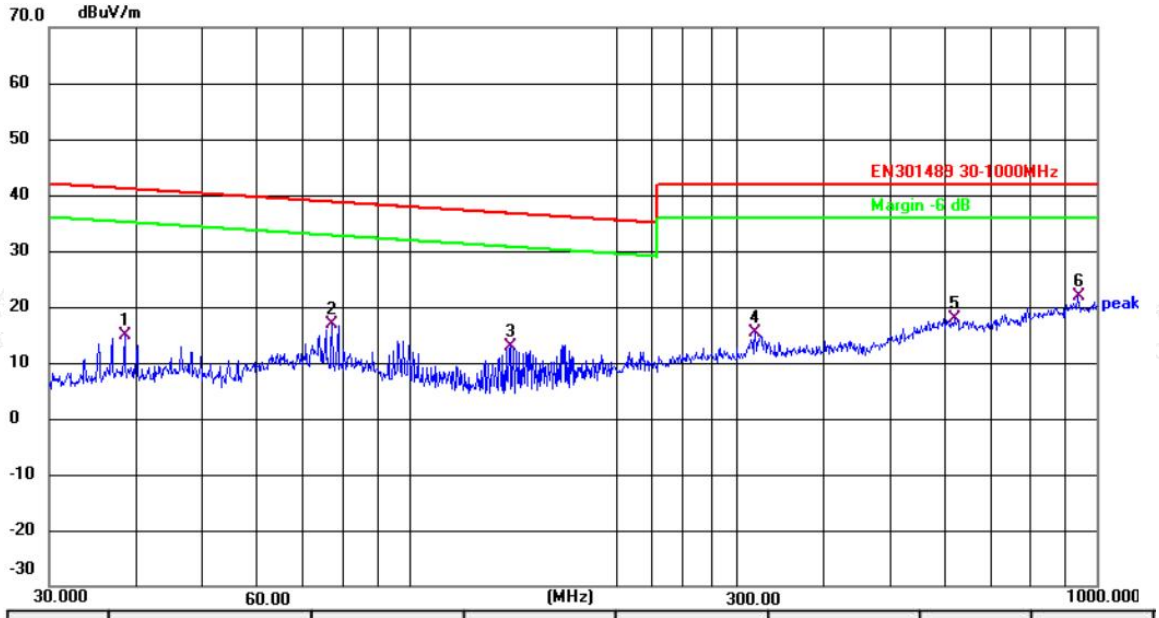
Appendix A for Emission and Immunity test results

Product Name: Inventory control beacon tag

Test Model: BIN001-2

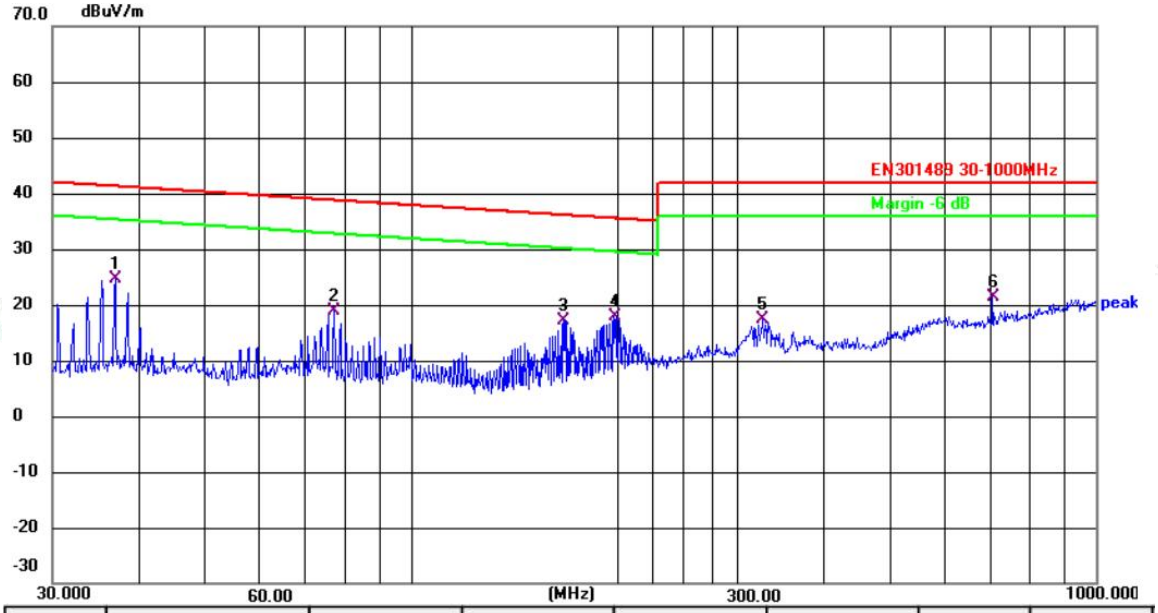
A.1 Radiated Disturbance

Test Model	BIN001-2	**Test Mode**	TM1
Environmental Conditions	23.8℃, 52.1% RH	**Test Engineer**	Jay Luo
Pol.	Horizontal	**Detector Function**	Quasi-peak
Distance	3m	**Test Voltage**	DC 3V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	38.6160	31.91	-17.11	14.80	41.13	-26.33	QP
2	77.3210	36.60	-19.74	16.86	38.75	-21.89	QP
3	140.3420	33.37	-20.51	12.86	36.70	-23.84	QP
4	318.8170	30.67	-15.37	15.30	42.00	-26.70	QP
5	620.7096	28.28	-10.30	17.98	42.00	-24.02	QP
6	938.8326	29.00	-7.06	21.94	42.00	-20.06	QP

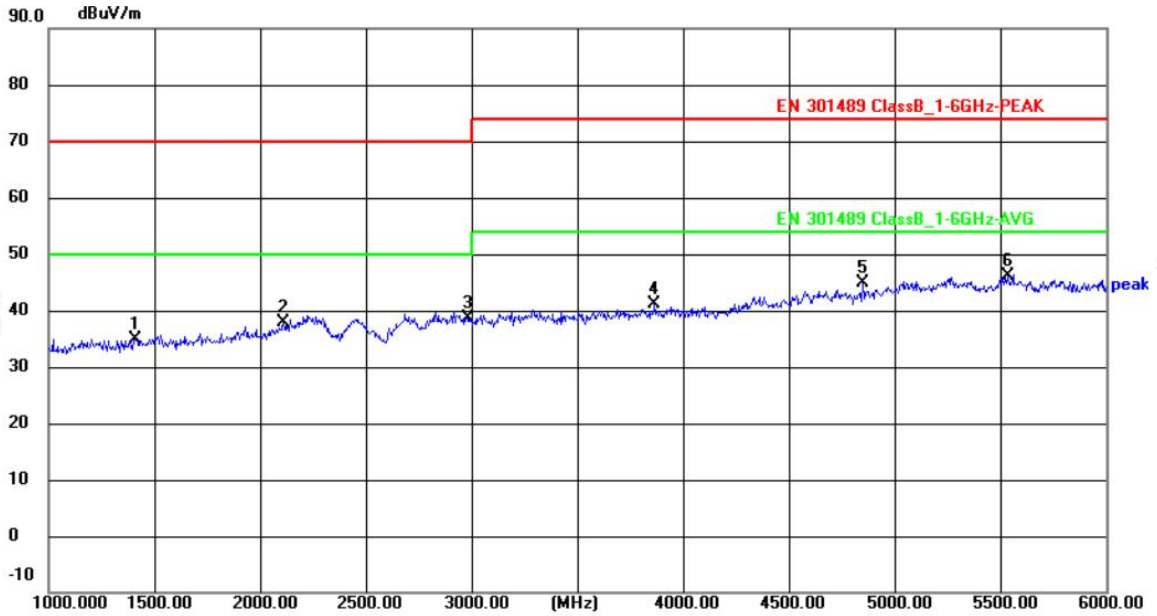
Test Model	BIN001-2	Test Mode	TM1
Environmental Conditions	23.8℃, 52.1% RH	Test Engineer	Jay Luo
Pol.	Vertical	Detector Function	Quasi-peak
Distance	3m	Test Voltage	DC 3V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	37.0248	42.32	-17.69	24.63	41.28	-16.65	QP
2	77.3210	38.64	-19.77	18.87	38.75	-19.88	QP
3	167.2366	36.82	-19.57	17.25	36.10	-18.85	QP
4	197.8928	35.59	-17.59	18.00	35.52	-17.52	QP
5	326.7395	31.57	-14.24	17.33	42.00	-24.67	QP
6	706.6998	32.24	-10.81	21.43	42.00	-20.57	QP

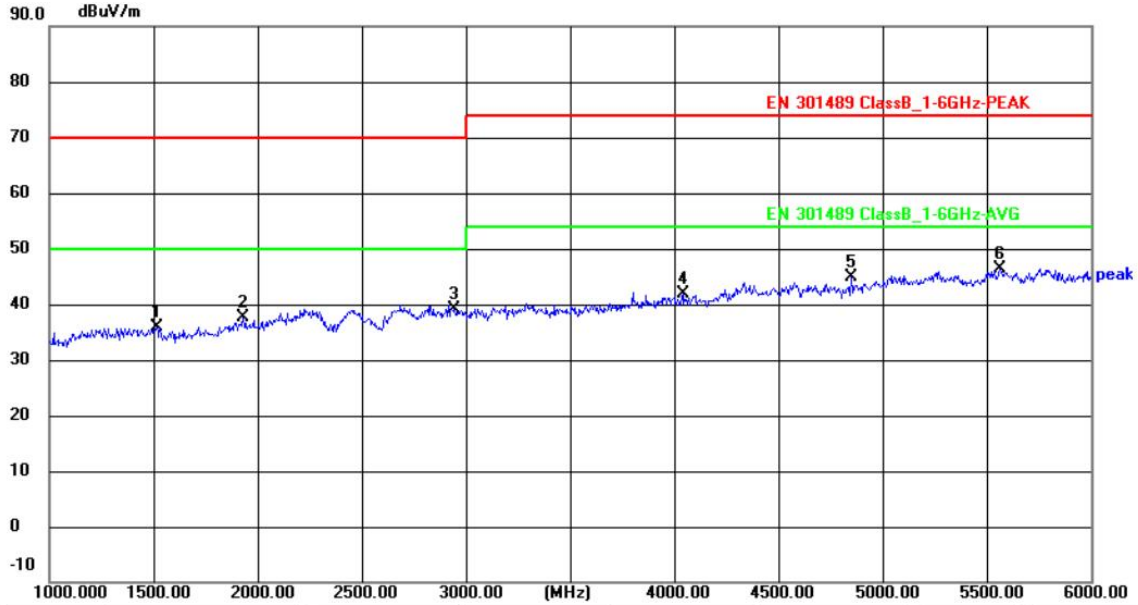
Note: Margin= Reading level + Correct factor – Limit
Correct Factor=Antenna Factor+Cable Factor- Pre-amplifier Factor

Test Model	BIN001-2	Test Mode	TM1 (Above 1GHz)
Environmental Conditions	23.5℃, 52.1% RH	Test Engineer	Jay Luo
Pol.	Horizontal	Detector Function	Peak+Average
Distance	3m	Test Voltage	DC 3V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1410.000	49.08	-14.14	34.94	70.00	-35.06	peak
2	2110.000	49.59	-11.78	37.81	70.00	-32.19	peak
3	2980.000	48.86	-10.19	38.67	70.00	-31.33	peak
4	3865.000	48.71	-7.66	41.05	74.00	-32.95	peak
5	4850.000	49.40	-4.49	44.91	74.00	-29.09	peak
6	5535.000	48.16	-2.08	46.08	74.00	-27.92	peak

Test Model	BIN001-2	Test Mode	TM1 (Above 1GHz)
Environmental Conditions	23.5℃, 52.1% RH	Test Engineer	Jay Luo
Pol.	Vertical	Detector Function	Peak+Average
Distance	3m	Test Voltage	DC 3V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1515.000	49.85	-13.95	35.90	70.00	-34.10	peak
2	1930.000	51.03	-13.36	37.67	70.00	-32.33	peak
3	2945.000	48.92	-9.79	39.13	70.00	-30.87	peak
4	4040.000	49.31	-7.50	41.81	74.00	-32.19	peak
5	4850.000	49.40	-4.49	44.91	74.00	-29.09	peak
6	5560.000	48.46	-2.08	46.38	74.00	-27.62	peak

Note:
1. Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
2. Measurements above show only up to 6 maximum emissions noted.
3. Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
4. Factor = Antenna Factor + Cable Loss + Amplifier Factor
   Emission Level = Reading level + Factor
   Margin = Emission Level - Limit

A.2 RF Electromagnetic Field (80 MHz - 6000 MHz)

Test Model	BIN001-2	**Test Engineer**	Jay Luo
Environmental Conditions	23.4℃, 53.3% RH	**Test Voltage**	DC 3V

TM1-TM2 Test Result:

EUT Working Mode	Antenna Polarity	Frequency (MHz)	Fielded Strength (V/m)	Observation	Position	Conclusion
Operating Mode	Vertical	80-6000	3	CT, CR	Front, Right, Left, Back, Top, Bottom	Pass
	Horizontal	80-6000	3	CT, CR	Front, Right, Left, Back, Top, Bottom	Pass

TM3 Test Result:

EUT Working Mode	Antenna Polarity	Frequency (MHz)	Fielded Strength (V/m)	Observation	Position	Conclusion
Idle	Vertical	80-6000	3	See Note	Front, Right, Left, Back, Top, Bottom	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back, Top, Bottom	Pass

Note: The EUT performance complied with performance criteria for CT&CR Function and there is no any degradation of performance and function.
During the test, the Maximum Bit Error Ratio was less than 0.001
During the test, the Maximum Block Error Ratio was less than 0.01
For equipment that supports a PER or FER, the minimum performance level shall be PER or FER less than or equal to 10%.

A.3 Electrostatic Discharge

Electrostatic Discharge Test Results			
Standard	☐ IEC 61000-4-2 ☑ EN 61000-4-2		
Applicant	Descartes System Group Inc		
EUT	Inventory control beacon tag	**Temperature**	22.2℃
M/N	BIN001-2	**Humidity**	53.1%
Criterion	B	**Pressure**	1021mbar
Test Mode	TM1-TM3	**Test Engineer**	Jay Luo

TEST RESULT OF TM1-TM2

Test Voltage	Coupling	Observation	Result (Pass/Fail)
±2KV, ±4kV	Contact Discharge	TT, TR	Pass
±2KV, ±4kV, ±8kV	Air Discharge	TT, TR	Pass
±2KV, ±4kV	Indirect Discharge HCP	TT, TR	Pass
±2KV, ±4kV	Indirect Discharge VCP	TT, TR	Pass

TEST RESULT OF TM3

Test Voltage	Coupling	Result (Pass/Fail)
±2KV, ±4kV	Contact Discharge	Pass
±2KV, ±4kV, ±8kV	Air Discharge	Pass
±2KV, ±4kV	Indirect Discharge HCP	Pass
±2KV, ±4kV	Indirect Discharge VCP	Pass

Note: The EUT performance complied with performance criteria for TT&TR Function and there is no any degradation of performance and function.