



Test Report

Date : 2020-06-12
No. : HMD20060003

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Applicant : iStorage Limited
iStorage House, 13 Alperton Lane, Perivale, Middlesex, UB6 8DH, England

Supplier / Manufacturer : Chase Glory Industrial Limited
Flat B-D, 15/F., Haribest Ind. Bldg., 45-47 Au Pui Wan St., Fotan, Shatin, N.T., Hong Kong

Description of Sample(s) : Submitted sample(s) said to be
Product: datAshur BT-Secure USB Drive
Brand Name: iStorage
Model No.: IS-FL-DBT-256-128
FCC ID: 2AWMXIS-FL-DBT-256

Date Samples Received : 2020-06-01

Date Tested : 2020-06-01 to 2020-06-10

Investigation Requested : Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI C63.10: 2013 for FCC Certification.

Conclusions : The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remarks : For additional model(s) details, please see page 3.



LEUNG Kwun Hang, Joey
Authorized Signatory



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1.0 General Details

1.1 Equipment Under Test [EUT]

Description of Sample(s)

Product: datAshur BT-Secure USB Drive
Manufacturer: Chase Glory Industrial Limited
Brand Name: iStorage
Model Number: IS-FL-DBT-256-128
Additional Model Number: IS-FL-DBT-256-XXX(Where XXX denote memory size)
Rating: 5Vd.c. by USB port

1.1.1 Description of EUT Operation

The Equipment Under Test (EUT) is a datAshur BT-Secure USB Drive. It is a transceiver operating at 2402MHz~2480MHz and the RF signal was modulated by IC.

1.2 RF Module Details

Module Model Number: N/A
Module FCC ID: N/A
Modulation: GFSK
Frequency Range: 2402-2480MHz

1.3 Antenna Details

Antenna Type: 2.4G chip antenna
Antenna Gain: 1dBi

1.4 Date of Order

2020-06-01

1.5 Submitted Sample(s):

1 Sample

1.6 Test Duration

2020-06-01 to 2020-06-10

1.7 Country of Origin

China

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2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 Regulations and ANSI C63.10: 2013 for FCC Certification.
The device was realized by test software.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Failed	N/A
Field Strength of Fundamental & Harmonics Emissions	FCC 47CFR 15.249	ANSI C63.10: 2013	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.10: 2013	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AC Mains Conducted Emissions	FCC 47CFR 15.207	ANSI C63.10: 2013	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antenna requirement	FCC 47CFR 15.203	N/A	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: N/A - Not Applicable

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3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions

Ambient temperature 25°C

Relative humidity 57%

Test Requirement: FCC 47CFR 15.249 & FCC 47CFR 15.209

Test Method: ANSI C63.10:2013

Test Date: 2020-06-11

Mode of Operation: Tx mode

Test Method:

For emission measurements at or below 1 GHz, the sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. For emission measurements above 1 GHz, the sample was placed 1.5m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

* Semi-Anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

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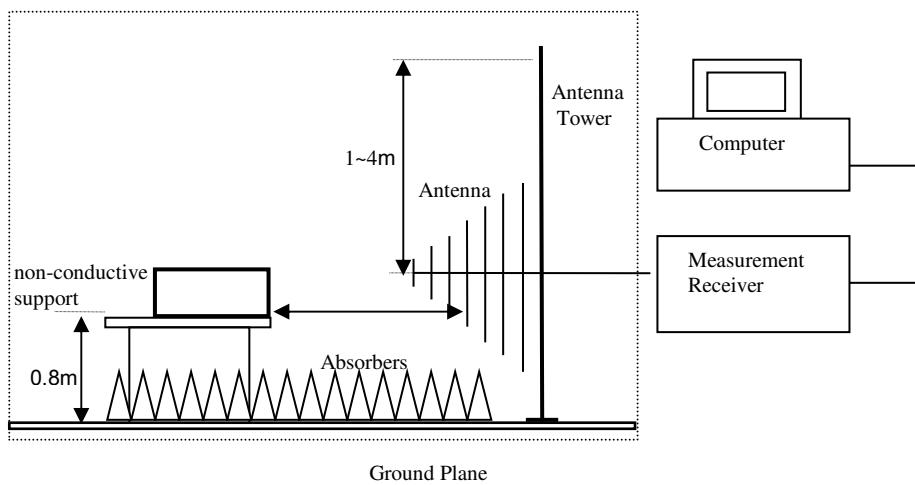
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Spectrum Analyzer Setting:

9KHz – 30MHz (Pk & Av)	RBW: 10kHz VBW: 30kHz Sweep: Auto Span: Fully capture the emissions being measured Trace: Max. hold
30MHz – 1GHz (QP)	RBW: 120kHz VBW: 120kHz Sweep: Auto Span: Fully capture the emissions being measured Trace: Max. hold
Above 1GHz (Pk)	RBW: 1MHz VBW: 1MHz Sweep: Auto Span: Fully capture the emissions being measured Trace: Max. hold
Above 1GHz (Av)	RBW: 1MHz VBW: 10Hz Sweep: Auto Span: Fully capture the emissions being measured Trace: Max. hold

Test Setup:



- Absorbers placed on top of the ground plane are for measurements above 1000MHz only.
- Measurements between 30MHz to 1000MHz made with Bi-log antennas, above 1000MHz horn antennas are used.

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Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [microvolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928	50,000 [Quasi-Peak]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Calculated measurement uncertainty (9kHz-30MHz): 2.0dB

(30MHz -1GHz): 4.9dB

(1GHz -6GHz): 4.02dB

(6GHz -26.5GHz): 4.03dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

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Results of Tx mode (Lowest Frequency Channel-2402 MHz): Pass

Field Strength of Fundamental Emissions						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2402.00	52.1	36.8	88.9	27,925.4	500,000	Vertical
2402.00	53.8	36.4	90.2	32,173.6	500,000	Horizontal

Field Strength of Fundamental Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2402.00	42.7	36.8	79.5	9,451.5	50,000	Vertical
2402.00	43.6	36.4	80.0	9,942.6	50,000	Horizontal

Field Strength of Harmonics Emission						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4804.0	13.4	41.5	54.9	554.0	5,000	Vertical
4804.0	10.1	42.4	52.5	420.7	5,000	Horizontal
7206.0	8.8	45.1	53.9	496.0	5,000	Vertical
7206.0	5.9	46.2	52.1	400.9	5,000	Horizontal
9612.0	6.9	48.0	54.9	557.8	5,000	Vertical
9612.0	3.9	48.8	52.7	429.5	5,000	Horizontal
12010.0	2.28	51.8	54.1	505.8	5,000	Vertical
12010.0	0.1	52.4	52.5	419.3	5,000	Horizontal

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Field Strength of Harmonics Emission						
Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4804.0	-1.3	41.5	40.2	102.8	500	Vertical
4804.0	-3.6	42.4	38.8	87.1	500	Horizontal
7206.0	-4.6	45.1	40.5	105.6	500	Vertical
7206.0	-6.0	46.2	40.2	102.4	500	Horizontal
9612.0	-5.2	48.0	42.8	138.7	500	Vertical
9612.0	-9.8	48.8	39.0	89.5	500	Horizontal
12010.0	-9.5	51.8	42.3	130.5	500	Vertical
12010.0	-12.6	52.4	39.8	97.8	500	Horizontal

Results of Tx mode (Middle Frequency Channel- 2440MHz): Pass

Field Strength of Fundamental Emissions						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2440.00	51.4	36.8	88.2	25,615.3	500,000	Vertical
2440.00	52.9	36.4	89.3	29,241.5	500,000	Horizontal

Field Strength of Fundamental Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2440.00	41.2	36.8	78.0	7,952.4	50,000	Vertical
2440.00	42.8	36.4	79.2	9,162.2	50,000	Horizontal

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Field Strength of Harmonics Emission Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4880.0	13.1	41.6	54.7	541.4	5,000	Vertical
4880.0	11.4	42.5	53.9	493.2	5,000	Horizontal
7320.0	9.5	45.2	54.7	544.5	5,000	Vertical
7320.0	6.2	46.3	52.5	421.2	5,000	Horizontal
9760.0	5.5	48.1	53.6	479.7	5,000	Vertical
9760.0	3.3	48.9	52.2	406.0	5,000	Horizontal
12200.0	1.8	51.6	53.4	468.3	5,000	Vertical
12200.0	-0.5	52.5	52.0	397.6	5,000	Horizontal

Field Strength of Harmonics Emission Avarage Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4880.0	-1.2	41.6	40.4	104.2	500	Vertical
4880.0	-2.6	42.5	39.9	98.9	500	Horizontal
7320.0	-4.5	45.2	40.7	108.0	500	Vertical
7320.0	-7.6	46.3	38.7	86.4	500	Horizontal
9760.0	-9.9	48.1	38.2	80.9	500	Vertical
9760.0	-11.9	48.9	37.0	70.5	500	Horizontal
12200.0	-12.9	51.6	38.7	86.3	500	Vertical
12200.0	-16.0	52.5	36.6	67.2	500	Horizontal

Results of Tx mode (Highest Frequency Channel – 2480MHz): Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @ 3m μ V/m	E-Field Polarity
2480.00	50.2	36.8	87.0	22,284.4	500,000	Vertical
2480.00	52.4	36.4	88.8	27,510.6	500,000	Horizontal

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Field Strength of Fundamental Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2480.00	40.3	36.8	77.1	7,177.9	50,000	Vertical
2480.00	42.2	36.4	78.6	8,482.0	50,000	Horizontal

Field Strength of Harmonics Emission						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4960.0	13.4	41.4	54.8	547.6	5,000	Vertical
4960.0	10.1	42.7	52.8	434.0	5,000	Horizontal
7440.0	8.7	45.6	54.3	518.2	5,000	Vertical
7440.0	5.3	46.5	51.8	388.6	5,000	Horizontal
9920.0	4.9	48.6	53.5	474.8	5,000	Vertical
9920.0	3.0	49.7	52.7	433.5	5,000	Horizontal
12400.0	1.7	51.7	53.4	466.7	5,000	Vertical
12400.0	-0.9	52.7	51.9	391.3	5,000	Horizontal

Field Strength of Harmonics Emission						
Avarage Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4960.0	-0.7	41.4	40.7	108.3	500	Vertical
4960.0	-3.5	42.7	39.2	90.8	500	Horizontal
7440.0	-6.0	45.6	39.6	95.7	500	Vertical
7440.0	-8.5	46.5	38.0	79.5	500	Horizontal
9920.0	-9.6	48.6	39.0	88.8	500	Vertical
9920.0	-12.0	49.7	37.7	76.5	500	Horizontal
12400.0	-13.2	51.7	38.5	84.0	500	Vertical
12400.0	-15.2	52.7	37.5	74.8	500	Horizontal

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Radiated Emissions Measurement:

Limit :

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Result: RF Radiated Emissions (1GHz-26GHz) (Lowest)

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
2400.0	24.4	36.8	61.2	74.0	12.8	Vertical
2400.0	25.0	36.4	61.4	74.0	12.6	Horizontal

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
2400.0	12.3	36.8	49.1	54.0	4.9	Vertical
2400.0	11.8	36.4	48.2	54.0	5.8	Horizontal

Result: RF Radiated Emissions (1GHz-26GHz) (Highest)

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
2483.5	16.2	36.8	53.0	74.0	21.0	Vertical
2483.5	15.9	36.4	52.3	74.0	21.8	Horizontal

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
2483.5	3.0	36.8	39.8	54.0	14.2	Vertical
2483.5	0.5	36.4	36.9	54.0	17.2	Horizontal

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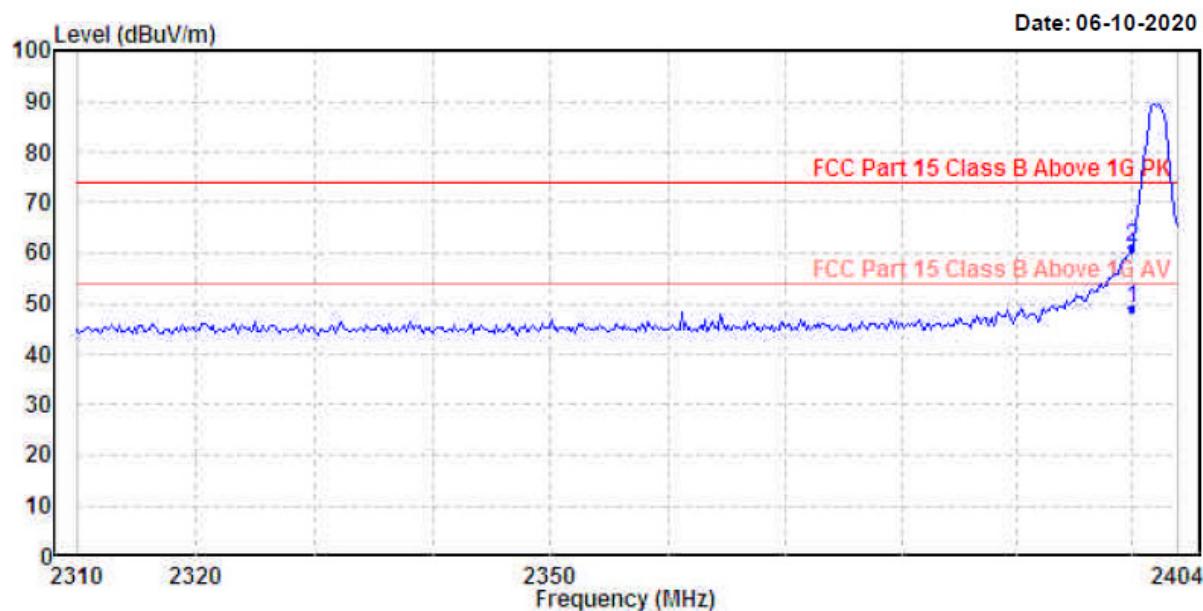
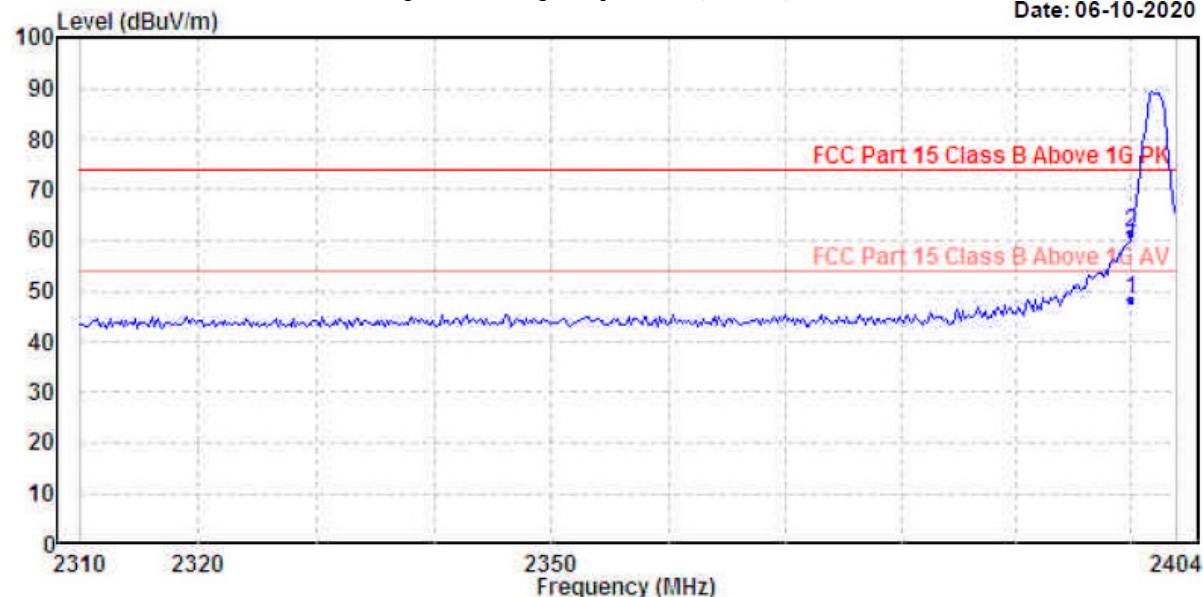
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Emissions radiated outside of the specified frequency bands (Lowest)



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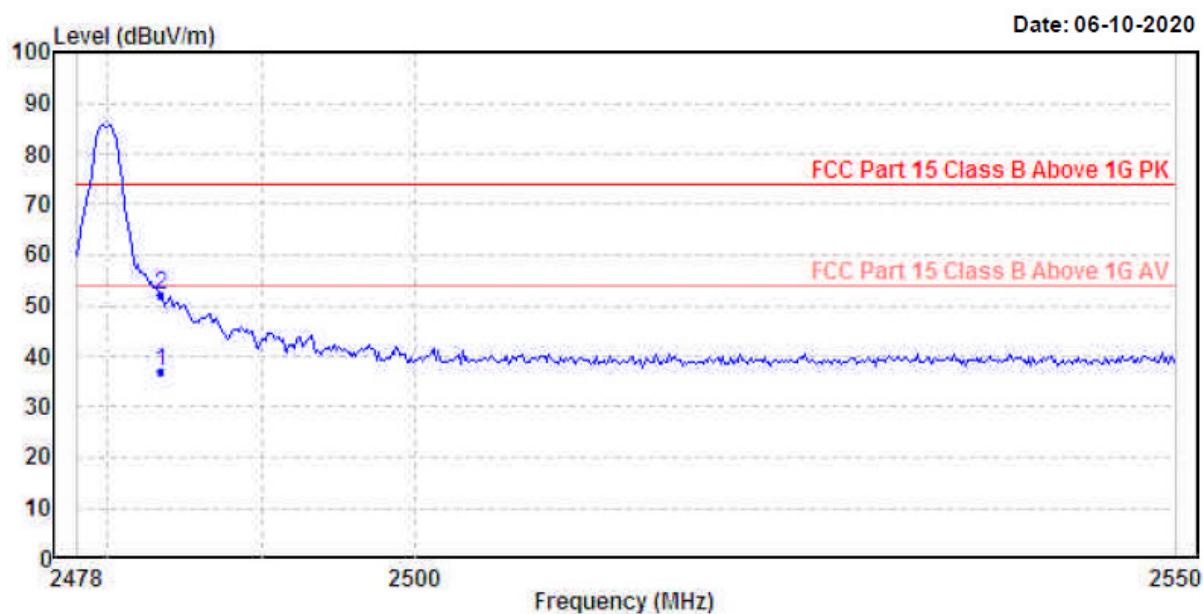
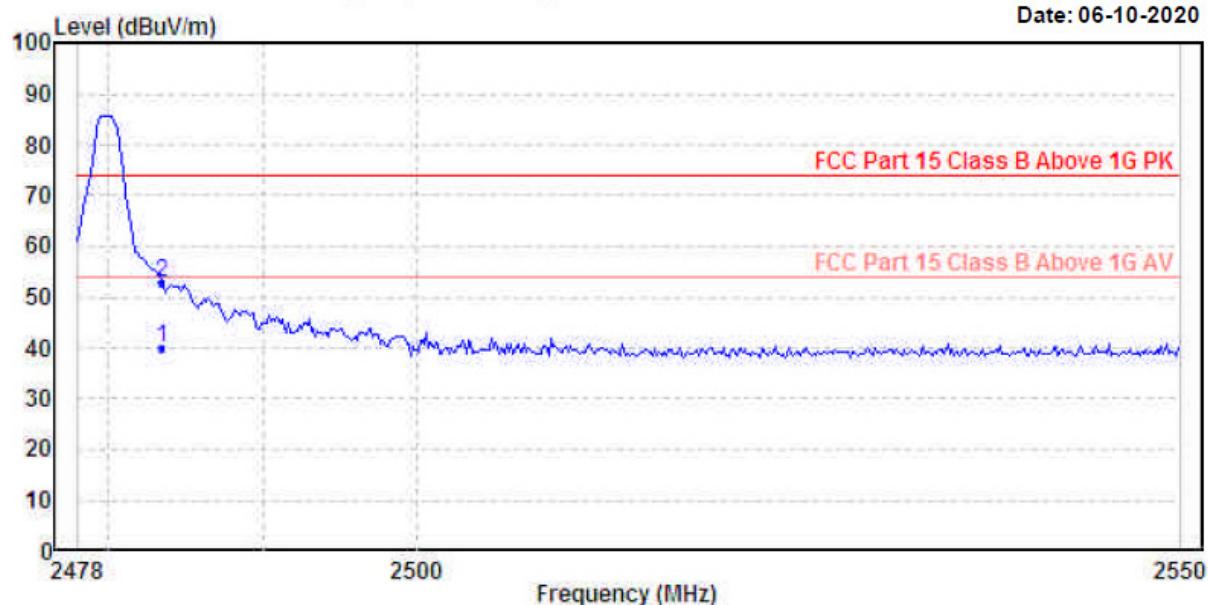
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Emissions radiated outside of the specified frequency bands (Highest)



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Remarks:

Calculated measurement uncertainty (9kHz-30MHz): 2.0dB / (30MHz – 1GHz): 4.9dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

Results of TX mode (9kHz – 30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

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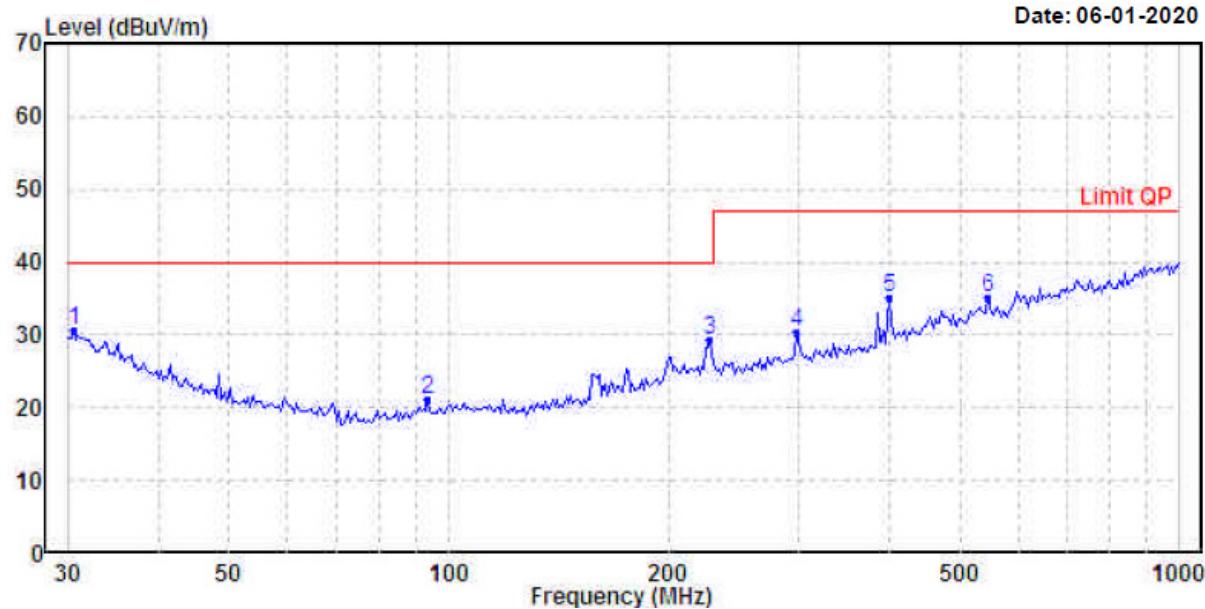
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Results of TX mode (30MHz – 1GHz)(2402MHz worst case): PASS

Horizontal



Ambient Temperature: 25.4°C

Relative Humidity : 50.3%

Freq	Level	Limit	Over	Remark	Pol/Phase
		Line	Limit		
MHz	dBuV/m	dBuV/m	dB		
1 30.638	30.72	40.00	-9.28	QP	Horizontal
2 93.440	21.19	40.00	-18.81	QP	Horizontal
3 227.691	29.22	40.00	-10.78	QP	Horizontal
4 299.316	30.45	47.00	-16.55	QP	Horizontal
5 399.030	35.02	47.00	-11.98	QP	Horizontal
6 547.098	35.06	47.00	-11.94	QP	Horizontal



Test Report

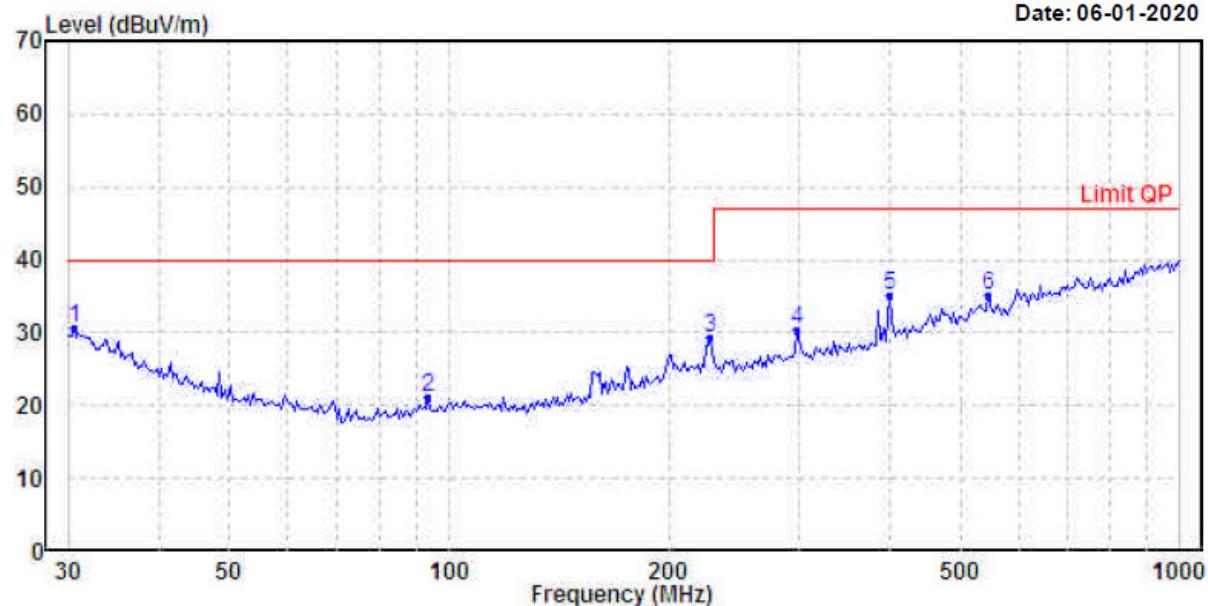
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Results of TX mode (30MHz – 1GHz) (2402MHz worst case): PASS

Vertical



	Freq	Level	Limit	Over		
	MHz	dBuV/m	dBuV/m	dB	Limit	Remark
1	30.638	30.72	40.00	-9.28	QP	Horizontal
2	93.440	21.19	40.00	-18.81	QP	Horizontal
3	227.691	29.22	40.00	-10.78	QP	Horizontal
4	299.316	30.45	47.00	-16.55	QP	Horizontal
5	399.030	35.02	47.00	-11.98	QP	Horizontal
6	547.098	35.06	47.00	-11.94	QP	Horizontal

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3.1.2 Antenna Requirement

Ambient temperature 25°C

Relative humidity 57%

Test Requirements: § 15.203

Test Specification:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Test Results:

This is 2.4G chip antenna. There is no external antenna, the antenna gain =1dBi. User is unable to remove or changed the Antenna.

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3.1.3 20dB Bandwidth of Fundamental Emission

Ambient temperature 25°C

Relative humidity 57%

Test Requirement: FCC 47 CFR 15.249
Test Method: ANSI C63.10:2013
Test Date: 2020-06-10
Mode of Operation: Tx mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

Test Report

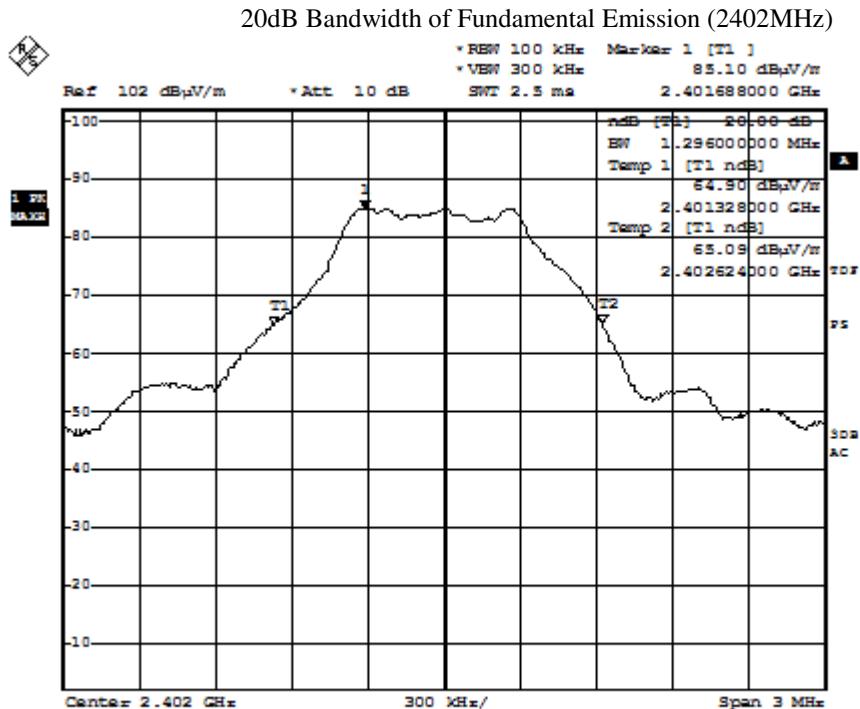
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Limits for 20dB Bandwidth of Fundamental Emission (Low Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2402.0	1.296



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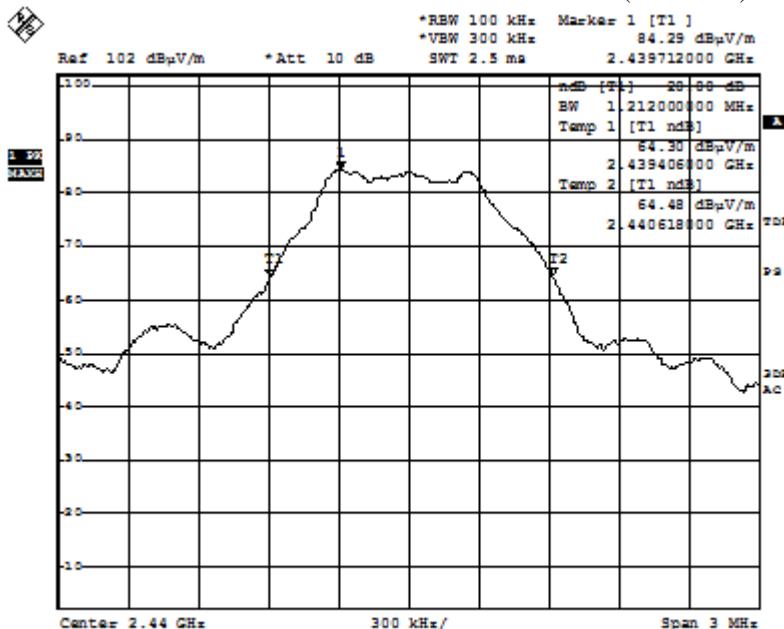
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Limits for 20dB Bandwidth of Fundamental Emission (Middle Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2440.0	1.212

20dB Bandwidth of Fundamental Emission (2440MHz)



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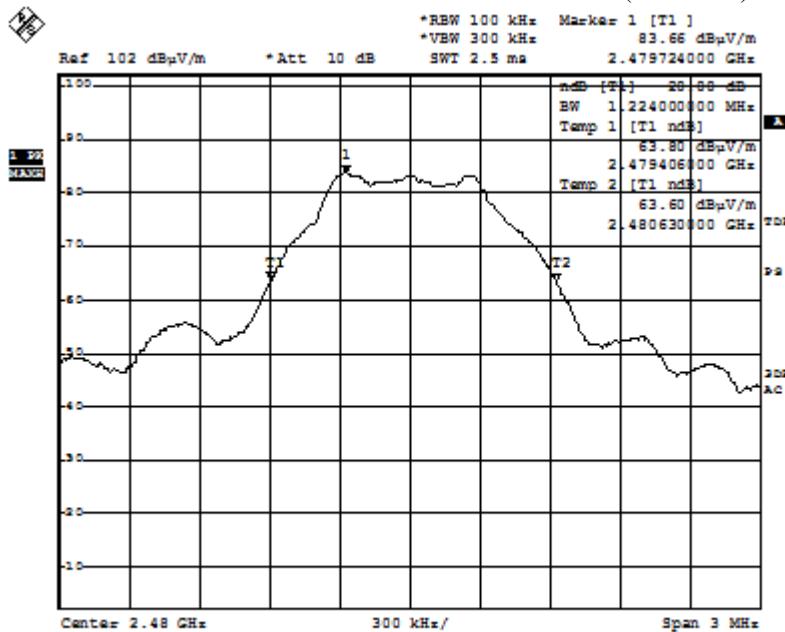
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Limits for 20dB Bandwidth of Fundamental Emission (High Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2480.0	1.224

20dB Bandwidth of Fundamental Emission (2480MHz)



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Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-LINDGREN	FACT-3	--	2020/04/20	2021/04/20
EM356	ANTENNA POSITIONING TOWER	ETS-LINDGREN	2171B	00150346	N/A	N/A
EM336	PRECISION CONICAL DIPOLE	SEIBERSDORF LABORATORIES	PCD 3100	6236/M	2018/06/28	2020/06/28
EM229	EMI TEST RECEIVER	R&S	ESIB40	100248	2020/05/13	2021/05/13
EM276	BROADBAND HORN ANTENNA	A-INFOMW	JXTXLB-10180-SF	J2031090903007	2019/03/20	2021/03/29
EM300	PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-09	00130130	2020/04/28	2022/04/28
EM301	PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-10	00130988	2020/04/28	2022/04/28
EM022	LOOP ANTENNA	ETS_LINDGREN	6502	00206533	2019/11/30	2021/11/30
EM200	DUAL CHANNEL POWER METER	R & S	NRVD	100592	2019/10/11	2021/10/11

Remarks:-

N/A Not Applicable or Not Available

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Appendix B

Photographs of EUT

View of the product



Inside View of the product



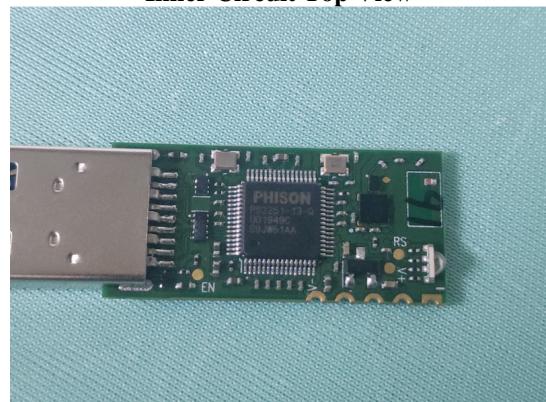
Inner Circuit Bottom View



View of the product



Inner Circuit Top View



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Photographs of EUT

Measurement of Radiated Emission Test Set Up



Measurement of Radiated Emission Test Set Up



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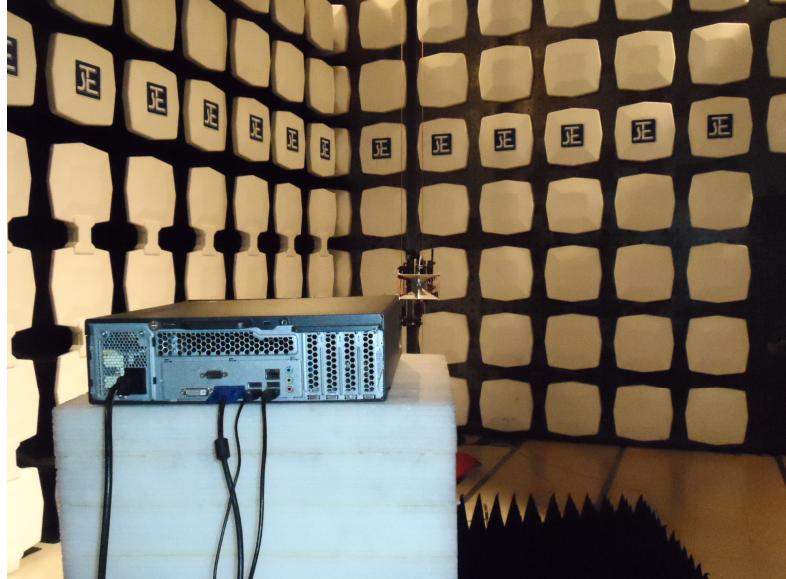
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Photographs of EUT

Measurement of Radiated Emission Test Set Up



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6. When a statement of conformity to a specification or standard is provided, the ILAC-G8 Guidance document (and/or IEC Guide 115 in the electrotechnical sector) will be adopted as a decision rule for the determination of conformity unless it is inherent in the requested specification or standard, or otherwise specified in the Report.
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