Wouxun KG-UVD1P
Wouxun KG-UV2D
Wouxun KG-UV3D
VHF/UHF Handheld FM Transceivers
<u>User's Manual</u>

Version 1.6, May 23rd 2012

Table of Contents

1   Preface

The Wouxun KG-UVD1P, KG-UV2D and KG-UV3D VHF/UHF FM handheld transceivers are quality, modern technology radios. Unfortunately, the user manuals provided by Wouxun are not well organized and poorly translated. This revised manual addresses that shortcoming.

This guide is designed to teach you how to *manually* program the radio. It will not duplicate some sections of the Wouxun manual (i.e. safety, description of functions, shortcut sheet, SOS function, wire cloning, charging, programming guide, troubleshooting, CTCSS-DCS charts, specifications, accessories, certifications).

All keypad entry sequences in this manual are designated with Courier font typeface and a relevant coloured background, e.g.: `MENU` `TDR` `1` `4`. The rotary encoder knob is designated: `ROTARY` .

This revised user's manual applies to the UVD1P, UV2D and UV3D radios – they share common specifications, functions and keys. The only known differences between these three radios are that the 2D and 3D models have upgraded exterior cases and upgraded firmware. The updated firmware might enable the user to have spaces in channel names and a longer welcome message, but this may be related to the actual programming software used.

Programming via software is only briefly discussed in Section 10. Most software issues relate to not setting the proper port (or device name for Mac/Linux users). Care also needs to be taken if you wish to "unlock" the radio – this is done at your own risk.

Two diagrams and the logo from the Wouxun UVD1P manual have been incorporated in this document. Acknowledgements to Quanzhou Wouxun Electronics Co. Ltd. in advance for their use.

PS: the correct English language pronunciation of "Wouxun" sounds like "whoa-sheng".

Please freely distribute this document. Errata and constructive suggestions for improvement to lagagnon@gmail.com .

Larry, VE7EA

2   Front Panel Diagram

Lamp

Rotary Encoder

Antenna

Power switch / Volume control

Receive light

Transmit Light

A/B Swith Key on Master Frequency

Single/Dual Band switch Key

Screen/LCD Display

Function Key

Exit Key

Number Key

Reverse Frequency/Scan Key

Lock Key/Stopwatch timer Key

Up/Down Key

3 LCD Display Diagram

Split (negative) — Reverse Frequency
Split (positive) — Dual Band
DCS — VOX Function
CTCSS — Receive Signal Vice Frequency
Switch Master — Bandwidth Indicator
A/B Frequency Indicator — Battery capacity Indicator
High/Low Power Transmitting — Menu Order/Channel Order
Busy Channel Locked — Menu Order/Channel Order
Keypad Lock

CT DCS + − R TDR VOX S N

145.025 75 108 25

439.700 75 128 25

HL BUSY

Note:

Batterypack power indicator (full)   Batterypack power indicator (exhausted)

Batterypack power indicator (remaining)   Receive signal meter

4 Quick-Start Guide

The key concept to understand the Wouxun KG 1-2-3 series radios is "***mode***". These radios have five modes:

- VFO (Frequency) Mode
- Channel Mode (which has 3 sub-modes)
- Menu Mode
- FM Radio Mode (see Section 8.1.1)
- Dealer Mode (see Section 4.5)

The mode determines what is shown on the LCD display and how the radio behaves. The two most important modes, VFO and Channel Mode, can also be toggled to display either dual or single frequencies. Note that "Frequency" and "Channel" modes as used by Wouxun are the equivalent of "VFO" and "Memory" modes as used by Japanese radio manufacturers.

It is essential to know how to switch between these modes.

4.1 Switching Between Modes

Turning the `POWER SWITCH/VOLUME CONTROL` knob clockwise for the first time the radio should be in dual frequency VFO Mode. After a 3 second system initialization you will see a 146 MHz (2M) frequency displayed above a 440MHz (70CM) frequency.

If not in VFO Mode the radio will be in Channel Mode. This is obvious by the fact that channel numbers will be seen at the far right of the LCD display.

To toggle between VFO and Channel Modes: `MENU` `TDR`

To toggle between single and dual frequency display in either VFO or Channel Mode: `TDR`
  (if dual frequency is selected then ***TDR*** appears at top centre of LCD display)
  (if single frequency is selected then `UVxx` replaces the secondary frequency/channel)

To select the master frequency when in dual frequency display in either VFO or Channel Mode: `A/B`
  (master frequency is indicated by an ▶ arrow at left side of LCD display)

To enter Menu Mode: `MENU`

To exit Menu Mode: `EXIT` (or wait 5 seconds)

To toggle FM Radio Mode on/off: `Side Key 1` (the button immediately below the `PTT` button. See Section 8.1.1.)

To enter Dealer Mode: see Section 4.5 below.

4.2 Menu Mode

There are 30 menu items, some with numerous choices (parameters). However, for manual repeater programming you need learn only four menu items (# 16, 23, 24 and 27). Most other menu items are "set and forget" options.

When in Menu Mode the LCD display contains two lines of information – the upper line is the name of the Menu Item (with a flashing menu number at right) while the lower line is the current or default menu parameter.

To enter Menu Mode:	`MENU` (you will see the menu name, e.g. `STEP`, followed by a flashing menu number, e.g. `01`)
To select a Menu item:	either: 1) press keypad menu number, e.g. `2` `1` or, 2) `ROTARY` to desired menu item or, 3) press ▲ or ▼ keypad buttons to select desired menu item.
To enter Menu parameter:	`MENU` (the parameter is on the lower line of the LCD menu display. Note the ▶ arrow.)
To select Menu parameter:	either `ROTARY` to desired menu parameter or press ▲ or ▼ keypad buttons to select.
To save chosen Menu parameter:	`MENU`
To exit Menu Mode:	`EXIT` (or wait 5 seconds)

Remember that to successfully change a Menu parameter requires three `MENU` button presses: 1) to enter Menu Mode, 2) to move cursor ▶ to menu parameter on lower LCD display line and, 3) to save selected parameter.

4.3 Programming a Repeater Frequency

The user will at least need to know how to manually program a new repeater frequency in the event that a computer and programming software are unavailable. It is suggested you work through the steps below at least twice, once as shown and a second time with your local repeater details. For example, to program a VHF repeater having a receive frequency of 146.840MHz, a typical transmit offset of -600KHz, a CTCSS transmit access sub-audible tone of 103.5Hz, saved to memory channel #25, name that channel "VE7RPT" and then finally delete that channel:

Toggle to VFO Mode: `MENU` `TDR` (there should be no channel numbers at right side of LCD display)
Ensure frequency step is appropriate: `MENU` `1` `MENU` `▲` or `ROTARY` (until correct step is selected), `MENU` `EXIT`
Enter receive frequency on keypad: `1` `4` `6` `8` `4` `0`
Select CTCSS transmit tone: `MENU` `1` `6` `MENU` `▲` or `ROTARY` (until 103.5 selected), `MENU` `EXIT`
Select offset: `MENU` `2` `3` `MENU` `▲` or `ROTARY` (until 00.600 selected, or enter the offset from the keypad), `MENU` `EXIT`

Select offset direction: `MENU` `2` `4` `MENU` `▲` or `ROTARY` (until `-` selected), `MENU` `EXIT`
Save to memory: `MENU` `2` `7` `MENU` `▲` or `ROTARY` (until `025` selected), `MENU` `EXIT`
Switch to Channel Mode: `MENU` `TDR`
Select Channel 25: `ROTARY` until `CH-025` is selected
Name the memory: `MENU` `2` `6` `MENU` `V` `E` `7` `R` `P` `T` (using `ROTARY` and `▼` for digits and `▲` for characters), `MENU` `EXIT`
(`ROTARY` clockwise moves to next position, counter-clockwise selects characters)
Select Channel Name Channel Mode: `MENU` `2` `1` `MENU` `▲` (until `NAME` selected), `MENU` `EXIT`

The repeater channel and its name are now successfully stored. You would need to be in Channel Mode to use it. To delete it now:

Delete channel: `MENU` `2` `8` `MENU` `▲` or `ROTARY` (until `CH-025` selected), `MENU` `EXIT`

4.4   Channel Mode Operations

In Channel Mode you cannot manually use the Menu to set frequency step, transmit power, CTCSS, DCS, bandwidth, offset frequency, or shift direction. The reason for this is to protect saved channel specific information. You cannot also overwrite a previously stored channel, you must first of all delete it, then re-create it. The only way to overwrite channel information is with software or by using Dealer Mode (Section 4.5 below).

To edit channel data manually it is recommended to enter VFO Mode, make the setting changes and then save that information in a new channel or delete the old channel first and then rewrite it from VFO Mode.
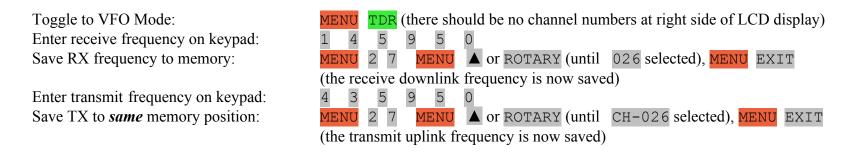
4.4.1   Channel Mode Sub-Modes

When in Channel Mode you can choose to display either the channel number, the channel frequency or the channel name:

Enter Channel Mode: `MENU` `TDR` (you should see channel numbers at right side of LCD display)
Select Menu Option 21: `MENU` `2` `1` `MENU` `▲` (to select `CH` = channel number, `CH FREQ` = channel frequency, or `NAME`
= channel name), `MENU` `EXIT`
(There is also a `FREQ` parameter, to set VFO mode on, but it is easier to toggle using `MENU` `TDR`)

4.4.2   Odd Repeater Channel Offsets, Cross-band Settings

Normally, amateur radio repeaters have an rx/tx offset of 600KHz on the 2M band, 1.6MHz on the 1.25M band and 5MHz on the 70CM band. If you wish to program an oddball offset or otherwise operate cross-band you can directly program such offsets with software or use what Wouxun refers to as "*dis*-channel" settings. An example for an assumed satellite with 70CM FM uplink and 2M FM downlink follows:

Toggle to VFO Mode: `MENU` `TDR` (there should be no channel numbers at right side of LCD display)
Enter receive frequency on keypad: `1` `4` `5` `9` `5` `0`
Save RX frequency to memory: `MENU` `2` `7` `MENU` `▲` or `ROTARY` (until `026` selected), `MENU` `EXIT`
(the receive downlink frequency is now saved)
Enter transmit frequency on keypad: `4` `3` `5` `9` `5` `0`
Save TX to *same* memory position: `MENU` `2` `7` `MENU` `▲` or `ROTARY` (until `CH-026` selected), `MENU` `EXIT`
(the transmit uplink frequency is now saved)

4.4.3   Channel Memories

The radios have 128 standard memory channels and 18 FM radio memories. When programming manually it is important to know what the unused channels are. Use `ROTARY` in Channel Mode to check the channel numbers in memory, or enter Menu 27 (MEM-CH):

`MENU` `2` `7` `MENU` , `ROTARY` , programmed channels show as, e.g., `CH-025` while free unused
channels appear as `025`, `EXIT`

4.5   Dealer Mode

Normally channel information is locked. If you must change channel parameters outside of software or without deleting and recreating a channel then use Dealer Mode.

Enter dealer mode: Hold down keypad# `8` while turning the radio on `POWER SWITCH/VOLUME CONTROL`
(you should see 2 lines of 6 underscore characters on the LCD screen)
Release key `8` after beeps
Enter dealer password: `2` `6` `8` `1` `6` `0`

Select required channel to alter
Make required channel parameter changes
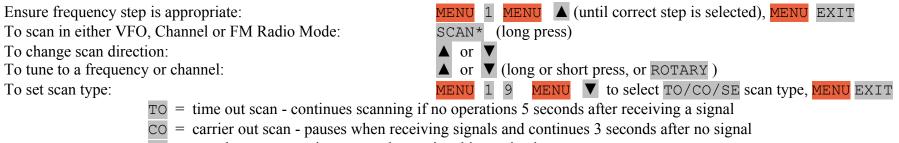Restart to exit dealer mode: `MENU` `A/B` `MENU`

5 Standby, Scanning, Reverse, Monitor, and DTMF

"Standby" is used by Wouxun to refer to watching activity on both frequencies (dual receive) when in dual frequency or dual channel modes, "Scanning" is an automatic frequency/channel change to detect busy frequencies, "Reverse" refers to receiving the transmit frequency of a repeater input and "Monitoring" means to open the squelch temporarily to listen to a weak signal. How scanning behaves is dependent on the mode.

5.1 Standby (Dual Receive)

When in dual frequency or dual channel mode the master frequency is indicated with an ► arrow at left of the chosen frequency/channel. However, the radio is also watching the secondary (sub) frequency. If the master frequency is clear signals detected on the sub frequency break through and an **S** is displayed in the upper right of the LCD display. If you do not require this dual receive behaviour switch to single frequency/channel mode with `TDR` . In single frequency/channel mode **UVxx** is displayed in place of a second frequency or channel – where "xx" is the radio model number.

5.2 Scanning

Ensure frequency step is appropriate: `MENU` `1` `MENU` ▲ (until correct step is selected), `MENU` `EXIT`
To scan in either VFO, Channel or FM Radio Mode: `SCAN*` (long press)
To change scan direction: ▲ or ▼
To tune to a frequency or channel: ▲ or ▼ (long or short press, or `ROTARY`)
To set scan type: `MENU` `1` `9` `MENU` ▼ to select `TO/CO/SE` scan type, `MENU` `EXIT`

`TO` = time out scan - continues scanning if no operations 5 seconds after receiving a signal
`CO` = carrier out scan - pauses when receiving signals and continues 3 seconds after no signal
`SE` = search scan - scanning stops when a signal is received

Note that these Wouxun radios do not have VFO mode scan limit edges.

5.3   Scanning CTCSS/DCS

This advanced feature enables one to scan for a signal that is being transmitted on a repeater input frequency and determine the CTCSS or DCS tone/code necessary to access that repeater. This function only works in VFO Mode on the master frequency (indicated with a ▶ arrow):

Toggle to VFO Mode:	`MENU` `TDR` (there should be no channel numbers at right side of LCD display).
Set scan type to time-out:	`MENU` `1` `9` `MENU` ▼ to select `TO` , `MENU` `EXIT`
Select master frequency:	`A/B` (if necessary enter scan start frequency now on keypad)
Start frequency scan:	`SCAN*` (long press)
When repeater signal detected:	`MENU` `3` `0` `MENU` ▼ or ▼ to choose either a `CTCSS` or a `DCS` scan,
Start the tone/code scan:	`MENU`
Set tone/code temporarily:	`MENU`, `EXIT`

Now enter this CTCSS/DCS tone in a channel memory or into Menu settings 15, 16, 17 or 18, as appropriate.

5.4   Scanning – Priority and Skipped Scans

A priority scan frequency can be programmed with software. With this type of scan the priority scan frequency is checked alternately. Specific channels can also be designated to be skipped (ignored) during scanning. Both of these features are only available through software.

5.5   Reverse Frequency

To monitor the reverse (transmit input) frequency of a repeater channel: `SCAN*`   (short press)
An *R* will be displayed in the upper centre of the LCD display.

5.6   Monitor

To open the squelch to attempt to hear a weak station: `Side Key 2` (long press)
The *BUSY* symbol will appear at bottom left of the LCD display and the signal meter will register.

5.7   DTMF

DTMF encoding (touch tones) are available by pressing and holding the `PTT` button while at the same time pressing the required DTMF tone code keys on the keypad. For example, to access an IRLP link through a repeater you might enter the following codes: `PTT` hold, `#` `9` `3` `1` `4`

DTMF touch tones for `A`, `B`, `C` and `D` can be transmitted by pressing `MENU` , ▲ , ▼ , and `EXIT` , respectively.

Via software more DTMF functions are available: toggle transmit ANI (automatic number identification) ID Code, edit ANI ID Code, set delay time for ANI code and toggle DTMF sidetone.

6   Extend Battery Run-time

There are number of functions which can extend battery life. These are listed below in approximate order of effectiveness:

1. Reduce transmit power: `MENU` `4` `MENU` ▼ to select `L` for low power out (1 watt), `MENU` `EXIT`
2. Toggle power during transmit: `PTT` `TDR` (press while transmitting, remains at this power until restart)
3. Set time-out timer to low value: `MENU` `6` `MENU` ▼ to select number of seconds to transmit time-out, `MENU` `EXIT`
4. Set power saver mode to on: `MENU` `3` `MENU` ▼ to select `ON` , (reduces active receiver on time), `MENU` `EXIT`
5. Set voice prompt to off: `MENU` `9` `MENU` ▼ to select `OFF` , `MENU` `EXIT`
6. Set keypad beep to off: `MENU` `1` `1` `MENU` ▼ to select `OFF` , `MENU` `EXIT`
7. Set auto backlight to off: `MENU` `2` `2` `MENU` ▼ to select `OFF`, `MENU` `EXIT`

When the battery is near exhausted the radio will alert the user with: 1) a voice prompt, 2) a backlight flash once every 5 seconds and 3) clicks will be emitted.

7   Locks and Resets

7.1   Locks

To toggle a keypad lock on/off but still enable receive and transmit on the master frequency last in use: ⛏ `#` (long press)
A ⛏ symbol will be displayed in the lower right corner of the LCD display when lock is activated. The keypad lock is saved through a system restart.

To lock the keypad automatically after 15 seconds of no input: `MENU` `1` `4` `MENU` ▼ to select `ON`, `MENU` `EXIT`

7.2   Resets

To reset (revert to factory settings):
     1) all parameters for VFO mode: `MENU` `2` `9` `MENU` ▼ to select `VFO`, `MENU` `EXIT`
     2) all parameters for VFO and Channel Modes*:   `MENU` `2` `9` `MENU` ▼ to select `ALL`, `MENU` `EXIT`
                               (*_Caution_: the `ALL` command erases all your channels)

To restart the transceiver (rather than ON/OFF/ON):   `MENU` `A/B` `MENU`

8   Side Key Functions

There are two side key buttons on the left case side of the KG series radios, immediately below the `PTT` button. `Side Key 1` is the upper button, `Side Key 2` the lower.

8.1   Side Key 1

By default this button toggles on and off the FM Radio. However, this button can be programmed to either: activate a scan, turn on the flashlight, enable the SOS function, turn on the FM Radio, or inactivate the button entirely:

`MENU` `2` `0` `MENU`, ▼ to select `SCAN` = activate scan, `LAMP` = turn on lamp, `SOS-CH` = activate SOS function, `RADIO` = turn on FM Radio, or, `OFF` = inactivate Side Key 1, `MENU` `EXIT`

8.1.1   FM Radio Mode

This mode is toggled via Side Key 1 (unless the user has re-programmed Side Key 1, as above). The previously chosen master frequency stays on screen with the FM frequency visible either above or below the master frequency. The master frequency is now a standby priority channel and is watched continuously. If a carrier is detected on the master frequency the FM radio switches to the master frequency and only reverts back to FM Radio after five seconds of no signal. FM Radio Mode cannot be activated if a frequency is busy.

To toggle FM Radio Mode: `Side Key 1`

To scan the FM Radio: `SCAN*`

To tune the FM Radio: ▲ or ▼ (press repeatedly, or `ROTARY`)

To memorize a station in first nine FM memory locations: `MENU` , then choose `1` through `9`

To memorize a station in second nine FM memory locations: ☛ # `MENU` , then choose `1` through `9`

8.1.2   1750Hz Burst Tone

Some European repeaters require a 1750Hz burst tone for access. To generate this tone press `PTT` and `Side Key 1` simultaneously.

8.1.3   SOS Function

As this function is not appropriate to amateur radio it is not discussed here. Refer to the Wouxun manual if required.

8.2   Side Key 2

To turn on flashlight: `Side Key 2` (short press)
To activate "Monitor" (open the squelch):   `Side Key 2` (long press)

9   Other Functions

Thus far we have seen 19 of 30 menu items in action. Most of the other menu function items below are "set and forget" features:

Set squelch level: `MENU` `2` `MENU` ▼ to select `0` through `9` `MENU` `EXIT`
(5 is default and reasonable. Use higher numbers if suffering from intermod interference. If green receive LED flickers consider increasing squelch level)

Enable transmit beeps: `MENU` `5` `MENU` ▼ to select `OFF` = no beeps, `BOT` = beep at transmission start, `EOT` = beep at transmission end, `BOTH` = beeps at begin and end, `MENU` `EXIT`

Set VOX level: `MENU` `7` `MENU` ▼ to select either `OFF` or levels `1` through `10` `MENU` `EXIT`
(voice activated transmit switch, VOX, is not recommended for handheld radios)

Set FM bandwidth: `MENU` `8` `MENU` ▼ to select either `WIDE` (25KHz) or `NARROW` (12.5KHz) , `MENU` `EXIT`
(recommendation is narrow for most modern repeater systems. If selected an *N* is displayed on upper right of the LCD display)

Set transmit time-out alarm: `MENU` `1` `0` `MENU` ▼ to select `1` through `10` for # of seconds for TOT alarm, `MENU` `EXIT`
(alerts user when TOT is about to activate. See Section 6 concerning time-out timer)

Set power on message: `MENU` `1` `2` `MENU` ▼ to select either `OFF` , `BATT` for battery voltage display, or `MSG` for a welcome message, `MENU` `EXIT`
(welcome message can be programmed only with software)

Set busy channel lockout: `MENU` `1` `3` `MENU` ▼ to select either `OFF` or `ON` , `MENU` `EXIT`
(disables transmit if the `PTT` button is pressed when a frequency is busy)

Enable receive CTCSS (tone squelch): `MENU` `1` `5` `MENU` ▼ to select `67.0Hz` through `254.1Hz` as a tone squelch (CTCSS RX) , `MENU` `EXIT`
(the tone squelch opens only when receiving a signal with the same pre-programmed subaudible tone. Useful when distant repeaters have same transmit frequencies.)

Enable receive DCS: `MENU` `1` `7` `MENU` ▼ to select `D023N` through `D754N` digital coded squelch code for receive , `MENU` `EXIT`

(DCS is rarely used in amateur radio)

Enable transmit DCS: `MENU` `1` `8` `MENU` `▼` to select `D023N` through `D754N` digital coded squelch code for transmit , `MENU` `EXIT`
(DCS is rarely used in amateur radio)

Enable stopwatch: `MENU` `2` `5` `MENU` `▼` to select either `OFF` or `ON` , `MENU` `EXIT`
(when enabled start stopwatch by short press of `⊶ #` , press any key to pause, short press of `⊶ #` again to restart.)

10 Software

Software programming of the Wouxun radios enables additional features not available through manual keypad strokes or menus. These features may include: mode switch password, reset password, welcome message, priority scan channel, set scanned channels, DTMF options and frequency range unlocks. See the software help files for more information:

Wouxun software*:   http://www.wouxun.com/DownView.asp?ID=164&SortID=12
Commander software: http://www.kc8unj.com/kguv.html
Chirp Apple software: http://chirp.danplanet.com/
Open Wouxun Linux/Unix software: http://owx.chmurka.net/?p=docs
Unlocking software (at own risk):   http://mods.dk

The majority of user issues with radio software are related to an incorrect port (or device name) setting for the computer-radio interface cable. Linux users must also ensure they are members of the *uucp* group.

Unlocking software requires care or you may brick the radio. Save all factory settings first by doing a "Program, Read from Radio, File, Save". If you do an unlock the TX range ***must*** match the RX range. Also be aware that the internal filters and the antenna are designed for a limited frequency range.

For wire cloning between similar radios see the Wouxun manual.

(* Wouxun software also works in Linux under Wine (http://www.winehq.org/) but the Commander software can be problematic with Wine).

11 Useful Links

Chirp Apple Mac programming:	http://chirp.danplanet.com/
Frequency range video:	http://www.youtube.com/watch?v=F5Fj2MKzbYk
KC8UNJ's KG-UV Commander software:	http://www.kc8unj.com/kguv.html
K6PKL's Wouxun links:	http://k6pkl.com/wouxunradio.htm
Open Wouxun Linux software:	http://owx.chmurka.net/
Software mods:	http://www.worldwidedx.com/amateur-radio-modifications/62063-wouxun-kg-uvd1p-software-mod.html
Unlocking software:	http://mods.dk
VE7EA's latest manual update:	http://lggagnon.wordpress.com/2012/02/29/wouxun-kg-uvd1p-vhfuhf-handheld-transceiver-a-new-users-manual/
Wouxun download site:	http://www.wouxun.com/down_01.asp?SortID=4&SortPath=0,4,
Wouxun service manual:	http://www.scribd.com/doc/29523840/Service-manual-Wouxun-Kguvd1
Yahoo KG Commander Group:	http://groups.yahoo.com/group/KG-UV_Commander/
Yahoo KG-UVD1P Group:	http://groups.yahoo.com/group/Wouxun_KG-UVD1/
Yahoo KG-UV2D Group:	http://groups.yahoo.com/group/KGUV2D/
Yahoo KG-UV3D Group:	http://groups.yahoo.com/group/kguv3d/