1、 page 3, line 17:

"Note that in the following document we suppose that the instrument response (based on Monte-Carlo simulation and/or ground tests) is known well enough to make good use of the data, in particular this means that the counts to flux conversions are known. "

Comments: As that mentioned in this document, there is no “perfect” ground test which can cover the whole range of the instruments and there still exists system bias in the detections among even the same series of satellites. The system bias should be excluded by the long term statistics of the background in the quiet period.

2、 Electron data contamination

a) Contamination by proton

Comments: FY4B/SEM uses the hardware designs (e.g. coincidence and anti-coincidence circuits) to avoid the proton contamination in the electron detections and the proton contamination is not evident during normal SPEs. To the very large SPE, the proton contamination needs more case-analysises.

b) Contamination by relativistic electrons (RE)

Comments: In FY4B/SEM design, the engineers used Geant4 software to simulate Bremsstrahlung effect and consider it in the processing program. FY4B/SEM also have the electron detections with the energy from 2-5MeV which can be used to do the analysis of the contamination by RE.

3、 Proton data contamination

a) Contamination by relativistic electron

Comments: The same as the electron data contaminated by proton, FY4B/SEM uses the hardware designs to depress the electron contamination in the proton detections.

4、 Saturation

Comments: FY4B/SEM has not met the saturation problem. The range of FY4B/SEM electron detector is set to 10^7 flux unit which can cover the large space weather events.

5、 Background

Comments: The background of GCR may play the role in this issue. To FY4B/SEM, during the design period, the engineers used the CRÈME model and GEANT4 to simulate the GCR’s effects on the sensor and consider it in the processing procedure. I think, the GCR’s flux is relative low to the electron flux in the geostationary orbit and also to the proton flux in SPEs. So, the GCR background is not a evident issue to us.

6、 Signal to noise ratio

Comments: I think it depends on the geometric factor and the geometric factors of FY4B/SEM are relative small. So, the SNR won’t bring evident impacts on the particle detections of FY4B/SEM.

7、 Spacecraft charging bias

Comments: To my knowledge, the spacecraft charging may influence the low-energy particle spectrum (e.g., plasma), to the energetic particles (>30keV), the spacecraft charging may not bring important impacts. However, FY4B/SEM has the absolute surface potential detections, if necessary, these potential detections can be used to correct the particle’ spectrum.

8、 Obtaining coherent data

Comments: I think, if we want to generate the “calibration product”, we should find a “standard satellite” and use its measurements as the “standard”. Others can modify the detections to the “standard” measurements by some approaches (e.g., excluding the system bias, fitting and

subtracting the background…). It may be an easy way to achieve the goal.

9、 About the review-file from NOAA

Comments: I have read the review from NOAA and I agree with some issues they mentioned in that file. As a geostationary orbit satellite, FY-4B may meet the similar situation.