RAYNET REQUIREMENTS SPECIFICATION

Prepared By:
Checked By:
Approved for issue:

Number	Title	Requirement	Justification	Priority	Objective	Threshold	Verification Criteria	Remarks
Int.1	Independence of Networks	"such networks be robust, flexible and independent of other telecommunications services and capable of operating from emergency power"	ITU R-1042-3		Full network operation with no dependency on Internet or mains power systems.	Able to operate a voice network for 4 hours continuously or longer by pre-arranged sked according to incident battle rhythm.		Links to compliance with Nat.1 -Nat.4
Int. 2	Interoperability of networks	Able to render aid/assistance to overseas countries by message relay.	IARU/ITU/IFRC MoU		Common message handling procedures able to transfer messages in any language.	Able to transfer messages using the latin alphabet.	Participation in GlobalSET exercises	Also able to be demonstrated by participation in regular message handling nets.
Nat.1	No notice failure of public telephony provider	Loss of service for 100k people for 5 hours	National Risk Register H40		Provision of communications to all User Service Specified locations	Provision of baseline communications between User Service Strategic Commands		Groups to identify Strategic command locations for User Services.
Nat 2	Technical failure of electricity network	Total shutdown of electricity supply for whole of mainland UK for 24 hours	National Risk Register H41		Provision of communications to all User Service Specified locations	Provision of baseline communications between User Service Strategic Commands		Groups to identify Strategic command locations for User Services.

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Nat 3	Telecommunication infrastructure- human error	Loss of telecommunications for 5 days	National Risk Register H43		Provision of communications to all User Service Specified locations	Provision of baseline communications between User Service Strategic Commands		Groups to identify Strategic command locations for User Services.
Nat 4	Technical failure of electricity network	Total shutdown of supply over a region for 24 hours	National Risk Register H45		Provision of communications to all User Service Specified locations	Provision of baseline communications between User Service Strategic Commands		Groups to identify Strategic command locations for User Services.
Nat 5	Provide Strategic co-ordination of RAYNET groups	Maintain Situational Awareness of live and developing incidents			Maintenance of appropriate 'response' pages on ResilienceDirect with all relevant RAYNET controllers present on the RD Chat facility to identify current and future resource needs and mobilise other groups to support accordingly.	Maintenance of national HF net		Requires encouragement from Zone and County Co-Ordinators.

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Nat 6	Auditable communications	Maintain an audit log of all formal messages (or interactions) for subsequent Coroners/Public Enquiries	- Blackstone's Emergency Planning, Crisis and Disaster Management Second Edition Chap 5 CCA Emergency Response and Recovery Guidance Section 4.2 - NARU C&C Guidance V1.2 Oct 2015 - Emergency response and recovery paragraphs 4.6.1 – 4.6.4		Written logs maintained of all message interactions.	Recordings maintained which can be transcribed by the original operator into the written records required by enquiries.		High level decision log sheets already available.
Nat 7	Secure Voice Commmunications	Encryption of Voice messages when required by a Senior User Service Officer	Amateur Service Licence Provision.		128 bit encryption using DMR units.	64 bit encryption using DMR units.		Suppliers encryption cannot be mixed.
Nat 8	Secure Data Communications	Encryption of Written messages when required by a Senior User Service Officer	Amateur Service licence provision.		2048bit encryption using GnuPG	512bit encryption using GnuPG		Consider limitations of transmission mode.

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Zones may also need specific requirements based on their local history or requirements.								
Zone.7.1	Equipment to be Commercially available	All RAYNET equipment must be 'Commercial Off the Shelf'	CEPO Demand		All equipment should be CE Marked? Comply with KiteMark?		Uncertain – if we wrap equipment in a nice box with an 'ASI'* logo would it pass? This approach already used by FEEDNET to hide Raspberry Pi in 'professional' racks. * ASI="All Spares Inside".	Comment made by G8RXA (SK) and substantiated by Technology Survey returns. But we should defend against requirements which compromise our overall capabilities.
Generic Group Requirements which will allow Groups to benchmark performance against others.								
Group.1	Minimum mobilisation	Able to mobilise three members within 1 hour of User Service request			Three members to be mobile within one hour with basic voice communications	Two members to be mobile within one hour with basic voice communications.	Callout exercises	Last tested in GlobalSET 2016 (in most areas)
Group.2	Long term mobilisation	Able to mobilise group on a shift basis to staff three locations for three days.	Duration from Community Risk Registers		Able to resource requirement from within group.	Able to sustain requirement for first 24 hours then reinforced by adjacent groups.		Last tested in 2008 Cumbria Floods and earlier Tywyn floods

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Group.3	Enhanced mobilisation (data)	Able to mobilise VHF/UHF data network	Cabinet Office Resilient Telecommunications Guidance		Able to support multipoint wide area data network (1200/9600 baud)	Able to support single point to point network.		
Group.4	Enhanced mobilisation (IEEE802.x)	Able to provide WiFi links capable of supporting E-mail/VoIP etc.			Able to support wide area Wi-Fi network	Able to provide single point to point link between User Service controls.		FEEDNET is the exemplar of the objective being met.
Group.5	Wide Area communications	Able to provide zonal/county wide communications			Able to provide communications from affected area to nearest User Service control points (voice and data)	Able to provide communications from affected area to nearest User Service control points (voice)		e.g. in Zone 10, there is no Ambulance Service Control on Cheshire or Cumbria. Those counties may need to facilitate links back to Bootle (Liverpool) or Preston. Delivery may be either through HF or VHF **This requires inter-Group Co-Operation !**

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Groups may also need specific requirements based on their Community Risk Registers								
Group 10.312.1	Rest Centre Communications	Provide communications from up to two Rest Centres in West Cheshire to CWAC HQ in Chester	Cheshire Rest Centre Plan		Provide voice and data communications from the designated rest centres for the use of the Rest Centre Manager and if appropriate welfare message services to the occupants.	Provide voice communications from the designated rest centres for the use of the Rest Centre Manager.		An Example of how a local level requirement may be expressed for West Cheshire RAYNET

Reference Documentation

http://www.enisa.europa.eu/activities/Resilience-and-CIIP/Incidents-reporting/power-supply-dependencies/

What do the columns mean?

Number – Requirements broken down by system or organisational unit.
Title – What are we trying to achieve.
Requirement – "The system shall..."
Justification – Why? Words like 'duty of care' or link to regulatory requirements.
Priority – How desperate are we for it?
Objective – What does good look like?
Threshold – What is the minimum tolerable for success?
Verification Criteria – How will we test that this works? Testing, exercises etc.
Remarks – Any interlinks with other systems or requirements. Any other comments.

Structure

The requirements are broken down into the following levels to demonstrate how requirements vary depending on viewpoint or that they may map across a number of levels.

International – Requirements set by International Regulations/Treaties etc. e.g. ITU Radio Regulations and Recommendations

National – Requirements set by Central Government Risk Assessments or 'Good Practice' requirements on National RAYNEt to provide a 'joined up' response.

Zone – Specific requirements identified by Zones where local authorities may have raised concerns or requirements forced by lack of co-terminous boundaries between user services.

Group – Group.n are a generic view of how requirements may be expressed across all Groups. This is an approach that would allow grading of groups against capabilities and has been suggested by a HMG resilience contractor when he read of 'Resource Typing' used in North America for all responders. The alternative view is expressed on an individual Group basis in Group.zz/nnn/n where an individual group has a clear requirement from their users. This would be a useful challenge to some of the responses in the Technology survey where groups have identified an emergency need for (say) SSTV but there is no clear evidence of use/deployment.

BC (Business Continuity) - Requirements to ensure that RAYNET itself is not compromised by the technology failures we are providing solutions to. These could be seen as National only requirements but many of them map to lower levels in the organisation as best practice.