Statements of compliance with 47CFR15.247 for the Northrop Grumman Cordless Communications System.

15.247 Operations within the 2400-2483.5 MHz Band

15.247 (a)(1)
The CCS PCU and UAI operate in frequency hopping mode in compliance with 15.247 (a) (1) and have hopping channel carrier frequencies separated by 1 MHz. The system hops to channel frequencies at the system hopping rate of 5.12 mS and with frequencies selected from within a pseudorandomly ordered list of hopping frequencies (equivalent to that of the IEEE 802.11 frequency hopped system standard). Each frequency is used equally, on the average, by each transmitter within the system. When in broadcast mode (master-slave), the UAI sets the hop timing and the PCU synchronizes with the UAI. When in group mode (or when two PCU's communicate without a UAI present), the first PCU essentially "mimics" a UAI , allowing another PCU to synch-up and allowing communications to occur. In either of these modes, the hopping pattern is unchanged, and the transmitter usage time is consistent within the calculations below.

The CCS PCU and UAI receivers have input bandwidths that appropriately match that of the transmitted signal with a –3 dB bandwidth of 1 MHz plus/minus 0.05 MHz (as set by Intermediate Frequency fixed bandwidth filter).

The CCS frequency hopping system uses 79 hopping frequencies, in 1 MHz steps, nominally from 2402 to 2480 MHz. The maximum 20 dB bandwidth of the transmitted signal is set to the channel spacing of 1 MHz. The transmitter/receiver units hop in synchronization with each other within the system.

The average occupancy time of either the CCS UAI and/or the PCU on any frequency is less than 0.4 seconds within a 30 second period. The UAI will transmit only slightly more than 0.1 seconds on any frequency within a 30 second period, while the PCU will transmit approximately 0.16 seconds on any frequency within a 30 second period. See calculation below:

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Requirements Rationale

	Channels	**79**		
	Seconds	**30**		
	Allowable time (Seconds per Channel)	**0.379747**		

System

			Totals	
	Frame Timing in mS (1 Frame per Channel Hop)	5.12	**5.12**	mS
	...consisting of the following elements...			
	Downlink Slot (one only)	0.958	**0.958**	mS
	D1-D4 + U1 (unused) @ 100 uS each	0.1	**0.5**	mS
	Uplink Time Slot (three available)	1.054	**3.162**	mS
	Frame Gap (for hop)	0.5	**0.5**	mS
	Total Frame Time		**5.12**	**mS**
	Frames per Second		**195.3125**	**Frames**

UAI

	Maximum Transmit Time Calculation			
	Downlink Slot (one only)	0.958	**0.958**	
	D1-D4 down link slots, 4 @ 100 uS each	0.1	**0.4**	
	Total UAI Transmit Time per frame		**1.358**	**mS per Frame**
	Total UAI Transmit Time mS per second		**265.2344**	**mS TX per Second**
	Total UAI Transmit Time seconds per second		**0.265234**	**Sec. TX per Second**
	Total UAI Transmit Time per 30 seconds		**7.957031**	**Sec. TX per 30 Seconds**

UAI TX	**Total UAI Transmit Time per 30 seconds**	**7.957031**	Seconds per 30 seconds
Channel	**Channels**	**79**	
Time	**Total dwell time per channel in seconds (30 sec. avg.)**	**0.100722**	**Seconds UAI**

PCU

	Maximum Transmit Time Calculation			
	Two Uplink Time Slots (max)	1.054	**2.108**	
	Max. Total PCU Transmit Time per frame		**2.108**	**mS per Frame**
	Max. Total PCU Transmit Time mS per second		**411.7188**	**mS TX per Second**
	Max. Total PCU Transmit Time seconds per second		**0.411719**	**Sec. TX per Second**
	Total Max. PCU Transmit Time per 30 seconds		**12.35156**	**Sec. TX per 30 Seconds**

PCU TX	**Total UAI Transmit Time per 30 seconds**	**12.35156**	Seconds per 30 seconds
Channel	**Channels**	**79**	
Time	**Total dwell time per channel in seconds (30 sec. avg.)**	**0.156349**	**Seconds PCU**

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15.247 (g)

The Cordless Communications System utilizes a frequency hopping system which continually hops across all channels within the hop set. It does not operate on only a partial frequency-set of hopping channels. No changes are necessary in the operational nature if continuous data is applied to the channel – the system operates in full channel set hopping mode continuously.

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15.247 (h)

The Cordless Communications System utilizes a frequency hopping system which does not have interference avoidance capability incorporated within it. It is not capable of recognizing interference on the channel and subsequently altering the hop pattern to avoid said interference.