Table 1.1. *Size Comparison*

Parameters	Referred Design	Proposed Design
Substrate Dimesnssions	30 mm × 30 mm	25 mm × 30 mm
Ground Dimesnssions	30 mm × 9.6 mm	30 mm × 9.6 mm
Dielectric height	1 mm	1.6 mm
CLLR	0.5 mm × 20 mm	2 × 0.5 mm × 20 mm
DGS	-	3.9 mm × 3.4 mm
Length of Feed line	21 mm	17.5 mm

III. SIMULATION RESULTS

A. Referred Design simulation

Antenna referred is designed on simulation software name Computer Simulation Technology (CST) Microwave Studios. Simulation results consisting of various antenna parameters like- S_{11}, VSWR, Gain, Directivity, etc.

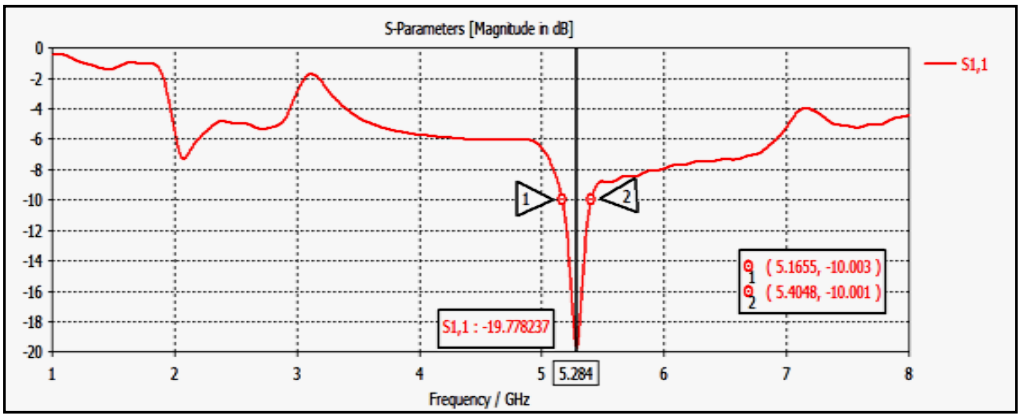

Fig.3. S-parameter results.

The above Fig.3, shows the s-parameter graph in which we can observe frequency band pattern. The observed frequency band range from 5.16-5.40 GHz with resonance at 5.284 GHz. Thebandwidth is around 0.3 GHz. This narrow frequency band is used in various applications like 5G communication, mobile communication and WiFi.

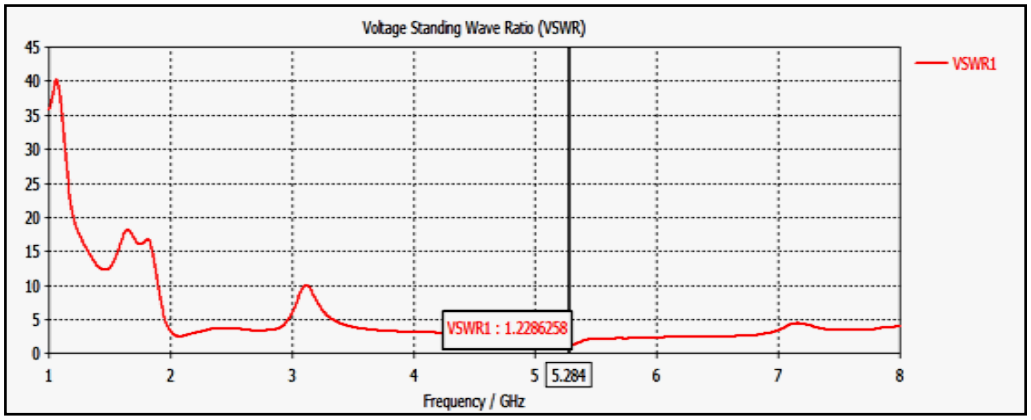

Fig.4. VSWR results at various resonance frequency.

The above Fig.4 depicts the Voltage Standing Wave Ratio (VSWR) at the resonant frequencies. The observed value is around 1.2. The maximum allowed VSWR is 2 and ideally its value is 1.

Fig.5a depicts the directivity at 5.284 GHz resonant frequency and Fig.5b portrays the gain at same frequency. Directivity observed is around 2.77 dBi and gain is 0.6 dB.