

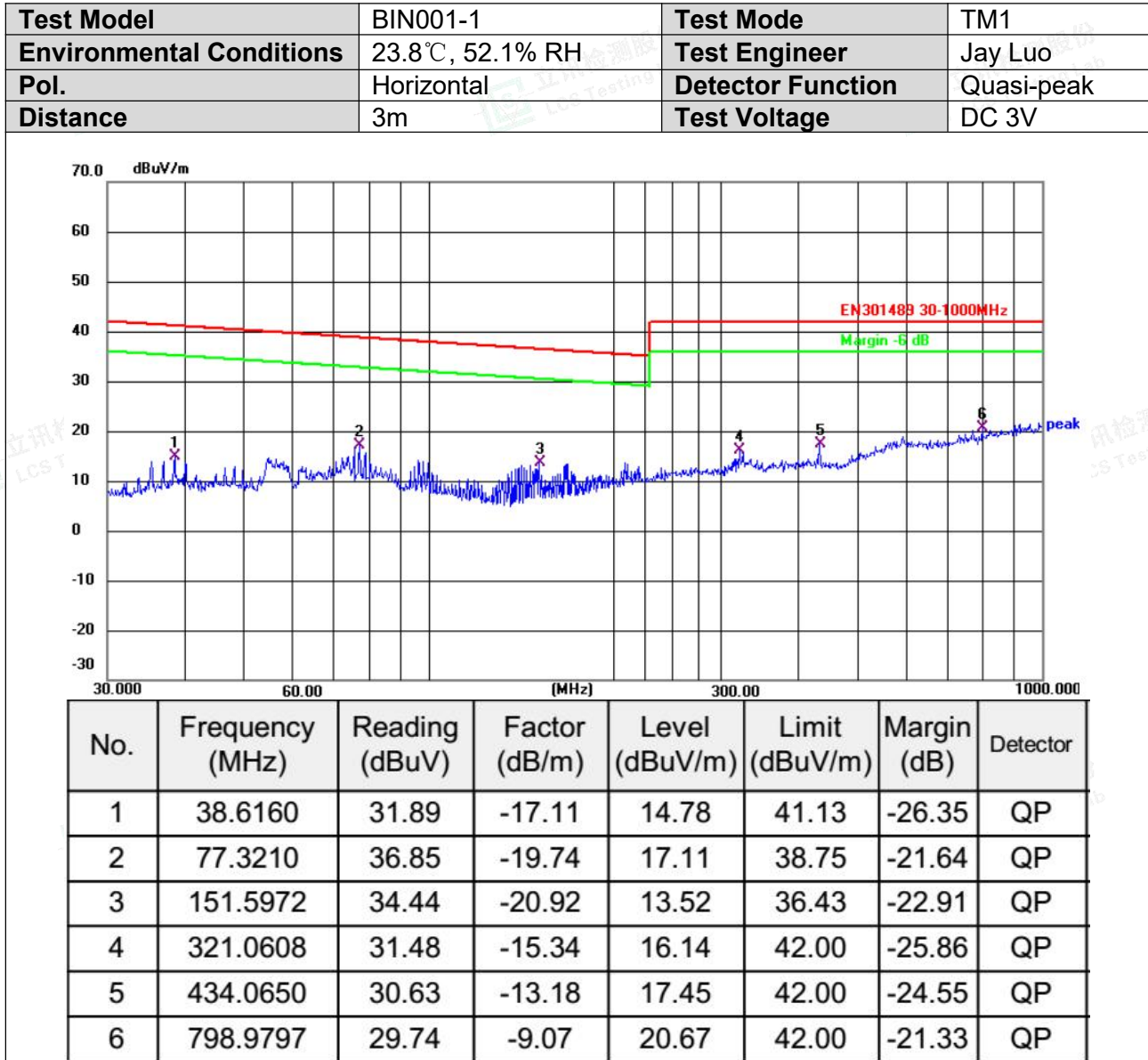


Appendix A for Emission and Immunity test results

Product Name: Inventory control beacon tag

Test Model: BIN001-1

A.1 Radiated Disturbance



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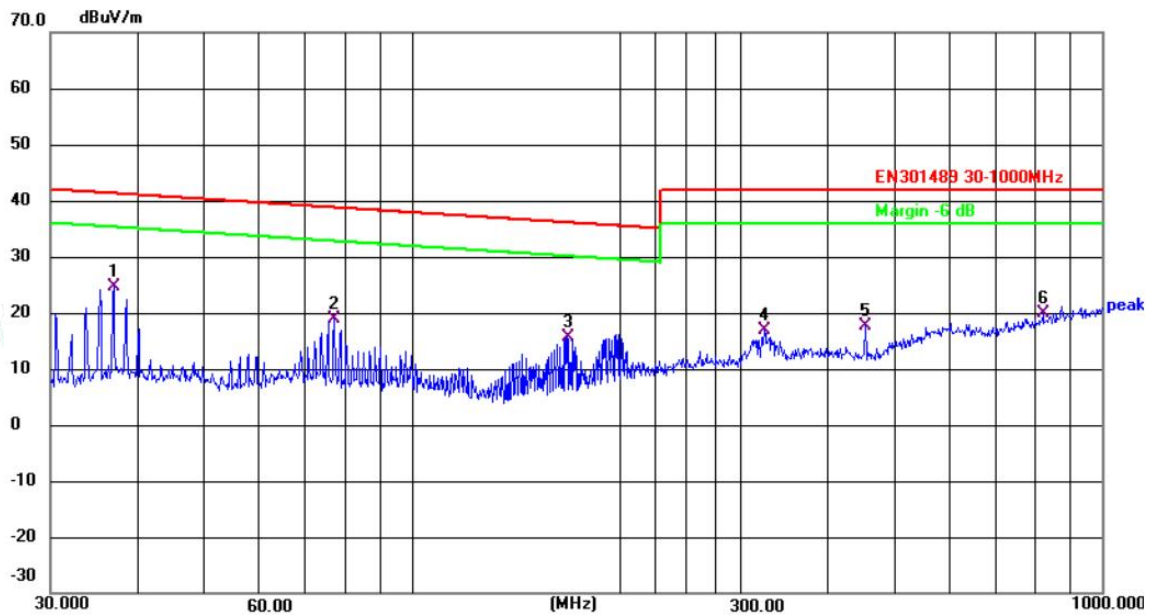
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Test Model	BIN001-1	Test Mode	TM1
Environmental Conditions	23.8°C, 52.1% RH	Test Engineer	Jay Luo
Pol.	Vertical	Detector Function	Quasi-peak
Distance	3m	Test Voltage	DC 3V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	37.0248	42.34	-17.69	24.65	41.28	-16.63	QP
2	77.3210	38.65	-19.77	18.88	38.75	-19.87	QP
3	167.8242	35.21	-19.56	15.65	36.08	-20.43	QP
4	324.4560	31.08	-14.22	16.86	42.00	-25.14	QP
5	454.3100	32.13	-14.46	17.67	42.00	-24.33	QP
6	821.7103	29.11	-9.18	19.93	42.00	-22.07	QP

Note: Margin= Reading level + Correct factor – Limit

Correct Factor=Antenna Factor+Cable Factor- Pre-amplifier Factor



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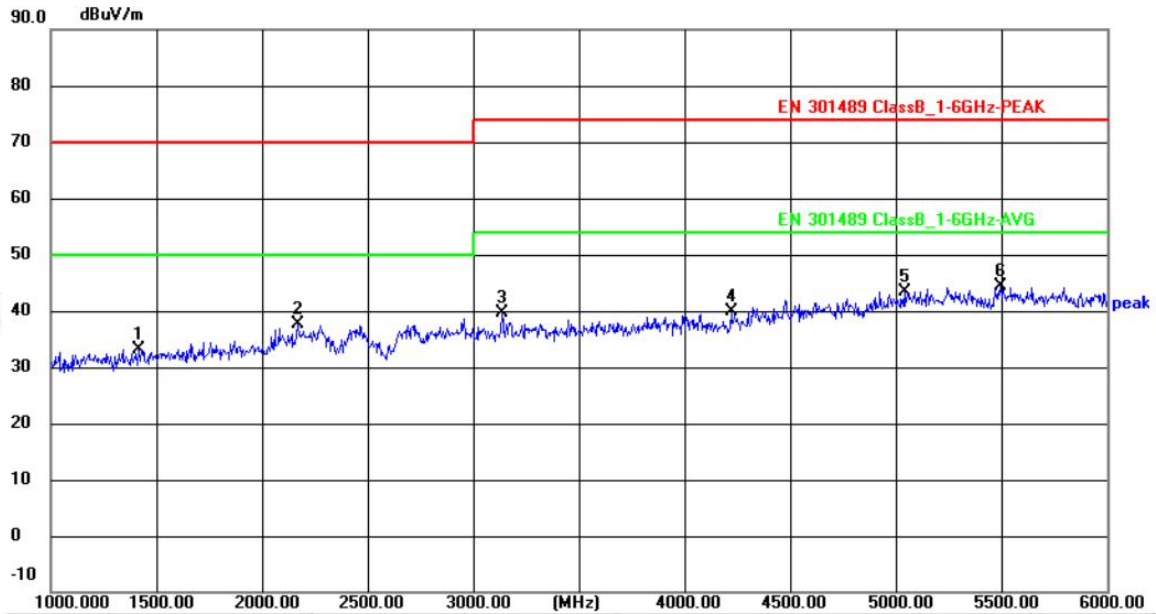
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Test Model	BIN001-1	Test Mode	TM1 (Above 1GHz)
Environmental Conditions	23.5°C, 52.1% RH	Test Engineer	Jay Luo
Pol.	Horizontal	Detector Function	Peak+Average
Distance	3m	Test Voltage	DC 3V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1415.000	47.35	-14.17	33.18	70.00	-36.82	peak
2	2170.000	49.01	-11.48	37.53	70.00	-32.47	peak
3	3135.000	49.21	-9.51	39.70	74.00	-34.30	peak
4	4220.000	46.80	-6.99	39.81	74.00	-34.19	peak
5	5040.000	46.20	-2.87	43.33	74.00	-30.67	peak
6	5495.000	46.65	-2.28	44.37	74.00	-29.63	peak



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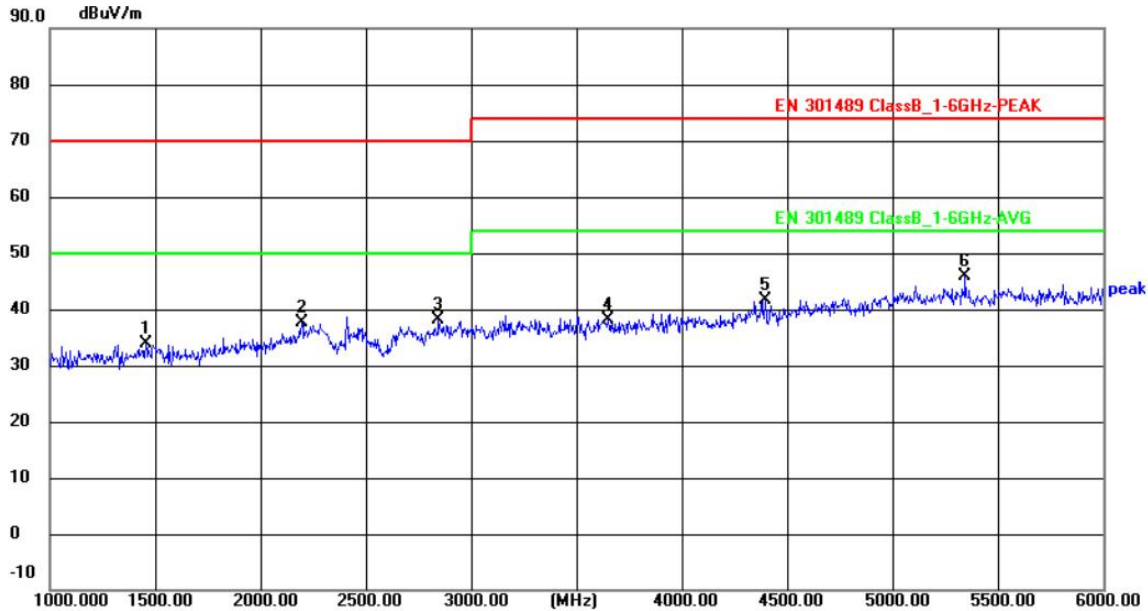
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Test Model	BIN001-1	Test Mode	TM1 (Above 1GHz)
Environmental Conditions	23.5°C, 52.1% RH	Test Engineer	Jay Luo
Pol.	Vertical	Detector Function	Peak+Average
Distance	3m	Test Voltage	DC 3V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1455.000	48.31	-14.39	33.92	70.00	-36.08	peak
2	2195.000	48.79	-11.15	37.64	70.00	-32.36	peak
3	2845.000	47.96	-9.93	38.03	70.00	-31.97	peak
4	3650.000	46.84	-8.59	38.25	74.00	-35.75	peak
5	4395.000	47.89	-6.35	41.54	74.00	-32.46	peak
6	5345.000	48.07	-2.27	45.80	74.00	-28.20	peak

Note:

- 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.
- Measurements above show only up to 6 maximum emissions noted.
- 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.
- 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	BIN001-1	Test Engineer	Jay Luo
Environmental Conditions	23.4°C, 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%.



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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	BIN001-1	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.			

