GME9CU05

Product Manual of 1KW 5-Channel Combiner

1. Overview and features of complete machine

GME9CU05CCB01 type 1KW 5-channel combiner is a high-power DTV combiner of new generation initially developed by Beijing Duoyangt Gigamega Technology Co., Ltd. by applying passive radio frequency technology. It is a new product developed, standardized and serialized in its appearance and structure as well as artistic and practical. The combiner is equipped with stable and reliable performance, advanced technology, simple operation and convenient maintenance.

The chapter mainly provides introduction to installation, operation steps, technical features, configuration and parameters of **GME9CU05** DTV combiner.

Features:

- Red copper, silvered brass and high-quality aluminum alloy have been adopted as materials of the cavity and tuning device;
- Low insertion loss and reflection and high standing-wave ratio;
- According to interval between frequencies, it is formed by combination of six-cavity or eight-cavity filter and electrical bridge, and is of compact structure;
- The overall structure is of modular design, providing upgrading space for later system expansion;
- High isolation design, star-shape or bridge type or star + bridge structure is adopted as combination mode;
- Anti-frequency temperature excursion design is adopted and all tuning devices are equipped with lock fasteners to prevent parameters from changing in transport and installation process;
- Flat steel is adopted as support for overall outer frame for the convenience of transport and installation.

2. Equipment unpacking and installation

2.1 Equipment unpacking

2.1.1 Main parts of cargo

- Filter: 4 groups;
- Electrical bridge: 8 pieces;
- Absorbing load: 4 pieces;
- 1 set of connecting feeder pipe and accessories;
- 1 specification (including test report);
- Several connecting bolts for frames.

2.1.2 Cargo unpacking and storage

- Open the pack, place the filter groups at specified location according to their label order first. Ground shall be flat, space around for air convection and heat dissipation shall be reserved, and no occlusion is in the input and output interfaces;
- Open the packing box of bridge and put bridges into interfaces of corresponding filters according to their labels;
- Open the packing box for installing feed pipe accessories and put them into corresponding filter output (input) interface according to their labels;
- Connect interface of antenna&feeder to the general RF output interface of combiner;
- Make sure the flat steel support of filter groups is in a horizontal condition.

2.2 Field installation procedures

2.2.1 Preparations before installation

- Combiner is a central part for connection in transmission system. After connecting antenna&feeder, combiner shall be adjusted slightly to modify standing waves at input interface. Therefore, installation of combiner equipment shall be after the installation of antenna&feeder cable;
- Determine the installation location of transmitter;
- In general, combiner shall be slightly adjusted on site, which requires vector network analyzer and relevant accessories.

2.2.2 Selection of installation location

- Combiner shall be placed near transmitter and interface location of antenna&feeder shall be taken into consideration. The general principle is to reduce the length of feeder cable, save costs and reduce losses. But space for maintenance and test shall be considered to be reserved;
- Combiner shall be put at places with good ventilation. It shall not be placed close to the wall, which will block air flow and affect heat dissipation;
- Combiner can be placed behind or on the side of transmitter. It should be placed on the ground. If the site conditions permit, it can be placed on stable frame to shorten the length of feeder cable and improve heat dissipation effects;
- Combiner shall be away from inflammables, explosives, corrosives and liquid pipelines.

2.2.3 Installation of the host of combiner

- After selecting the installation location of combiner, the equipment can be placed in targeted location. Placing process shall be carefully carried out to protect external interface of combiner and avoid dusts and other dirt falling into the

interface;

- Check whether the equipment is fixed after placing it.

2.2.4 Installation of absorbing load

- Take out absorbing load and successively install them on the load interface of combiner ;
- Check whether the load connection is firm after installation is completed.

2.2.5 Standing wave test of antenna &feeder

- In order to accurately evaluate antenna &feeder's effect on combiner paramters, standing waves of antenna &feeder shall be measured and recorded before it is connected to combiner;
- Due to the particularity of antenna &feeder, there is a difference between measuring antenna &feeder standing waves and measuring ordinary passive component standing waves. More attention shall be paid to the protection of network analyzer.

2.2.6 Connecting with antenna &feeder

- Measure the distance between antenna &feeder interface and the combiner interace labeled with "Output", or "Antenna", ,and then calculate the length of feed pipe for connection.
- After antenna &feeder is connected, check whether the connection is firm. If it needs reinforcement or body-weight support, reinforce it or make a body-weight support for it.

2.2.7 Test with antenna &feeder

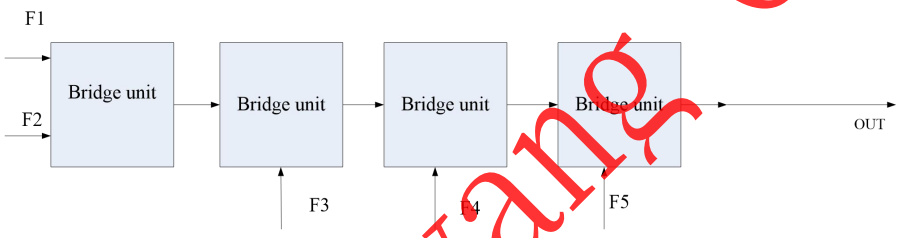
- After the output interface of combiner is connected to antenna &feeder, standing waves at the input interface of combiner usually deteriorates due to the effect of

antenna &feeder standing waves . In order to guarantee the stable operation of transmitter, combiner shall be tested with antenna &feeder after it is connected to antenna &feeder;

- After the test is completed, if the parameters conform to the requirements, customer representative shall sign to confirm. Meanwhile, parameters of test with antenna &feeder shall be recorded for reference in the future. If parameters do not conform to requirements, it shall be slightly adjusted onsite.

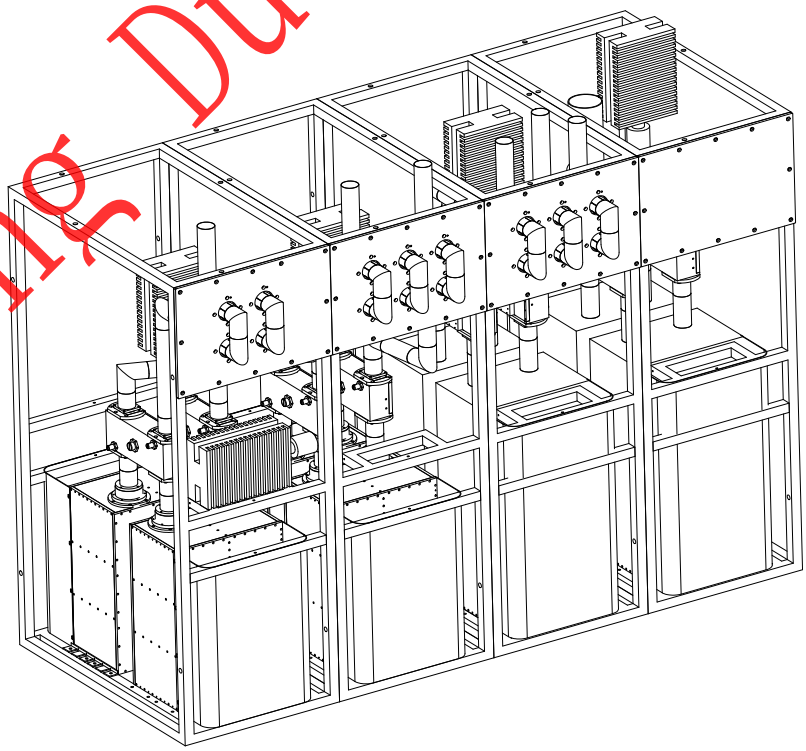
3. Technical manual of combiner

3.1 Combiner composition and theory diagram

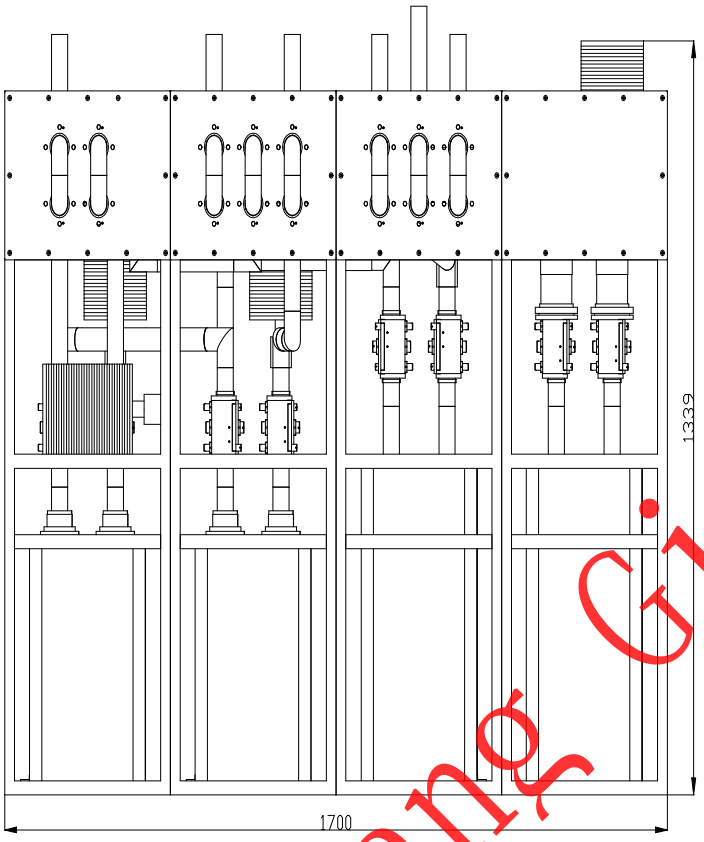


3.2 Outside view

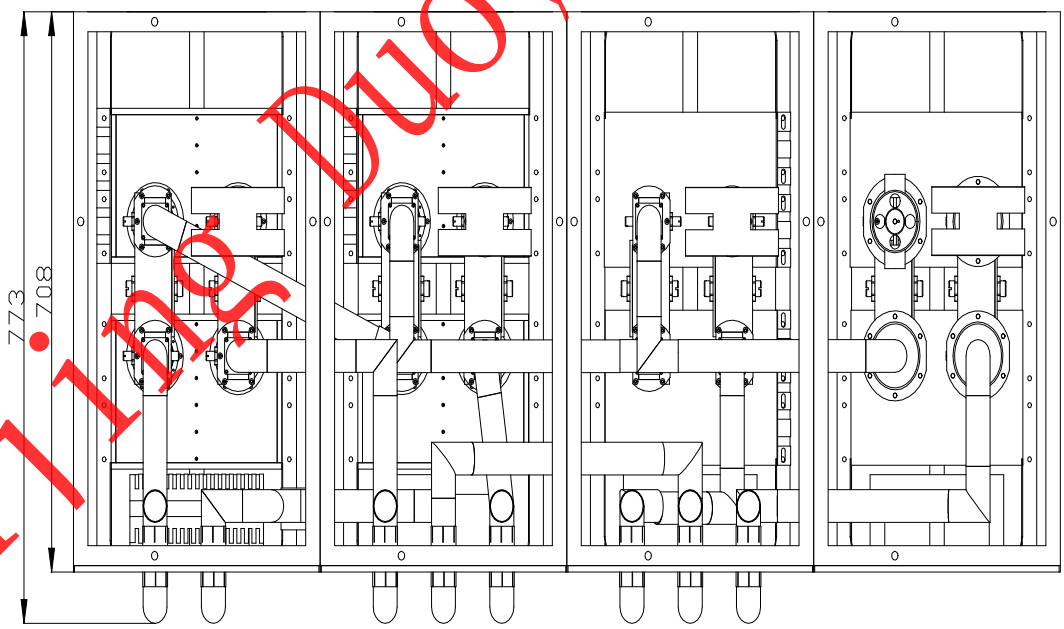
3.3 Structure diagram



Overall Outside View of 1KW 5-channel combiner



Side View of 1KW 5-channel combiner



Top View of 1KW 5-channel combiner