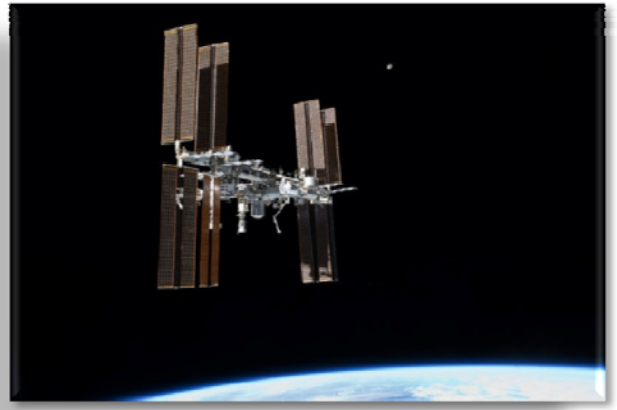
International Space Station (ISS)/Soyuz Very High Frequency (VHF) Status Network Support Group (NSG)



09/11/12

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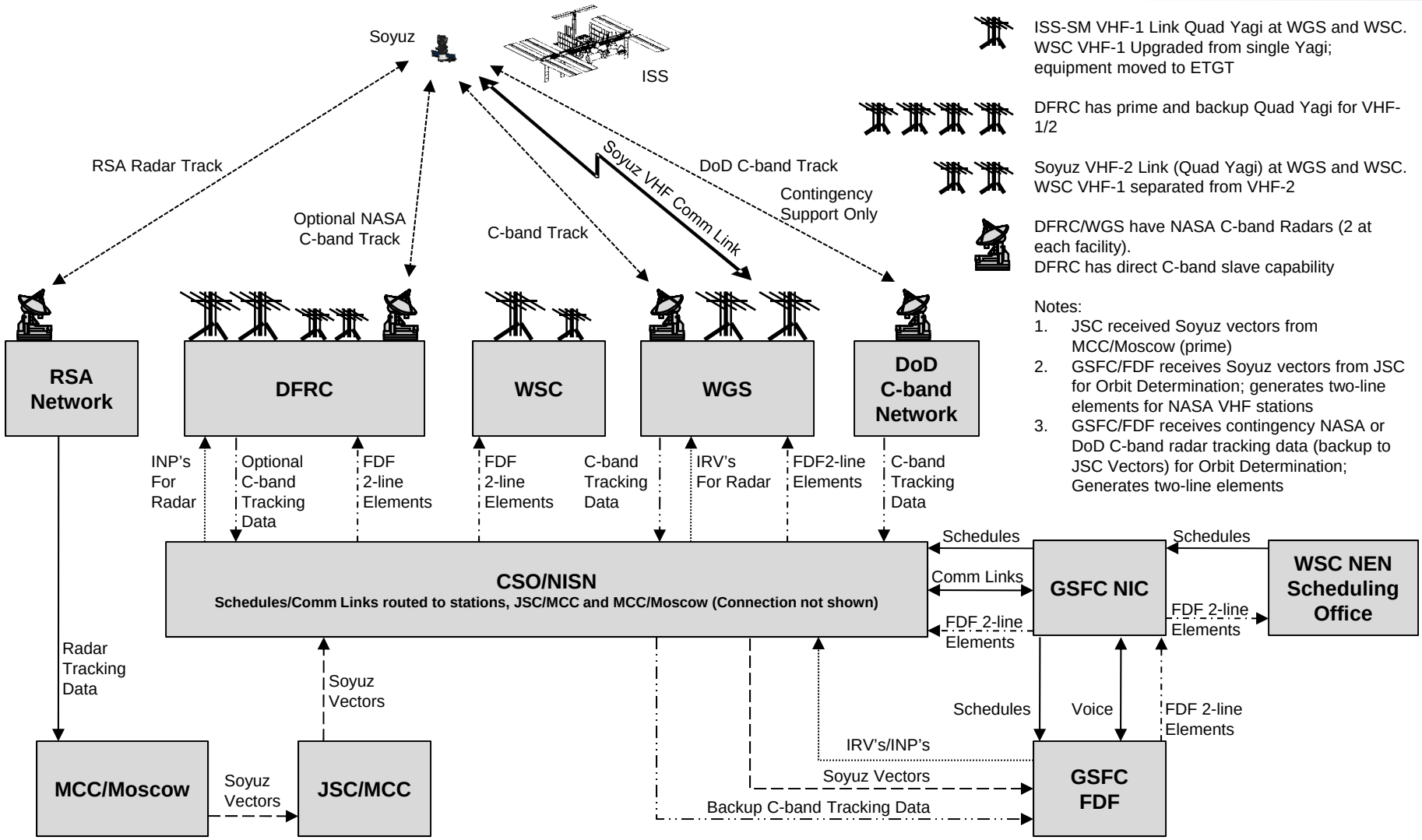
Agenda

- VHF Network Configuration
- Station Support
- Station Proficiency Simulations
- White Sands Complex (WSC) Upgrades
- Station Equipment Configurations
- Station Major Component Equipment List
- WSC VHF Spares
- DFRC VHF Spares
- WGS VHF Spares
- Documentation
- Summary
- Backup

VHF Network Configuration



ISS-SM VHF-1 Link Quad Yagi at WGS and WSC. WSC VHF-1 Upgraded from single Yagi; equipment moved to ETGT

DFRC has prime and backup Quad Yagi for VHF-1/2

Soyuz VHF-2 Link (Quad Yagi) at WGS and WSC. WSC VHF-1 separated from VHF-2

DFRC/WGS have NASA C-band Radars (2 at each facility).
DFRC has direct C-band slave capability

Notes:
1. JSC received Soyuz vectors from MCC/Moscow (prime)
2. GSFC/FDF receives Soyuz vectors from JSC for Orbit Determination; generates two-line elements for NASA VHF stations
3. GSFC/FDF receives contingency NASA or DoD C-band radar tracking data (backup to JSC Vectors) for Orbit Determination; Generates two-line elements

Station Support

- Stations provide contingency/emergency communications
  - ISS Service Module (SM) on VHF-1
    - 139.208 MHz up/143.625 MHz down (contingency communications support)
  - Soyuz on VHF-2
    - 130.167 MHz up/121.750 MHz down (emergency communications support only)
    - Monitor for downlink, report voice to Houston Communications Technician (HCT) and initiate uplink for emergency only
  - VHF-1 license renewal occurred on 05/17/12
    - The license is good for 5 years
  - WSC test passes not scheduled below 20 degrees
    - Data collection in progress to determine if this requirement can be changed to support below 20 degrees
  - All stations (including WSC) available for emergency support to ISS or Soyuz

Station Support (cont'd)

- VHF-1 Emergency Communication Verification Passes
  - One pass per quarter per station planned by Johnson Space Center (JSC) due to limited ISS crew time
  - Station Proficiency Simulations coordinated by Human Space Flight (HSF) Team; briefing message issued with results documented by TARS report
    - ISS Ground Controller (GC) initiates request per normal procedures
    - Simulated passes to be conducted with HCT participation
    - Simulations exercise scheduling, interface, pass procedures and voice communications between JSC and stations for VHF-1 and VHF-2
    - No ISS participation required, simulated support only
  - System software updates (Soyuz two-line elements) distributed via E-mail
    - Verified by Spaceflight Mission Manager (SMM) for proficiency simulation support
    - Goddard Space Flight center (GSFC) Communication Center updated for unique Soyuz mission support identification for each new mission

Station Proficiency Simulations

- **Station Proficiency Simulations**
  - **GC submits a standard VHF support request**
    - **Comment section annotated "Emergency Communication Simulation Only"**
  - **Pre-pass briefing advises station(s) pass is a simulation support**
    - **Stations will ensure the transmitter is configured to dummy load**
  - **WSC Near Earth Network (NEN) Scheduling Office (SO) schedules station(s)**
    - **Normal scheduling guidelines are followed; activity section is annotated "Emergency Comm C/O Simulation only"**
  - **Stations (Dryden Flight Research Center (DFRC), Wallops Ground Station (WGS), and White Sands Complex (WSC) will not radiate**
    - **Simulated DFRC/WGS ISS passes completed 05/01/12; DFRC/WSC completed 08/27/12**
  - **Conducted per ISS TNOSP VHF Annex H-90 Interface; Pass/Post-pass Activities**

WSC Upgrades

- **WSC Upgrades**
  - **The VHF-1 upgrade Operational Readiness Review (ORR) was held on 05/30/12. Action items assigned;**
    - **WSC provide Masking and RF Antenna Pattern surveys**
    - **WSC capture 1 year of data to verify the full system capability**
  - **VHF-1 Engineering/Certification pass performed on 06/25/12**
    - **Max elevation was 20 degrees**
    - **Both system 1 & 2 successfully tested**
      - **Comm was much improved, 5X5 on both systems**
  - **Remaining work includes;**
    - **Install Remote Switching and Remote Keying**
    - **Update station Local Operating Procedures**

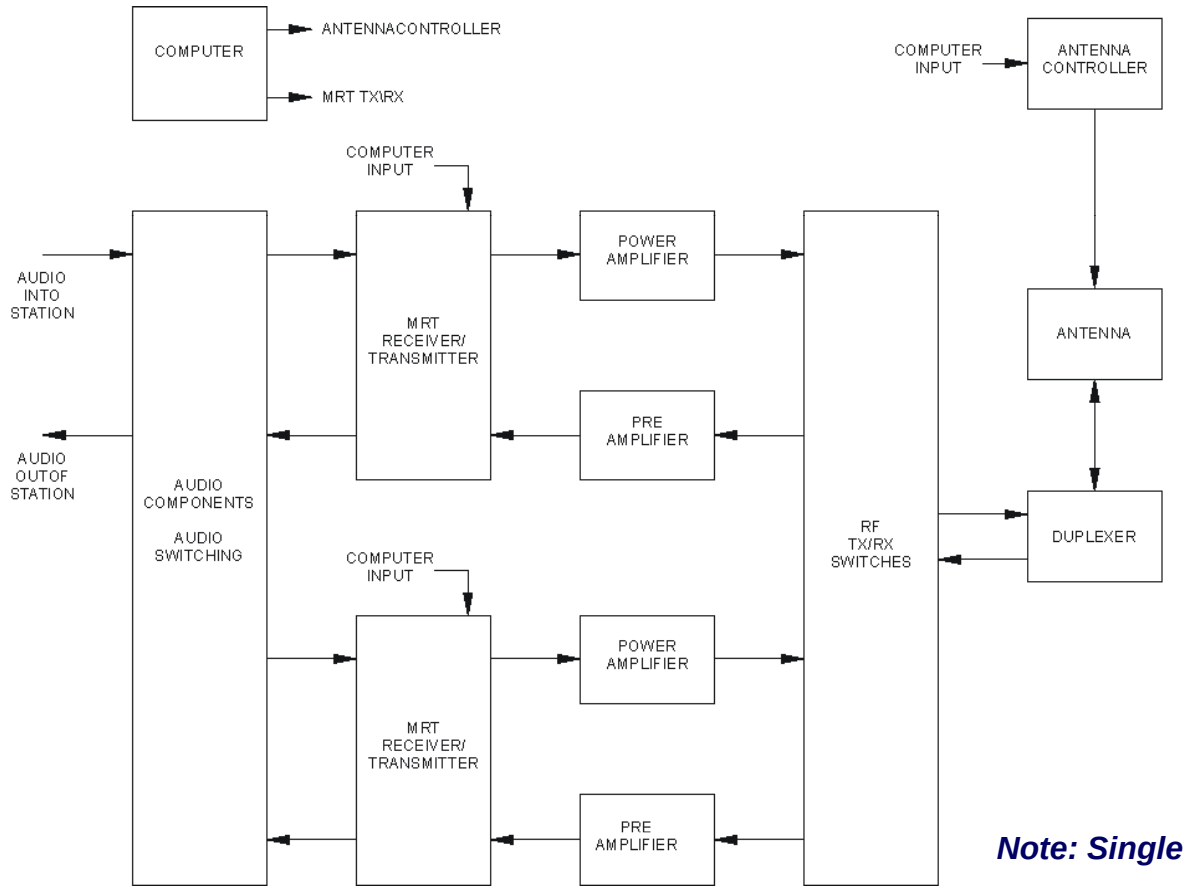
WSC Upgrades (cont'd)

- **WSC Upgrades (cont'd)**
  - **Remaining work includes (cont'd);**
    - **Minor reconfiguration and clean-up of VHF-2 equipment racks**
    - **Install cameras**
    - **Reconfigure 500 watt High Power Amplifiers (HPA) to 350 watts**
      - **Currently WSC has four 350 watt HPA's and two 500 watt HPA's**
      - **The two 500 watt HPA's will be reset to 350 watts by the vendor**
      - **HPA's will be the same across the NEN**
      - **The table shows the current HPA configuration**

VHF-1 String A 500 watts	**VHF-1 String B 350 watts**
VHF-1 Spare 500 watts (Red)	VHF-1 Spare 350 watts
VHF-2 Prime 350 watts	**VHF-2 Spare 350 watts**

Station Equipment Configurations

DFRC, WGS, and WSC



Note: Single string WSC VHF-2

Station Major Component Equipment List

Station	ISS VHF-1	Soyuz VHF-2
DFRC	139.208 MHz Up 143.625 MHz Down Full duplex no Doppler compensation	130.167 MHz Up (Emergency only) 121.750 MHz Down Full duplex no Doppler compensation
	2 Independent systems with real-time selection capability: Prime Antenna: Quad Yagi Prime Transmit and Receive: MRT 1600A Prime Power Amp: TPL PA32LG HMS 500 watts Backup Antenna: Quad Yagi Backup Transmit and Receive: MRT 1600A Backup Power Amp: TPL PA32LG HMS 500 watts Antenna Controller/Nova S/W; C-Band slaving to local radar available Independent computers for prime and backup systems Capability to transmit on one system and receive on 2nd system to increase sensitivity (Receive Reverse switch)	2 Independent systems with real-time selection capability: Prime Antenna: Quad Yagi Prime Transmit and Receive: MRT 1600A Prime Power Amp: TPL PA32LG HMS 500 watts Backup Antenna: Quad Yagi Backup Transmit and Receive: MRT 1600A Backup Power Amp: TPL PA32LG HMS 500 watts Antenna Controller/Nova S/W; C-Band slaving to local radar available Independent computers for prime and backup systems Capability to transmit on one system and receive on 2nd system to increase sensitivity (Receive Reverse switch)

Station Major Component Equipment List (cont'd)

Station	ISS VHF-1	Soyuz VHF-2
WGS	139.208 MHz Up 143.625 MHz Down Full duplex with Doppler compensation	130.167 MHz Up (Emergency only) 121.750 MHz Down Full duplex with Doppler compensation
	Prime Antenna: Quad Yagi (Single Array; no backup) Dual transmit/receive systems strings with Radio Frequency (RF) switch Prime Transmit and Receive: MRT 1600A Prime Power Amp: TPL PA2CG HMS 350 watts Backup Transmit and Receive: MRT 1600A Backup Power Amp: TPL PA3CG HMS 350 watts 2 Independent computers for prime and backup systems with FODtrack S/W switchable to single Antenna Controller	Prime Antenna: Quad Yagi (Single Array; no backup) Dual transmit/receive systems with Radio Frequency (RF) switch Prime Transmit and Receive: MRT 1600A Prime Power Amp: TPL PA2CG HMS 350 watts Backup Transmit and Receive: MRT 1600A Backup Power Amp: TPL PA3CG HMS 350 watts 2 Independent computers for prime and backup systems with FODtrack S/W switchable to single Antenna Controller

Station Major Component Equipment List (cont'd)

Station	ISS VHF-1	Soyuz VHF-2
WSC	139.208 MHz Up 143.625 MHz Down Full duplex with Doppler compensation	130.167 MHz Up (Emergency only) 121.750 MHz Down Full duplex with Doppler compensation
	Prime Antenna: Quad Yagi on new tower (Single Array; no backup) Dual transmit/receive systems strings with Radio Frequency (RF) switch Prime Transmit and Receive: MRT 1600A Prime Power Amp: TPL 500 watts Backup Transmit and Receive: MRT 1600A Backup Power Amp: TPL 350 watts 2 Independent computers for prime and backup systems with FODtrack S/W switchable to single Antenna Controller Equipment located at ETGT Audio interfaced to MOVE system	Prime Antenna: Quad Yagi (Single Array; no backup) Single transmit/receive systems with Prime Transmit and Receive: MRT 1600A Prime Power Amp: TPL PA2CG HMS 350 watts 2 Independent computers for prime systems with FODtrack S/W switchable to single Antenna Controller

WSC VHF Spares

Equipment	Part/Model #	Vendor	Qty. On Hand	VHF Sys
Audio Test Set	100R-5	Metrol Tel Corp	2	Both
Communications Test Set	HP8920A	Hewlett Packard	1	Both
A/B Select Switch	724-746-5500	Black Box	3	Both
Coaxial Switch	LMC224-ANI7X166	Logus Microwave	2	Both
Coaxial Switch	LMC224-ANI7X162	Logus Microwave	2	Both
CI-V Level Converter	CT-17	ICOM America	2	Both
Power Supply (12V@50A)	RM-50	Astron	3	Both
Directional Coupler	3000-30	NARDA	1	Both
Coaxial Resistor (250 Watt)	8141	Bird Elect. Corp.	1	Both
RF Power Amplifier	PA3-2CG-HMS-SP	TPL	1	BOTH
Elevation Positioner Motor	MT3000A	M2	1	VHF 2
Azimuth Positioner Motor	OR-2800DC	M2	1	VHF 2
Elevation Positioner Limit Switch Kit	LK3000	M2	4	VHF 2

WSC VHF Spares (cont'd)

Equipment	Part/Model #	Vendor	Qty. On Hand	VHF Sys
Duplexer VHF1 RF	TBP	Angle Linear	1	VHF 1
Duplexer VHF2 RF	TBP	Angle Linear	1	VHF 2
Transceiver, MRT	1600A	EGSE Systems Group	1	VHF 2
Video Camera	F18905W	Foscam	3	Both
Pre-Amp	AR-2 140/50S	Miteq	1	Both
RF to Fiber Converter (Pair)	A23-Z600	Optical Zonu	1	Both
RS-232 to Fiber Converter	A03-RS232-D55-AS-S	Optical Zonu	1	VHF 1
Voice Trunking Gateway, 4 Port	VMUX-110/AC/4E&M/ETH/UTP	RAD	1	Both
Voice Trunking Gateway, 8 Port	VMUX-110/AC/8E&M/ETH/UTP	RAD	1	Both
Dual DC Controller (ACU)	RC2800 PRK-DC	M2 Inc.	1	Both

DFRC VHF Spares

Equipment	Part/Model #	Vendor	Qty. On Hand	VHF Sys
Transceiver, MRT	1600A	EGSE Systems Group	1	
MRT	V1 Module	EGSE Systems Group	1	VHF 1
MRT	V2 Module	EGSE Systems Group	1	VHF 2

Wallops VHF Spares

Equipment	Part/Model #	Vendor	Qty. On Hand	VHF Sys
A/B Select Swtich	SR100A ISR184	Black Box	5975-00-T00-0926	1
Coaxial Switch	LMC224-ANL7X166	Logus Microwave	5930-00-N98-1238	4
Power Supply (12V@50A)	RM-50	Astron	7025-00-N97-1503	2
CI-V-Level Converter	CT-17	ICOM America	7025-00-N97-1285	0
Dual DC Controller	RC2800 PRK-DC	M2	5985-00-R97-1101	4
4W/4W Variable Gain Bridge	1672-11	Hubble Harvey	5805-11-131-1139	4
Power Supply (24V)	5861-1	Hubble Harvey	6130-01-156-0436	1
Directional Coupler	3000-30	Narda	5985-00-682-8828	1
Azimuth Positioner Motor	OR-2800DC	M2	5985-00-T01-0404	2
Pre-Amplifier	P1121VDG	Adv.RCVR.RES.	5840-00-R97-1182	1
Lightning Protector, RF	IS-B50HN-C1	Poly Phaser	5920-01-436-4756	3
VHF1 RF Duplexer	DP6143R-139TN	Angle Linear	5895-00-N02-0392	1
VHF2 RF Duplexer	DP6121R-130TN	Angle Linear	5895-00-N02-0393	1
Dry Contact Detector Module	TC8108C-11-12-11F	TC COMM	7025-00-T99-3253	1
Dry Contact Detector Module	TC8108C-12-11-11F	TC COMM	7025-00-T99-3254	1

Wallops VHF Spares (cont'd)

Equipment	Part/Model #	Vendor	Qty. On Hand	VHF Sys
Circuit Card ASSY	TC8108B-21-ST-OA-032	TC COMM	7025-00-T99-3252	0
8CH. Analog Mux	TC8002R-21-ST-08	TC COMM	7025-00-T99-3251	1
1600 Series MRT Chassis	Series 1600	Electrical Sys Branch		1
MRT Transmitter Module	1610TA VHF 1	Electrical Sys Branch		1
MRT Transmitter Module	1610TA VHF 2	Electrical Sys Branch	5820-00-W04-3436	1
MRT Receiver Module	1610RA VHF1	Electrical Sys Branch		1
Elevation Motor		M2		2

Note: The GSFC VHF spares are being transferred to Wallops and will be reflected in the next update.

Documentation

- **TNOSP for the ISS Revision 1 – VHF Voice Communications Support Annex**
  - **Major rewrite in progress to bring procedures current with formatting changes based on code 450 template**
  - **Support Summaries**
    - **Stations will submit a standardized "VHF Support Summary" per the TNOSP VHF Annex , using approved NASA forms available on NGIN**
  - **Station Readiness Test (SRT)**
    - **The SRT section of the ISS TNOSP VHF Annex will be updated to reflect the new WSC configuration**
- **VHF A/G Communications Maintenance and Operations manual will be updated with the new WSC VHF-1 system information**

Documentation (cont'd)

- **ISS Program Requirements Document (PRD) Volume 1**
  - **The requirement for Private VHF communications has been deleted from the PRD as of 07/24/12**
- **Soyuz SIC and ID designations assigned as follows:**

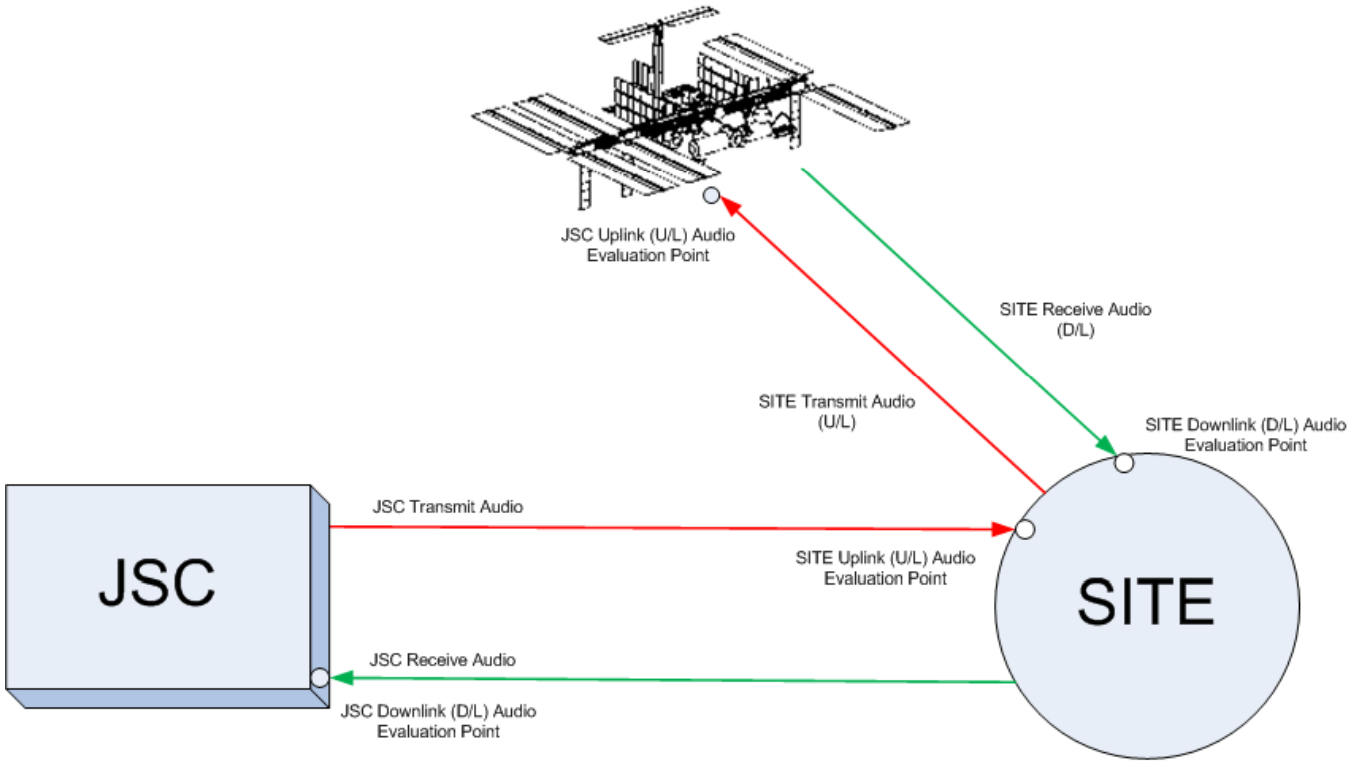
Launch Vehicle	SIC Assigned	FDF-Assigned ID
Russian Soyuz TMA-22M/28S	7928	11999C
Russian Soyuz TMA-03M/29S	7929	12999A
Russian Soyuz TMA-04M/30S	7930	12999B
Russian Soyuz TMA-05M/31S	7931	12999C
Russian Soyuz TMA-06M/32S	7932	12999D

Summary

- Current VHF station configurations comply with the PRD
- WSC VHF-1 antenna certification successfully completed on 06/25/12
- TNOSP VHF Annex rewrite is in progress
- Support Summary required from each station after an Emergency Communications Verification Pass (or series of passes)
- WGS SRT performed on VHF-1/2 on a bi-weekly basis
  - E-mail confirmation reported to SMM
- SRT performed prior to each scheduled event at WGS and WSC
- DFRC performs non-invasive checks monthly; invasive checks quarterly
  - E-mail confirmation reported to SMM

Backup

VHF Support Summary Evaluation Points



Audio Quality			
JSC		SITE	
UPLNK	DOWNLNK	UPLNK	DOWNLNK
5/5	4/4	5/5	3/2

Evaluate Audio Quality on a grade of 5 to 1 [Example: (5/5)
Where the first number is Audio Strength/Second number is Audio Clarity
Audio Strength Standard Scale, 5 thru 1
5) Loud 4) Good 3) Fair 2) Poor 1) Unreadable
Audio Clarity Standard Scale, 5 thru 1
5) Clear 4) Good 3) Fair 2) Poor 1) Unreadable

VHF Support Summary Audio Quality Evaluation Points

ISS VHF-1 Support Summary

(1) ISS VHF-1 Support Summary													(2) Page X of X
(3) VHF Daily Summary Report for XXX(X)													
Julian Da	XXX					(5) Calendar Date	MM/DD/YYYY						(9) Remarks
(6) Pass #1						(7) Handover Times			(8) Audio Quality				
(a) Start	(b) Start	(c) Max	(d) Stop	(e) Stop	(f) Scheduled	(a) XXXX	(b) XXXX	(c) Time	(a) JSC		(b) XXXX		
Time	AZ	Elev.	Time	AZ	Time	Start	Stop	Supported	(i) UPLINK	(ii) DOWNLINK	(i) UPLINK	(ii) DOWNLINK	
00:00:00	0	0	00:00:00	0	00:00:00	00:00:00	00:00:00	TRUE	NA/NA	NA/NA	NA/NA	NA/NA	
Pass #2						Handover Times		Time	Audio Quality				
SITE	Start	Max	SITE		Scheduled	Site	Site	Site	JSC		SITE		
AOS	AZ	Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK	
					00:00:00			00:00:00	NA/NA	NA/NA	NA/NA	NA/NA	
Pass #3						Handover Times		Time	Audio Quality				
SITE		Max	SITE		Scheduled	Site	Site	Site	JSC		SITE		
AOS		Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK	
					00:00:00			00:00:00	NA/NA	NA/NA	NA/NA	NA/NA	
Pass #4						Handover Times		Time	Audio Quality				
SITE		Max	SITE		Scheduled	Site	Site	Site	JSC		SITE		
AOS		Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK	
					00:00:00			00:00:00					
Pass #5						Handover Times		Time	Audio Quality				
SITE		Max	SITE		Scheduled	Site	Site	Site	JSC		SITE		
AOS		Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK	
					00:00:00			00:00:00					
Predicted Page 1					00:00:00	Total Support Time Page 1		00:00:00					

Evaluate audio on a grade of 1 to 5 [Example: (5/5)} Audio Strength Standard Scale, 5 thru 1 Audio Clarity Standard Scale, 5 thru 1
Audio Strength is first number, Audio Clarity is secor 5 Loud / 4 Good / 3 Fair / 2 Poor / 1 Unread 5 Excellent / 4 Good / 3 Fair / 2 Poor / 1 Unrea

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Soyuz VHF Support Summary

(1) Soyuz-XX VHF-2 Support Summary | (2) Page X of X

(3) VHF Daily Summary Report for XXX(X)

	XXX					(5) Calendar Date	MM/DD/YYYY						(9) Remarks
(6) Pass #1						(7) Handover Times			(8) Audio Quality				
(a) Start	(b) Start	(c) Max	(d) Stop	(e) Stop	(f) Scheduled	(a) XXXX	(b) XXXX	(c) Time	(a) JSC		(b) XXXX		
Time	AZ	Elev.	Time	AZ	Time	Start	Stop	Supported	(i) UPLINK	(ii) DOWNLINK	(i) UPLINK	(ii) DOWNLINK	
00:00:00	0	0	00:00:00	0	00:00:00	00:00:00	00:00:00	TRUE	NA/NA	NA/NA	NA/NA	NA/NA	
Pass #2						Handover Times		Time	Audio Quality				
SITE	Start	Max	SITE		Scheduled	Site	Site	Site	JSC		SITE		
AOS	AZ	Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK	
					00:00:00			00:00:00	NA/NA	NA/NA	NA/NA	NA/NA	
Pass #3						Handover Times		Time	Audio Quality				
SITE		Max	SITE		Scheduled	Site	Site	Site	JSC		SITE		
AOS		Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK	
					00:00:00			00:00:00	NA/NA	NA/NA	NA/NA	NA/NA	
Pass #4						Handover Times		Time	Audio Quality				
SITE		Max	SITE		Scheduled	Site	Site	Site	JSC		SITE		
AOS		Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK	
					00:00:00			00:00:00					
Pass #5						Handover Times		Time	Audio Quality				
SITE		Max	SITE		Scheduled	Site	Site	Site	JSC		SITE		
AOS		Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK	
					00:00:00			00:00:00					
Predicted Page 1					00:00:00	Total Support Time Page 1		00:00:00					

Evaluate audio on a grade of 1 to 5 [Example: (5/5)} Audio Strength Standard Scale, 5 thru 1 Audio Clarity Standard Scale, 5 thru 1
Audio Strength is first number, Audio Clarity is secor5 Loud / 4 Good / 3 Fair / 2 Poor / 1 Unread 5 Excellent / 4 Good / 3 Fair / 2 Poor / 1 Unrea

450.1-Form-0014

VHF Support Summary Explanation

VHF PASS SUMMARY REPORT EXPLANATION

(1) **TITLE** - This is the title of the support taken (Soyuz-XX VHF-2/ISS VHF-1), where XX designates the Soyuz mission.

(2) **PAGE NUMBER** – Generally, 1 of 1 page containing one to five supports but, can be multiple pages (ex. 2 of 2), where X is the number of page(s).

(3) **VHF Daily Summary Report for XXX(X)** – This line designates the supporting station, where XXX(X) is the station's alpha designation code (i.e., WGS, WSC, DFRC).

(4) **JULIAN DATE** – This is the day of the year, where XXX is the numeric day-of-year.

(5) **CALENDAR DATE** – The calendar date, where "MM" is two digit month, "DD" is two digit day, and "YYYY" is four digit year.

(6) **PASS #** - This is the sequential incrementing number of the passes supported by the station during one zulu day (24 hour period, 0000Z-2359Z).

a. **START TIME** – The time in hh:mm:ss of the Station's zero degree elevation angle at the predicted Acquisition-of Signal (AOS).

b. **START AZIMUTH (AZ)** – The azimuth angle in degrees at the predicted zero degree elevation angle at AOS.

c. **MAXIMUM ELEVATION (MAX ELEV)** – The maximum elevation angle predicted during the pass.

d. **STOP TIME** – The time in hh:mm:ss of the Station's zero degree elevation angle at the predicted Loss-of-Signal (LOS).

e. **STOP AZIMUTH (AZ)** – The azimuth angle in degrees at the predicted zero degree elevation angle at LOS.

f. **SCHEDULED TIME** – The total time of the Station's predicted support period in hh:mm:ss.

(7) **HANDOVER TIMES** – (Leave blank for single station support)

a. **XXX(X) START** – This is the time briefed by the Houston Communications Technician (HCT) that the station will be the prime (cut-in)/active (VHF-1 carrier up) station for support, where XXX(X) is the station's alpha designation code.

b. **XXX(X) STOP** - This is the time briefed by the HCT that the station will become the secondary station (cut-out)/passive (VHF-1 carrier down) station for support, where XXX(X) is the station's alpha designation code.

c. **TIME XXX(X) SUPPORTED** – Total time (in hh:mm:ss) the Station supported if there was a "Handover" during the support [XXX(X) start minus XXX(X) stop].

(8) **AUDIO QUALITY** – (ref: 450-TNOSP-ISS VHF Annex, Pg.1-40, Table 1-4 "Standard Audio Strength and Clarity Evaluation Scale").

a. **JSC – (Briefed postpass by HCT)**

i. UPLINK – Evaluation of the audio on a grade of 1 to 5 [Example: (5/5)] as reported by the ISS crew member, where audio strength is first number, audio clarity is second number.

ii. DOWNLINK - Evaluation of the audio on a grade of 1 to 5 [Example: (5/5)] as reported by the Spacecraft Communicator (CapCom), where audio strength is first number, aduio clarity is second number.

b. **XXX(X)** – Where XXX(X) is the station alpha designation code.

i. UPLINK – Evaluation of the audio on a grade of 1 to 5 [Example: (5/5)] as perceived by the on Station technician, where audio strength is first number, audio clarity is second number.

ii. **DOWNLINK** - Evaluation of the audio on a grade of 1 to 5 [Example: (5/5)] as perceived by the on Station technician, where audio strength is first number, audio clarity is second number.

(9) **REMARKS** – Name or initials of supporting technician(s), general support comments (i.e. good comm., no comm., tracking only, etc.), Discrepancy Report (DR) or Comphrehensive Discrepancy System (CDS) report number, any comments or support details that aid in the evlauation of the communications or describe the system performance or configuration. Any comments that won't fit in the "Remarks" section of this report summary should be provided on a separate sheet (word or text document) refrenced in the "Remarks" section and attached with the report summary when emailed.

ISS VHF-1 Support Summary Example

ISS VHF-1 Support Summary

Page 1

ISS Daily Summary Report of Support at XXX

Julian Date: 083 | Calendar Day: 24/Mar/10

Pass #1						Handover Times		Time	Audio Quality				Remarks
Start	Start	Max	Stop	Stop	Scheduled	DFRC	DFRC	DFRC	JSC		XXX		KR-Onboard was a bit low but
Time	AZ	Elev.	Time	AZ	Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK	readable. JSC heard low level at times. Gnd Sta D/L audio low and scratchy (see attached doc)
20:09:15	214	23	20:18:42	53	00:09:27	20:09:15	20:11:27	00:02:12	4/4	4/4	5/5	2/3	

Pass #2						Handover Times		Time	Audio Quality			
SITE	Start	Max	SITE		Scheduled	Site	Site	Site	JSC		SITE	
AOS	AZ	Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK
					00:00:00			00:00:00				

Pass #3						Handover Times		Time	Audio Quality			
SITE		Max	SITE		Scheduled	Site	Site	Site	JSC		SITE	
AOS		Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK
					00:00:00			00:00:00				

Pass #4						Handover Times		Time	Audio Quality			
SITE		Max	SITE		Scheduled	Site	Site	Site	JSC		SITE	
AOS		Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK
					00:00:00			00:00:00				

Pass #5						Handover Times		Time	Audio Quality			
SITE		Max	SITE		Scheduled	Site	Site	Site	JSC		SITE	
AOS		Elev.	LOS		Time	Start	Stop	Supported	UPLINK	DOWNLINK	UPLINK	DOWNLINK
					00:00:00			00:00:00				

Predicted Page 1 00:09:27 | Total Support Time Page 00:02:12

Evaluate audio on a grade of 1 to 5 [Example: (5/5)]
Audio Strength is first number, Audio Clarity is second number.

Audio Strength Standard Scale, 5 thru 1
5 Loud / 4 Good / 3 Fair / 2 Poor / 1 Unreadable

Audio Clarity Standard Scale, 5 thru 1
5 Excellent / 4 Good / 3 Fair / 2 Poor / 1 Unreadable