AG TECHNOLOGY LEADERSHIP GROUP
Conference Call ● January 28, 2019

Chair Darryl Matthews, Trimble, presiding
Doug Griffin, Context
Greg Petras, Kuhn NA
Jahmy Hindman, Deere
Jeremy Yoder, DISTek
Matt Wong, AGCO
Scott Harris, CaseIH
Todd Kniffen, Kinze
AEM staff liaisons: Anita Sennett, Curt Blades
Absent: Bret Lieberman, CNH; Leif Magnusson, CLAAS

Group objective:

1. Identify areas in the technology space that may be disruptors or otherwise impact us and influence our future direction as agriculture equipment manufacturers and service providers.
2. Identify our desired outcomes/objectives for each of those areas.
3. Determine which of those areas are already being addressed by other organizations such as AEF or Ag Gateway and whether/how AEM should be involved, specific focal points, steps to be taken.
4. Determine AEM’s role and steps to be taken to address those areas which are not being addressed by other organizations.
5. Communicate and represent the North American technology requirements within other organizations and for the membership of AEM.

Areas of focus:

The below were identified as areas of focus. Definitions were developed for clarity. Note that existing definitions from other organizations may be utilized for those items which are already being addressed by other groups.

1. Automation/autonomous: Standardization of systems which allow for operational sequences of tractor and implement to be blended into a single function (AEF definition)
   - TIM (Tractor Implement Management)
   - Communication standards
   - Safety standards
   - Anything bringing new and different protocols and standards of practice

2. Broadband connectivity:
   - Includes 5G
   - Enabler for many of the other items on the list

3. Farm information data:
   - Development and expansion of standards for data transfer between mobile machines and farm computers and similar devices (AEF definition)
   - Ensure needs of equipment manufacturers are being met as standards are developed
4. **High speed ISOBUS**: Development of means to increase bandwidth for ISOBUS, which will also enable the integration of new features such as machine-to-machine (M2M) communications and real-time video systems (*AEF definition*)

5. **Power**: High voltage- Development of an approach for a standardized tractor interface that supplies power to attached machines (*AEF definition*)
   - 48 volts
   - 400 volts 3-phase
   - 700 volts DC

6. **Telematics**: Standardize data structure and framework around access to that data which would allow other entities to tap into it and use it for third party purposes
   - Determine who or what has access to that structure and framework
   - Determine whether ag and construction standards should be aligned (AEM and AEMP developed a mixed fleet telematics standard of about 20 data points for earthmoving equipment – do we want to align with those on the ag side?)
   - Focus on machine data, not agronomic data

7. **Vehicle to vehicle communications**
   - On-highway to off highway
   - Off-highway to on-highway

8. **Wireless communication**: Testing of suitable radio standards for machine-to-machine (M2M) communication, including encryption and functional reliability (*AEF definition*)
   - Between implement and tractor
   - Off-highway to off-highway
   - IoT? (i.e. Weather station talking to a tractor?)

**Next Steps:**
- Get agreement on definitions
- Determine what needs to be done in each identified area.

Drafted by Anita Sennett
February 21, 2019