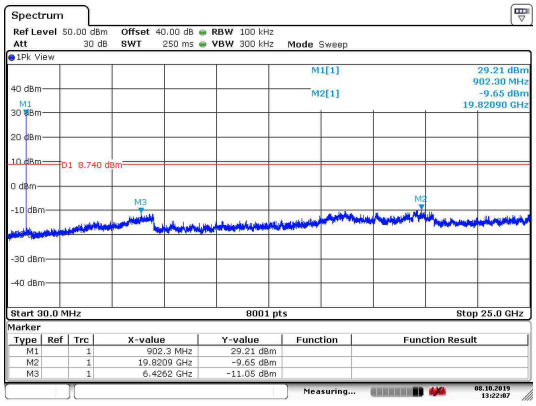
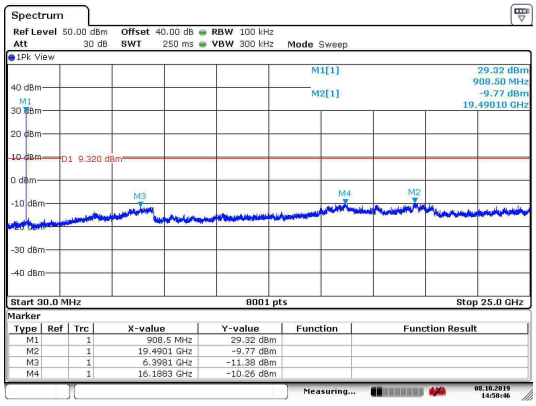
	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Conducted Spurious**	
DNB Job Number:	06022	Date: 10 Oct 2019	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)

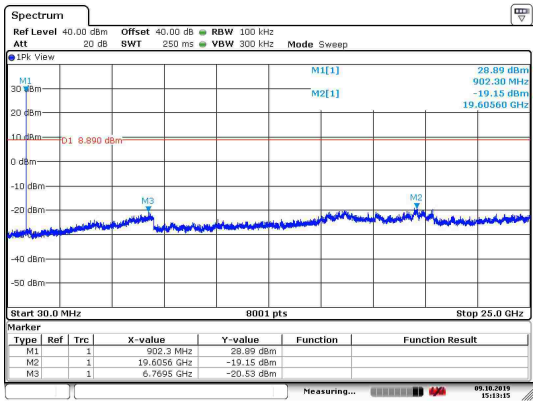
Ambient Temperature	Relative Humidity	Barometric Pressure
24 °C	32 %	101.30 kPa

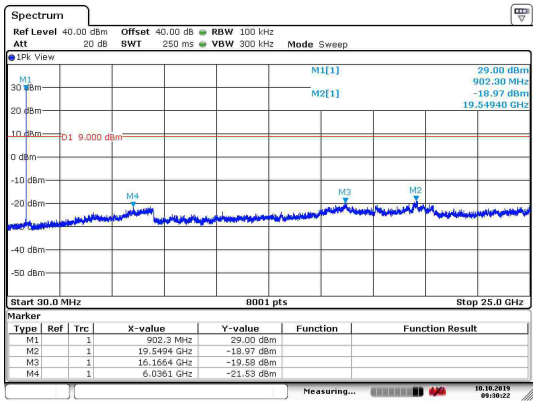
EUT performed within the requirements of the applicable standard [X] Yes [ ] No *J Payne*

Port	Channel	Modulation	Peak Output Power (dBm)	Reading (dBm)	-20dBc (dBm)	Pass/Fall
0	Low	epc	28.89	29.21	9.21	Pass
1	Low	epc	28.91	29.32	9.32	Pass
2	Low	epc	28.81	28.89	8.89	Pass
3	Low	epc	28.85	29.00	9	Pass







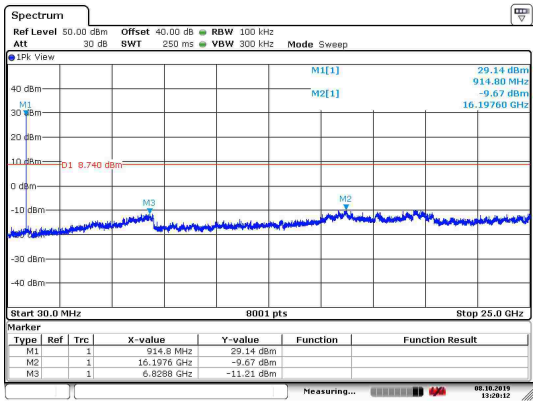


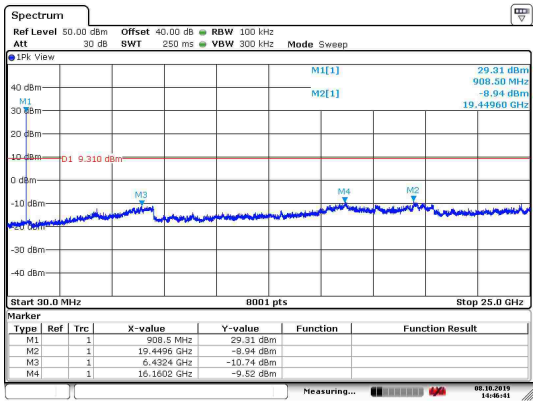
	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Conducted Spurious**	
DNB Job Number:	06022	Date: 10 Oct 2019	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)

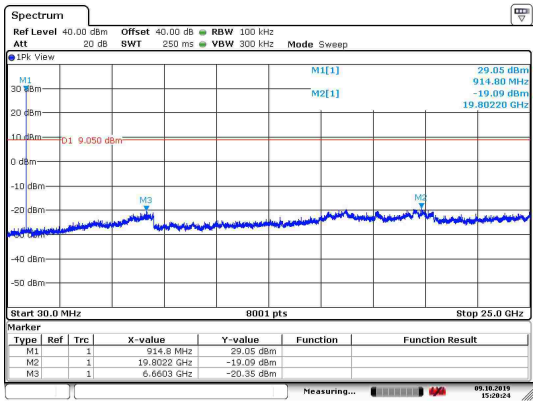
Ambient Temperature	Relative Humidity	Barometric Pressure
24 °C	32 %	101.30 kPa

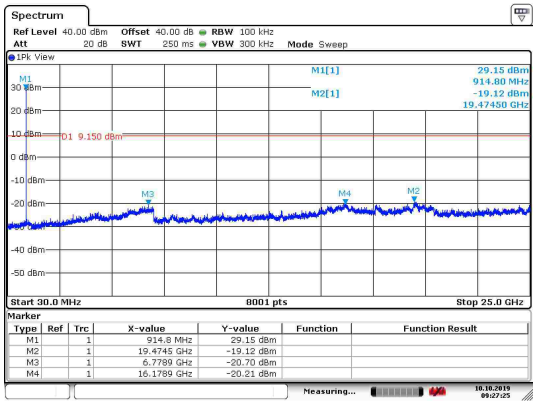
EUT performed within the requirements of the applicable standard [X] Yes [ ] No *J Payne*

Port	Channel	Modulation	Peak Output Power (dBm)	Reading (dBm)	-20dBc (dBm)	Pass/Fall
0	Mid	epc	28.96	29.14	9.14	Pass
1	Mid	epc	28.92	29.31	9.31	Pass
2	Mid	epc	28.91	29.05	9.05	Pass
3	Mid	epc	28.92	29.15	9.15	Pass







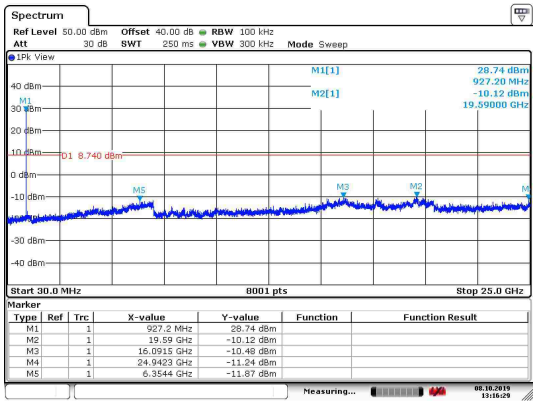


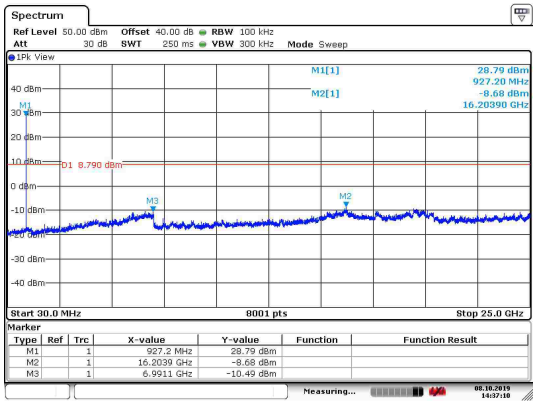
	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Conducted Spurious**	
DNB Job Number:	06022	Date: 10 Oct 2019	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)

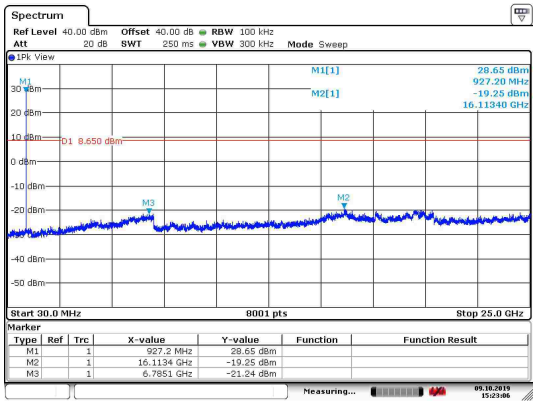
Ambient Temperature	Relative Humidity	Barometric Pressure
24 °C	32 %	101.30 kPa

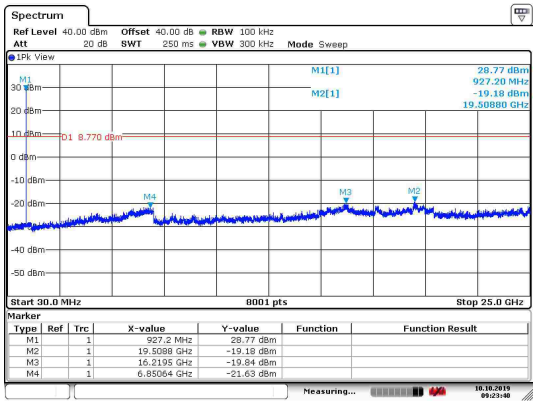
EUT performed within the requirements of the applicable standard [X] Yes [ ] No *J Payne*

Port	Channel	Modulation	Peak Output Power (dBm)	Reading (dBm)	-20dBc (dBm)	Pass/Fall
0	High	epc	28.93	28.74	8.74	Pass
1	High	epc	28.94	28.79	8.79	Pass
2	High	epc	28.91	28.65	8.65	Pass
3	High	epc	28.94	28.77	8.77	Pass







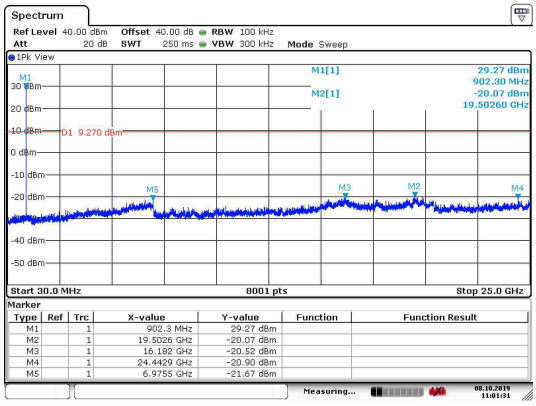


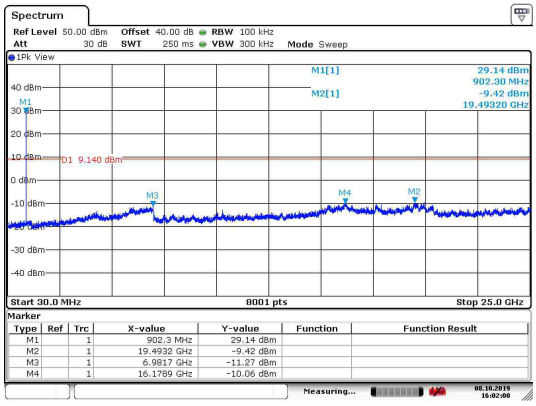
	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Conducted Spurious**	
DNB Job Number:	06022	Date: 10 Oct 2019	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)

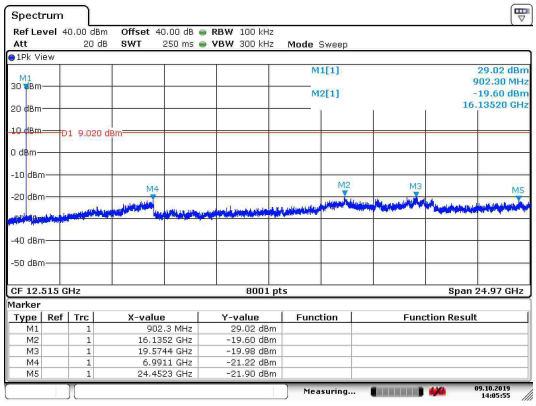
Ambient Temperature	Relative Humidity	Barometric Pressure
24 °C	32 %	101.30 kPa

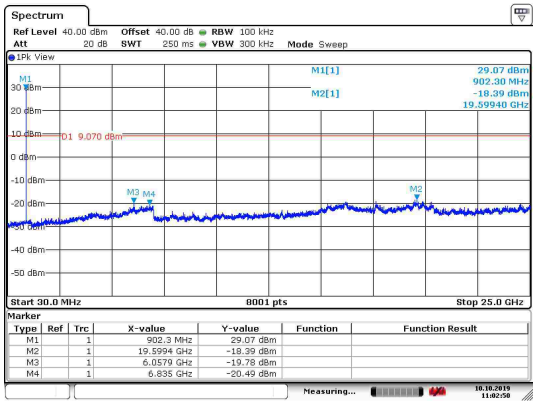
EUT performed within the requirements of the applicable standard [X] Yes [ ] No *J Payne*

Port	Channel	Modulation	Peak Output Power (dBm)	Reading (dBm)	-20dBc (dBm)	Pass/Fall
0	Low	iag	28.87	29.27	9.27	Pass
1	Low	iag	28.74	29.14	9.14	Pass
2	Low	iag	28.74	29.02	9.02	Pass
3	Low	iag	28.89	29.07	9.07	Pass







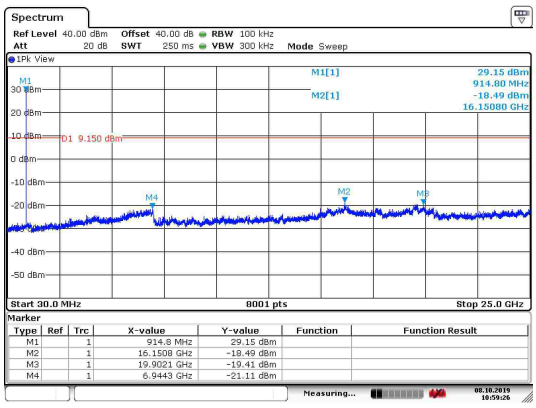


	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Conducted Spurious**	
DNB Job Number:	06022	Date: 10 Oct 2019	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)

Ambient Temperature	Relative Humidity	Barometric Pressure
24 °C	32 %	101.30 kPa

EUT performed within the requirements of the applicable standard [X] Yes [ ] No *J Payne*

Port	Channel	Modulation	Peak Output Power (dBm)	Reading (dBm)	-20dBc (dBm)	Pass/Fall
0	Mid	iag	28.78	29.15	9.15	Pass
1	Mid	iag	28.90	29.03	9.03	Pass
2	Mid	iag	28.86	29.19	9.19	Pass
3	Mid	iag	28.76	29.25	9.25	Pass



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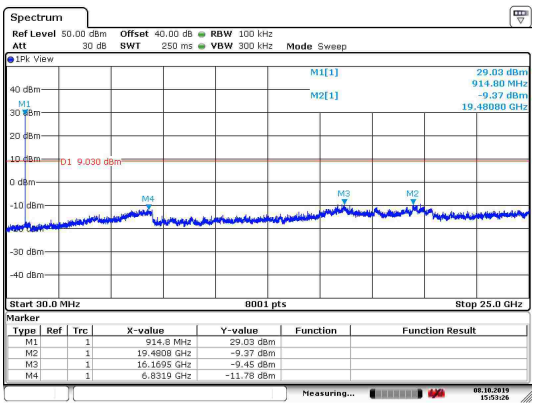

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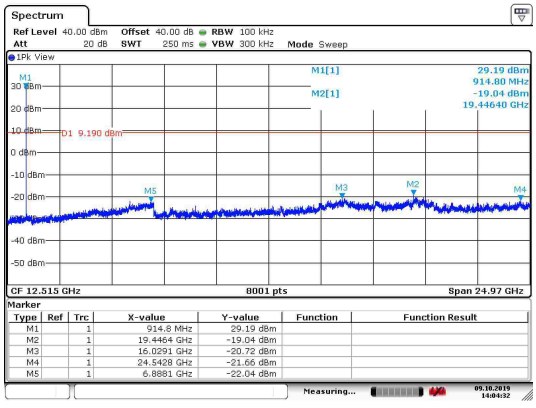

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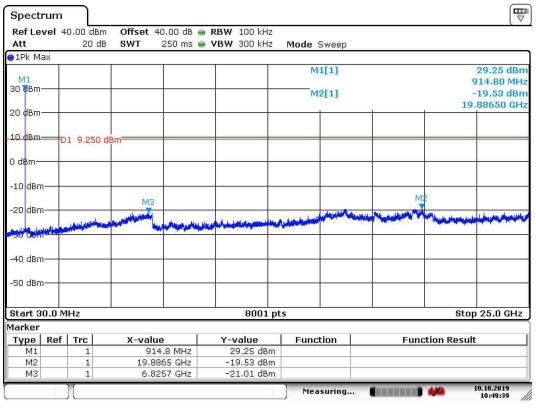

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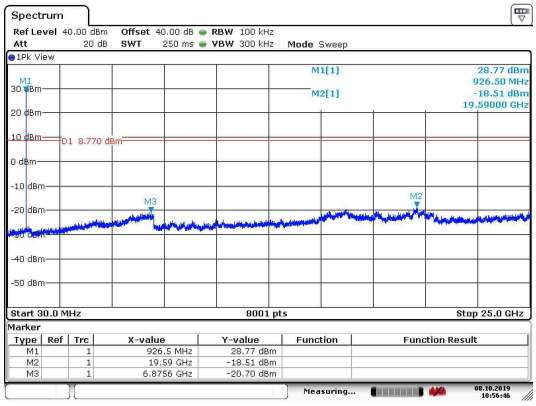
	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Conducted Spurious**	
DNB Job Number:	06022	Date: 10 Oct 2019	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)

Ambient Temperature	Relative Humidity	Barometric Pressure
24 °C	32 %	101.30 kPa

EUT performed within the requirements of the applicable standard [X] Yes [ ] No *J Payne*

Port	Channel	Modulation	Peak Output Power (dBm)	Reading (dBm)	-20dBc (dBm)	Pass/Fall
0	High	iag	28.79	28.77	8.77	Pass
1	High	iag	28.94	28.61	8.61	Pass
2	High	iag	28.68	28.80	8.8	Pass
3	High	iag	28.79	28.80	8.8	Pass



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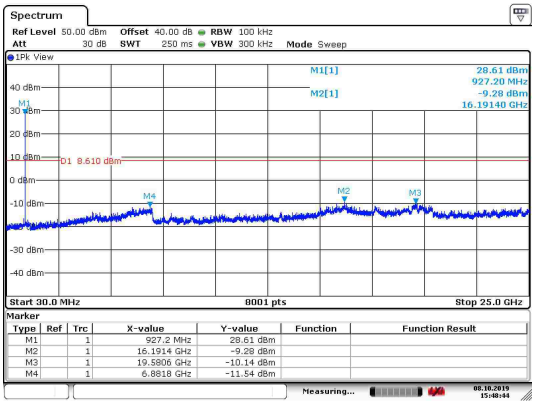

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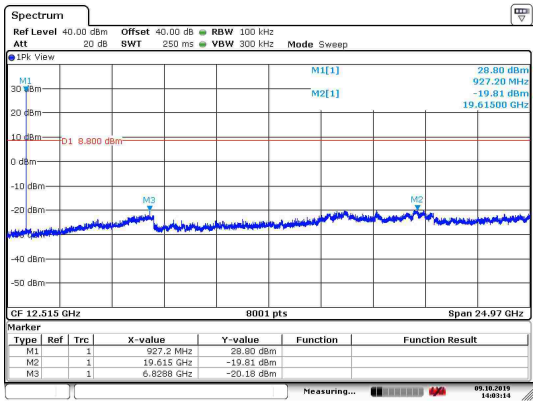

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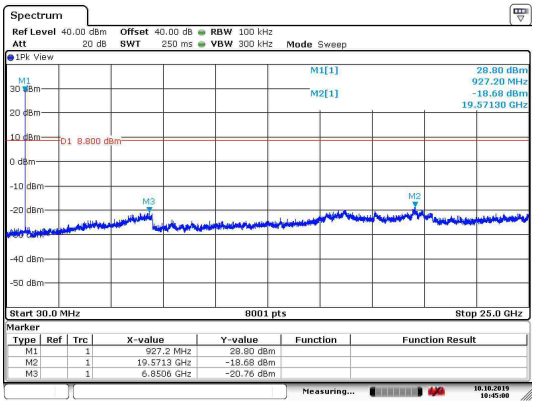


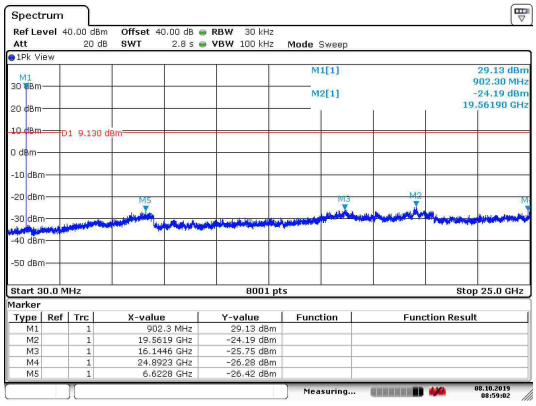
Date: 10.OCT.2019 10:45:00

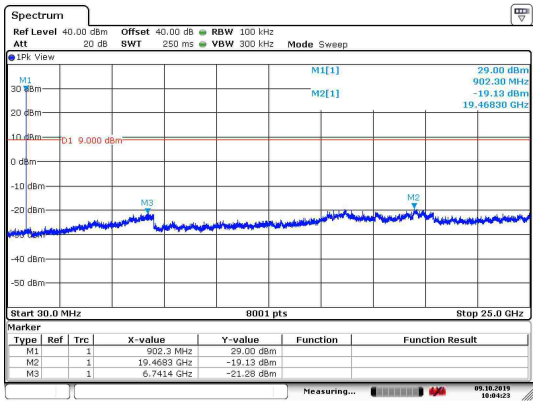
	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Conducted Spurious**	
DNB Job Number:	06022	Date: 10 Oct 2019	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)

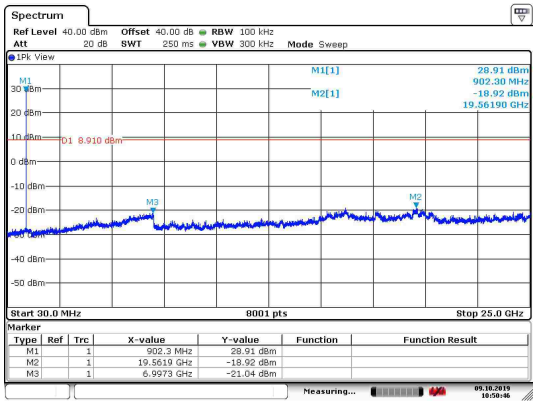
Ambient Temperature	Relative Humidity	Barometric Pressure
24 °C	32 %	101.30 kPa

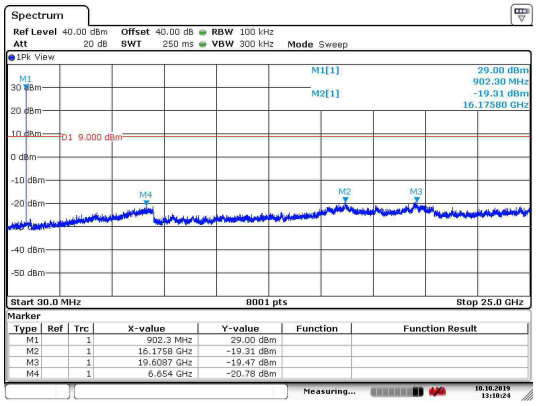
EUT performed within the requirements of the applicable standard [X] Yes [ ] No *J Payne*

Port	Channel	Modulation	Peak Output Power (dBm)	Reading (dBm)	-20dBc (dBm)	Pass/Fall
0	Low	Sego	28.99	29.13	9.13	Pass
1	Low	Sego	28.98	29.00	9	Pass
2	Low	Sego	28.90	28.91	8.91	Pass
3	Low	Sego	28.93	29.00	9	Pass







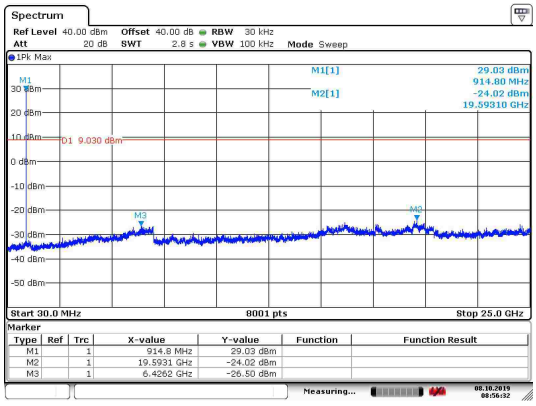


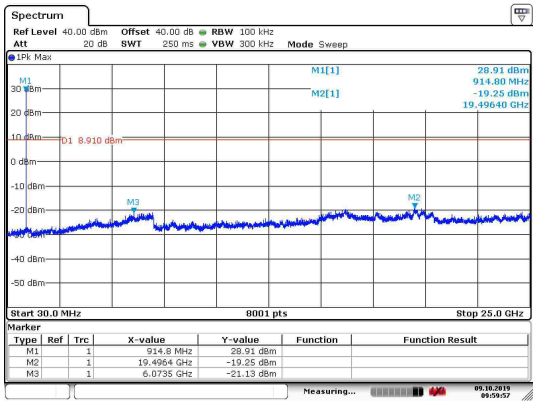
	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Conducted Spurious**	
DNB Job Number:	06022	Date: 10 Oct 2019	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)

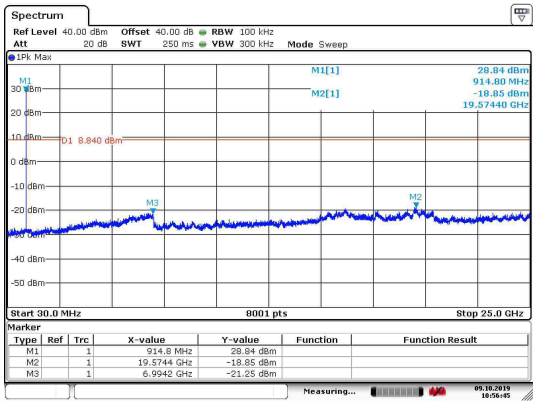
Ambient Temperature	Relative Humidity	Barometric Pressure
24 °C	32 %	101.30 kPa

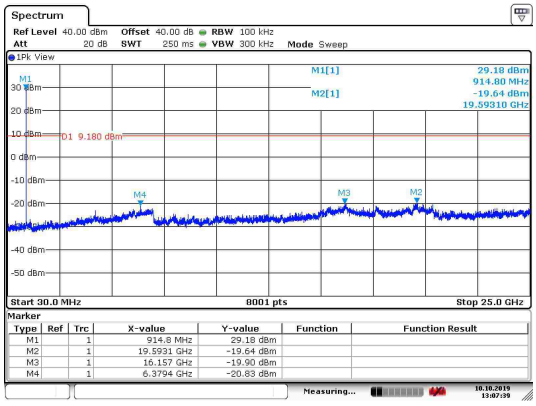
EUT performed within the requirements of the applicable standard [X] Yes [ ] No *J Payne*

Port	Channel	Modulation	Peak Output Power (dBm)	Reading (dBm)	-20dBc (dBm)	Pass/Fall
0	Mid	Sego	28.92	29.03	9.03	Pass
1	Mid	Sego	29.02	28.91	8.91	Pass
2	Mid	Sego	28.80	28.84	8.84	Pass
3	Mid	Sego	28.99	29.18	9.18	Pass







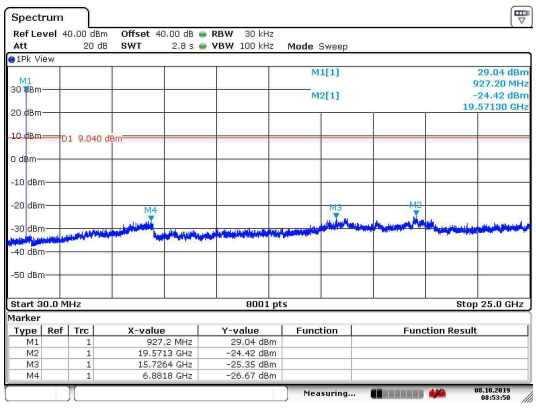


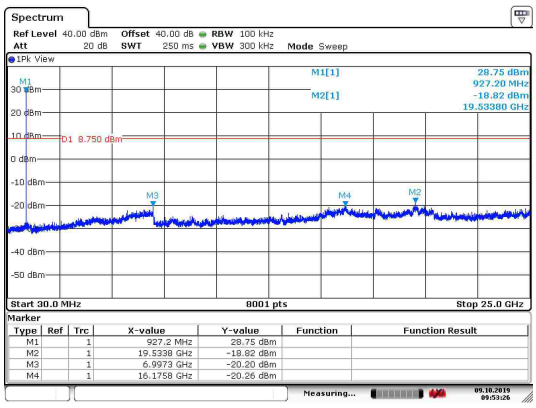
	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Conducted Spurious**	
DNB Job Number:	06022	Date: 10 Oct 2019	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)

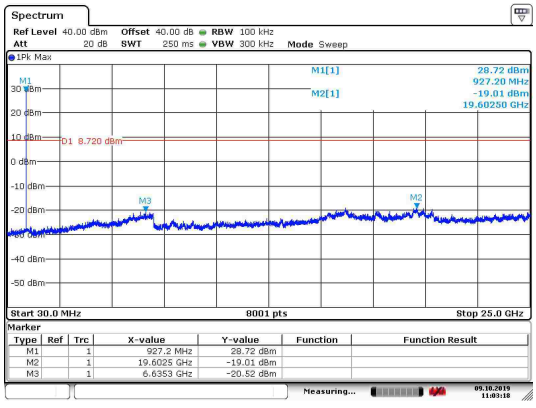
Ambient Temperature	Relative Humidity	Barometric Pressure
24 °C	32 %	101.30 kPa

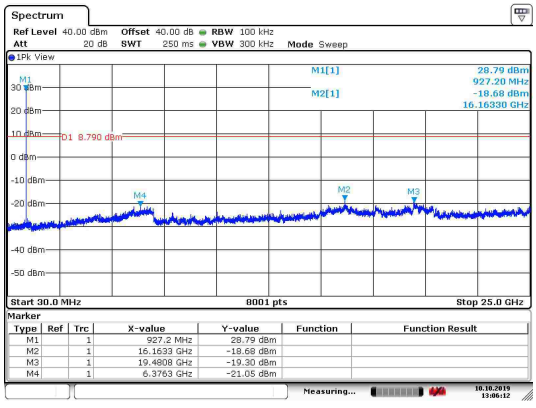
EUT performed within the requirements of the applicable standard [X] Yes [ ] No *J Payne*

Port	Channel	Modulation	Peak Output Power (dBm)	Reading (dBm)	-20dBc (dBm)	Pass/Fall
0	High	Sego	28.90	29.04	9.04	Pass
1	High	Sego	28.80	28.75	8.75	Pass
2	High	Sego	28.83	28.72	8.72	Pass
3	High	Sego	29.01	28.79	8.79	Pass









	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Restricted Bands Spurious**	
DNB Job Number:	06022	Date: 31 Jan 2020	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)
	Test Procedure		

Ambient Temperature	Relative Humidity	Barometric Pressure
24 °C	32 %	101.30 kPa

EUT performed within the requirements of the applicable standard [X] Yes [ ] No *J Payne*

Test Procedure: ANSI C63.10-2013

11.12.2 Antenna-port conducted measurements

11.12.2.1 General

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for determining compliance in the restricted frequency bands requirements. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case emissions is required.

11.12.2.2 General procedure for conducted measurements in restricted bands

The general procedure for conducted measurements in restricted bands is as follows:

a) Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 11.12.2.3 through 11.12.2.5 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).

b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP (see 11.12.2.6 for guidance on determining the applicable antenna gain).

c) Add the appropriate maximum ground reflection factor to the EIRP (6 dB for frequencies ≤ 30 MHz; 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive; and 0 dB for frequencies > 1000 MHz).

d) For MIMO devices, measure the power of each chain and sum the EIRP of all chains in linear terms (i.e., watts and mW).

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Restricted Bands Spurious**	
DNB Job Number:	06022	Date: 31 Jan 2020	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)
	Test Procedure		

Ambient Temperature	Relative Humidity	Barometric Pressure
24 °C	32 %	101.30 kPa

EUT performed within the requirements of the applicable standard [X] Yes [ ] No *J Payne*

Test Procedure: ANSI C63.10-2013 - *Continued*

e) Convert the resultant EIRP to an equivalent electric field strength using the following relationship:

E = EIRP – 20 log d + 104.8

where

E is the electric field strength in dBµV/m

EIRP is the equivalent isotropically radiated power in dBm

d is the specified measurement distance in m

f) Compare the resultant electric field strength level with the applicable regulatory limit.

g) Perform the radiated spurious emission test.

Note: With respect to steps e) and f) a limit line (EIRP) based upon the dBuV/m limit was calculated and put on the plots to satisfy the requirement of step f) above. Formula is: (E + 20 log d) - 104.8 = (EIRP limit). The appropriate correction factor from step c) was included in the final calculation.

Limit Calculation:

Formula: E – 104.8 + 20log(3) – antenna gain – ground reflection factor

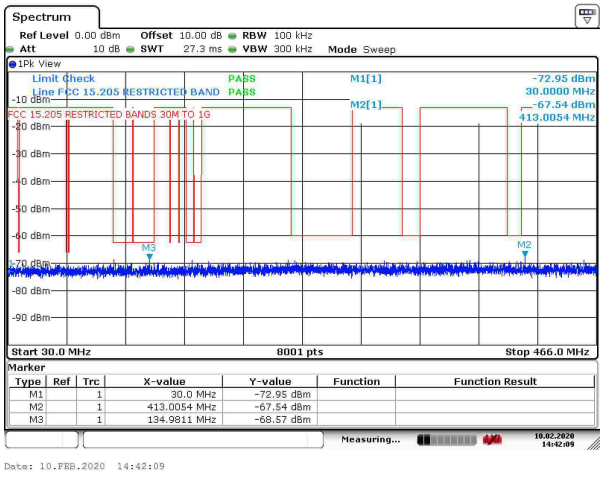
30 MHz - 88 MHz	40 - 104.8 + 20log(d) - 6 - 4.7	= -65.96 dBm
88 MHz - 216 MHz	43 - 104.8 + 20log(d) - 6 - 4.7	= -62.46 dBm
216 MHz - 960 MHz	46 - 104.8 + 20log(d) - 6 - 4.7	= -59.96 dBm
960 MHz - 1000 MHz	54 - 104.8 + 20log(d) - 6 - 4.7	= -51.96 dBm
> 1000 MHz	54 - 104.8 + 20log(d) - 6 - 0	= -47.26 dBm

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Restricted Band Spurious**	
DNB Job Number:	06022	Date: 31 Jan 2020	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)

Ambient Temperature	Relative Humidity	Barometric Pressure
23 °C	30 %	101.80 kPa

EUT performed within the requirements of the applicable standard [X] Yes [ ] No *CL Payne*

Port	Channel	Modulation	Pass/Fall
0	Low	ego	Pass



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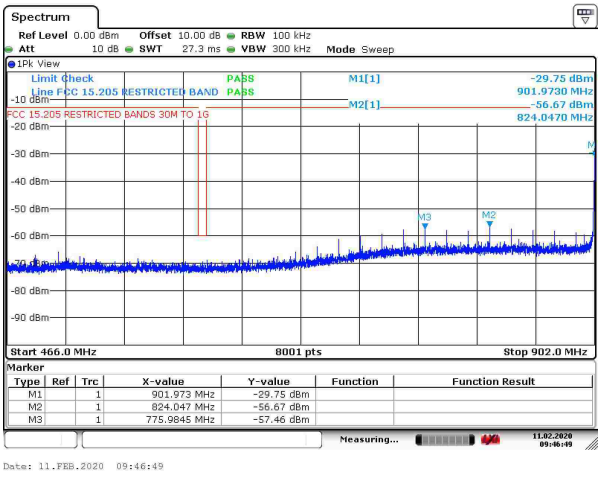

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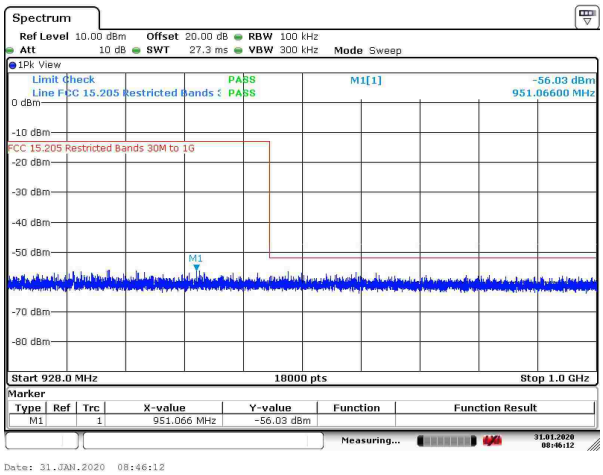

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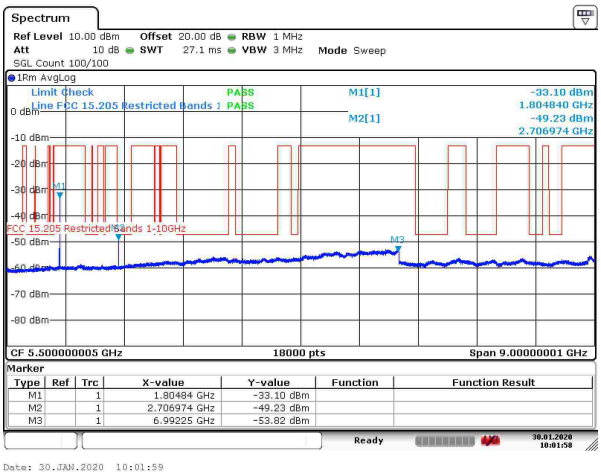

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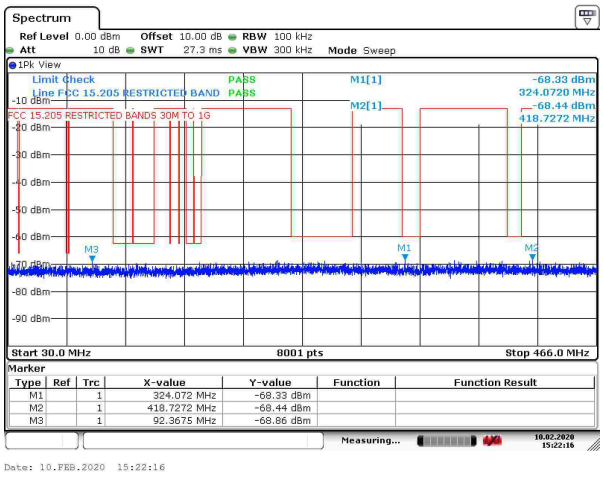
	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	**Restricted Band Spurious**	
DNB Job Number:	06022	Date: 31 Jan 2020	**Conformance Standard** FCC Part 15
Customer:	Transcore		
Model Number:	MPRXFH		
Description:	Multiprotocol Reader Extreme- Frequency Hopper		**Clause** 15.247(d)

Ambient Temperature	Relative Humidity	Barometric Pressure
23 °C	30 %	101.80 kPa

EUT performed within the requirements of the applicable standard [X] Yes [ ] No *CL Payne*

Port	Channel	Modulation	Pass/Fall
1	Low	ego	Pass



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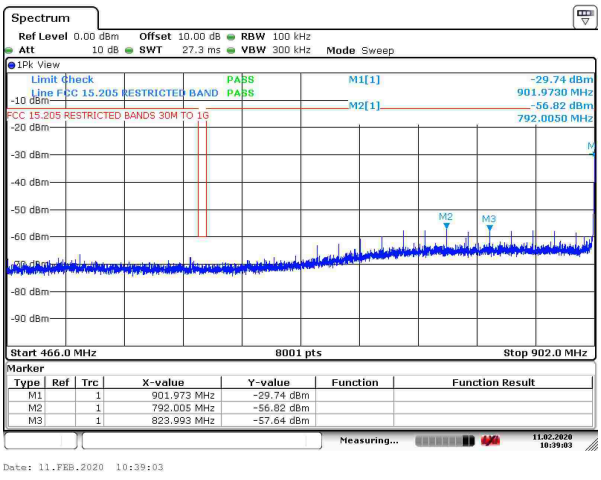

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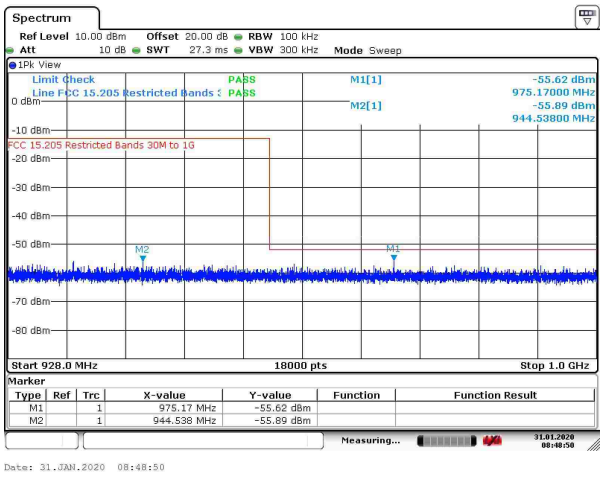

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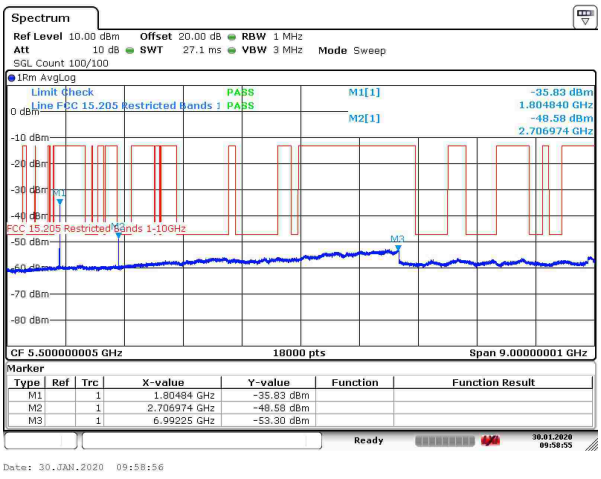

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