One page of the document contains the following content:

**1. REQUIREMENTS**
Register space verification and coverage collection
Field values
Written and read data
Accessed addresses
Partial and overflow access coverage (bit-level access not natively supported by the UVM documentation)
Low-level communication coverage (frequency, ...)
Power management scenarios (the registers whose power is shut off act as read only; a read attempt results in read value isolation)
Register interaction scenarios (consecutive access to various addresses, ...)

**2. UVM_REG COVERAGE API**

**A) STRUCTURE**
No implicit coverage provided
UVM proposes usage of functional coverage type identifiers, in order to determine whether certain covergroups are to be instantiated or not

**C) REGISTER BLOCK LEVEL COVERGROUPS INSTANTIATION AND DEFINITION**
By default, the sampling of all covergroups in the register model should be disabled
The sampling can be enabled using the set_coverage method (with the following parameters):

```
void set_coverage (UVM_CVR_REG_BITS + UVM_CVR_ADDR_MAP);
```

**D) SAMPLING**
By default, the sampling of all covergroups in the register model should be disabled
To enable the sampling, the set_coverage method is used

```
void set_coverage (UVM_CVR_REG_BITS + UVM_CVR_ADDR_MAP);
```

**E) DRAWBACKS**
Typical mistakes and drawbacks include:
Using values of uvm_reg field class in place of written or read data
Using values of uvm_reg field class in place of mirrored value
Forgetting to understand the meaning of API methods – the role of include_coverage, build_coverage, has_coverage, set_coverage, get_coverage can be confusing
Only partially following the guidelines (for example, the sampling is done unconditionally)
Failing to understand the usage model of sample and include

**3. EXTERNAL FUNCTIONAL COVERAGE SUBSCRIBER**

**A) STRUCTURE**
A locking field callback technique is utilized to prevent access to registers within power domains that are turned off

**B) COVERGROUP WRAPPER**
To support covergroup creation on demand, all implemented covergroups are wrapped within uvm_object

**C) PARTIAL ACCESS, TRANSITION, SPI CLOCK FREQUENCY COVERAGE**

**D) POWER SUPPLY MODELING CALLBACK, POWER SUPPLY COVERAGE**

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**E) COVERAGE COLLECTION DIAGRAM**

**THANK YOU!**