Here's a **complete, runnable TypeScript example** that creates an `.ics` iCalendar event **with a location name and geographic coordinates (latitude/longitude)**, following the RFC 5545 standard.

We'll use the **`ics`** package, which supports GEO coordinates.

## 1️⃣ Install dependencies

```
npm install ics
npm install --save-dev @types/ics
```

## 2️⃣ TypeScript Code

```
import { createEvent } from 'ics';
import { writeFileSync } from 'fs';

// Helper: Validate latitude and longitude
function isValidCoordinate(lat: number, lon: number): boolean {
    return lat >= -90 && lat <= 90 && lon >= -180 && lon <= 180;
}

// Event details
const title = 'Team Meeting';
const description = 'Monthly strategy meeting with the team.';
const locationName = 'Main Office, Milan, Italy';
const latitude = 45.4642;
const longitude = 9.19;
const startDate = [2026, 1, 10, 14, 0]; // [YYYY, M, D, H, M]
const duration = { hours: 2, minutes: 0 };

// Validate coordinates before creating event
if (!isValidCoordinate(latitude, longitude)) {
    throw new Error('Invalid latitude or longitude values.');
}
```

```
// Create the event
const { error, value } = createEvent({
    title,
    description,
    location: locationName,
    geo: { lat: latitude, lon: longitude }, // GEO property
    start: startDate,
    duration,
    status: 'CONFIRMED',
    busyStatus: 'BUSY',
    organizer: { name: 'John Doe', email: 'john@example.com' }
});

if (error) {
    console.error('Error creating event:', error);
} else {
    // Save to .ics file
    writeFileSync('meeting.ics', value);
    console.log('✅ ICS file created: meeting.ics');
}
```

## 3️⃣ How it works

- **`location`** → Human-readable location name.
- **`geo`** → Object with **`{ lat, lon }`** for precise coordinates.
- **Validation** → Ensures latitude is between **`-90`** and **`90`**, longitude between **`-180`** and **`180`**.
- **Output** → Generates a valid **`.ics`** file that can be imported into Google Calendar, Outlook, Apple Calendar, etc.

## 4️⃣ Example `.ics` snippet generated

```
BEGIN:VEVENT
SUMMARY:Team Meeting
```

```
DESCRIPTION:Monthly strategy meeting with the team.
LOCATION:Main Office, Milan, Italy
GEO:45.4642;9.19
DTSTART:20260110T140000Z
DURATION:PT2H
STATUS:CONFIRMED
END:VEVENT
```

If you want, I can also show you **how to parse this `.ics` file back in TypeScript** and read the latitude/longitude.
Do you want me to add that?