			1100 Coa (FA)	E Chalk Creek R alville, UT 8401 435) 336-4433 X (435) 336-443	Road 7 86	Pea	ak Output	Powe	r (Con	d)
DNB	Job Num	ber:	06022			Date:	10 Oct 20	19	Conform	nance
Custo	omer:		Transcor	Transcore					Stand	ard
Mode	el Number	•	MPRXF	MPRXFH					FCC Pa	art 15
Desci	ription:		Multiprotocol Reader Extreme- Frequency Hopper						Clau 15.247	ise (b,2)
			1	Environ	mental Co	onditions				
	Ambient	Temper	ature	ture Relative Humidity Barometric Pre			c Pressu	e		
	,	24 °C			32 %			101.3	0 kPa	
EUT	performed	l within t	the require	ments of the applie	cable star	dard [X]Yes []No	J Payr	ıe	
Port	Channel	Mod	Freq (MHz)	Meas Peak Pwr (dBm)	Limit (dBm)	Delta (dBm)	Meas Peak Pwr (mW)	Limit (mW)	Delta (mW)	Pass/Fail
0	High	iag	927.500 28.79 30 -1.21 756.833				1000	-243	Pass	
1	High	iag	927.500	28.94	30	-1.06	783.430	1000	-217	Pass
2	High	iag	927.500	28.68	30	-1.32	737.904	1000	-262	Pass
3	High	iag	927.500	28.79	30	-1.21	756.833	1000	-243	Pass



Date: 8.0CT.2019 10:21:23











			1100 Coa (FA)	E Chalk Creek R alville, UT 8401 435) 336-4433 X (435) 336-443	coad 7 66	Pea	ak Output	Powe	r (Con	d)
DNB	Job Num	ber:	06022			Date:	10 Oct 20	19	Conform	nance
Custo	omer:		Transcore						Stand	ard
Mode	el Number	:	MPRXF	MPRXFH					FCC Pa	art 15
Desci	ription:		Multipro	otocol Reader Ext	reme- Fre	quency Ho	opper		Clau 15.247	ise (b,2)
			1	Environ	nental Co	onditions				
	Ambient	Temper	erature Relative Humidity Barometric Pr			c Pressu	e			
	,	24 °C			32 %			101.3	0 kPa	
EUT	performed	l within t	the require	ments of the applie	cable stan	dard [X]Yes []No	J Payr	ıe	
Port	Channel	Mod	Freq (MHz)	Meas Peak Pwr (dBm)	Limit (dBm)	Delta (dBm)	Meas Peak Pwr (mW)	Limit (mW)	Delta (mW)	Pass/Fail
0	Low	Sego	902.500 28.99 30 -1.01 792.501				1000	-207	Pass	
1	Low	Sego	902.500	28.98	30	-1.02	790.679	1000	-209	Pass
2	Low	Sego	902.500	28.90	30	-1.1	776.247	1000	-224	Pass
3	Low	Sego	902.500	28.93	30	-1.07	781.628	1000	-218	Pass



Date: 8.0CT.2019 08:35:09







Date: 9.0CT.2019 09:22:05





			1100 Coa (FA)	E Chalk Creek R alville, UT 8401 435) 336-4433 X (435) 336-443	Road 7 86	Pea	ak Output	Powe	r (Con	d)
DNB	Job Num	ber:	06022			Date:	10 Oct 20	19	Conform	nance
Custo	omer:		Transcore						Stand	ard
Mode	el Number	:	MPRXF	MPRXFH					FCC Pa	art 15
Desci	ription:		Multipro	otocol Reader Ext	reme- Fre	equency Ho	opper		Clau 15.247	ise (b,2)
			1	Environ	mental Co	onditions				
	Ambient	Temper	ature	Relative Humidity Barometric			c Pressu	e		
	,	24 °C			32 %			101.3	0 kPa	
EUT	performed	l within t	the require	ments of the applie	cable star	ndard [X]Yes []No	J Payr	ne	
Port	Channel	Mod	Freq (MHz)	Meas Peak Pwr (dBm)	Limit (dBm)	Delta (dBm)	Meas Peak Pwr (mW)	Limit (mW)	Delta (mW)	Pass/Fail
0	Mid	Sego	915.750 28.92 30 -1.08 779.830				1000	-220	Pass	
1	Mid	Sego	915.750	29.02	30	-0.98	797.995	1000	-202	Pass
2	Mid	Sego	915.750	28.80	30	-1.2	758.578	1000	-241	Pass
3	Mid	Sego	915.750	28.99	30	-1.01	792.501	1000	-207	Pass



Date: 8.0CI.2019 08:37:22





 Spectrum

 RefLevel 40.00 dbm
 Offset 40.00 dbm
 RBW 100 HH:

 Att
 20 db
 SWT
 8 ms + VBW 300 kH:
 Mode Sweep

 el/PLM Mace/Pik View

 8 ms + VBW 300 kH:
 Mode Sweep
 28.99 dBm 915.750000 MHz 17.71 dBm 915.750000 MHz M1[1] io.dBi M2[2] n dBrr 0 dBn dBm -10 dBm -20 dBm-40 dBm--S0 dBm CF 915.75 MHz 8001 pts Span 5.0 MHz
 X-value
 Y-value
 Function

 915.75
 MHz
 28.99 dBm

 915.75
 MHz
 17.71 dBm

 913.25
 MHz
 -28.19 dBm

 Marker

 Type
 Ref
 Trc

 M1
 1

 M2
 2

 M3
 1
 Function Result Measuring.... 10.10.2019 Date: 10.0CT.2019 12:55:07

Page 70 of 152

			1100 Coa (FA)	E Chalk Creek R alville, UT 8401 435) 336-4433 X (435) 336-443	coad 7 66	Pea	ak Output 1	Powe	r (Con	d)
DNB	Job Num	ber:	06022			Date:	10 Oct 20	19	Conform	nance
Custo	omer:		Transcor	Transcore					Stand	ard
Mode	el Number	:	MPRXF	MPRXFH					FCC Pa	art 15
Desci	ription:		Multiprotocol Reader Extreme- Frequency Hopper						Clau 15.247	ise (b,2)
			1	Environ	nental Co	onditions				
	Ambient	Temper	ature	Rela	tive Hum	idity	Ba	arometri	c Pressu	e
	,	24 °C			32 %			101.3	0 kPa	
EUT	performed	l within t	the require	ments of the appli	cable star	ndard [X]Yes []No	J Payr	ıe	
Port	Channel	Mod	Freq (MHz)	Meas Peak Pwr (dBm)	Limit (dBm)	Delta (dBm)	Meas Peak Pwr (mW)	Limit (mW)	Delta (mW)	Pass/Fail
0	High	Sego	927.500 28.90 30 -1.1 776.247				1000	-224	Pass	
1	High	Sego	927.500	28.80	30	-1.2	758.578	1000	-241	Pass
2	High	Sego	927.500	28.83	30	-1.17	763.836	1000	-236	Pass
3	High	Sego	927.500	29.01	30	-0.99	796.159	1000	-204	Pass



Date: 8.007.2019 08:39:00









15.247 (d) Conducted Band Edge and Out of Band Emissions

Test Procedure: ANSI C63.10-2013

Band-edge Compliance of RF Conducted Emissions

Tested in accordance with ANSI C63.10-2013 Clause 6.10.4 - Relative Method

Test Set Up: Same as 15.247 (a,2) 20dB Emission Bandwidth

		1100 C FA) E Chalk Creel oalville, UT 84 (435) 336-443 AX (435) 336-4	k Road 017 3 1436		Band	Edge	e Mea	surem	nents
DNB Job Numb	ber:	06022			Date:		10 Oc	t 2019	Con	formance
Customer:		Transco	Franscore						St	andard
Model Number		MPRX	MPRXFH						FC	C Part 15
Description:		Multip	Multiprotocol Reader Extreme- Frequency Hopper					15	C lause 5.247(d)	
Ambient	Temper	ature	R	elative Hur	nidity			Baron	netric Pre	essure
	24 °C			32 %				1	01.30 kP	a
EUT performed	l within t	he requir	ements of the ap	plicable sta	undard	[X] Ye	s []]	No J	Payne	
		Conduct	ed Band Edge Measu	urement				Fi	req	Dass /Eail
Port	Modu	lation Limit Lower (MHz) Upper (MHz)				(N	1Hz)	F 033/ 1 011		
0	eç	ego 902 902			44			0.	334	Pass
1	eç	jo	902	902.340	77			0.	341	Pass
2	ego 902 902.3294 0.3			329	Pass					
3	eç	ego 902 902.33565				0.	336	Pass		



Date: 0.007.2019 00:27:00









Page 73 of 152

		1100 Co FA) E Chalk Creel oalville, UT 84 (435) 336-443 AX (435) 336-4	k Road 017 3 1436		Band	Edge	e Mea	surem	ients
DNB Job Numb	ber:	06022			Date:		10 Oc	t 2019	Con	formance
Customer:		Transco	Franscore						St	andard
Model Number	•	MPRX	MPRXFH						FC	C Part 15
Description:		Multipr	rotocol Reader E	Extreme- Fr	equenc	y Hopper			15	C lause 5.247(d)
Ambient	Temper	ature	R	elative Hur	nidity			Baron	netric Pre	essure
2	24 °C			32 %				1	01.30 kP	a
EUT performed	l within t	he requir	ements of the ap	plicable sta	indard	[X] Ye	s []]	No J	Payne	
		Conducte	ed Band Edge Measu	urement				Fr	eq	Dace /Eail
Port	Modu	ation Limit Lower (MHz)			1Hz)	Upper (MHz) (f		(N	IHz)	F 033/ 1 011
0	ерс 902			902.331	27			0.3	331	Pass
1	e	C	902	902.226	91 0.227		Pass			
2	e	C	902	902.331	90			0.3	332	Pass
3	e	epc 902 902.33565				0.3	336	Pass		



Date: 8.0CT.2019 13:25:01









		1100 Co FA	E Chalk Creel oalville, UT 84 (435) 336-443 AX (435) 336-4	k Road 017 3 1436		Band	Edge	e Mea	surem	nents
DNB Job Numb	ber:	06022			Date:		10 Oc	t 2019	Con	formance
Customer:		Transco	Transcore						St	andard
Model Number	:	MPRX	MPRXFH						FC	C Part 15
Description:		Multipr	Multiprotocol Reader Extreme- Frequency Hopper					15	C lause 5.247(d)	
Ambient	Temper	ature	R	elative Hur	nidity			Baron	netric Pre	essure
	24 °C			32 %				1	01.30 kP	a
EUT performed	l within t	he require	ements of the ap	plicable sta	indard	[X] Ye	s []]	No J	Payne	
		Conducte	ed Band Edge Measu	urement				Fr	eq	Dass /Eail
Port	Modu	Ilation Limit Lower (MHz) Upper (M				MHz)	(N	IHz)	F 033/ 1 011	
0	ia	iag 902			53			0.2	233	Pass
1	ia	Ig	902	902.360	89			0.3	361	Pass
2	ia	ig	902	902.330	15			0.3	330	Pass
3	ia	iag 902 902.33627					0.3	336	Pass	



Date: 0.007.2019 11:20:35





Date: 8.0CT.2019 16:17:40



		1100 Co FA	E Chalk Creel balville, UT 84 (435) 336-443 XX (435) 336-4	x Road 017 3 4436		Band	Edge	e Mea	surem	nents
DNB Job Num	ber:	06022			Date:		10 Oc	t 2019	Con	formance
Customer:		Transco	Transcore						St	andard
Model Number	:	MPRXI	MPRXFH						FC	C Part 15
Description:		Multiprotocol Reader Extreme- Frequency Ho				y Hopper			15	C lause 5.247(d)
Ambient	Temper	ature	R	elative Hur	nidity			Baron	netric Pre	essure
2	24 °C			32 %				1	01.30 kP	a
EUT performed	l within t	he require	ements of the ap	plicable sta	indard	[X] Ye	s []]	No J	Payne	
		Conducte	ed Band Edge Measu	urement				Fi	eq	Dass /Eail
Port	Modu	lation Limit Lower (MHz) U			Upper (I	MHz)	(N	IHz)	F 033/ 1 011	
0	Se	Sego 902			52			0.	348	Pass
1	Se	go	902	902.337	0.33		338	Pass		
2	Se	go	902	902.333	15			0.	333	Pass
3	Se	Sego 902 902.33440				0.	334	Pass		



Date: 8.0CT.2019 09:38:12









		1100 C Fz) E Chalk Cree oalville, UT 84 (435) 336-443 AX (435) 336-4	k Road 017 33 4436		Band	Edge	e Mea	surem	ients
DNB Job Numb	ber:	06022			Date:		10 Oc	t 2019	Con	formance
Customer:		Transc	ore						St	andard
Model Number	:	MPRX	MPRXFH					FC	C Part 15	
Description:		Multip	Multiprotocol Reader Extreme- Frequency Hopper					(15	C lause 5.247(d)	
Ambient	Temper	ature	R	elative Hu	midity			Baron	netric Pre	essure
2	24 °C			32 %				10	01.30 kP	a
EUT performed	l within t	he requir	rements of the ap	plicable sta	andard	[X] Ye	s []]	No J	Payne	
		Conduct	ed Band Edge Meas	urement				Fr	eq	Dace /Eail
Port	Modu	lation	ation Limit Lower (MHz) Upper (MH			MHz)	(M	IHz)	F 033/ 1 011	
0	eç	jo	928			927.65	990	-0.	340	Pass
1	eç	jo	928			927.64311 -0		-0.	357	Pass
2	ego 928 927.66373 -0.			-0.	336	Pass				
3	eç	ego 928 927.6			936	-0.	341	Pass		



Date: 8.0CT.2019 08:29:02



Date: 9.0CT.2019 11:55:37



Date: 9.0CT.2019 09:18:52



Date: 10.0CT.2019 14:17:33

		1100 C FA) E Chalk Creel oalville, UT 84 (435) 336-443 AX (435) 336-4	k Road 017 3 1436		Band	Edge	e Mea	surem	ients
DNB Job Numb	ber:	06022			Date:		10 Oc	t 2019	Con	formance
Customer:		Transco	ore		1				St	andard
Model Number	:	MPRX	MPRXFH					FC	C Part 15	
Description:		Multip	Multiprotocol Reader Extreme- Frequency Hopper					(15	C lause 5.247(d)	
Ambient	Temper	rature Relative Humidity Baron			Baron	netric Pre	essure			
2	24 °C			32 %				10	01.30 kP	a
EUT performed	l within t	he requir	rements of the ap	plicable sta	undard	[X] Ye	s []]	No J	Payne	-
		Conduct	ed Band Edge Measu	urement				Fr	eq	Dass /Fail
Port	Modu	lation Limit Lower (MHz) Upper (MHz)			(M	IHz)	F 033/ 1 011			
0	ep	C	928			927.64	498	-0.	355	Pass
1	ep	C	928			927.75497 -(-0.	245	Pass
2	ерс 928 927.66310 -0			-0.	337	Pass				
3	ep	pc 928				927.65	811	-0.	342	Pass



Date: 8.0CT.2019 13:27:17









Page 78 of 152

		1100 C Fz	D E Chalk Cree oalville, UT 84 (435) 336-443 AX (435) 336-4	k Road 017 33 1436		Band	Edge	e Mea	surem	nents
DNB Job Numl	ber:	06022			Date:		10 Oc	t 2019	Con	formance
Customer:		Transc	ore		1				St	andard
Model Number	:	MPRX	MPRXFH					FC	C Part 15	
Description:		Multip	Multiprotocol Reader Extreme- Frequency Hopper				15	C lause 5.247(d)		
Ambient	Temper	ature	R	elative Hu	nidity			Baron	netric Pre	essure
2	24 °C			32 %				1	01.30 kP	a
EUT performed	l within t	he requir	rements of the ap	plicable sta	andard	[X] Ye	s []]	No J	Payne	
		Conduct	ted Band Edge Meas	urement				F	req	Dass /Fail
Port	Modu	lation Limit Lower (MHz) Upper (MHz			MHz)	(N	1Hz)	F 033/ 1 011		
0	ia	g	928			927.73	685	-0	.263	Pass
1	ia	g	928			927.64	311	-0	.357	Pass
2	ia	iag 928 927.64811 -0.35			.352	Pass				
3	ia	ag 928 927.64936 -			-0	.351	Pass			



Date: 8.0CI.2019 12:05:54





Date: 8.0CT.2019 16:31:15



Page 79 of 152

		1100 Co FA	E Chalk Creel oalville, UT 84 (435) 336-443 AX (435) 336-4	x Road 017 3 4436		Band	Edge	e Mea	surem	ients
DNB Job Numb	ber:	06022			Date:		10 Oc	t 2019	Con	formance
Customer:		Transco	ore		I.				St	andard
Model Number	:	MPRX	MPRXFH						FC	C Part 15
Description:		Multipr	otocol Reader E	xtreme- Fr	equenc	y Hopper			(15	C lause 5.247(d)
Ambient	Temper	ature	R	elative Hur	nidity			Baron	netric Pre	essure
2	24 °C			32 %				10	01.30 kP	a
EUT performed	l within t	he require	ements of the ap	plicable sta	undard	[X] Ye	s []]	No J	Payne	
		Conducte	ed Band Edge Measu	urement				Fr	eq	Dace /Eail
Port	Modu	lation	Limit	Lower (N	1Hz)	Upper (Ipper (MHz)		IHz)	F 033/ 1 011
0	Se	go	928			927.65	248	-0.	348	Pass
1	Se	go	928			927.65	811	-0.	342	Pass
2	Se	Sego 928 927.66			185	-0.	338	Pass		
3	Se	go	928			927.66	123	-0.	339	Pass



Date: 8.0CT.2019 09:36:08







Page 80 of 152

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436]]	FHSS Charac	teristics				
DNB Job Number:	06022	Date:	19 Nov 2019	Conformance				
Customer:	Transcore	Transcore						
Model Number:	MPRXFH			FCC Part 15				
Description:	Multiprotocol Reader Extreme- F	Multiprotocol Reader Extreme- Frequency Hopper (FHSS)						
EUT performed within the requirements of the applicable standard [X] Yes [] No Les Payne								

15.247g,h FHSS Characteristics

Frequency Hop Timing

The timing is handled in the high level state machine. Every time through the high level state machine, the Realtime Clock is read. The time read from the Realtime Clock is compared to see if the tenths of seconds is not equal to the previous tenths of seconds value. If not equal, it hops to the next hop channel. The average hop rate is 100 ms. This high level state machine does not override tag encoders/decoders, so depending on a tag in the field, it will vary a bit from hop to hop, but no more than 15% on a single given hop.

Select of Hop Frequency

The Encompass 4H operates in the 902 to 928 MHz industrial, scientific, and medical radio band. The channel frequencies are defined by an algorithm below. There is no ability to synchronize this hopping with other devices. Therefore the Encompass 4H does not have the ability to be coordinated with other systems. Each frequency is used equally on average by the transmitter.

Frequency Hop Sequence

There are 101 unique frequency steps from 902.5 to 927.5 MHz with a step size of 250kHz, Channel 0=902.5 MHz, Channel 1=902.75 MHz, Channel 2=903 MHz, ...Channel 100=927.5 MHz. The reader has a Real Time Clock (RTC) that is continually running independently of the frequency setting, and is read many independent times in between the reader setting the transceiver to a new frequency. The RTC has a hundredth of a second field that will be a number between 00 and 99. The reader software will add 1 to the currently read value of this hundredth value resulting in a random number between 1 and 100. It will then add this value to the current RF frequency channel. If the resulting channel is out of range, it will roll around to the first channel and add the remainder of the number of channels that it was out of range. This will result in a 50/50 chance of the new frequency ending up being a forward hop or a backwards hop. Statistically, over the short term, the frequency hopping is completely random and the resultant end value of a given RF frequency is further randomized as the algorithm is influenced by every single random step that occurred since the reader was powered up. Over the long term, every channel will statistically be occupied the same amount of time as every other channel.

Additional Information

All frequency hopping modes were evaluated, there was no significant difference in timing or hopping sequencing between frequency hopping modes. FHSS mode represented in the plotted data was taken with FHSS mode SeGo.

	1100 E C Coalv (43 FAX (Chalk Creek Road ille, UT 84017 5) 336-4433 (435) 336-4436	E	lopping Ch	annels	
DNB Job Number:	06022		Date:	10 Oct 2019	Conformance	
Customer:	Transcore			Standard		
Model Number:	MPRXFH			FCC Part 15		
Description:	Multiproto	Multiprotocol Reader Extreme- Frequency Hopper (FHSS)				
		Environmental C	Conditions			
Ambient Temper	ature	Relative Hur	nidity	Barom	etric Pressure	
24 °C 32 %				10)1.30 kPa	
EUT performed within t	he requirement	nts of the applicable sta	undard [X] Ye	es []No Le	s Payne	

15.247 Number of Hopping Frequencies

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

Span = the frequency band of operation RBW 1% of the span VBW RBW Sweep = auto Detector function = peak Trace = max hold

Allow the trace to stabilize. It may prove necessary to break the span up to sections, in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

	1100 E C Coalvi (435 FAX (4	Thalk C Ile, U7 5) 336- 435) 33	Creek Road F 84017 4433 36-4436		annels		
DNB Job Number:	06022			Date:		7 Oct 2019	Conformance
Customer:	Transcore	Franscore					
Model Number:	MPRXFH			FCC Part 15			
Description:	Multiprotoc	Multiprotocol Reader Extreme- Frequency Hopper (FHSS)					
		E	nvironmental C	Condition	ıs		
Ambient Tempe	erature		Relative Hur	nidity		Barometric Pressure	
21 °C			25 %			1	01.2 kPa
EUT performed within	the requiremen	ts of th	e applicable sta	indard	[X] Ye	s []No Le	es Payne
Center Frequency	Frequency S	Frequency Span Hopping Channels Min Limit		Pass/Fail			
915.000 MHz	26 MHz		101			50	Pass



Date: 7.0CT.2019 13:23:27

	1100 E C Coalv (43 FAX (Chalk Creek Road ille, UT 84017 5) 336-4433 (435) 336-4436	Max T	Time on Ch	annel Freq		
DNB Job Number:	06022		Date:	10 Oct 2019	Conformance		
Customer:	Transcore		Standard				
Model Number:	MPRXFH	MPRXFH					
Description:	Multiprotoc	col Reader Extreme- Fr	equency Hopper	·(FHSS)	Clause 15.247(a.1.iii)		
		Environmental C	Conditions	-			
Ambient Temper	ature	Relative Hu	nidity	Barometric Pressure			
21 °C		25 %		1	101.2 kPa		
EUT performed within	the requirement	nts of the applicable sta	undard [X] Ye	es []No Le	s Payne		

15.247 Time of Occupancy (Dwell Time)

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel

RBW = 1 MHz VBW RBW Sweep = as necessary to capture the entire dwell time per hopping channel Detector function = peak Trace = max hold Trigger = video (positive trace)

If possible, use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s). An oscilloscope may be used instead of a spectrum analyzer.

		1100 E Coalv (43 FAX	Chalk Creek Road ville, UT 84017 35) 336-4433 (435) 336-4436	Max T	ime on Channel Freq					
DNB Job Number	r:	06022		Date:	10 Oct 2019	Confo	rmance			
Customer:		Transcore				Standard				
Model Number:		MPRXFH				FCC Part 15				
Description:		Multiprotocol Reader Extreme- Frequency Hopper (FHSS)				ler Extreme- Frequency Hopper (FHSS) Clause				
		SeGo mode	SeGo mode (representative of all hopping modes) 15.247(a,1							
			Environmental	Conditions						
Ambient T	emper	ature	Relative Hu	midity	Baron	netric Press	ure			
24	°C		32 %		1	01.30 kPa				
EUT performed v	vithin t	he requireme	ents of the applicable st	andard [X] Ye	5 []No Le	es Payne				
Center Freq Chl	Puls	e Duration	Number of Pulses in 20 Seconds	Calculated on time	Allowed C	Allowed On Time				
915.750MHz	0.0)975 Sec	4	0.390 Sec	0.4sec in wind	20 sec ow	Pass			



Date: 10.0CT.2019 15:40:35

	1100 E C Coalv (43 FAX (Chalk Creek Road ille, UT 84017 5) 336-4433 (435) 336-4436	(Channel Sep	aration	
DNB Job Number:	06022		Date:	19 Nov 2019	Conformance	
Customer:	Transcore			Standard		
Model Number:	MPRXFH	MPRXFH				
Description:	Multiprotoc	ol Reader Extreme- Fr	equency Hopp	er (FHSS)	Clause	
	SeGo mode	(representative of all	hopping mode	5)	15.247(a,1)	
		Environmental C	Conditions			
Ambient Tempe	rature	Relative Hu	midity	Barom	etric Pressure	
21 °C		25 %		1	01.2 kPa	
EUT performed within	the requireme	nts of the applicable sta	andard [X] Y	es []No Le	es Payne	

15.247 Carrier Frequency Separation

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings: Span = wide enough to capture the peaks of two adjacent channels Resolution (or IF) Bandwidth (RBW) 1% of the span Video (or Average) Bandwidth (VBW) RBW Sweep = auto Detector function = peak Trace = max hold

Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section. Submit this plot.

	1100 E C Coalv (43 FAX (Chalk C ille, U7 5) 336- (435) 33	Creek Road F 84017 4433 36-4436	Channel Sepa				aration	
DNB Job Number:	06022			Date:		19 Nov 201	9	Conformance	
Customer:	Transcore							Standard	
Model Number:	MPRXFH	1PRXFH						FCC Part 15	
Description:	Multiprotoc	Aultiprotocol Reader Extreme- Frequency Hopper (FHSS)						Clause	
	SeGo mode	SeGo mode (representative of all hopping modes)						15.247(a,1)	
		E	nvironmental C	Condition	15				
Ambient Tempe	erature		Relative Hur	Relative Humidity Barom			om	netric Pressure	
20 °C			35 %				10	01.0 kPa	
EUT performed within	the requirement	nts of th	e applicable sta	undard	[X] Yes	[] No	Le	s Payne	
Hopping Channel 1	Hopping Cha	Hopping Channel 2			Limit (20dB BW)			Pass/Fail	
902.496910	902.747		250.09 kl	Hz	2	50kHz		Pass	



Date: 19.NOV.2019 12:06:33

	1100 E C Coalv (43) FAX (Chalk Creek Road ille, UT 84017 5) 336-4433 435) 336-4436		Conducted S	purious
DNB Job Number:	06022		Date:	10 Oct 2019	Conformance
Customer:	Transcore		Standard		
Model Number:	MPRXFH				FCC Part 15
Description:	Multiprotoc	ol Reader Extreme- Fi	requency Hop	oper	Clause
	Test Proced	ure			15.247(d)
Ambient Temper	ature	Relative Hu	Relative Humidity Baro		
24 °C 32 %				10	01.30 kPa
EUT performed within t	he requirement	nts of the applicable st	andard [X]	Yes [] No J	Payne

Test Procedure: ANSI C63.10-2013

15.247 (d) Spurious RF Conducted Emissions

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span. RBW = 100 kHz VBW RBW Sweep = auto Detector function = peak Trace = max hold

Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section. Submit these plots.

			1100 E C Coalv (43) FAX (Chalk Creek Road ille, UT 84017 5) 336-4433 435) 336-4436		Co	Spurious	ourious		
DNB J	Job Numb	er:	06022		Date:		10 Oct 2019	Confor	mance	
Custor	mer:		Transcore				Standard			
Model	Number:		MPRXFH		FCC Part 15					
Descri	ption:		Multiprotoc	ol Reader Extreme- Fro	- Frequency Hopper Clause 15.247(d)					
	Ambient '	Temper	ature	Relative Hur	nidity		Bar	ometric Pressu	re	
	2	4 °C		32 %				101.30 kPa		
EUT p	performed	within t	he requiremer	nts of the applicable sta	ndard	[X] Ye	s []No	J Payne		
Port	Channel	M	odulation	Peak Output Power (d	Bm)	Read	ding (dBm)	-20dBc (dBm)	Pass/Fall	
0	Low		ego	28.44			28.77	8.77	Pass	
1	Low		ego	28.90			29.01	9.01	Pass	
2	Low		ego	28.94		28.90		8.9	Pass	
3	Low		ego	28.90			29.12	9.12	Pass	



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Spectrum						(The second seco
Ref Level	40.00 di	offset 40.00 dB	 RBW 100 kHz 			
Att	20	dB SWT 250 ms	VBW 300 kHz	Mode Sweep		
IPk View						
10				M1[1]		28.90 dBr
30 x Bm				hand a l		902.30 MH
				MIX[1]		-18,78 080
20 dBm					1	Ta'99300 CH
0.dBm	1 8.98	0 dBm				
a dam						
usio						
10 dBm						
		202		M	B N	2
20 dBm-		TOP:		1.00		
	-	ALL	بالمقاصلين وحاصان	ALL DELLAS	Contraction of the second of the	Mary Mary Marine Mar
ab Children						
40 dBm						
ED dBm						
Start 30.0 P	/Hz		8001 n	ts		Ston 25.0 GHz
larkor						
Type Ref	Tre	X-value	Y-value	Function	Fun	ction Result
MI	1	902,3 MHz	28,90 dBm			
M2	1	19.899 GHz	-18.78 dBm			
M3	1	16.1664 GHz	~19.57 dBm			
M4	1	6.5947 GHz	-21.33 dBm			
	11			Measuring		09.10.2019

Date: 9.0CT.2019 11:49:03



Date: 9.0CT.2019 09:09:22



Date: 10.0CT.2019 14:08:27

			1100 E C Coalv (43) FAX (Chalk Creek Road ille, UT 84017 5) 336-4433 435) 336-4436		Co	onducted	Spurious		
DNB .	Job Numb	er:	06022		Date:		10 Oct 2019	Confor	mance	
Custor	mer:		Transcore				Standard			
Model	Number:		MPRXFH		FCC Part 15					
Descri	ption:		Multiprotoc	Iultiprotocol Reader Extreme- Frequency Hopper Clau 15.247					use 7(d)	
	Ambient '	Temper	ature	Relative Hur	nidity		Bar	ometric Pressu	re	
	2	4 °C		32 %				101.30 kPa		
EUT p	performed	within t	he requiremer	nts of the applicable sta	ndard	[X] Ye	s []No	J Payne		
Port	Channel	Μ	odulation	Peak Output Power (d	Bm)	Read	ding (dBm)	-20dBc (dBm)	Pass/Fall	
0	Mid		ego	28.55			28.60	8.6	Pass	
1	Mid		ego	28.92		28.92		8.92	Pass	
2	Mid		ego	28.79		28.83		8.83	Pass	
3	Mid		ego	28.97			29.26	9.26	Pass	



Date: 7.001.2019 14:54:19



Date: 9.0CT.2019 11:50:58







Page 90 of 152

			1100 E C Coalv (43) FAX (Chalk Creek Road ille, UT 84017 5) 336-4433 435) 336-4436		Co	Spurious	purious		
DNB J	Job Numb	er:	06022		Date:		10 Oct 2019	Confor	mance	
Custor	mer:		Transcore				Standard			
Model	Number:		MPRXFH		FCC Part 15					
Descri	ption:		Multiprotoc	ol Reader Extreme- Fro	ne- Frequency Hopper Clause 15.247(d)					
	Ambient '	Temper	ature	Relative Humidity			Bar	ometric Pressu	re	
	24	4 °C		32 %				101.30 kPa		
EUT p	performed	within t	he requiremer	nts of the applicable sta	ndard	[X] Ye	s []No	J Payne		
Port	Channel	M	odulation	Peak Output Power (d	Bm)	Read	ding (dBm)	-20dBc (dBm)	Pass/Fall	
0	High		ego	28.56			28.59	8.59	Pass	
1	High		ego	28.88			28.78	8.78	Pass	
2	High		ego	28.84		28.69		8.69	Pass	
3	High		ego	29.04			28.88	8.88	Pass	



Date: 7.001.2019 14:52:12

Spect	rum									(m) V	
Ref Le	vel 4	0.00 dB	m Offset 4	40.00 dB 🥌	RBW 100 kHz						
Att		20 d	B SWT	250 ms 🖷	VBW 300 kHz	Mode 9	weep				
IPk Vi	ew										
-140			1		M1[1]				28.69 dBr		
an an or	\rightarrow		_						927.20 MH		
						M	M2[1]		-19.83 dBr		
20 dBm	+		-	-	-			Υ.	19.5	6810 GH	
0 dBm	-0	1 8,690	dBm	-				_			
dem-											
10 dBm	-		-	_							
		MID				MB		M2		MA	
20 dBm	-		No.	-	+ +		-	Lin a mist	N 1		
	Sal -	and restrict	and the second second	well and	ALC: A DESCRIPTION	Philippensolal		and the second s	A CONTRACTOR OF	A COLORINA	
-						1					
40 dBm	-										
	<u> </u>										
SD dBm	2			-	+ +			_			
Start 3	0.0 M	Hz			8001 p	ts			Stop 3	25.0 GHz	
larker											
Type	Ref	Tre	X-value		Y-value	Funct	ion	Function Result			
M1		1	927.2 MHz		28.69 dBm	1					
M2		1	19.5681 GHz		~19,83 dBm						
M3		1	16.1508 GHz		-20.30 dBm						
M4		1	24.5584 GHz		-21.39 dBm						
M5		1	6.7	414 GHz	-22.33 dBm	1					
		10				Mea				10.2019	

Date: 9.0CT.2019 11:52:15



Date: 9.0CT.2019 09:03:32



Page 91 of 152