses, short enough to provide a convenient lead to a standard RAYNET power connector. When the rig is taken out of the car, the modified fuse link can be replaced by an unmodified fuse thus ensuring that there is no permanent change to the vehicle. (p47-48)

Training proves invaluable resource.

The same issue includes a report of the work of volunteers last Autumn on the Cedar Fires in San Diego and Sandiego, Orange County and Los Angeles areas. On this occasion, there were no operational mobile phones, a land-line that worked only 5% of the time, and only restricted generator power available. Heavy reliance was placed on the training and advice contained in the ARRL Emergency Communications Course, which proved invaluable, especially for additional amateurs drafted in to assist the regular ARES teams. (pp80-82)

9-11 Commission Report

In CQ magazine February 2004, Rich W2VU reports on attending the recent Emergency Commission sessions on Public/Private sector partnerships for Emergency Preparedness. He came away disappointed because there was very little mention of the Radio Amateur's contribution at the time of the 9-11 attack in New York. I must admit that working on such bodies can be a very frustrating business, and it's interesting that despite all the hype, breaking the professional user barriers down in the US is just as difficult as over this side of the water! Nevertheless it is absolutely vital that we continue to seek representation and recognition of the Amateur's role, and support our national body in this work. (pp8-10)

US Equipment review

The same edition carries a report on VHF and UHF Mobile Transceivers currently available, and contains some very sound advice for RAYNET operators about choosing your next mobile equipment. (pp22-29) There is also a cautionary tale about what can happen when a squirrel takes a fancy to your guy ropes! (p37) Packet update

From the UK comes an update on the packet scene by Roger G3LDI which gives a valuable insight into many of the developments coming along here. There seems to be a move toward rejuvenating packet and taking it into the 21st Century on both side of the Atlantic, and this could prove a useful tool for Raynet. (CQ Feb04. pp44-48)

Ants in your Attic

RADCOM for February carries an interesting description of a comprehensive array of VHF and UHF array of antennas in G6TTL's roof space, and for members with planning permission or neighbour problems may provide some useful advice and pointers. (pp34-35) Sadly still no Emergency Volunteer pages though!

And that concludes the round-up for this issue. If you have difficulty in accessing any of the above original items, please drop me a line QTHR.

Dave Howard, M0BGR

We get out of bed early on a Sunday morning, perhaps drive miles, provide our radio gear free of charge and stand around in the pouring rain to support the User Services at race events. But could we get more from these activities by promoting Amateur Radio and RAYNET?

I am a runner, as well as a RAYNET member, and compete in events which RAYNET are supporting. Sadly, at most of these races, the competitors have no idea who RAYNET are. This is easy to fix. Most events will have bulletin boards, which are avidly read by the competitors as they are used to advertise other racing events. I am sure the race organisers would readily agree to a small poster explaining who we are and what we will be doing at the race. Similarly, there is a place at most events where leaflets may be left for collection. This would be a great place to leave information introducing Amateur Radio and about Foundation Courses etc. in the race area.

What about when you are out on the course and the runners are streaming past you? Obviously, radio traffic has to take priority, but whenever you can, get out of your vehicle, (with a handheld as your radio must be monitored at all times - Ed) and encourage the runners. This is particularly helpful if you are on a part of the course where supporters are sparse or where the runners are having a tough time - near the top of a hill for example. 'Personalised' support is usually particularly welcome - use the number if the runner does not have their name on the vest: "Go on 351 you're doing great!" will often produce a noticeable improvement in that competitor's performance, for a short while at least.

If you have to stay in your car then make sure it is clearly identified as a 'RAYNET' vehicle. I often see cars by the course which I only recognise because I know what a mobile whip looks like. There is nothing wrong with having a large banner by cars saying something like "RAYNET - Amateur Radio Supporting Your Race" to reinforce the poster and other material at race HQ.

At some races, 'Net Control' is located in the same room as 'Race HQ'. This can be a disadvantage as such places tend to be noisy, particularly before the start and when the first runners start arriving back. The advantage is that RAYNET is clearly visible to the runners and to their supporters. In such cases, it is a good idea to put up posters explaining what we are doing and to designate a RAYNET member to talk to the curious and to give them leaflets etc. Often, the supporters have little to do while the runners are out on the far side of the course, so this is an ideal opportunity to spread some interest in our hobby. If Net Control is not in the Race HQ, then try to make it visible to the competitors, spectators and race officials.

At any event, the job we are doing for the User Services must be top priority, but with a little thought before the day, we can also give some valuable publicity to our hobby and RAYNET in particular. With lightweight portable equipment, and initiatives like SOTA, Amateur Radio can now appeal to more active people, so publicity, aimed at both the runners and their supporters, will not be wasted at the events we attend. Finally, I believe that RAYNET is one of UK's best-kept secrets and we need to use every chance we get to widen public understanding about what we can do; what could be better than a well-run event?

(RAYNET flags, with the Network logo, roof mounted vehicle signs, window stickers and magnetic door signs can all be obtained from RAYNET Supplies - Ed.)

RAYNET SUPPLIES
85 Eastwoodmains Road
Clarkston
GLASGOW G76 7HG
supplies@raynet-uk.net

Ref No.	Description	Retail Price	P & P Ref	Banding
1101	Yellow High Visibility Jacket with clear badge pockets but no badges - S	£53.00	£6.00	K
1102	Yellow High Visibility Jacket with clear badge pockets but no badges- M	£53.00	£6.00	K
1103	Yellow High Visibility Jacket with clear badge pockets but no badges - L	£53.00	£6.00	K
1104	Yellow High Visibility Jacket with clear badge pockets but no badges - XL	£53.00	£6.00	K
1105	Yellow High Visibility Jacket with clear badge pockets but no badges - XXL	£53.00	£6.00	K
1106	Yellow High Visibility Jacket with clear badge pockets but no badges - XXXL	£61.00	£6.00	K
1107	Yellow High Visibility Jacket with clear badge pockets but no badges - XXXXL	£61.00	£6.00	K
1111	Yellow High Visibility Sleeveless Waistcoat with RAYNET badges front & back - S	£17.50	£1.75	E
1112	Yellow High Visibility Sleeveless Waistcoat with RAYNET badges front & back - M	£17.50	£1.75	E
1113	Yellow High Visibility Sleeveless Waistcoat with RAYNET badges front & back - L	£17.50	£1.75	E
1114	Yellow High Visibility Sleeveless Waistcoat with RAYNET badges front & back - XL	£17.50	£1.75	E
1115	Yellow High Visibility Sleeveless Waistcoat with RAYNET badges front & back - XXL	£17.50	£1.75	E
1116	Yellow High Visibility Sleeveless Waistcoat with RAYNET badges front & back - XXXL	£17.50	£1.75	E
1117	Yellow High Visibility Sleeveless Waistcoat with RAYNET badges front & back - XXXXL	£17.50	£1.75	E
1121	Yellow High Visibility Long Sleeved Waistcoat with RAYNET badges front & back - S	£22.85	£2.00	F
1122	Yellow High Visibility Long Sleeved Waistcoat with RAYNET badges front & back - M	£22.85	£2.00	F
1123	Yellow High Visibility Long Sleeved Waistcoat with RAYNET badges front & back - L	£22.85	£2.00	F
1124	Yellow High Visibility Long Sleeved Waistcoat with RAYNET badges front & back - XL	£22.85	£2.00	F
1125	Yellow High Visibility Long Sleeved Waistcoat with RAYNET badges front & back - XXL	£22.85	£2.00	F
1126	Yellow High Visibility Long Sleeved Waistcoat with RAYNET badges front & back - XXXL	£22.85	£2.00	F
1127	Yellow High Visibility Long Sleeved Waistcoat with RAYNET badges front & back - XXXXL	£22.85	£2.00	F
1301	Reflective 'RAYNET' badge - S	£2.25	£0.75	A
1302	Reflective 'RAYNET' badge - L	£3.90	£0.75	A
1303	Reflective "RAYNET Controller" badge - S	£3.00	£0.75	A
1304	Reflective 'RAYNET' Controller' badge - L	£5.35	£0.75	A
1311	Embroidered round 'Network' logo sew on badge	£2.50	£0.75	A
1312	Lapel Badge, stud fixing, with round 'Network' logo	£1.10	£0.75	A
1321	Epaulettes - 'RAYNET' - Pair	£7.25	£0.75	A
1322	Epaulettes - 'Controller' - Pair	£11.15	£0.75	A
1331	Window Sticker - 100mm round 'Network' logo, black on yellow	£0.90	£0.75	A
1332	Window Sticker, small, - Text 'RAYNET', black on yellow, 200mm x 60mm	£1.00	£0.75	A
1333	Window Sticker, large, - Text 'RAYNET', black on yellow, 500mm x 125mm	£1.35	£0.75	A
1336	Car Window Panel with suckers	£9.75	£1.75	D
1338	Sign for mounting on vehicle roof rack, double sided, white on blue/red	£20.25	£4.50	J
1341	Magnetic Sign - Text 'RAYNET' white on blue, 310mm x 100mm, each	£6.00	£2.00	E
1342	Magnetic Sign - Text 'Comms by RAYNET' black on yellow, 310mm x 100mm, each	£6.00	£2.00	E
1351	Flag 3'x2' dye printed, black Network logo on yellow polyester roped & toggled	£42.00	£1.75	D
1352	Network Logo Sticker, large - 280mm black on yellow, strong adhesive	£4.45	£1.25	B

All Network Members
are entitled to a 10% discount
deducted from their total order
(see order form)

March 2004

RAYNET SUPPLIES
85 Eastwoodmains Road
Clarkston
GLASGOW G76 7HG
supplies@raynet-uk.net

Ref No.	Description	Retail Price	P & P Ref	Banding
1401	Acrylic V Neck Nato Jumper embroidered round Network logo - S	£15.55	£2.75	G
1402	Acrylic V Neck Nato Jumper embroidered round Network logo - M	£15.55	£2.75	G
1403	Acrylic V Neck Nato Jumper embroidered round Network logo - L	£15.55	£2.75	G
1404	Acrylic V Neck Nato Jumper embroidered round Network logo - XL	£15.55	£2.75	G
1404	Acrylic V Neck Nato Jumper embroidered round Network logo - XXL	£15.55	£2.75	G
1406	Acrylic V Neck Nato Jumper embroidered round Network logo - XXXL	£15.55	£2.75	G
1411	Acrylic V Neck Nato Jumper embroidered text 'RAYNET' - S	£15.55	£2.75	G
1412	Acrylic V Neck Nato Jumper embroidered text 'RAYNET' - M	£15.55	£2.75	G
1413	Acrylic V Neck Nato Jumper embroidered text 'RAYNET' - L	£15.55	£2.75	G
1414	Acrylic V Neck Nato Jumper embroidered text 'RAYNET' - XL	£15.55	£2.75	G
1415	Acrylic V Neck Nato Jumper embroidered text 'RAYNET' - XXL	£15.55	£2.75	G
1416	Acrylic V Neck Nato Jumper embroidered text 'RAYNET' - XXXL	£15.55	£2.75	G
1441	Sweatshirt, navy, with embroidered round Network logo in gold - S	£16.15	£2.25	F
1442	Sweatshirt, navy, with embroidered round Network logo in gold - M	£16.15	£2.25	F
1443	Sweatshirt, navy, with embroidered round Network logo in gold - L	£16.15	£2.25	F
1444	Sweatshirt, navy, with embroidered round Network logo in gold - XL	£16.15	£2.25	F
1445	Sweatshirt, navy, with embroidered round Network logo in gold - XXL	£16.15	£2.25	F
1446	Sweatshirt, navy, with embroidered round Network logo in gold - XXXL	£16.15	£2.25	F
1451	Sweatshirt, navy, with embroidered text 'RAYNET' in gold - S	£16.15	£2.25	F
1452	Sweatshirt, navy, with embroidered text 'RAYNET' in gold - M	£16.15	£2.25	F
1453	Sweatshirt, navy, with embroidered text 'RAYNET' in gold - L	£16.15	£2.25	F
1454	Sweatshirt, navy, with embroidered text 'RAYNET' in gold - XL	£16.15	£2.25	F
1455	Sweatshirt, navy, with embroidered text 'RAYNET' in gold - XXL	£16.15	£2.25	F
1456	Sweatshirt, navy, with embroidered text 'RAYNET' in gold - XXXL	£16.15	£2.25	F
1461	Polo Shirt, navy, with embroidered round Network logo in gold - S	£14.95	£2.25	F
1462	Polo Shirt, navy, with embroidered round Network logo in gold - M	£14.95	£2.25	F
1463	Polo Shirt, navy, with embroidered round Network logo in gold - L	£14.95	£2.25	F
1464	Polo Shirt, navy, with embroidered round Network logo in gold - XL	£14.95	£2.25	F
1465	Polo Shirt, navy, with embroidered round Network logo in gold - XXL	£14.95	£2.25	F
1466	Polo Shirt, navy, with embroidered round Network logo in gold - XXXL	£14.95	£2.25	F
1471	Polo Shirt, navy, with embroidered text 'RAYNET' in gold - S	£14.95	£2.25	F
1472	Polo Shirt, navy, with embroidered text 'RAYNET' in gold - M	£14.95	£2.25	F
1473	Polo Shirt, navy, with embroidered text 'RAYNET' in gold - L	£14.95	£2.25	F
1474	Polo Shirt, navy, with embroidered text 'RAYNET' in gold - XL	£14.95	£2.25	F
1475	Polo Shirt, navy, with embroidered text 'RAYNET' in gold - XXL	£14.95	£2.25	F
1476	Polo Shirt, navy, with embroidered text 'RAYNET' in gold - XXXL	£14.95	£2.25	F

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March 2004

RAYNET SUPPLIES
85 Eastwoodmains Road
Clarkston
GLASGOW G76 7HG
supplies@raynet-uk.net

Ref No.	Description	Retail Price	P & P Ref	Banding
1501	Pilot Shirt, blue or white, with embroidered round Network logo - Short Sleeves - 15"	£11.70	£2.25	F
1502	Pilot Shirt, blue or white, with embroidered round Network logo - Short Sleeves - 15.5"	£11.70	£2.25	F
1503	Pilot Shirt, blue or white, with embroidered round Network logo - Short Sleeves - 16"	£11.70	£2.25	F
1504	Pilot Shirt, blue or white, with embroidered round Network logo - Short Sleeves - 16.5"	£11.70	£2.25	F
1505	Pilot Shirt, blue or white, with embroidered round Network logo - Short Sleeves - 17"	£11.70	£2.25	F
1506	Pilot Shirt, blue or white, with embroidered round Network logo - Short Sleeves - 17.5"	£11.70	£2.25	F
1507	Pilot Shirt, blue or white, with embroidered round Network logo - Short Sleeves - 18"	£11.70	£2.25	F
1508	Pilot Shirt, blue or white, with embroidered round Network logo - Short Sleeves - 18.5"	£11.70	£2.25	F
1511	Pilot Shirt, blue or white, with embroidered round Network logo - Long Sleeves - 15"	£12.25	£2.25	F
1512	Pilot Shirt, blue or white, with embroidered round Network logo - Long Sleeves - 15.5"	£12.25	£2.25	F
1513	Pilot Shirt, blue or white, with embroidered round Network logo - Long Sleeves - 16"	£12.25	£2.25	F
1514	Pilot Shirt, blue or white, with embroidered round Network logo - Long Sleeves - 16.5"	£12.25	£2.25	F
1515	Pilot Shirt, blue or white, with embroidered round Network logo - Long Sleeves - 17"	£12.25	£2.25	F
1516	Pilot Shirt, blue or white, with embroidered round Network logo - Long Sleeves - 17.5"	£12.25	£2.25	F
1517	Pilot Shirt, blue or white, with embroidered round Network logo - Long Sleeves - 18"	£12.25	£2.25	F
1518	Pilot Shirt, blue or white, with embroidered round Network logo - Long Sleeves - 18.5"	£12.25	£2.25	F
1521	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Short Sleeves - 15"	£11.70	£2.25	F
1522	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Short Sleeves - 15.5"	£11.70	£2.25	F
1523	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Short Sleeves - 16"	£11.70	£2.25	F
1524	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Short Sleeves - 16.5"	£11.70	£2.25	F
1525	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Short Sleeves - 17"	£11.70	£2.25	F
1526	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Short Sleeves - 17.5"	£11.70	£2.25	F
1527	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Short Sleeves - 18"	£11.70	£2.25	F
1528	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Short Sleeves - 18.5"	£11.70	£2.25	F
1531	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Long Sleeves - 15"	£12.25	£2.25	F
1532	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Long Sleeves - 15.5"	£12.25	£2.25	F
1533	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Long Sleeves - 16"	£12.25	£2.25	F
1534	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Long Sleeves - 16.5"	£12.25	£2.25	F
1535	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Long Sleeves - 17"	£12.25	£2.25	F
1536	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Long Sleeves - 17.5"	£12.25	£2.25	F
1537	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Long Sleeves - 18"	£12.25	£2.25	F
1538	Pilot Shirt, blue or white, with embroidered text "RAYNET" - Long Sleeves - 18.5"	£12.25	£2.25	F

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RAYNET SUPPLIES
85 Eastwoodmains Road
Clarkston
GLASGOW G76 7HG
supplies@raynet-uk.net

Ref No.	Description	Retail Price	P & P Ref	Banding
1601	Fleece, grey, with embroidered round Network logo in gold - S	£27.90	£4.25	H
1602	Fleece, grey, with embroidered round Network logo in gold - M	£27.90	£4.25	H
1603	Fleece, grey, with embroidered round Network logo in gold - L	£27.90	£4.25	H
1604	Fleece, grey, with embroidered round Network logo in gold - XL	£27.90	£4.25	H
1605	Fleece, grey, with embroidered round Network logo in gold - XXL	£27.90	£4.25	H
1611	Fleece, grey, with embroidered text "RAYNET" in gold - S	£27.90	£4.25	H
1612	Fleece, grey, with embroidered text "RAYNET" in gold - M	£27.90	£4.25	H
1613	Fleece, grey, with embroidered text "RAYNET" in gold - L	£27.90	£4.25	H
1614	Fleece, grey, with embroidered text "RAYNET" in gold - XL	£27.90	£4.25	H
1615	Fleece, grey, with embroidered text "RAYNET" in gold - XXL	£27.90	£4.25	H
1701	Tie, navy, with round 'Network' logo in white	£7.25	£1.25	B
1702	Headscarf, navy, with round 'Network' logo in white	£6.00	£0.75	A
1703	Baseball Cap, black, with round Network logo embroidered in gold	£5.60	£1.50	C
1704	Baseball Cap, black, with text 'RAYNET' embroidered in gold	£5.60	£1.50	C
1801	Transparent ID badge holder with clip	£1.65	£0.75	A
1802	Keyring with leather fob with round 'Network' logo	£3.10	£0.75	A
1821	18 amp RAYNET standard connectors - Pack of 10 pairs	£8.35	£1.50	C
1831	Emergency Cone Light with gravity switch, amber LEDs	£5.60	£2.00	E
1851	Fold-over yellow clipboard with round 'Network' logo printed in black	£7.25	£2.75	G
1852	Fold-over yellow clipboard with '50 Years of Service' logo printed in black	£7.25	£2.75	G
1861	PALight 4 function palm size torch with '50 Years of Service' logo	£12.25	£1.50	C
1871	'50 Years of Service' white mugs	£4.50	£2.00	E

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RAYNET Supplies

85 Eastwoodmains Road, Clarkston, Glasgow. G76 7HG
 e-mail: supplies@raynet-uk.net Phone 0141-638 0732 Fax 0141-621 1000

Supplies Order Form for use of Network Members.

Purchaser's Details (Please print clearly!)

Name	Callsign
Address	Postcode
	Date
	Telephone
Email address	Group code (Printed on the back of your membership card.)

Please supply the following (State size and colour if appropriate)					
<i>Qty</i>	<i>Ref</i>	<i>Description</i>	<i>Size</i>	<i>Colour</i>	<i>Members' Price</i>
Cost of Order					£
DEDUCT 10% Members' Discount					£
Add Post & Packing (See note below)					£
Cheque / PO enclosed with the Order Total					£

Postage Banding:- For an order of one item, please add the postage amount shown against the item.

For orders of multiple items, please add postage as follows:-

Band A:- Up to four items for £0.75 or up to ten items for £1.50.

Bands B to K inclusive:- Add all postages and deduct £0.25 per item in bands B to K.

(No deduction for one single item in bands B – K if ordered with a free postage item in Band A)

Orders will be dispatched as soon as possible, but please allow 21 days for delivery.

RAYNET Supplies reserves the right to alter specifications and / or prices without prior notification.

All orders deducting 10% will be checked against the national registrations database.