Two-Way / Forward Link / Commanding

- Current Concept
  - NOAA restores Forward Link on GOES DCS Infrastructure using GOES-R transponder to send **commands** to DCPs
    - Ostensibly, the commands come from DADDS and existing/to-be infrastructure
    - Fielded DCPs remain "awake" for a period of time after a scheduled or random transmission to see if a command has been sent to their unique command ID (different & protected than platform ID)
  - NOAA GOES DCP Certification includes parameters for a UHF DCP receiver or DCP interface that can accept and process commands
  - NOAA GOES DCP Certification includes parameters for a common **interface/protocol/spec** for commercial inputs (not from GOES-R) that can accept and process commands
  - NOAA GOES DCP Certification includes parameters for a DCP to report a configuration change via **Random Reporting** on DCPR.

Two-Way / Forward Link / Commanding

- Benefits
  - NOAA & User - Mitigate RFI by reassigning DCP times, shutting down a DCP, etc.
  - NOAA & User - Manage spectrum efficiency with DCP assignment changes / take advantage of recaptured spectrum from CS2 and comms protocol modernization
  - User - remote (simple) troubleshooting. Reset DCP, reset DCP sensor, etc.
  - User - remote DCP check. Send DCP health or parameter info

- Impacts
  - Development costs to Government, Manufacturer, and User
  - Additional demand on spectrum
  - Security Concern

Two-Way / Forward Link / Commanding

- Discussion
  - Questions, Concerns, Feedback, Recommendations
  - What should the NOAA spec address, what should it not
  - How does this complement the CGMS Enhanced DCP Standard

- Outcomes
  - Decisions to be made
  - Next step

3. Command Summary

3.1. Control/Status Command Group

Cmd Byte	Short Description	Long Description	Use
		Control/Status Command Group	
0x00	Fill	Data is not used for information, it is used as a fill between commands	F
0x01	Ping	Requests a response from the platform to check if it is still active.	R
0x02	Software Reset	DCP must execute software reset after acknowledgement.	R
0x03	Hard Reset	If supported, DCP should execute a hard reset after acknowledgement.	O
0x04	Disable Timed	Disable Self-Timed transmissions until specified date/time or indefinitely.	R
0x05	Enable Timed	Enable Self-Timed transmissions (use after indefinite disable).	R
0x06	Disable Random	Disable Random transmissions until specified date/time or indefinitely.	R
0x07	Enable Random	Enable Random transmissions (use after indefinite disable).	R
0x08	Enb/Dis DCP	Enable/Disable the DCP (if supported).	O
0x09	Failsafe Reset	Reset transmitter failsafe.	R
0x0A	Transmitter Status	Send DCP transmitter status and key performance metrics.	R
0x0B	Receiver Status	Send DCPC receiver status and key performance metrics.	R
0x0C	Set Platform ID	Set 32-Bit DCP Address	R
0x0D	Receiver Listen	Set DCPC receiver listen (aka power up) mode/times.	R
0x0E	Force GPS Sync	Force a GPS Sync and report result.	R
0x0F	Repeat Lat/Lon/TxID	Initiate a Lat/Lon/TxID Report Sequence	

Cmd Byte	Short Description	Long Description	Use
0x10	TBD		
0x11	TBD		
0x12	TBD		
0x13	TBD		
0x14	TBD		
0x15	TBD		
0x16	TBD		
0x17	TBD		
0x18	TBD	**NOTE: Some of these could be transmitter specific.**	
0x19	TBD		
0x1A	TBD		
0x1B	TBD		
0x1C	TBD		
0x1D	TBD		
0x1E	TBD		
0x1F	TBD		

3.2. Self-Timed Transmission Commands

Cmd Byte	Short Description	Long Description	Use
		Self-Timed Transmission Commands	
0x20	Timed Chan/BPS	Set the Self-Timed Tx Channel and/or BPS (300 or 1200)	R
0x21	Timed Interval	Set the Self-Timed Tx Interval hh:mm:ss (00:05:00 to 24:00:00)	R
0x22	First Timed Tx	Set the First Time of Transmission hh:mm:ss (00:00:00 to 23:59:59)	R
0x23	Timed Window	Set the Self-Timed Tx Window in Seconds (0 to 110)	R
0x24	Timed Center	Set the Self-Timed Tx Window Alignment Mode (Center or Top)	R
0x25	Timed Format	Set the Self-Timed Tx Message Format (ASCII, PB, or Binary)	O
0x26	Timed All	Set all of the Self-Timed Parameters	R
0x27	Report Timed	Send current Self-Timed Settings	
0x28	TBD	NOTE: Some of these could be transmitter specific.	
0x29	TBD		
0x2A	TBD		
0x2B	TBD		
0x2C	TBD		
0x2D	TBD		
0x2E	TBD		
0x2F	TBD		

3.3. Random Transmission Commands

Cmd Byte	Short Description	Long Description	Use
		Random Transmission Commands	
0x30	Random Ch/BPS	Set the Random Tx Channel and/or BPS (300 or 1200)	R
0x31	Random Interval	Set the Random Tx Interval mm:ss (02:30 to 30:00)	R
0x32	Random Percent	Set the Randomization Percentage (10-50%)	R
0x33	Random Count	Set the Random Transmission Count (1 to 99)	R
0x34	Random Format	Set the Random Message Format (ASCII, PB, or Binary)	O
0x35	Random All	Set of the Random Parameters	R
0x36	TBD	NOTE: Some of these could be transmitter specific.	
0x37	TBD		
0x38	TBD		
0x39	TBD		
0x3A	DCPC Ch/BPS	Set the DCPC Acknowledge Tx Channel and/or BPS (300 or 1200)	R
0x3B	DCPC Interval	Set the DCPC Acknowledge interval mm:ss (02:30 to 30:00)	R
0x3C	DCPC Percent	Set the DCPC Acknowledge Randomization Percentage (10-50%)	R
0x3D	DCPC Count	Set the DCPC Acknowledge Transmission Count (1 to 99)	R
0x3E	DCPC Format	Set the DCPC Acknowledge Message Format (ASCII, PB, or Binary)	R
0x3F	DCPC All	Set of the DCPC Acknowledge Parameters	R

3.4. Sensor Configuration Commands

Sensor Configuration Transmission Commands			
Cmd Byte	Short Description	Long Description	Use
0x40	TBD		
0x41	TBD		
0x42	TBD		
0x43	TBD		
0x44	TBD		
0x45	TBD		
0x46	TBD		
0x47	TBD		
0x48	TBD		
0x49	TBD		
0x4A	TBD		
0x4B	TBD		
0x4C	TBD		
0x4D	TBD		
0x4E	TBD		
0x4F	TBD		

3.5. Special Commands

Special Command Group			
Cmd Byte	Short Description	Long Description	Use
0xF0	TBD		
0xF1	TBD		
0xF2	TBD		
0xF3	TBD		
0xF4	TBD		
0xF5	TBD		
0xF6	TBD		
0xF7	TBD		
0xF8	TBD	**NOTE: Some of these could be transmitter specific.**	
0xF9	TBD		
0xFA	TBD		
0xFB	TBD		
0xFC	TBD		
0xFD	TBD		
0xFE	TBD		
0xFF	Extended Cmd	This is reserved for future use for extended commands	

Questions?

- Program Manager - William "Skip" Dronen
  William.dronen@noaa.gov
- Customer Account Manager – Letecia Reeves
  letecia.reeves@noaa.gov
- DCS Help Desk **(757) 824-7450**

- Program Website
  - https://www.noaasis.noaa.gov/GOES/GOES_DCS/goes_dcs.html
- DADDS
  - https://dcs1.noaa.gov/
- System Diagram
  - https://dcs1.noaa.gov/documents/NOAA%20DCS%20Mar%202020.pdf
- Certified manufacturers
  - https://dcs1.noaa.gov/documents/GOES%20DCS%20Certified%20Venders.pdf