5th Year

NEWSLETTER

Edition 14 Summer 2015

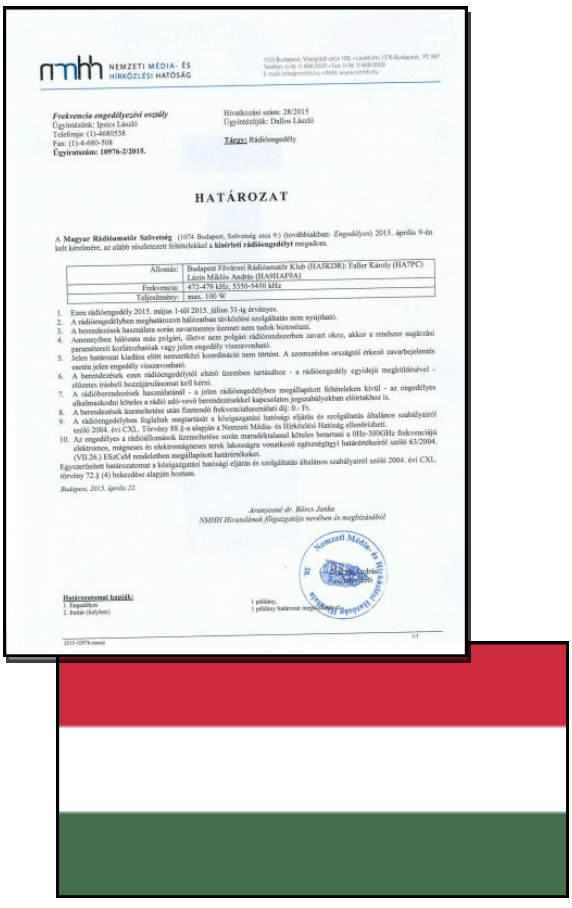
CEPT Agrees 5 MHz European Common Proposal for WRC 15

THE final meeting of the *CEPT* Conference Preparatory Group took place in Bergen, Norway during the week 14th -18th September, at which was adopted the final European Common Proposal for WRC-15 Agenda Item 1.4 - the adoption of a **European Common Proposal for an allocation of 100 kHz between 5350 - 5450 kHz for the Amateur Service**. The proposal represents the views of the majority of CEPT countries with Azerbaijan, France, Germany, Romania and the Russian Federation opposing. This proposal will now be included in the documents for discussion at WRC15 at which further discussion is anticipated before a final conclusion is reached.

CEPT (*Conférence Européenne des Postes et Télécommunications*) is the European regional body of telecommunication regulators: *http://www.cept.org/ecc/groups/ecc/cpg/page/8th-cpg-meeting-took-place-in-bergen,-norway*

(Tnx: IARU R1, G3PSM, CEPT)

Hungary issues Experimental Permits for 5 MHz Band



THE Hungarian telecoms regulator, **NMHH** (The National Media & Infocommunications Authority – Hungary), following representations from the Hungarian national amateur radio society, MRASZ, has been issuing temporary permits for operation in the band **5350 – 5450 kHz** on a **Secondary basis** for propagation research.

The permits are valid for three months and can be re-applied for at the conclusion of the period. **All modes** are permitted with a maximum power of **100W** (measured at the transceiver output terminal) currently in a nominal maximum bandwidth of **3 kHz**.

Hungarian amateurs apply for the permit via MRASZ, who collate the information required then forward it to NMHH who issue the permit. Activity days are being organised and there is a CW beacon on 5357 kHz with the callsign HG7BHB.

Hungarian amateurs are aware that although their permits allow them to use a band of frequencies, some countries have channelized allocations on 5 MHz and they will be respecting these also. Currently some 20 – 30 permits have been issued.

It is hoped that the situation may become more permanent later in the year.

(Tnx: HA7PL, OK1RP)

In this issue .....

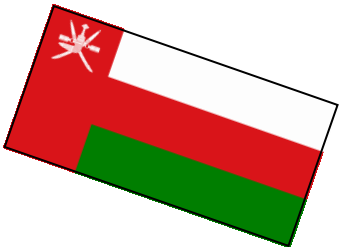
Oman 5 MHz Band Allocation

NEWS has reached us as we go to press, that Oman is allowing 5 MHz operation by means of temporary permits in co-operation with the Royal Omani Amateur Radio Society (ROARS).

It is a band allocation with a range of ***5319 - 5349 kHz.*** CW, SSB and Digital Modes are allowed. Suggested sectors are CW: 5319 - 5328 kHz, Datamodes: 5328 - 5337 kHz and SSB: 5337 - 5346 kHz. Other suggested channels are DX: 5320 - 5323, 5330.5 - 5334, 5346 - 5349 and UK: 5333 - 5338 kHz.

Further permit information has been requested but is still awaited at time of publication.

(Tnx: A45WH, ROARS, W8GEX)



5 MHz band allocation for Netherlands expected soon

FOLLOWING approaches by the Dutch national amateur radio societies of VERON and VRZA, plus subsequent discussions with the Dutch Military over a number of years, it has been agreed with the Dutch regulator, ***Agentschap Telecom (AT),*** that temporary access to 5 MHz may be granted as an amendment in the next round of changes to the National Frequency Plan (NFP).

The expectation is that **the band 5350 to 5450 kHz will be made available on a Secondary basis** in Autumn 2015, following the process of the requisite documents through the official system.

Obviously further details will be available as soon as this is ratified and active.

(Tnx: VERON, VRZA, AT)

5 MHz Upgrade coming for Honduras

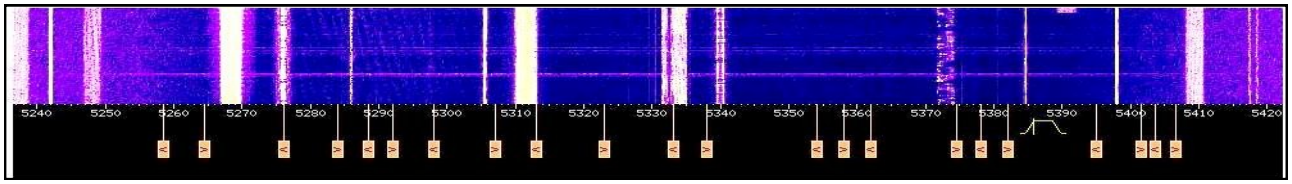
HONDURAS, according to its national regulator's website - ***CONATEL Honduras*** - has had 5 MHz access since 2010, based on the original USA FCC five channel system. They have recently decided to upgrade the allocation to the newer US FCC system which allows for a power increase to 100W, a channel exchange, plus datamodes. Once this has been published in the official Honduras Government Gazette, it will become operational - ***http://www.conatel.gob.hn/wp-content uploads/2015/08/ Modificacion-al-Reglamento-de-Radioaficionados.pdf***

(Tnx: CONATEL Honduras)

Latest Web Software Defined Receivers covering 5 MHz

WEB-BASED SDR's are proving to be a very useful resource. The original one covering 5 MHz was the one at the Dutch University of Twente with its Zero-to-29.160 MHz frequency range. Since then more Web SDRs covering 5 MHz have appeared. Here's the latest selection. Also visit ***http://www.websdr.org/***

http://websdr.duckdns.org:8901/	G4FSU, S.W. England	*IO81QF*	5.264 - 5.456 MHz
http://hackgreen.no-ip.org:8901/	Hack Green, Nantwich, Cheshire UK	*IO83RA*	5.237 - 5.428 MHz
http://www.160m.net/	G4FPH, Located in Central England	*IO92AS*	5.176 - 7.224 MHz
http://www.cheshiresdr.co.uk/	Cheshire, NW UK	*IO83NE*	5.176 - 7.224 MHz
http://websdr.ewi.utwente.nl:8901/	University of Twente, Enschede, The Netherlands	*JO32KF*	0.000 - 29.160 MHz
http://www.websdr.at/	Markt Allhau, South East Austria,	*JN87BH*	5.200 - 7.248 MHz
http://83.91.186.43:81/	OZ6FRS, Fredericksund, Denmark	*JO65CS*	5.254 - 5.446 MHz
http://96.225.39.43:8902/	K2SDR, New Jersey, USA	*FN20XD*	5.326 - 7.374 MHz
http://sdr.radioandorra.org:8901/	ARDAM, Ordino, Andorra	*JN02SN*	5.262 - 5.454 MHz



Screenshot of the Hack Green Web SDR, showing the limits of the UK 5 MHz Allocations

G3ENI 5 MHz Pyramid NVIS Antenna

REGULAR columnist John Pegler, G3ENI, describes an omni-directional compact antenna designed specifically for Near Vertical Incidence Skywave (NVIS) propagation, radiating primarily in a vertical direction.

He writes " *This antenna is ideal for the small garden, can be assembled easily for portable use, has low visual impact and can be located clear of other antennas.* "

" *It consists of a half wavelength of wire with the two arms bent in the form of triangles and assembled in the shape of a square-based pyramid as shown in Fig. 1 with Fig. 2 showing a plan view. When radiating, there is little reaction between the sloping wires that are at right angles, with orthogonal polarisation.* "

" *The apex is supported on a short insulated pole and the base points are secured to tent pegs or similar insulated ground anchors so that the horizontal sections are some 1 to 2 ft. above the ground. The feeder can be fed up and secured to the insulated pole and any 1 : 1 balun can be used at the antenna wire feed point.* "

" *For 5 MHz, the total length of wire is about 88 ft. The sloping wires (A) are 13 ft. and the horizontal ones (B) 18 ft., for a mast height (D) of 11 ft. which includes the extra 2 ft. (C) to keep the horizontal wires off the ground.* "

" *For Non - NVIS there will be a loss of about 16dB compared to a half-wave dipole at 30 ft.* "

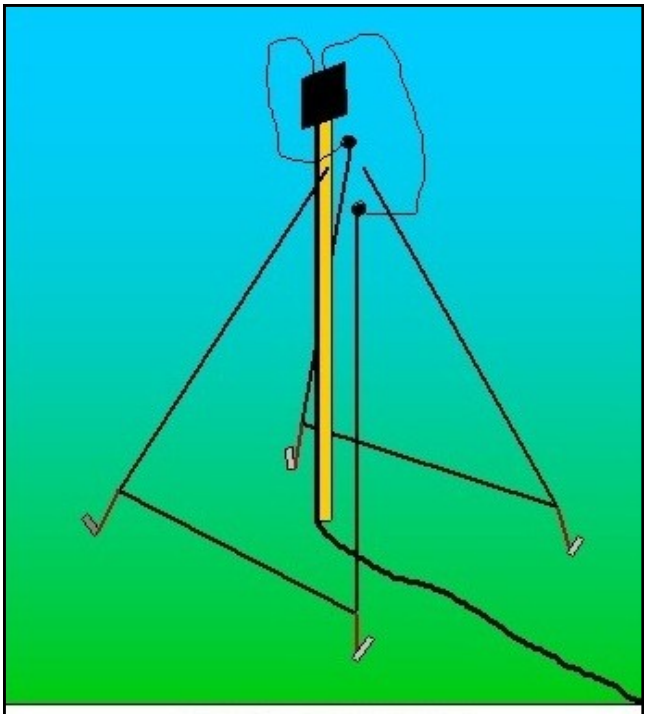


Fig. 1 : General Appearance

DIMENSIONS		
Length	*Imperial*	*Metric*
A	13ft.	3.96m
B	18ft.	5.5m
C	2ft.	0.61m
D	11ft.	3.35m

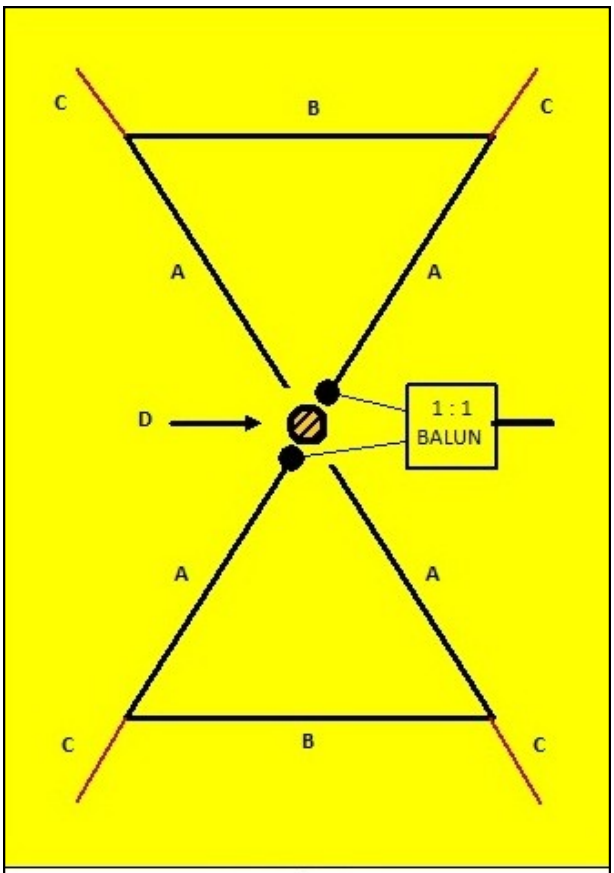


Fig. 2 : Plan View

" *Note that with QRO there will be quite high RF voltage on the horizontal wires at the low height of 2 to 3 ft.* "

[Editor's Note: In view of this and other Health & Safety/Risk Assessment considerations, it may be practical and prudent to cordon off the antenna area with high visibility yellow-and-black hazard tape.]

John also remarks that the antenna will operate off the ground as well as at height.

This antenna was first described to the Thames Valley Amateur Radio Transmitting Society (TVARTS) and subsequently appeared in the 'Technical Topics' section of RadCom, December 2002, page 64.

(Tnx: RSGB, G3ENI, G3ZUN)

It is with great sadness that we have to inform you that John, G3ENI, became a Silent Key on 12th Sept. 2015

This article is dedicated in his memory

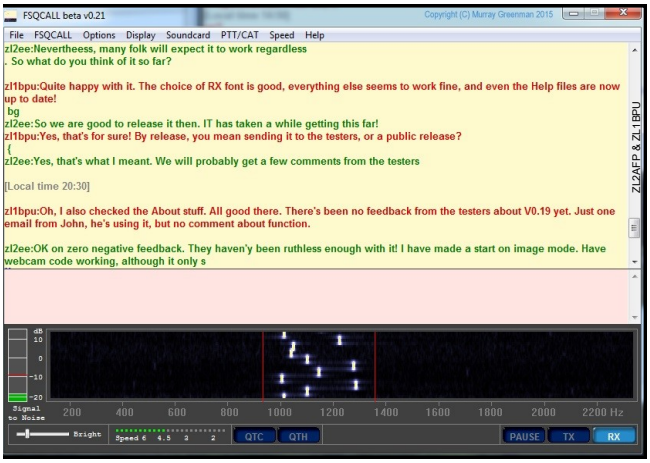
FSQ - Versatile New Datamode Optimised for NVIS

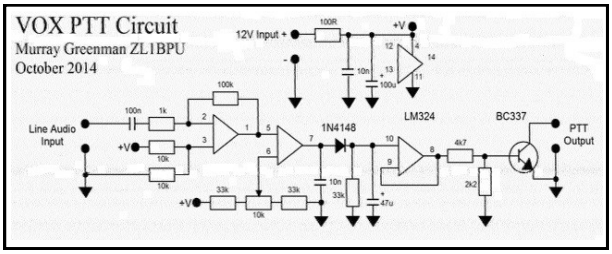
FSQ or **F**ast **S**imple **Q**SO is a new datamode developed by Con Wassilieff, ZL2AFP with the assistance of Murray Greenman, ZL1BPU that has been optimized for HF use particularly on NVIS.

Intended for fixed frequency (channelized) operation with dedicated calling frequencies, **FSQ** is designed for simple but effective 'Chat' operation, rather like phone text messaging or Skype™ chat; fast and easy to use. You don't use 'overs' as you would with a conventional digital or voice mode. It is highly suited to net operation. You just type a sentence and press ***Enter***. It isn't intended as a 'tune around to see what you can find' mode, although it can also be used in a 'directed messaging' mode which is useful for net or emergency operations..

In addition to text , **FSQ** also supports picture modes:

Directed Image Transfer - **FSQ** can be used to transmit and receive good quality pictures using special formats that have also been designed for NVIS propagation. The signals are analogue, of similar bandwidth to the **FSQ** digital transmissions. The transmissions can be used in Chat mode and in Directed mode can be directed to specific (or all) stations for automatic reception. There are three modes: LO-RES COLOUR, HIGH-RES COLOUR and **FSQ**-FAX (B&W). Pictures can be transmitted from file photos, scanned documents, drawings and live shots from a web-cam





(this VOX PTT circuit is one example). Most of these have successfully been achieved with powers of around 15 W on lower bands over a 300 km path.

Various add-on modules are available for specific purposes, including a selective calling variant similar to, but it is claimed slightly more flexible than, ALE - *FSQCall*.

The technical make-up of **FSQ** is based on various elements - it uses 33 tones, spaced 9Hz apart (actually 8.7890625 Hz, exactly 1.5 x the baud rate at the highest speed), resulting in a signal bandwidth of 300Hz. The ITU Emission Designator is **300HF1B**. Modulation is constant amplitude, phase coherent MFSK, using IFK+ coding with 32 frequency differences, yielding 32 unique codes. Incremental MFSK Coding is used with no 'idle' process, FFT demodulation and automatic preamble. For character coding, a high typing speed is achieved through the use of the **FSQ** Varicode alphabet shown bottom left.

Unfortunately space does not permit a technical description of the **FSQ** image modes, but these, together with all the **FSQ** programme modules can be found on Murray, ZL1BPU 's website at ***http://www.qsl.net/zl1bpu/MFSK/FSQweb.htm***

(Tnx: ZL2AFP, ZL1BPU)

CHAR	ASCII	VAR	CHAR	ASCII	VAR	CHAR	ASCII	VAR	CHAR	ASCII	VAR
SPACE	32	0	@	64	0,29	`	96	9,31	CRLF	13/10	28
!	33	11,30	A	65	1,29	a	97	1	IDLE	0	28,30
"	34	12,30	B	66	2,29	b	98	2	±	241	10,31
#	35	13,30	C	67	3,29	c	99	3	÷	246	11,31
$	36	14,30	D	68	4,29	d	100	4	°	248	12,31
%	37	15,30	E	69	5,29	e	101	5	x	158	13,31
&	38	16,30	F	70	6,29	f	102	6	£	156	14,31
'	39	17,30	G	71	7,29	g	103	7	BS	8	27,31
(	40	18,30	H	72	8,29	h	104	8			
)	41	19,30	I	73	9,29	i	105	9			
*	42	20,30	J	74	10,29	j	106	10			
+	43	21,30	K	75	11,29	k	107	11			
,	44	27,29	L	76	12,29	l	108	12			
-	45	22,30	M	77	13,29	m	109	13			
.	46	27,	N	78	14,29	n	110	14			
/	47	23,30	O	79	15,29	o	111	15			
0	48	10,30	P	80	16,29	p	112	16			
1	49	1,30	Q	81	17,29	q	113	17			
2	50	2,30	R	82	18,29	r	114	18			
3	51	3,30	S	83	19,29	s	115	19			
4	52	4,30	T	84	20,29	t	116	20			
5	53	5,30	U	85	21,29	u	117	21			
6	54	6,30	V	86	22,29	v	118	22			
7	55	7,30	W	87	23,29	w	119	23			
8	56	8,30	X	88	24,29	x	120	24			
9	57	9,30	Y	89	25,29	y	121	25			
:	58	24,30	Z	90	26,29	z	122	26			
;	59	25,30	[	91	1,31	{	123	6,31			
<	60	26,30	\	92	2,31	|	124	7,31			
=	61	0,31	]	93	3,31	}	125	8,31			
>	62	27,30	^	94	4,31	~	126	0,30			
?	63	28,29	_	95	5,31	DEL	127	28,31			

WSQ Varicode V3.0

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ZL2AFP &

Postscript.....

Hi All,

Glad - well, it is our 5th birthday ! (1st Edition Sept 2011), plus recent news of 5 MHz band allocations from Hungary, Oman, Netherlands and Honduras, plus a CEPT ECP for 5350 – 5450 kHz. Sad - however, all of this is tinged with regret at the news of the passing of one of our most prominent contributors, John Pegler, G3ENI, as we went to press. Together with his colleague Danny Sharpe, G3ZUN, they have been responsible for numerous practical and graphical contributions to The 5 MHz Newsletter. *A full tribute will appear in our next edition. John was a great supporter of 5 MHz (and amateur radio) in the UK in many ways over the years and I 'm sure we shall all miss his contributions.*

Paul Gaskell, G4MWO,
Editor, The 5 MHz Newsletter