



TEST REPORT

Report No. : AA0026102(0) Date : 04 Jun 2021

Application No. : LA005259(0)

Applicant : Hobson Property Trust & The Trustee for THE JOHN WEBBER INVESTMENT TRUST & The trustee for the Rust Investment Trust & The trustee for the Weston Investment Trust & G.L WESTON
1/9 Monterey Road, Dandenong South, Melbourne
VIC Australia

Sample Description : One(1) item of submitted sample stated to be Remote of LiTYARD

Rating : 2 x 1.5V AA size batteries
No. of submitted sample : Six (6) piece (s)

Date Received : 24 May 2021

Test Period : 24 May 2021 – 28 May 2021

Test Requested : FCC Certification for FCC Part 15, subpart C

Test Method : 47 CFR Part 15 (10-1-19 Edition),
ANSI C63.10 – 2013,
ANSI C63.4 – 2014

Test Engineer : Mr. Leung Shu Kan, Ken

Conclusion : The submitted sample was found to comply with technical requirement of FCC Part 15 Subpart C, section 15.247.

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____

Wong Lap Pong / Andrew
Deputy Technical Manager

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The conformity statement stated in Conclusion above is based on the decision rule agreed with applicant and listed in www.cmateesting.org/qac/statement-of-conformity.pdf.
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CMA Industrial Development Foundation Limited

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.

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1 Product Information

1.1 General Information

Primary function : Remote control
Power supply : DC 3.7V
RF related function : Remote control of lighting
Electric Accessories sold with : NIL
Interconnection cable associated sold with : NIL
Operating condition : Not specified
Model difference : Not applicable

1.2 Technical Information

Operating Frequency : 916MHz
Modulation : FSK
Number of Channel : 1
Channel Bandwidth : 1MHz
6dB Bandwidth : 510.6kHz
Signal Type : Data
Number of Antenna : One
Antenna Type : Sprial Antenna
Antenna Gain : 0 dBi
Rated Input Voltage : DC 3.0V
Simplex or Duplex : simplex

1.3 Associated Electric Accessories Informatin

NIL

1.4 Associated Cables

NIL

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2.0 Equipment Units Tested (EUT)

Product Description : 916MHz transmitter
Serial No. : Not specified
Sample Type : Production Sample and engineering sample
Sample No. : RA032437-001
Rationale of selection : Only one model number

3.0 Location of Test Facility

CMA Industrial Development Foundation Ltd.
Room 1302, Yan Hing Centre,
9-13 Wong Chuk Yeung,
Fo Tan, Shatin,
New Territories
Hong Kong.

FCC Accredited Lab (Designation Number: HK0004)

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4.0 List of test equipment, supporting equipment and cables

4.1 Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Calibration Due Date	Calibration Period
EMI Test Receiver	Rohde & Schwarz	ESCI	100152	23 Dec 2021	1Year
Spectrum Analyzer	R&S	FSV40	100964	14 Dec 2021	1Year
Biconical Antenna	Rohde & Schwarz	HK116	837414/004	29 Nov 2022	2Years
Log Periodic Antenna	Teseq	UPA6109	43666	29 Nov 2022	2Years
Loop Antenna	EMCO	6502	00056620	27 Oct 2022	2Years
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-531	02 Feb 2023	3Years
Broadband Pre-Amplifier	Schwarzbeck	BBV 9718	9718-119	02 Feb 2023	3Years
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170442	15 Sep 2021	2Years
Broadband Pre-Amplifier	Schwarzbeck	BBV 9719	9719-010	12 Sep 2021	2Years
Coaxial Cable	Suhner	Sucoflex 106	N/A	03 May 2022	1Year
Coaxial Cable	Suhner	Sucoflex_104	N/A	14 Jan 2022	2Years

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5.0 Measurement Uncertainty

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%.

Radiated emissions

Frequency	Uncertainty (U_{lab})
30MHz ~ 200MHz (Horizontal)	4.59dB
30MHz ~ 200MHz (Vertical)	4.49dB
200MHz ~1000MHz (Horizontal)	4.94dB
200MHz ~1000MHz (Vertical)	4.97dB
1GHz ~6GHz	4.52dB
6GHz ~18GHz	4.58dB

Line-conducted emissions

Frequency	Uncertainty (U_{lab})
150kHz~30MHz	2.80dB

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6.0 Measurement

6.1 General Test condition

Temperature : 26.2°C
Test Voltage : DC 3.7V
Humidity : 47.9%
Atmosphere Pressure : 100.8kPa

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6.2 Output Power

6.2.1 Measurement

Requirement : FCC Part 15 §15.247(b) (1)
Measuring procedure : ANSI C63.10:2013, section 11.9.1
Modulation tested : FSK
Channel tested : 916MHz
Additional measuring procedure : Nil
Remark : Nil

6.2.2 Final Result

Maximum peak conducted output power

Maximum peak conducted output power	Limit(s)	Result	Modulation
-2.38dBm	≤30.0dBm	PASS	GFSK

Remark: Detail test result and equipment setting refer to Page 16.

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6.3 Power Spectral Density

6.3.1 Measurement

Requirement : FCC Part 15 §15.247(a)
Measuring procedure : ANSI C63.10:2013, section 11.10
Modulation tested : FSK
Channel tested : 916MHz
Additional measuring procedure : Nil
Remark : Nil

6.3.2 Final Result

Maximum peak conducted output power

Maximum peak conducted output power density	Limit(s)	Result	Modulation
-2.74dBm	≤8.0dBm	PASS	FSK

Remark: 1) Detail test result and equipment setting refer to Page 16.

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6.4 6dB Bandwidth

6.4.1 Measurement

Requirement : FCC Part 15 §15.247(a)
Measuring procedure : ANSI C63.10:2013, section 11.8
Modulation tested : FSK
Channel tested : 916MHz
Additional measuring procedure : Nil
Remark : Nil

6.4.2 Final Result

Maximum peak conducted output power

6dB bandwidth	Limit(s) ¹	Result	Modulation
510.6kHz	≥500kHz	PASS	FSK

Remark: 1) Detail test result and equipment setting refer to Page 17.

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6.5 Band-edge measurement

6.5.1 Measurement

Requirement : FCC Part 15 §15.247(d)
Measuring procedure : ANSI C63.10:2013, section 11.13 and 6.10
Hopping mode : Disable
RBW : 100kHz
VBW : 300kHz
Frequency range : 900 – 920MHz and 910 – 928MHz
Modulation tested : GFSK
Channel tested : 916MHz

6.5.2 Final Result

Bandedge frequency for lower bandedge (Worst Case)	Worst case (dBc) ²	Detector	Limit ¹ (dBc)	Result	Worst case
902.000MHz	59.75	Peak	≥20.0	PASS	GFSK
Bandedge frequency for higher bandedge (Worst Case)	Worst case in (dBc) ²	Detector	Limit ¹	Result	Worst case
928.000MHz	57.79	Peak	≥20.0	PASS	GFSK

Remark: 1) The limit is based on the transmitter demonstrated compliance with peak conducted power limit on section 6.2.2 of this report.

2) Detail test result and equipment setting refer to Page 17, 18.

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6.6 Conducted Spurious emission (Transmitter)

6.6.1 Measurement

Requirement : FCC Part 15 §15.247(d)
Measuring procedure : ANSI C63.10:2013, section 5.5, 5.6, 7.8.8 and 11.12.2.1
RBW : 100kHz
Detector : Peak
Modulation tested : GFSK
Channel tested : 916MHz
Remark : Nil

6.6.2 Final Result

Worst case spurious emission frequency	Worst case spurious emission power ¹	Limit ²	Margin	Result	Worst case mode
1832.440000MHz	-44.62dBm	-22.38dBm	22.24dB	PASS	GFSK

Remark: 1) Spurious emission power = measured conducted power + antenna gain(dBi) + ground reflection factor according to ANSI C63.10 section 11.12.2.2 for restricted band emission.

2) For restricted band emission, limit = restricted band field strength limit (dBuV/m) + 4,7dB – 104.8dB according to ANSI C63.10 section 11.12.2.2 For non-restricted band, limit = SPD/100kHz – 20dB.

3) Detail test result and equipment setting refer to Page 18, 19.

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6.7 Radiated Spurious emission (Transmitter)

6.7.1 Measurement

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 0.4m and 0.8m high above the ground for below 1GHz measurement and 1.5m high above the ground for above 1GHz measurement. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

For below 30MHz, a loop antenna with its vertical plane is placed 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1 m above the ground.

For 30MHz to 300MHz, biconical antenna with its vertical and horizontal plane is placed 3m from the EUT and rotated about its vertical and horizontal axis for maximum response at each azimuth about the EUT. And the reference point of antenna shall be 1 m above the ground. Same procedure for frequency 300MHz to 1000MHz but Log-periodic antenna is used for final measurements.

For above 1GHz, horn antenna with its vertical and horizontal plane is placed 3m from the EUT and rotated about its vertical and horizontal axis for maximum response at each azimuth about the EUT. Preamplifier and High Pass filter was used for measurements. The reference point of antenna shall be 1 m above the ground.

The device was rotated through three X, Y, Z orthogonal to determine which attitude and configuration produce the highest emission during measurement for Radiated Emission measurement.

The Frequencies from fundamental up to the tenth harmonics were investigated, and emissions more 20dB below limit were not reported.

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6.7.2 Final Result

Test mode: Transmission mode

Polarization	Frequency (MHz)	Reading at 3m (dBμV)	Transducer Factor (dB/m)	Field Strength at 3m ¹ (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)	Detector (PK/QP/AV)
H	902.000	7.9	25.4	33.3	46.0	-12.7	QP
V	902.000	7.9	25.4	33.3	46.0	-12.7	QP
H	928.000	8.0	25.4	33.4	46.0	-12.6	QP
V	928.000	8.0	25.4	33.4	46.0	-12.6	QP
H	1832.530	32.8	30.8	63.6	74.0	-10.4	PK
H	1832.650	23.1	30.8	53.9	54.0	-0.1	AV
V	1831.672	32.6	30.8	63.4	74.0	-10.6	PK
V	1832.683	23	30.8	53.8	54.0	-0.2	AV
H	2749.015	49.1	13.3	62.4	74.0	-11.6	PK
H	2748.982	39.5	13.3	52.8	54.0	-1.2	AV
V	2748.812	50.2	13.3	63.5	74.0	-10.5	PK
V	2748.990	40.6	13.3	53.9	54.0	-0.1	AV
H	3664.989	45.7	-1.4	44.3	74.0	-29.7	PK
V	3665.111	47.8	-1.4	46.4	54.0	-7.6	AV
H	4581.323	46.2	1.9	48.1	74.0	-25.9	PK
V	4581.257	46.9	1.9	48.8	74.0	-25.2	PK
H	5494.633	40.7	4.4	45.1	74.0	-28.9	PK
V	5494.595	40.3	4.4	44.7	74.0	-29.3	PK
H	6410.346	49.2	6.3	55.5	74.0	-18.5	PK
H	6413.063	42.5	6.3	48.8	54.0	-5.2	AV
V	6410.342	49.9	6.3	56.2	74.0	-17.8	PK
V	6414.068	42.4	6.3	48.7	54.0	-5.3	AV

Remark: 1) Field Strength = Reading + transducer factor.

2) Other emission with more than 20dB margin are not reported in this report.

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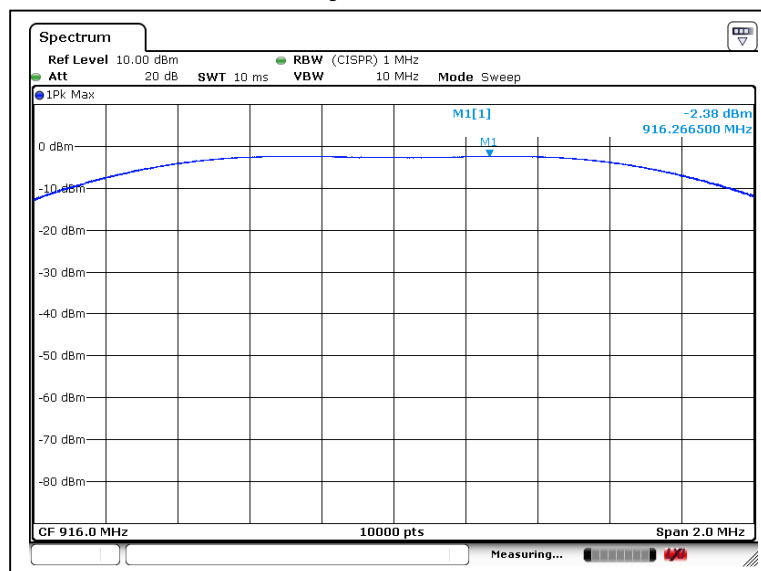


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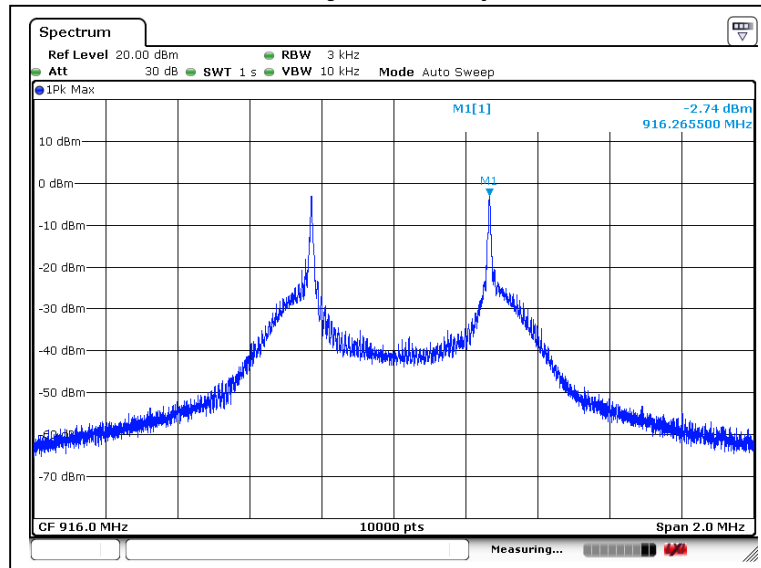
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Output Power



Power Spectral Density



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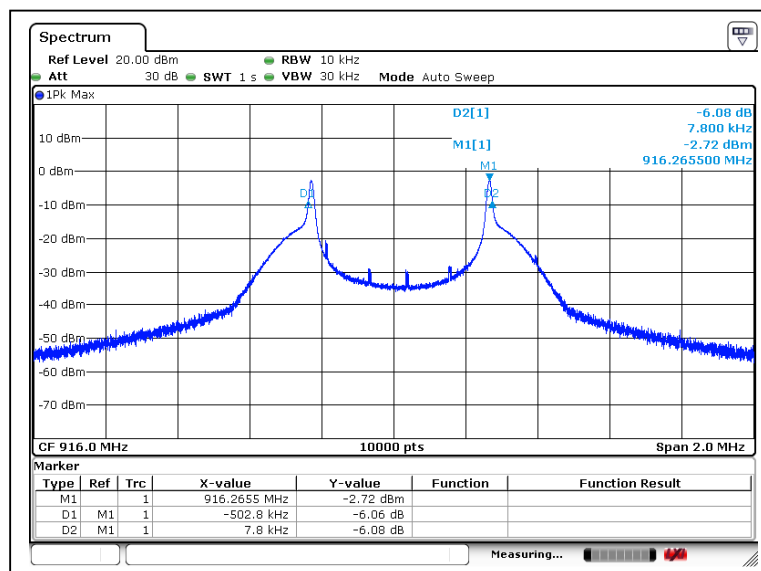


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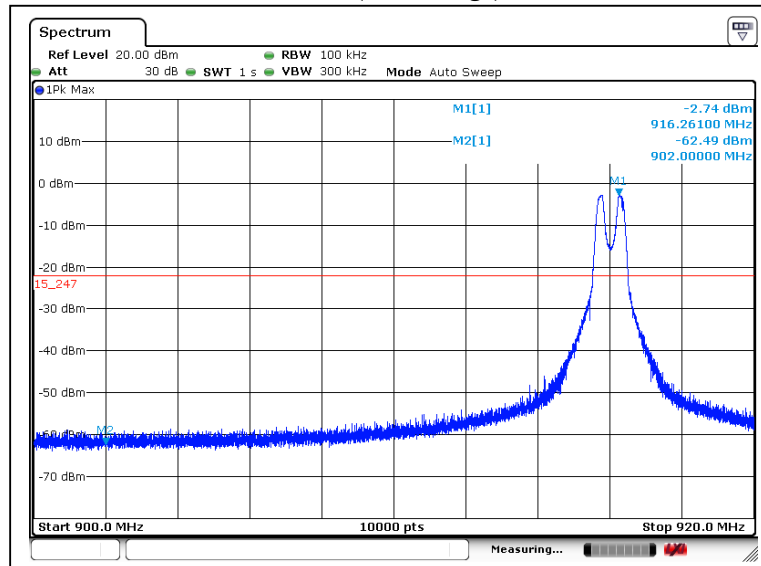
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6dB Bandwidth



Bandwidth (Lower edge)



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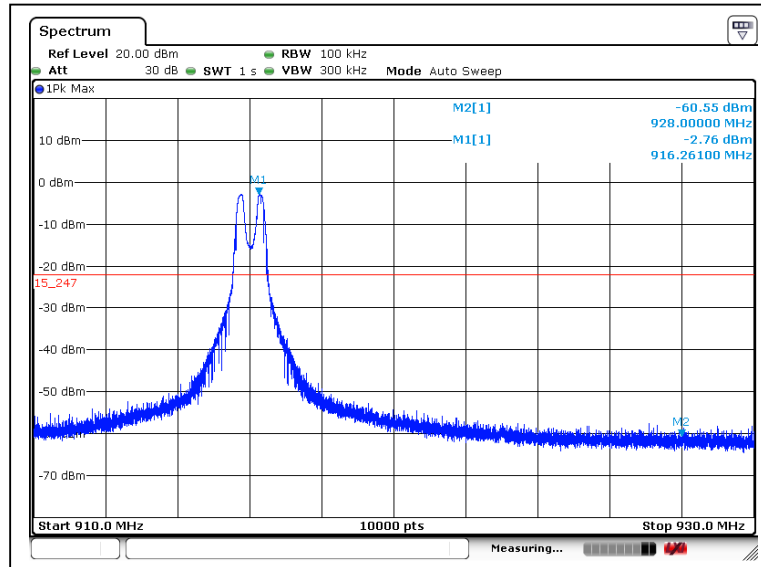


TEST REPORT

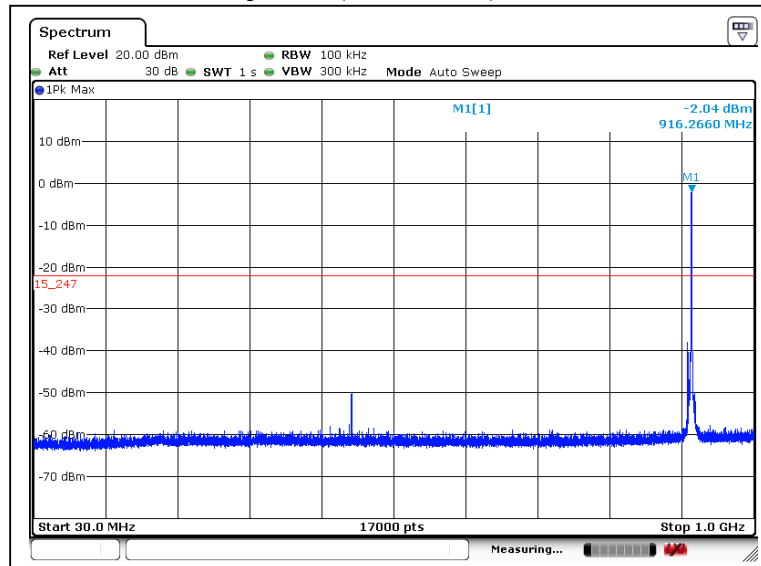
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Bandwidth (Higher edge)



Spurious (Fundamental)



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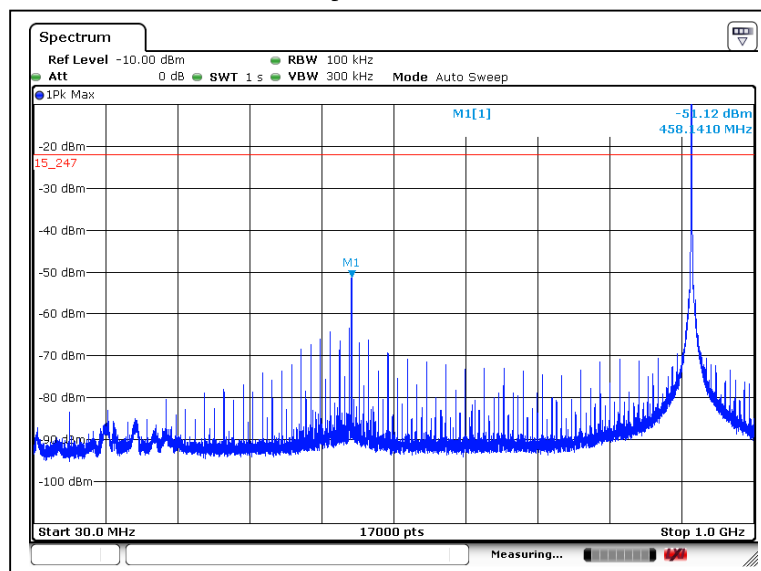


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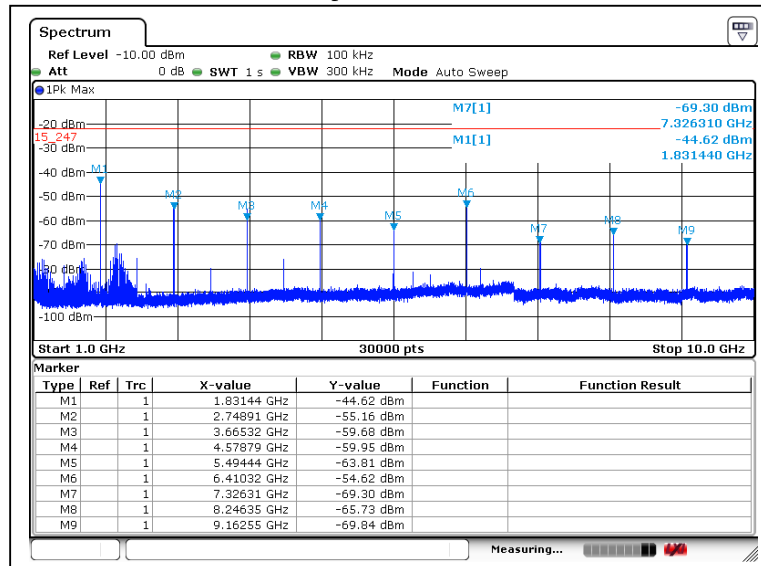
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Spurious



Spurious



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External photo



***** End of Report *****

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