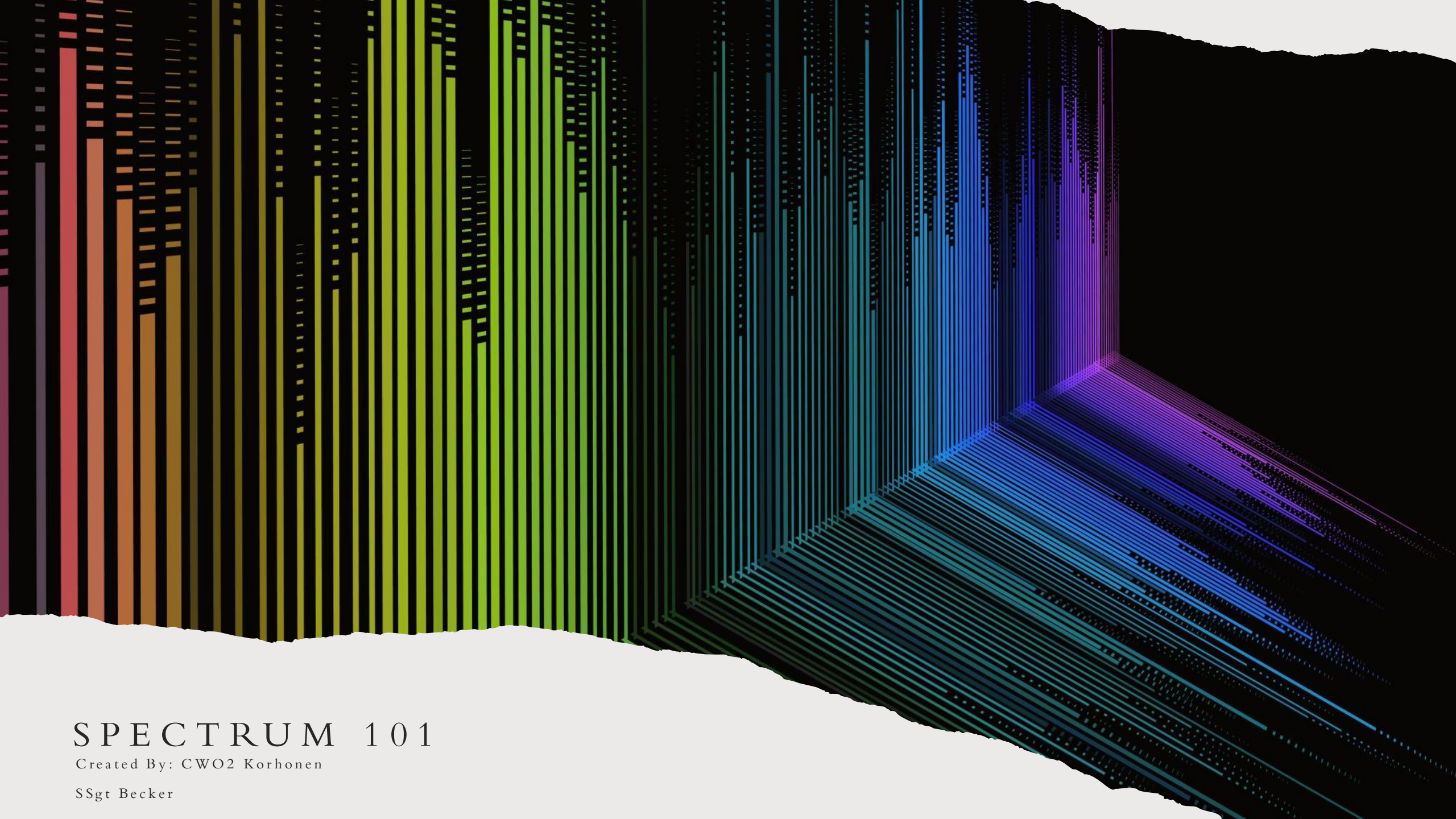
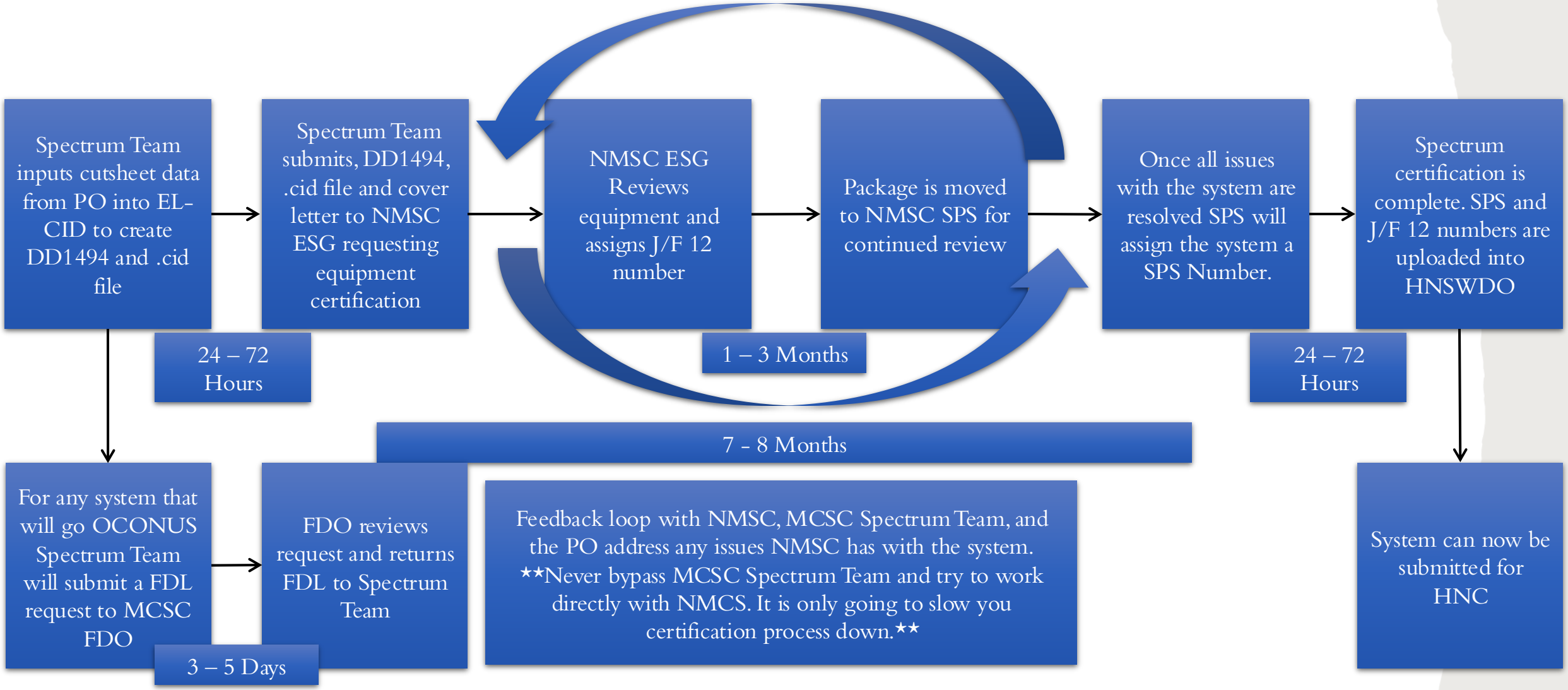


SPECTRUM 101

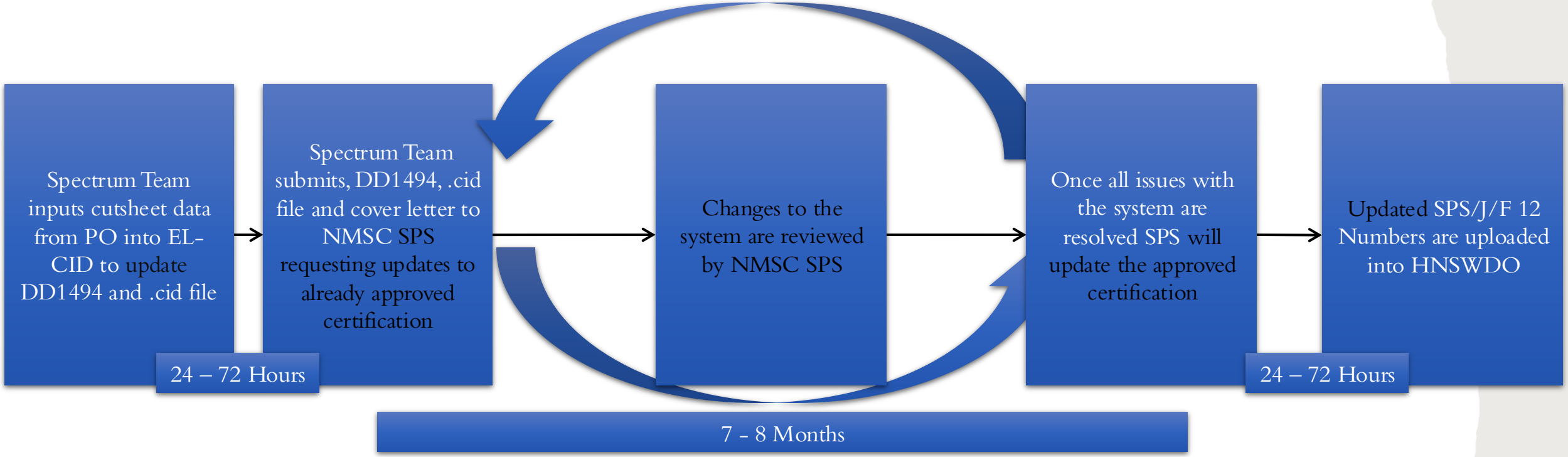
Created By: CWO2 Korhonen

SSgt Becker

SPECTRUM CERTIFICATION PROCESS FOR NEW EQUIPMENT

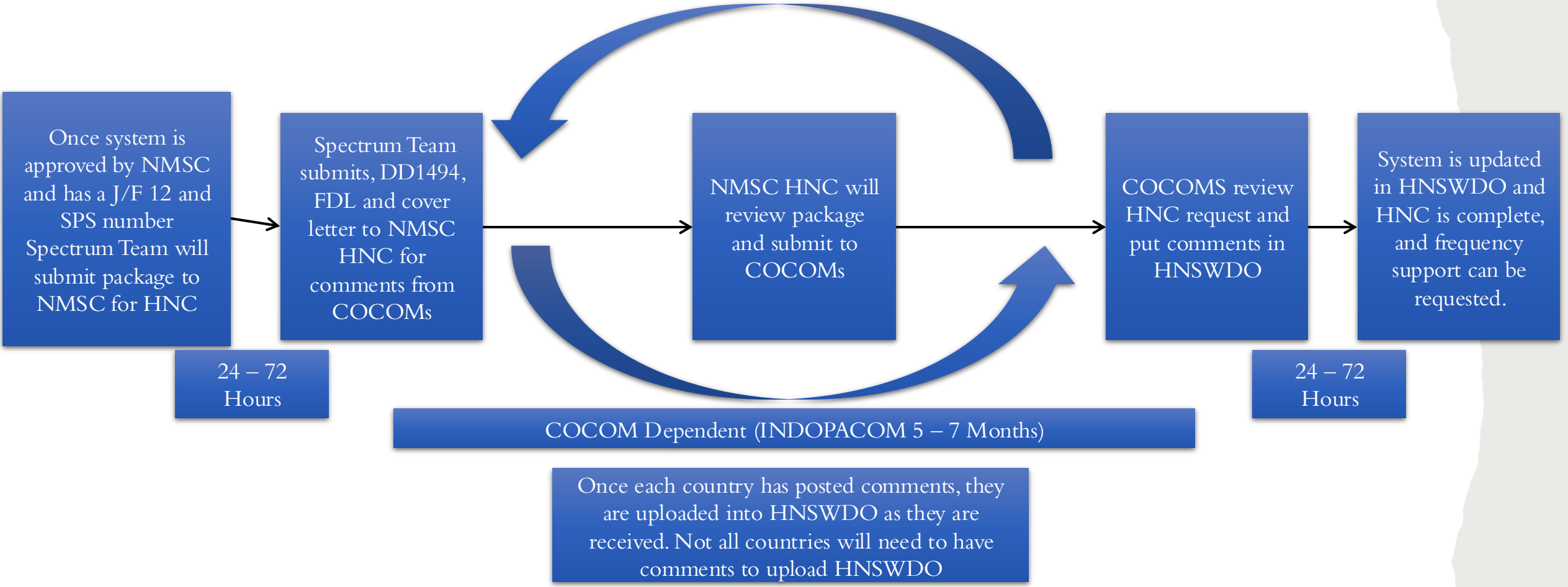


SPECTRUM CERTIFICATION PROCESS FOR EQUIPMENT REQUESTING A NOTE-TO-HOLDER TO UPDATE EQUIPMENT



Font in black represents changes from previous slide.

SPECTRUM CERTIFICATION PROCESS FOR HOST NATION COORDINATION



STEP 1. FILLING OUT THE CUTSHEET GENERAL INFORMATION

ITEM REQUIRED FOR EL-CID	INPUT
Agency Code	NAVY
System Name (Nomenclature)	
Stage (Select)	
Applications Title	
FROM	Marine Corps Systems Command, ATTN: Spectrum Management Office, 2200 Lester Street, Quantico, VA 22134-6050
TO	Defense Information Systems Agency, ATTN: Navy and Marine Corps Spectrum Center, 6910 Cooper Avenue, P.O. Box 549, Ft. Meade, MD 20755-0549
Target Date for System Approval	
System Description	
Target Date for System Activation	
Target Date for System Termination	
Extent of Use	
Number of Units	
Number of Units in Same Environment	
Estimated Initial Cost ($)	
System Cost Comments	
Information Transfer Requirement	
System Relationship and Essentiality	
Replacement Information	
NSEP Use	
Program Manager (MUST BE A GOVT POC)	
Project Engineer (MUST BE A GOVT POC)	
Engineer POC	
Vendor POC	
Operating Locations (CONUS & OCONUS)	
Radio Service (Select)	
Station Class (Select)	

Every system is different not all the red boxes will apply to your system. Fill out as much of the red as you can. NMSC will kickback request if data is not provided. Best practice is to fill out more than you think you need to.

Often overlooked inputs:
Dates / Cost / Locations / Radio Service / Station Class.

System Description / System Relationship and Essentiality need to be very detailed.

STEP 1. FILLING OUT THE CUTSHEET UNITS BY STAGE

ITEM REQUIRED FOR EL-CID	Units	Stage 4 (Operational)
Number of Units by Stage		Stage 4 (Operational)

The most overlooked tab in the cutsheet. Without this information the request will be kicked back.

STEP 1. FILLING OUT THE CUTSHEET TRANSMITTER

ITEM REQUIRED FOR EL-CID	INPUT
Nomenclature	
Manufacturer	
Platform Name	
Model Name and Number	
Transmitter Type	
Filter Type (filter employed)	
FCC Acceptance Number	
Frequency Stability (+/-) or Tolerance	
Frequency Stability Units	
Output Device	
Tuning Method	
Suppression of Harmonic	
Radar or Communications?	
Installations	
Power Type	
Power Lower Limit	
Power Upper Limit	
Cabling loss (in dB) if value showen is output of transmitter	
Fixed Frequency if applicable	
Lowest Tuned Frequency if tunable	
Highest Tuned Frequency if tunable	
Tuning Increment	
# of Frequencies Required for Operation	
Minimum Required Frequency Separation	
Frequency Blocking Indicator	
Lowest Usable Channel	
Emission Designators	
Emission Digitized Spectrum Code	
Occupied Bandwidth	
Measured or Calculated?	
Spread Spectrum?	
If Yes List Spread Spectrum Type	
GPS Measurements	
If Spread Spectrum Type Is Direct Sequence	

Fill out as much of the red as you can. NMSC will kickback request if data is not provided. Best practice is to fill out more than you think you need to.

The Transmitter is the most picked apart aspect of the system. The more accurate data you can provide when first submitted the less back and forth with NMSC will happen.

Common RFIs from NMSC:
Nomenclature / Platform Name / Model Name and Number.
If the system has an FCCID number provide the FCCID.
Emission Designator / Power / Occupied Bandwidth.

STEP 1. FILLING OUT THE CUTSHEET TRANSMITTER

Spread Spectrum Chip Rate	
Information Data Rate	
Spread Spectrum Code Repition Rate	
Spread Spectrum Processing Gain	
If Spread Spectrum Type Is Frequency Hopped	
Number of Frequency Hop Sets	
Number of Frequencies Per Hop Set	
Lowest Frequency in Hop Set	
Highest Frequency in Hop Set	
Frequency Hop Rate	
Frequency Hop Dwell Time	
Frequency Hop Pulses Per Dwell	
Spread Spectrum Processing Gain	
If Spread Spectrum Type Is Hybrid (Direct Sequence and Frequency Hopped)	
Spread Spectrum Chip Rate	
Information Data Rate	
Spread Spectrum Code Repition Rate	
Number of Frequency Hop Sets	
Number of Frequencies Per Hop Set	
Lowest Frequency in Hop Set	
Highest Frequency in Hop Set	
Frequency Hop Rate	
Frequency Hop Dwell Time	
Frequency Hop Pulses Per Dwell	
Spread Spectrum Processing Gain	
Radar Type	
Pulse Repetition Rate	
Pulse Rise Time	
Pulse Fall Time	
Pulse Width	
Pulse Duty Cycle %	
Modulation Type	
If Type is Pulse	
Peak Deviation	
Transmission Bit Rate	

Fill out as much of the red as you can. NMSC will kickback request if data is not provided. Best practice is to fill out more than you think you need to.

The Transmitter is the most picked apart aspect of the system. The more accurate data you can provide when first submitted the less back and forth with NMSC will happen.

Common RFIs from NMSC:
Haven't submitted a system with Frequency Hopped, no common RFIs from NMSC

STEP 1. FILLING OUT THE CUTSHEET TRANSMITTER

Pulse Width	
If Type is Digital	
Digital Modulation Type	
Number of Digital States	
Transmission Bit Rate	
Digital Peak Deviation	
Digital Deviation Ratio	
Digital Max. Modulation Frequency	
Digital Pulse Format	
If Type is Analog Modulation (AM, FM, or Phase)	
Peak Deviation	
Deviation Ratio	
Maximum Modulation Frequency	
Lowest Modulation Frequency	
Pseudorandom Code Period	
Peak Frequency Deviation Index	
RMS Frequency Deviation	
RMS Frequency Deviation Code	
RMS Modulation Index	
Pulse Repetition Rate Lower Limit	
Pulse Repetition Rate Upper Limit	
Pulse Duration Lower Limit	
Pulse Duration Upper Limit	
RF Fundamental Curve	
Measured or Calculated?	
Freq Offset (Fo) and Level (dB)	
-3 dB	
-20 dB	
-25 dB	
-40 dB	
-60 dB	
Harmonic Attenuation (dB) Number	
2nd	
3rd	
Other	
Spurious Level	

Fill out as much of the red as you can. NMSC will kickback request if data is not provided. Best practice is to fill out more than you think you need to.

The Transmitter is the most picked apart aspect of the system. The more accurate data you can provide when first submitted the less back and forth with NMSC will happen.

Common RFIs from NMSC:
RF Fundamental Curve / Freq Offsets / Harmonics / Spurious Level.

STEP 1. FILLING OUT THE CUTSHEET RECEIVER

ITEM REQUIRED FOR EL-CID	INPUT
Nomenclature	
Manufacturer	
Platform name	
Model Name and Number	
Receiver Type	
FCC Acceptance Number	
Frequency Stability (+/-) or Tolerance	
Frequency Stability Units	
Image Rejection Level (If superhet.)	
Conducted Undesired Emissions	
Local Oscillator Tuned Indicator (If superhet.)	
Tuning Method	
Maximum Bit Rate	
Minimum Post Detection Frequency	
Maximum Post Detection Frequency	
Preselection Type	
Fixed Frequency if applicable	
Lowest Tuned Frequency if tunable	
Highest Tuned Frequency if tunable	
Tuning Increment	
Emission Designators	
Performance Criteria	
Performance Value	
Sensitivity	
Noise Figure	
Noise Temperature	
Spurious Rejection Level	
Adjacent Channel Selectivity	
Intermodulation Rejection Level (If superhet.)	
IF Selectivity Offser (If superhet.)	
-3 dB	
-20 dB	
-60 dB	
IF Frequency (If superhet.)	
1st	
2nd	
3rd	
RF Selectivity offset	
-3 dB	
-20 dB	
-60 dB	
Preselection Type	

Fill out as much of the red as you can. NMSC will kickback request if data is not provided. Best practice is to fill out more than you think you need to.

If the system has an FCCID number provide the FCCID.

Common RFIs from NMSC:
IF Selectivity Offset / IF Frequency / RF Selectivity Offset

STEP 1. FILLING OUT THE CUTSHEET ANTENNA

ITEM REQUIRED FOR EL-CID	INPUT
Nomenclature	
Manufacturer	
Model Name and Number	
Antenna Type Code	
Antenna Horizontal Beamwidth	
Antenna Vertical Beamwidth	
Antenna Lower Frequency Limit	
Antenna Upper Frequency Limit	
Polarization	
Antenna Main Beam Gain	
1st Sidelobe Level Plane Atten Rel/Act	
1st Sidelobe Level Plane Attenuation Horiz	
1st Sidelobe Level Plane Attenuation Vert	

Fill out as much of the red as you can. NMSC will kickback request if data is not provided. Best practice is to fill out more than you think you need to.

Common RFIs from NMSC:
Antenna Type / Sidelobes

STEP 1. FILLING OUT THE CUTSHEET KEYS TO SUCCESS

Fill out as much of the red as you can. NMSC will kickback request if data is not provided. Best practice is to fill out more than you think you need to.

Stage 3 equipment can only have a limited number of locations. Stage 4 can have all the COCOMs. List locations requested. The length of certification time will not change if Stage 4 equipment has all COCOMs.

The Transmitter is the most picked apart aspect of the system. The more accurate data you can provide when first submitted the less back and forth with NMSC will happen.

Keep all vales the same, changing from MHz to Hz or kHz throws off the submission in EL-CID.

Do not edit the Cutsheet. Input values in the red box. Most data points have a description of what is requested to the right of the red box.

STEP 2. PUTTING CUTSHEET INFORMATION INTO EL-CID

EL-CID: Equipment Location – Certification Information Database

Data from Cutsheet is inputted into EL-CID to create a .cid file and DD1494.

TimeLine: Receipt of Cutsheet to creation of .cid file and DD1494 takes 48 – 72 hours. Timeline covers Note-to-Holder (NTH) request as well.

If equipment is already certified and an NTH is requested MCSC will pull approved .cid from IRACNet and upload to EL-CID before adding requested changes to approved certification.

STEP 3. SUBMITTING SPS/ESG REQUESTS TO NAVY MARINE CORPS SPECTRUM CENTER

New equipment certification packages will be submitted to NMSC via BPM and sent to Spectrum Planning Subcommittee (SPS) to be reviewed IOT receive a J/F 12 number. Package will include the .cid file, the DD1494, any FCCID Certs, and a cover letter from MCSC to NMSC requesting equipment certification.

Once system has been assigned a J/F 12 number the package is forwarded to the Equipment Spectrum Guidance (ESG) for review before the system can gain a SPS number.
This is when most of the back and forth with the Program Office (PO), MCSC, and NMSC will happen.

For equipment requesting an NTH, the package will be submitted directly to NMSC ESG via BPM. Package will include the .cid file, the DD1494, and a cover letter requesting changes to already approved certification from MCSC to NMSC.

Key notes: Once the system has been submitted to SPS the key POC for the PO will be added to the request and will receive email notifications every time there are comments posted IRT to system.

For stage 4 equipment that is requesting approval OCONUS, during this time MCSC will submit a Foreign Disclosure Letter (FDL) request to the MCSC Foreign Disclosure Office (FDO) to have ready for package submission the NMSC Host Nation Coordination (HNC).

STEP 4. SUBMITTING HNC REQUESTS TO NAVY MARINE CORPS SPECTRUM CENTER

Once equipment has been assigned a J/F 12 and SPS number it can now be submitted to the NMSC for HNC. Package will include the DD1494, FDL, and a cover letter requesting comments from the Host Nations. **This is when back and forth with MCSC, and NMSC will happen depending on locations requested.**

The process is the same for new equipment and equipment requesting an NTH unless the NTH has changes to the equipment characteristics. If the NTH requests anything that changes the characteristics it will have to be approved by the ESG before it can be sent for HNC. If the system is requesting an NTH to update locations the system will be sent directly to NMSC HNC.

As comments comeback for respected countries their comments will be posted to the certification. Not all countries in each COCOM will be posted at the same time.

TIMELINES

Cutsheet to EL-CID: 48-72 Hours
This is when we take the data points to create a .cid, DD1494, and Cover Letter and submit to NMSC.

From SPS to ESG to gain J/F 12 and SPS number: 7-8 Months
This covers the back and forth with NMSC, MMCSC, and the PO to correct any RFIs from NMSC

HNC comments back from COCOMs: COCOM Dependent
Depending on the COCOM will determine the return time. As each country assigns comments they are posted to the approved cert

REQUIRED DOCUMENTS NEEDED TO SUBMIT FOR EQUIPMENT CERTIFICATION

1. Spectrum Supportability Risk Assessment (SSRA)
   SSRA Example

2. Completed Cutsheet
   Cutsheet

MARINE CORPS SYSTEMS COMMAND SPECTRUM TEAM PAGE

MSCS Spectrum Support

CWO2 KORHONEN, R. W.
SSGT BECKER, T. J.