1. INTRODUCTION

This preliminary note outlines the rules to be used for setting up and interpreting the various observation configuration identifiers for SPIRE.
There are four principal identifiers to be used within the context of an observation, i.e. Observation Identifier (OBSID), Building Block Identifier (BBID), Observation Step Number (OSN) and the Operating Mode (OM).

This initial version is applicable to SPIRE testing but will be updated to cover later phases.

2. OBSID

Every observation shall start with the OBSID set to a unique value, which is generated by a script. Initially this script will generate a value by incrementing an identifier read from a file on the TOPE system, later this script will fetch the value from the HCSS using Test Control. The TCL script Read_OBSID.tcl reads the latest OBSID value and increments it. Once the observation gets under way the OBSID to this new value..

At the start of an observation, before the Read_OBSID script is run, the OBSID shall be set to its null value, i.e. 0x30000000. At the very end of the observation the OBSID shall be set back to its null value.

3. BBID

For SPIRE testing the BBID shall be set to a value dependent on the type of observation and the subsystem being tested. Each BB consists of a series of Observational Steps, which are unique to the BB. The Least Significant Word (LSW) can be incremented in the test to indicate multiple executions of the BB within a test. The MSW is defined in the table below:

Subsystem	Range of Values for BBID MSW (Hex)
General Ops	8000-80FF
BSM	8100-81FF
SMEC	8200-82FF
PCAL	8300-83FF
SCAL	8400-84FF
PBDA	8500-85FF
SBDA	8600-86FF
Cooler	8700-87FF
DCU	8800-88FF
MCU	8900-89FF
SCU	8A00-8AFF
DRCU	8B00-8BFF
DPU	8C00-8CFF
OBS	8D00-8DFF
SPIRE Photometer	8E00-8EFF
SPIRE Spectrometer	8F00-8FFF

The set of BBs already defined are:

BBID Name	BBID Value (Hex)
NULL	8000
CLEAR_OBS	8001
START_OBS	8002
END_OBS	8003
PAUSE_OBS	8004

At the end of an observation the BBID will be set to its null value, i.e. 0x80000000.

Note: At present the OBS sets the BBID to zero (i.e. 0x00000000) whenever the OBSID is set.

4. OBSERVATIONAL STEP NUMBER (OSN)

The OSN is simply the step within the execution of a BB. Its main purpose is to trigger QLA and for subsequent use in IA for offline analysis of the data.
It will be set according to the following general rules:

- Each BB will begin with setting the OSN to zero and then setting the BBID to the appropriate value.
- Each BB will end with setting the OSN to zero and then setting the BBID to its null value.
- A BB will be deemed to have started once the BBID is set *and* the OSN is set to 1.
- At the end of a BB the OSN will be reset to zero.
- For each observation the BBID *and* OSN shall be used to trigger QLA processing.
- QLA will generally be triggered once the BB execution is complete and the OSN is set to 0xFFFF.

To implement this scheme each observation shall begin with a CLEAR_OBS and a START_OBS BB and each observation shall end with an END_OBS BB.

5. SETTINGS OF OBSID, BBID AND OSN DURING AN OBSERVATION

The following table defines the sequence in which the OBSID, BBID and the OSN are set during a typical observation. The bold entries in the table represent parameters being changed in the course of an observation.

Building Block	OBSID (Hex)	BBID (Hex)	OSN (Hex)	Comments
CLEAR_OBS	-	-	**0**	
	-	**80010000**	0	BB: CLEAR_OBS
	-	80010000	**1**	
	30000000	**00000000**	1	OBSID: 30000000 (Null), BB: undefined
	30000000	00000000	**0**	
	30000000	**80000000**	0	BB: Null
START_OBS	30000000	80000000	**0**	
	OBSID	**00000000**	0	BB: Undefined
	OBSID	**80020000**	0	BB: START_OBS
	OBSID	80020000	**1**	
	OBSID	80020000	**0**	
	OBSID	**80000000**	0	BB: Null
Typical Building block in an Observation	OBSID	80000000	**0**	
	OBSID	**BBID**	0	BB: e.g. DCU-01
	OBSID	BBID	**1**	
	OBSID	BBID	.	
	OBSID	BBID	.	
	OBSID	BBID	.	
	OBSID	BBID	**N**	
	OBSID	BBID	**FFFF**	Triggers QLA
	OBSID	BBID	**0**	
	OBSID	**80000000**	0	
END_OBS	OBSID	80000000	**0**	
	OBSID	**80030000**	0	BB: END_OBS
	OBSID	80030000	**1**	
	OBSID	80030000	**0**	
	OBSID	**80000000**	0	BB: Null
	30000000	80000000	0	OBSID: Null

6. OPERATING MODES

The Instrument Operating Modes shall be set as follows

Mode Name	Mode Value (Hex)
OFF	0000
INIT	0100
ON	0200
REDY	0300
REDY +MCU	0310

…	
…	
PHOT STBY	0400
SPEC STBY	0500
CREC	0600
SAFE	0700
OBSV PHOT	1000
OBSV SPEC	2000