
Boxes or wheels: types of systems

3.1 Where to begin. . .

How do you choose an SNG system? For new users, this can be a bewildering decision with a large array of specifications and features to consider. Some of the major defining parameters are whether it should be a transportable flyaway or vehicle-based system, C- or Ku-band, digital or analogue. Less obvious is the option of choosing an INMARSAT system, which is particularly appropriate for a certain type of newsgathering. Although only briefly discussed in this chapter, INMARSAT systems are fully covered in Chapter 5.

Potential customers for any type of system have to assess its capabilities against their own operational needs. It is important to clearly identify these needs in the beginning so that an informed purchase can be made, as it will be a considerable financial investment. In this chapter, different configurations for each type of operation are examined to help the new user decide on the best system for their needs. However, as well as careful consideration of the requirements, thorough research of the market by any prospective purchaser is vital.

In addition, the signals that are to be fed to the SNG uplink have to be considered. An SNG uplink system on its own is not going to be sufficient to provide all the elements of a news field operation. There is a considerable amount of extra equipment required in addition to the basic uplink to provide all the facilities to enable 'live stand-ups' and tape feeds to be accomplished. These configurations will be examined later in this chapter.

3.2 The basics

An SNG uplink system consists of the following primary component parts:

- Antenna with mounting support
- High-power amplifier(s) (HPA)

- Upconverter
- Modulator
- Signal monitoring
- Baseband signal processing

The physical transmission components of an uplink are typically referred to collectively as the ‘chain’ or ‘thread’. A chain typically consists of a single transmission ‘path’ that has one of each of the primary transmission components, i.e. modulator, upconverter and HPA. An SNG system may have some or all of its constituent components duplicated. Two or more chains can be combined to feed via a single antenna, using a ‘phase combiner’. This may be to give a degree of ‘redundancy’ and provide immediate back-up in the event of failure; that is to say, protection against failure of either a part or the whole of the system which would make the entire system inoperable. An extra HPA may be added to increase the uplink power. Alternatively (or additionally), it may be that the system has to provide more than one transmission ‘path’ where there is a requirement to uplink more than one programme signal simultaneously, combining two programme signals into a single signal applied to the antenna. A single transmission chain could also achieve this by using cascaded digital encoders.

Some system variants are shown in Figure 3.1 – this figure is by no means exhaustive, as there are various permutations possible. No matter what the configuration, in news operations the factors of speed and reliability are significant issues, and the component parts have to be rugged, reliable and quick to set up and operate.

However, as might be guessed from what has already been said, a system can be configured in a variety of ways. The operational use of the system and the purchasing budget must strongly influence the choice of system. The characteristics of an SNG system are defined by:

- Type of packaging, e.g. vehicle or flyaway.
- Type of modulation, i.e. analogue or digital.
- Frequency band of operation, e.g. C- or Ku-band.
- Level of redundancy, i.e. none, partial or full.
- Number of ‘paths’, i.e. one or several.

3.3 Specifying a system

The type of system is crucial to successful operation. For instance, where an SNG uplink system is going to be used in city or urban areas local to the operating base, it should be considered that physical space and access are often restricted in busy streets. Flyaway systems have to be transported in a dismantled state and then re-assembled before use. A safe zone has to be created in front of the antenna, and it is desirable to provide some weatherproof protection such as a tent for the uplink operators as well as the equipment. It is therefore difficult for a flyaway to be operated quickly and easily in busy street environments, with frequent rigging and