

**FCC PART 15, SUBPART B and C
TEST REPORT***for***CHIP DOWN MODULE****MODEL: CDM-300**

Prepared for

**MESH SYSTEMS LLC
1920 NORTH CASALOMA DRIVE
APPLETON, WISCONSIN 54913**

Prepared by: _____

KYLE FUJIMOTO

Approved by: _____

JAMES ROSS**COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
BREA, CALIFORNIA 92823
(714) 579-0500****DATE: NOVEMBER 16, 2020**

	REPORT BODY	APPENDICES					TOTAL
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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used by the client to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the United States government.

Device Tested: Chip Down Module
Model: CDM-300
S/N: N/A

Product Description: The EUT is a high performance 900MHz IEEE 802.15.4 radio and microcontroller module.
Clocks: 16 MHz and 32.768 kHz,
Dimensions: 8.5 cm (Length) x 5 cm (Width) x 0.2 cm (Height).

Modifications: The EUT was not modified during the testing.

Customer: Mesh Systems LLC
1920 North Casaloma Drive
Appleton, Wisconsin 94913

Test Dates: October 26, 27, 29, and 30, 2020

Test Specifications covered by accreditation:

Emissions requirements
CFR Title 47, Part 15, Subpart B; and
Subpart C, sections 15.205, 15.207, 15.209, and 15.247

Test Procedure: ANSI C63.4 and ANSI C63.10



SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	The EUT complies with the Class B limits of CFR Title 47, Part 15 Subpart B; the limits of CFR Title 47, Part 15, Subpart C, section 15.207 See section 6.3 for Measurement Uncertainty
2	Spurious Radiated RF Emissions, 30 MHz – 1000 MHz	The EUT complies with the Class B limits of CFR Title 47, Part 15 Subpart B; the limits of CFR Title 47, Part 15, Subpart C, section 15.209 See section 6.3 for Measurement Uncertainty
3	Spurious Radiated RF Emissions, 9 kHz – 30 MHz and 1000 MHz – 9300 MHz	The EUT complies with the Class B limits of CFR Title 47, Part 15, Subpart B; CFR Title 47, Part 15, Subpart C, section 15.247(d) See section 6.3 for Measurement Uncertainty
4	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 9 kHz – 9.3 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(d)
5	Emissions produced by the intentional radiator in restricted bands, 9 kHz – 9.3 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, section 15.247 (d)
6	DTS Bandwidth	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (a)(2)
7	Maximum Conducted Output Power	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(3)
8	RF Conducted Antenna Test	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (d)
9	Power Spectral Density from the Intentional Radiator to the Antenna	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (e)

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the Chip Down Module, Model: CDM-300. The emissions measurements were performed according to the measurement procedure described in ANSI C63.10 and ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the Class B specification limits defined by CFR Title 47, Part 15, Subpart B and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

1.1 Decision Rule & Risk

If a measured value exceeds a specification limit it implies non-compliance. If the value is below a specification limit it implies compliance. Measurement uncertainty of the laboratory is reported with all measurement results but generally not taken into consideration unless a standard, rule or law requires it to be considered.

Qualification test reports are only produced for products that are in compliance with the test requirements, therefore results are always in conformity. Otherwise, an engineering report or just the data is provided to the customer.

When performing a measurement and making a statement of conformity, in or out-of-specification to manufacturer's specifications or Pass/Fail against a requirement, there are two possible outcomes:

- The result is reported as conforming with the specification
- The result is reported as not conforming with the specification

The decision rule is defined below.

When the test result is found to be below the limit but within our measurement uncertainty of the limit, it is our policy that the final acceptance decision is left to the customer, after discussing the implications and potential risks of the decision.

When the test result is found to be exactly on the specification, it is our policy, in the case of unwanted emissions measurements to consider the result non-compliant, however, the final decision is left to the customer, after discussing the implications and potential risks of the decision.

When the test result is found to be over the specification limit under any condition, it is our policy to consider the result non-compliant.

In terms of uncertainty of measurement, the laboratory is a calibrated and tightly controlled environment and generally exceptionally stable, the measurement uncertainties are evaluated without the considering of the test sample. When it comes to the test sample however, as most testing is performed on a single sample rather than a sample population, and that sample is often a pre-production representation of the final product, that test sample represents a significantly higher source of measurement uncertainty. We advise our customers of this and that when in doubt (small test to limit margins), they may wish to perform statistical sampling on a population to gain a higher confidence in the results. All lab reported results are that of a single sample in any event.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The emissions tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Mesh Systems LLC

Nate Welch Associate Embedded Engineer

Compatible Electronics Inc.

James Ross Test Engineer

Kyle Fujimoto Test Engineer

2.4 Date Test Sample was Received

The test sample was received on October 26, 2020. Received as described in product description

2.5 Disposition of the Test Sample

The test sample has not been returned to Mesh Systems LLC as of the date of this test report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
N/A	Not Applicable

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this emissions Test Report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 2014	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
ANSI C63.10 2013	American National Standard for Testing Unlicensed Wireless Devices
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
KDB 558074 D01 v05r02	Guidance for Performing Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under Section 15.247 of the FCC Rules

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – Emissions

The Chip Down Module, Model: CDM-300 (EUT) was connected to an AC/DC adapter.

The laptop was used to program the EUT to continuously transmit or receive at the low, middle, or high channel on a continuous basis.

The EUT was continuously transmitting or receiving at the low, middle, or high channel during the testing.

The EUT voltage was also varied between 85% and 115% using a variable transformer and the fundamental was verified to not change.

The firmware used for the EUT is stored on the company's servers.

It was determined that the emissions were at their highest level when the EUT was operating in the above configuration. The final emissions data was taken in this mode of operation. All initial investigations were performed with the measurement receiver in manual mode scanning the frequency range continuously. Photographs of the test setup are in Appendix D of this report.

4.1.1 Cable Construction and Termination

Cables 1-2 These are 2-meter unshielded cables connecting the EUT to the AC/DC adapter. The cable is hard wired at each end.

Cable 3* This is a 2-meter braid shielded cable connecting the EUT to the laptop. The cable has a D-9 pin metallic connector at the EUT end and a USB type 'A' connector at the laptop end. The shield of the cable was grounded to the chassis via the connector.

*Used only to program the EUT and then was removed during testing.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
CHIP DOWN MODULE (EUT)	MESH SYSTEMS LLC	CDM-300	N/A	2AC46-CDM-300
DIPOLE ANTENNA	LINX	ANT-916-CW-HW	N/A	N/A
LAPTOP*	DELL	089G	DQNH703	N/A
AC ADAPTER FOR LAPTOP*	DELL	LA45MN140	N/A	N/A
UNIVERSAL AC/DC ADAPTER	XG	PST-1200UF	N/A	N/A
MODFLEX TT SUITE*	LS RESEARCH, LLC	Version: 2.6.2.0	N/A	N/A

*Used to program the EUT to transmit or receive on a continuous basis.

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
TDK TestLab	TDK RF Solutions, Inc.	9.22	700145	N/A	N/A
EMI Receiver, 20 Hz – 40GHz	Rohde & Schwarz	ESIB40	100172	July 15, 2020	1 Year
EMI Receiver, 20 Hz – 40GHz	Keysight Technologies	N9038A	MY51210150	August 23, 2019	2 Year
Loop Antenna	Com-Power	AL-130R	121090	February 5, 2019	2 Year
CombiLog Antenna	Com-Power	AC-220	061093	June 5, 2019	2 Year
Horn Antenna	Com-Power	AH-118	10050113	February 4, 2020	2 Year
Preamplifier	Com-Power	PA-118	181653	February 5, 2020	1 Year
System Controller	Sunol Sciences Corporation	SC110V	112213-1	N/A	N/A
Turntable	Sunol Sciences Corporation	2011VS	N/A	N/A	N/A
Antenna-Mast	Sunol Sciences Corporation	TWR95-4	112213-3	N/A	N/A
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A
Digital Multimeter	Fluke	115	36601149WS	November 20, 2019	1 Year
Variable Transformer	Superior Electric	Type: 11560	Spec: BP142056	N/A	N/A
Horn Antenna	Com-Power	AH-826	71957	N/A	N/A
LISN (EUT)	Com-Power	LI-215A	191951	July 30, 2020	1 Year
Attenuator, 10 dB	SureCall	SC-ATT-10	17100025	October 28, 2019	1 Year

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for emissions test location.

6.2 EUT Mounting, Bonding and Grounding

For frequencies 1 GHz and below: The EUT was mounted on a 0.6 by 1.2 meter non-conductive table 0.8 meters above the ground plane.

For frequencies above 1 GHz: The EUT was mounted on a 0.6 by 1.2 meter non-conductive table 1.5 meters above the ground plane.

The EUT was not grounded.

6.3 Measurement Uncertainty

Compatible Electronics' U_{lab} value is less than U_{cispr} , thus based on this – compliance is deemed to occur if no measured disturbance exceeds the disturbance limit

$$u_c(y) = \sqrt{\sum_i c_i^2 u^2(x_i)}$$

Measurement		U_{cispr}	$U_{lab} = 2 u_c(y)$
Conducted disturbance (mains port)	(150 kHz – 30 MHz)	3.4 dB	2.73 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(30 MHz – 1 000 MHz)	6.3 dB	3.27 dB (Vertical) 3.19 dB (Horizontal)
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(1 GHz - 6 GHz)	5.2 dB	3.95 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(6 GHz – 18 GHz)	5.5 dB	3.95 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(18 GHz – 26.5 GHz)	N/A	4.69 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(26.5 GHz – 40 GHz)	N/A	4.55 dB

7. CHARACTERISTICS OF THE TRANSMITTER**7.1 Channel Description and Frequencies**

The EUT operates on a total of ten channels.

The low channel is 906 MHz, the middle channel is 914 MHz, and the high channel is 924 MHz.

7.2 Antenna Gain

The gain of the antenna is 1.2 dBi.

8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

The EMI Receiver was used as a measuring meter. A 10 dB Attenuator was used for the protection of the EMI Receiver input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the EMI Receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by computer software. The final qualification data is located in Appendix E.

The six highest reading are listed in Table 1.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Section 15.207. Please see Appendix E for the data sheets.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The EMI Receiver was used as the measuring meter. An internal preamplifier was used to increase the sensitivity of the instrument during emissions tests up to 1000 MHz, and an external preamplifier was used to increase the sensitivity of the instrument during emissions tests above 1 GHz. The EMI Receiver was initially used with the Analyzer mode feature activated. In this mode, the EMI receiver can then record the actual frequency to be measured. This final reading is then taken accurately in the EMI Receiver mode, which takes into account the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. The effective measurement bandwidth used for the radiated emissions test was according to the frequency measured.

The frequencies below 1 GHz were quasi-peaked using the quasi-peak detector of the EMI Receiver.

The frequencies above 1 GHz were averaged using the RMS detector of the EMI Receiver.

The EMI test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna to ensure accurate results.

The EUT was tested at a 3-meter test distance. The six highest emissions are listed in Table 2.

Radiated Emissions (Spurious and Harmonics) Test (Continued)

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Loop Antenna
150 kHz to 30 MHz	9 kHz	Loop Antenna
30 MHz to 1 GHz	120 kHz	Combilog Antenna
1 GHz to 9.3 GHz	1 MHz	Horn Antenna

The EMI test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

The six highest reading are listed in Table 2.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.247 (d) for radiated emissions. Please see Appendix E for the data sheets.

8.1.3 RF Emissions Test Results

Table 1.0 CONDUCTED EMISSION RESULTS
 Chip Down Module, Model: CDM-300

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
0.458 (BL) (Rx Mode)	54.21 (QP)	56.67	-2.45
0.466 (BL) (Rx Mode)	54.16 (QP)	56.66	-2.50
0.470 (BL) (Rx Mode)	54.15 (QP)	56.66	-2.51
0.454 (BL) (Rx Mode)	54.07 (QP)	56.65	-2.58
0.446 (BL) (Rx Mode)	53.84 (QP)	56.64	-2.80
0.450 (BL) (Rx Mode)	53.80 (QP)	56.64	-2.84

BL Black Lead
 WL White Lead
 Avg Average
 Tx Transmit
 Rx Receive
 QP Quasi-Peak
 Avg Average

Table 2.0 RADIATED EMISSION RESULTS
 Chip Down Module, Model: CDM-300

Frequency MHz	Corrected Reading* dBuV/m	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
2772 (H) (Y-Axis)	51.51 (Avg)	53.97	-2.46
2772 (H) (X-Axis)	50.81 (Avg)	53.97	-3.16
2742 (V) (Z-Axis)	50.65 (Avg)	53.97	-3.32
2742 (H) (X-Axis)	50.63 (Avg)	53.97	-3.34
2772 (V) (Z-Axis)	50.51 (Avg)	53.97	-3.46
2718 (H) (Y-Axis)	50.27 (Avg)	53.97	-3.70

QP Quasi-Peak Reading
 H Horizontal Polarization

Avg Average Reading
 V Vertical Polarization

8.1.4 Sample Calculations

A correction factor for the antenna, cable and a distance factor (if any) must be applied to the meter reading before a true field strength reading can be obtained. This Corrected Meter Reading is then compared to the specification limit in order to determine compliance with the limits.

Conversion to logarithmic terms: Specification limit ($\mu\text{V}/\text{m}$) $\log \times 20 =$ Specification Limit in dBuV/m

To correct for distance when measuring at a distance other than the specification

For measurements below 30 MHz: (Specification distance / test distance) $\log \times 40 =$ distance factor

For measurements above 30 MHz: (Specification distance / test distance) $\log \times 20 =$ distance factor

Note: When using an Active Antenna, the Antenna factor shall be subtracted due to the combination of the internal amplification and antenna loss.

Corrected Meter Reading = meter reading + F – A + C

where: F = antenna factor
A = amplifier gain
C = cable loss

The correction factors for the antenna and the amplifier gain are attached in Appendix D of this report. The data sheets are attached in Appendix E.

The distance factor D is 0 when the test is performed at the required specification distance.

8.2 DTS Bandwidth

The DTS Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the EUT. The following steps were performed for measuring the DTS Bandwidth.

1. Set RBW = 100 kHz
2. Set the video bandwidth (VBW) to equal or greater than 3 times the RBW
3. Detector = Peak
4. Trace Mode = Max Hold
5. Sweep = Auto Couple
6. Allow the trace to stabilize
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(2).

8.3 Maximum Average Output Power

The Conducted Average Output Power was measured using the EMI Receiver. The average output power was measured using the average power measurement procedure described in section 11.9.2.2.2 of ANSI C63.10. The Maximum Average Output Power was then taken. The following steps were performed for measuring the Maximum Average Output Power.

1. Set span to at least 1.5 times the OBW
2. Set RBW = 1% to 5% of the OBW, not to exceed 1 MHz
3. Set VBW \geq [3 X RBW]
4. Number of points in sweep is \geq [2 x span /RBW]. 500 points were used for the measurement
5. Sweep time - auto
6. Detector = RMS
7. Sweep Trigger = Free Run
8. Trace average at least 100 traces in power averaging (rms) mode
9. Computer power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (b)(3).

8.4 Emissions in Non-Restricted Bands

The emissions in the non-restricted frequency bands measurements were performed using the EMI receiver directly connected to the EUT. The reference level was established by setting the instrument center frequency to DTS channel center frequency. The span was set to ≥ 1.5 times the DTS bandwidth. The RBW was set to 100 kHz and the VBW was set to 300 kHz. A peak detector was used with sweep set to auto. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the level and 30 dB below that was the reference level. For emission level measurement, the center frequency and span were set to encompass the frequency range to be measured. The RBW was set to 100 kHz and the VBW was set to 300 kHz. A peak detector was used with a sweep time set to auto. The number of measurement points were greater than the span/RBW. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the maximum amplitude level. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d).

8.5 RF Band Edges

The RF band edges were measured using the EMI Receiver. The RF band edges were measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The following steps were performed for measuring the spectral density.

The RF band edges were taken at 902 MHz when the EUT was on the low channel and 928 MHz when the EUT was on the high channel using the EMI Receiver. The following steps were performed for measuring the band edges:

1. Set analyzer center frequency to DTS channel center frequency
2. Set the span wide enough to cover the band edges.
3. Set the RBW to 100 kHz
4. Set the VBW $\geq 3 \times$ RBW
5. Detector = Peak
6. Sweep time = auto couple
7. Allow the trace to stabilize
8. Use the peak marker function to determine the maximum amplitude level

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d) for band edges. Please see the data sheets located in Appendix E.

8.6 Spectral Density Test

The spectrum density output was measured using the EMI Receiver. The spectral density output was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The following steps were performed for measuring the spectral density.

1. Set analyzer center frequency to DTS channel center frequency
2. Set the span to at least 1.5 times the OBW.
3. Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
4. Set the VBW $\geq 3 \times \text{RBW}$
5. Detector = power averaging (RMS)
6. Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span/RBW}$
7. Sweep time = auto couple
8. Employ trace averaging (RMS) mode over a minimum of 100 traces
9. Use the peak marker function to determine the maximum amplitude level
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (e).

8.7 Variation of the Input Power

The variation of the input power test was performed using the EMI Receiver. The EUT input power was varied between 85% and 115% of the nominal rated supply voltage. The carrier frequency was monitored for any change in amplitude.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart A section 15.31 (e).

9. CONCLUSIONS

The Chip Down Module, Model: CDM-300 (EUT), as tested, meets all of the specification limits defined in FCC Title 47, Part 15, Subpart B, and Subpart C, sections 15.205, 15.207, 15.209 and 15.247.





APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Newbury Park Division
1050 Lawrence Drive
Newbury Park, CA 91320
(805) 480-4044

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

LABORATORY ACCREDITATIONS AND RECOGNITIONS



For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. **For the most up-to-date version of our scopes and certificates please visit <http://celectronics.com/quality/scope/>**

Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."

Innovation, Science and Economic Development Canada
Lab Code 2154A



APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B and FCC 15.247 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

The EUT was not modified during the testing.





APPENDIX C

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Newbury Park Division
1050 Lawrence Drive
Newbury Park, CA 91320
(805) 480-4044

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

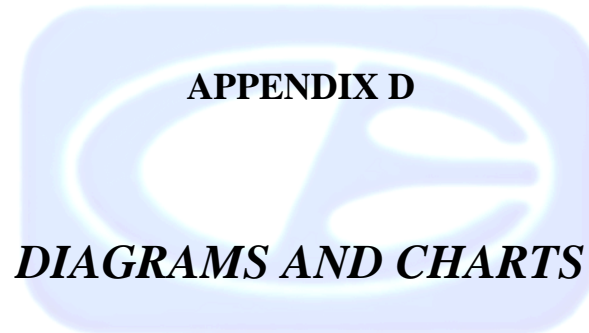
ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Chip Down Module
Model: CDM-300
S/N: N/A

There are no additional models covered under this report.

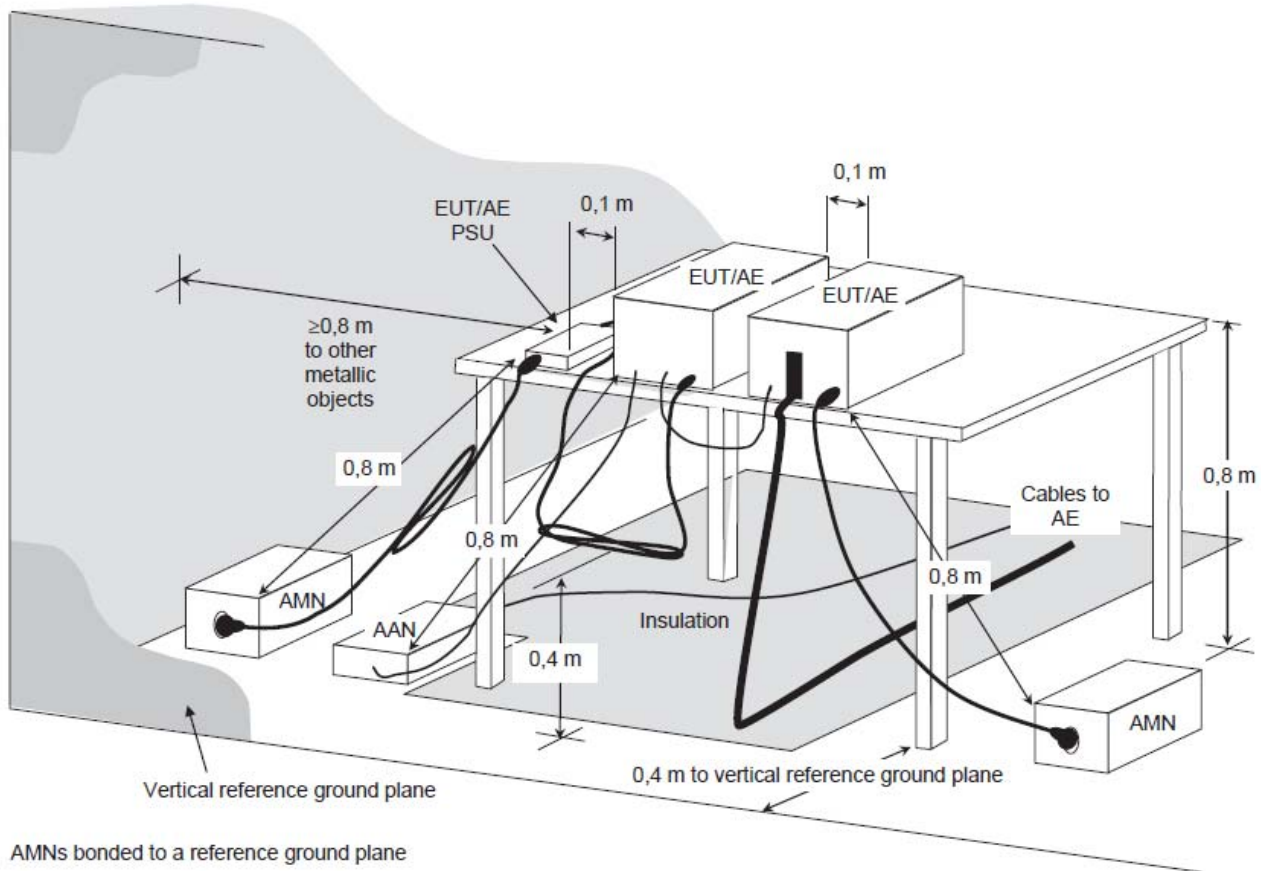




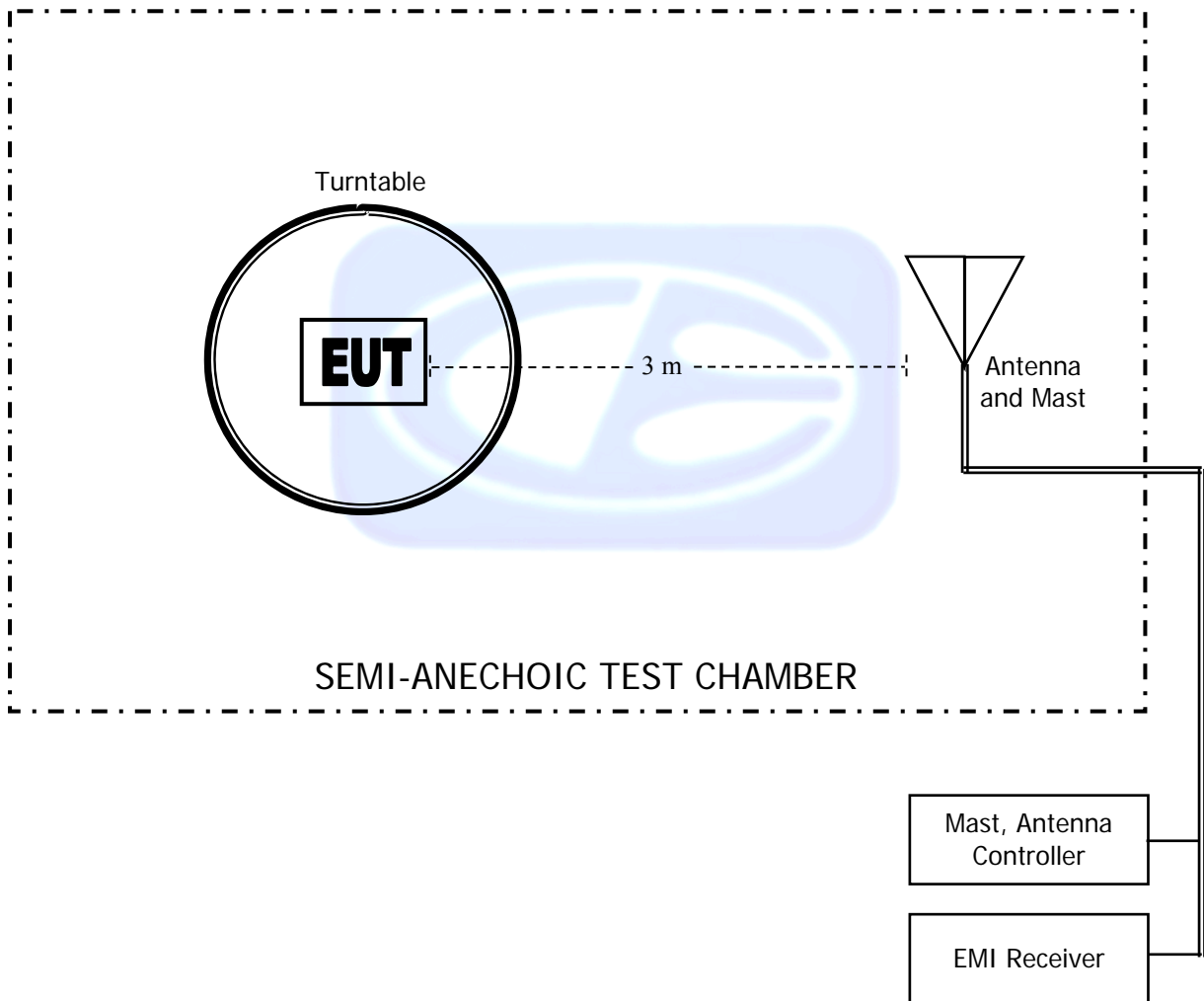
APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP



***FIGURE 2: LAYOUT OF THE SEMI-ANECHOIC
TEST CHAMBER***



COM-POWER AL-130R**LOOP ANTENNA**

S/N: 121090

CALIBRATION DATE: FEBRUARY 5, 2019

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.01	15.6	-35.9
0.02	14.8	-36.7
0.03	15.6	-35.9
0.04	15.1	-36.4
0.05	14.4	-37.0
0.06	14.6	-36.9
0.07	14.4	-37.1
0.08	14.3	-37.1
0.09	14.5	-36.9
0.10	14.1	-37.3
0.20	14.1	-37.3
0.30	14.0	-37.4
0.40	14.0	-37.4
0.50	14.2	-37.2
0.60	14.2	-37.2
0.70	14.2	-37.2
0.80	14.2	-37.3
0.90	14.3	-37.2
1.00	14.5	-37.0
2.00	14.5	-36.9
3.00	14.5	-36.9
4.00	14.7	-36.8
5.00	14.6	-36.9
6.00	14.6	-36.9
7.00	14.6	-36.9
8.00	14.6	-36.9
9.00	14.6	-36.9
10.00	14.8	-36.6
11.00	14.9	-36.6
12.00	14.8	-36.6
13.00	14.8	-36.7
14.00	14.6	-36.8
15.00	14.5	-36.9
16.00	14.5	-37.0
17.00	14.6	-36.9
18.00	14.7	-36.7
19.00	14.8	-36.6
20.00	14.9	-36.6
21.00	14.6	-36.8
22.00	14.2	-37.2
23.00	13.7	-37.7
24.00	13.3	-38.2
25.00	13.0	-38.5
26.00	12.9	-38.6
27.00	13.0	-38.5
28.00	13.1	-38.4
29.00	13.1	-38.4
30.00	12.9	-38.5

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61093

CALIBRATION DATE: JUNE 5, 2019

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	22.10	200	15.30
35	20.90	250	16.80
40	20.10	300	19.00
45	19.40	350	19.60
50	18.40	400	21.70
60	15.10	450	21.60
70	12.00	500	22.20
80	11.60	550	22.70
90	13.50	600	24.20
100	14.70	650	24.40
120	15.90	700	24.50
125	15.90	750	25.40
140	14.80	800	26.30
150	15.50	850	26.70
160	19.80	900	27.50
175	15.20	950	27.80
180	14.90	1000	27.90

COM POWER AH-118**HORN ANTENNA**

S/N: 10050113

CALIBRATION DATE: FEBRUARY 4, 2020

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.343	10.0	38.826
1.5	25.419	10.5	39.102
2.0	28.838	11.0	38.259
2.5	28.971	11.5	39.920
3.0	29.919	12.0	40.149
3.5	30.674	12.5	40.576
4.0	31.670	13.0	40.264
4.5	32.437	13.5	40.364
5.0	33.414	14.0	40.424
5.5	34.003	14.5	41.677
6.0	34.799	15.0	43.010
6.5	35.381	15.5	39.799
7.0	37.024	16.0	40.187
7.5	37.403	16.5	40.155
8.0	37.445	17.0	40.507
8.5	37.390	17.5	41.963
9.0	38.076	18.0	43.196
9.5	38.809		

COM-POWER PA-118**PREAMPLIFIER**

S/N: 181653

CALIBRATION DATE: FEBRUARY 5, 2020

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	40.10	6.0	40.60
1.1	40.10	6.5	39.50
1.2	40.00	7.0	39.40
1.3	39.70	7.5	39.30
1.4	39.60	8.0	39.20
1.5	39.90	8.5	40.50
1.6	40.00	9.0	39.60
1.7	39.70	9.5	39.50
1.8	39.50	10.0	38.80
1.9	39.60	11.0	38.70
2.0	39.90	12.0	42.20
2.5	40.10	13.0	40.00
3.0	40.80	14.0	40.30
3.5	40.60	15.0	40.20
4.0	40.50	16.0	41.00
4.5	41.60	17.0	39.70
5.0	39.20	18.0	40.90
5.5	40.00		



FRONT VIEW

MESH SYSTEMS LLC
CHIP DOWN MODULE
MODEL: CDM-300
FCC SUBPART B AND C – RADIATED EMISSIONS
BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

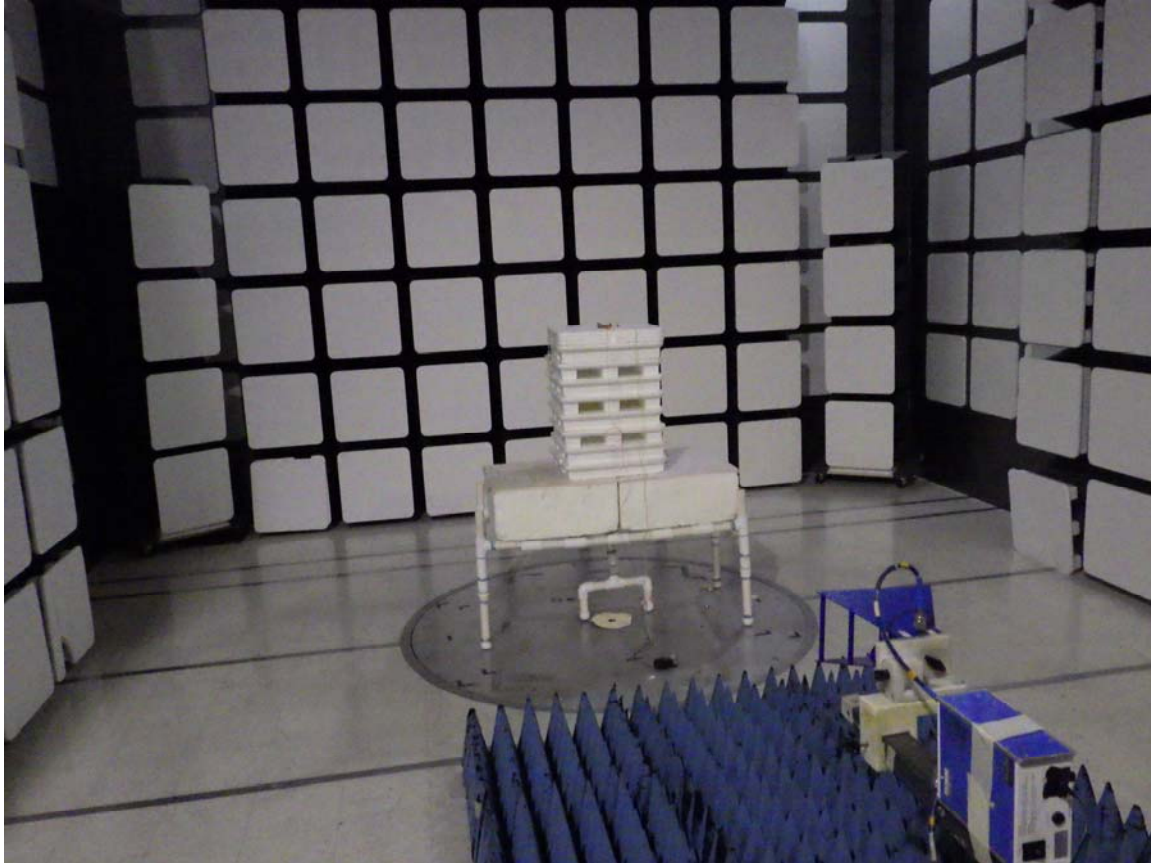
MESH SYSTEMS LLC
CHIP DOWN MODULE
MODEL: CDM-300
FCC SUBPART B AND C – RADIATED EMISSIONS
BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Newbury Park Division
1050 Lawrence Drive
Newbury Park, CA 91320
(805) 480-4044

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



FRONT VIEW

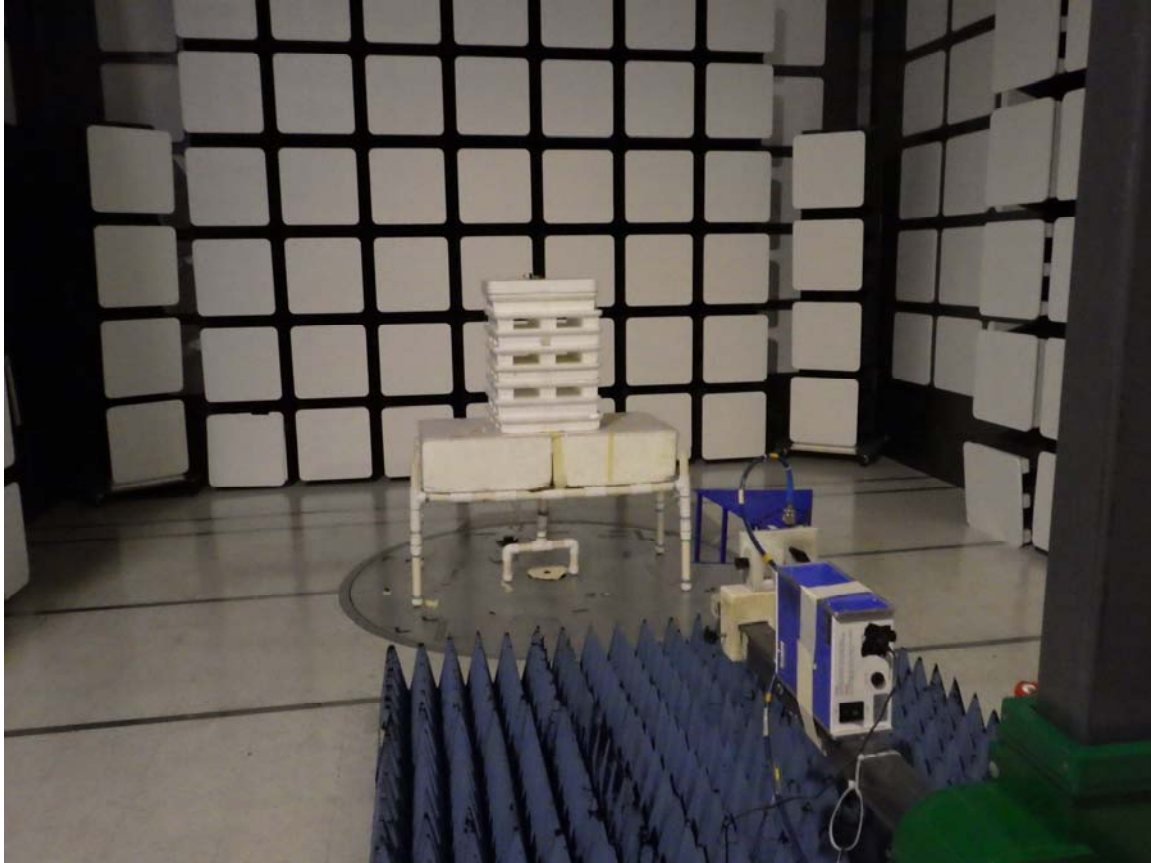
MESH SYSTEMS LLC
CHIP DOWN MODULE
MODEL: CDM-300
FCC SUBPART B AND C – RADIATED EMISSIONS
ABOVE 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
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Newbury Park, CA 91320
(805) 480-4044

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



REAR VIEW

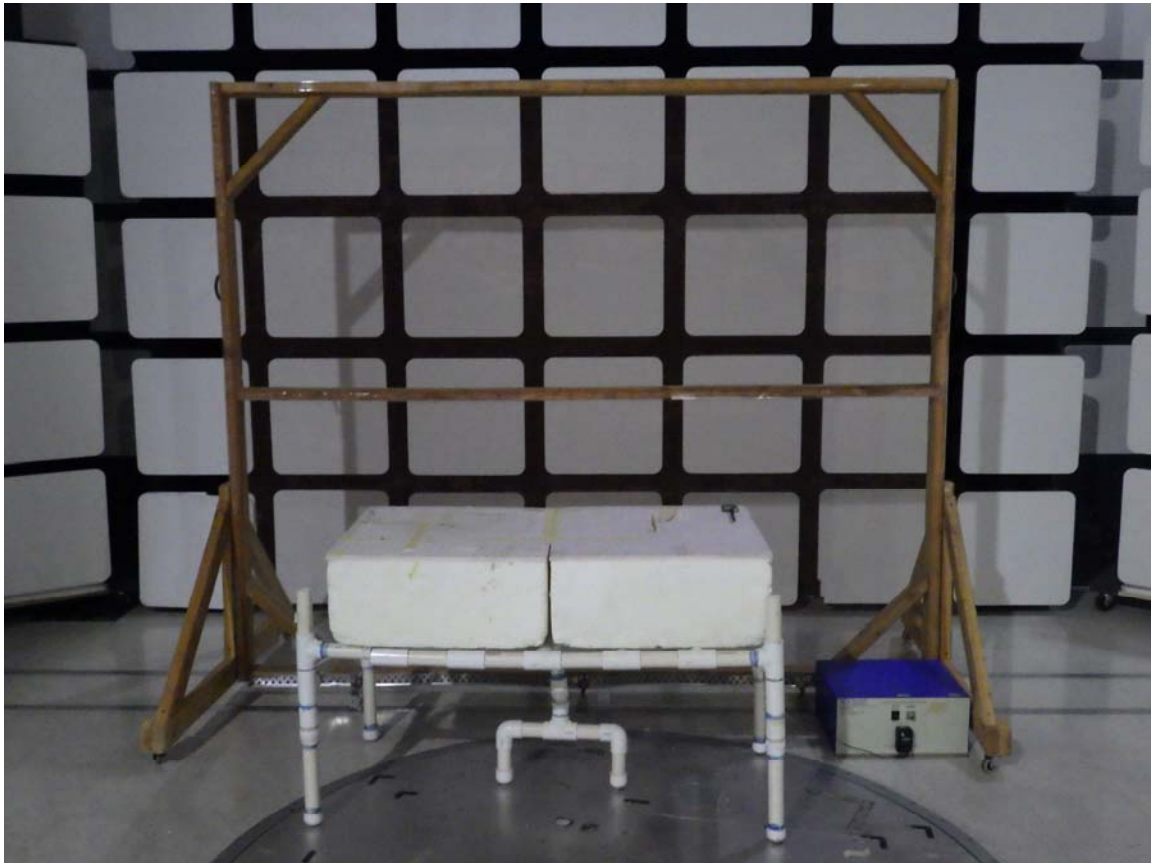
MESH SYSTEMS LLC
CHIP DOWN MODULE
MODEL: CDM-300
FCC SUBPART B AND C – RADIATED EMISSIONS
ABOVE 1 GHz

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FRONT VIEW

MESH SYSTEMS LLC
CHIP DOWN MODULE
MODEL: CDM-300
FCC SUBPART B AND C – CONDUCTED EMISSIONS

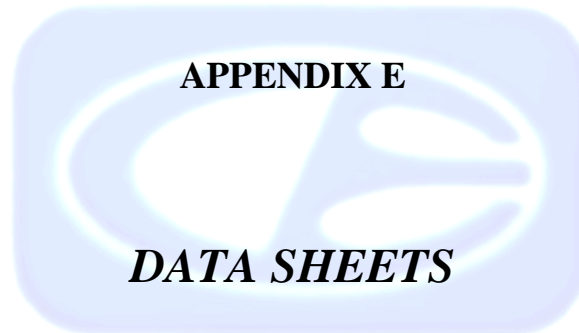
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

MESH SYSTEMS LLC
CHIP DOWN MODULE
MODEL: CDM-300
FCC SUBPART B AND C – CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



***RADIATED EMISSIONS
DATA SHEETS***

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

**Low Channel - X-Axis
 Transmit Mode**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1812								N/A - Done via Conducted Not in Restricted Band
2718	53.62	V	73.97	-20.35	Peak	288.50	144.65	
2718	48.04	V	53.97	-5.93	Avg	288.50	144.65	
3624	51.09	V	73.97	-22.88	Peak	241.50	160.41	
3624	43.27	V	53.97	-10.70	Avg	241.50	160.41	
4530	50.01	V	73.97	-23.96	Peak	63.50	176.59	
4530	42.86	V	53.97	-11.11	Avg	63.50	176.59	
5436	49.47	V	73.97	-24.50	Peak	58.25	249.90	
5436	41.80	V	53.97	-12.17	Avg	58.25	249.90	
6342								N/A - Done via Conducted Not in Restricted Band
7248								N/A - Done via Conducted Not in Restricted Band
8154	49.21	V	73.97	-24.76	Peak	236.75	111.16	
8154	38.64	V	53.97	-15.33	Avg	236.75	111.16	
9060								No Emission detected
9060								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300

Date: 10/26/2020

Lab: D

Tested By: Kyle Fujimoto

**Low Channel - Y-Axis
 Transmit Mode**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1812								N/A - Done via Conducted Not in Restricted Band
2718	54.24	V	73.97	-19.73	Peak	86.75	111.46	
2718	49.03	V	53.97	-4.94	Avg	86.75	111.46	
3624	47.55	V	73.97	-26.42	Peak	285.75	111.22	
3624	39.99	V	53.97	-13.98	Avg	285.75	111.22	
4530	50.28	V	73.97	-23.69	Peak	298.25	127.64	
4530	43.73	V	53.97	-10.24	Avg	298.25	127.64	
5436	45.40	V	73.97	-28.57	Peak	134.00	127.34	
5436	36.45	V	53.97	-17.52	Avg	134.00	127.34	
6342								N/A - Done via Conducted Not in Restricted Band
7248								N/A - Done via Conducted Not in Restricted Band
8154	46.82	V	73.97	-27.15	Peak	307.50	111.34	
8154	35.11	V	53.97	-18.86	Avg	307.50	111.34	
9060								No Emission detected
9060								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

**Low Channel - Z-Axis
 Transmit Mode**

Freq. (MHz)	Level (dBuV/m)	Poi (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1812								N/A - Done via Conducted Not in Restricted Band
2718	54.93	V	73.97	-19.04	Peak	298.50	111.34	
2718	49.28	V	53.97	-4.69	Avg	298.50	111.34	
3624	51.09	V	73.97	-22.88	Peak	20.00	161.55	
3624	43.26	V	53.97	-10.71	Avg	20.00	161.55	
4530	48.29	V	73.97	-25.68	Peak	344.00	192.65	
4530	41.53	V	53.97	-12.44	Avg	344.00	192.65	
5436	48.30	V	73.97	-25.67	Peak	346.50	127.64	
5436	40.25	V	53.97	-13.72	Avg	346.50	127.64	
6342								N/A - Done via Conducted Not in Restricted Band
7248								N/A - Done via Conducted Not in Restricted Band
8154	44.98	V	73.97	-28.99	Peak	145.00	111.46	
8154	33.23	V	53.97	-20.74	Avg	145.00	111.46	
9060								No emissions detected
9060								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

**Low Channel - X-Axis
 Transmit Mode**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1812								N/A - Done via Conducted Not in Restricted Band
2718	53.62	H	73.97	-20.35	Peak	337.25	143.82	
2718	48.36	H	53.97	-5.61	Avg	337.25	143.82	
3624	44.16	H	73.97	-29.81	Peak	311.25	111.40	
3624	34.15	H	53.97	-19.82	Avg	311.25	111.40	
4530	44.81	H	73.97	-29.16	Peak	300.00	143.46	
4530	35.32	H	53.97	-18.65	Avg	300.00	143.46	
5436	40.98	H	73.97	-32.99	Peak	120.75	111.76	
5436	29.25	H	53.97	-24.72	Avg	120.75	111.76	
6342								N/A - Done via Conducted Not in Restricted Band
7248								N/A - Done via Conducted Not in Restricted Band
8154	46.69	H	73.97	-27.28	Peak	225.00	111.16	
8154	34.96	H	53.97	-19.01	Avg	225.00	111.16	
9060								No Emission Detected
9060								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

**Low Channel - Y-Axis
 Transmit Mode**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1812								N/A - Done via Conducted Not in Restricted Band
2718	55.47	H	73.97	-18.50	Peak	5.75	158.20	
2718	50.27	H	53.97	-3.70	Avg	5.75	158.20	
3624	47.30	H	73.97	-26.67	Peak	40.50	127.52	
3624	38.08	H	53.97	-15.89	Avg	40.50	127.52	
4530	52.92	H	73.97	-21.05	Peak	291.50	160.23	
4530	47.17	H	53.97	-6.80	Avg	291.50	160.23	
5436	50.74	H	73.97	-23.23	Peak	298.00	111.40	
5436	43.52	H	53.97	-10.45	Avg	298.00	111.40	
6342								N/A - Done via Conducted Not in Restricted Band
7248								N/A - Done via Conducted Not in Restricted Band
8154	48.01	H	73.97	-25.96	Peak	259.50	143.82	
8154	36.43	H	53.97	-17.54	Avg	259.50	143.82	
9060								No Emission Detected
9060								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

**Low Channel - Z-Axis
 Transmit Mode**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1812								N/A - Done via Conducted Not in Restricted Band
2718	52.18	H	73.97	-21.79	Peak	167.65	160.05	
2718	46.13	H	53.97	-7.84	Avg	167.65	160.05	
3624	48.73	H	73.97	-25.24	Peak	62.50	127.52	
3624	40.23	H	53.97	-13.74	Avg	62.50	127.52	
4530	46.63	H	73.97	-27.34	Peak	99.50	160.00	
4530	39.35	H	53.97	-14.62	Avg	99.50	160.00	
5436	40.73	H	73.97	-33.24	Peak	132.50	111.34	
5436	29.19	H	53.97	-24.78	Avg	132.50	111.34	
6342								N/A - Done via Conducted Not in Restricted Band
7248								N/A - Done via Conducted Not in Restricted Band
8154	44.85	H	73.97	-29.12	Peak	208.00	144.00	
8154	33.18	H	53.97	-20.79	Avg	208.00	144.00	
9060								No emissions detected
9060								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

**Middle Channel - X-Axis
 Transmit Mode**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1828								N/A - Done via Conducted Not in Restricted Band
2742	51.93	V	73.97	-22.04	Peak	276.75	111.28	
2742	45.70	V	53.97	-8.27	Avg	276.75	111.28	
3656	44.30	V	73.97	-29.67	Peak	230.75	144.11	
3656	35.60	V	53.97	-18.37	Avg	230.75	144.11	
4570	46.32	V	73.97	-27.65	Peak	224.25	160.95	
4570	39.13	V	53.97	-14.84	Avg	224.25	160.95	
5484								N/A - Done via Conducted Not in Restricted Band
6398								N/A - Done via Conducted Not in Restricted Band
7312	55.86	V	73.97	-18.11	Peak	276.00	127.58	
7312	47.80	V	53.97	-6.17	Avg	276.00	127.58	
8226	49.96	V	73.97	-24.01	Peak	123.50	176.59	
8226	38.03	V	53.97	-15.94	Avg	123.50	176.59	
9140								No emission detected
9140								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

**Middle Channel - Y-Axis
 Transmit Mode**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1828								N/A - Done via Conducted Not in Restricted Band
2742	54.52	V	73.97	-19.45	Peak	75.50	111.10	
2742	48.13	V	53.97	-5.84	Avg	75.50	111.10	
3656	50.13	V	73.97	-23.84	Peak	355.75	143.94	
3656	43.08	V	53.97	-10.89	Avg	355.75	143.94	
4570	46.32	V	73.97	-27.65	Peak	309.75	127.58	
4570	38.47	V	53.97	-15.50	Avg	309.75	127.58	
5484								N/A - Done via Conducted Not in Restricted Band
6398								N/A - Done via Conducted Not in Restricted Band
7312	51.57	V	73.97	-22.40	Peak	311.75	111.16	
7312	42.46	V	53.97	-11.51	Avg	311.75	111.16	
8226	46.17	V	73.97	-27.80	Peak	311.00	227.10	
8226	34.74	V	53.97	-19.23	Avg	311.00	227.10	
9140								No emission detected
9140								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300
Middle Channel - Z-Axis
Transmit Mode

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1828								N/A - Done via Conducted Not in Restricted Band
2742	56.51	V	73.97	-17.46	Peak	164.75	127.52	
2742	50.65	V	53.97	-3.32	Avg	164.75	127.52	
3656	47.69	V	73.97	-26.28	Peak	96.00	127.76	
3656	39.39	V	53.97	-14.58	Avg	96.00	127.76	
4570	50.87	V	73.97	-23.10	Peak	358.75	142.98	
4570	44.16	V	53.97	-9.81	Avg	358.75	142.98	
5484								N/A - Done via Conducted Not in Restricted Band
6398								N/A - Done via Conducted Not in Restricted Band
7312	54.58	V	73.97	-19.39	Peak	165.75	179.52	
7312	45.82	V	53.97	-8.15	Avg	165.75	179.52	
8226	45.36	V	73.97	-28.61	Peak	359.50	160.71	
8226	33.57	V	53.97	-20.40	Avg	359.50	160.71	
9140								No emission detected
9140								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300
Middle Channel - X-Axis
Transmit Mode

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1828								N/A - Done via Conducted Not in Restricted Band
2742	56.77	H	73.97	-17.20	Peak	58.25	127.58	
2742	50.63	H	53.97	-3.34	Avg	58.25	127.58	
3656	46.80	H	73.97	-27.17	Peak	306.50	160.23	
3656	38.16	H	53.97	-15.81	Avg	306.50	160.23	
4570	45.93	H	73.97	-28.04	Peak	268.75	127.52	
4570	37.81	H	53.97	-16.16	Avg	268.75	127.52	
5484								N/A - Done via Conducted Not in Restricted Band
6398								N/A - Done via Conducted Not in Restricted Band
7312	49.40	H	73.97	-24.57	Peak	165.00	176.59	
7312	38.92	H	53.97	-15.05	Avg	165.00	176.59	
8226	45.23	H	73.97	-28.74	Peak	191.00	178.38	
8226	33.61	H	53.97	-20.36	Avg	191.00	178.38	
9140								No emissions detected
9140								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300
Middle Channel - Y-Axis
Transmit Mode

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1828								N/A - Done via Conducted Not in Restricted Band
2742	54.94	H	73.97	-19.03	Peak	348.50	112.65	
2742	48.83	H	53.97	-5.14	Avg	348.50	112.65	
3656	50.55	H	73.97	-23.42	Peak	194.50	143.94	
3656	43.19	H	53.97	-10.78	Avg	194.50	143.94	
4570	51.25	H	73.97	-22.72	Peak	311.75	127.58	
4570	45.02	H	53.97	-8.95	Avg	311.75	127.58	
5484								N/A - Done via Conducted Not in Restricted Band
6398								N/A - Done via Conducted Not in Restricted Band
7312	56.89	H	73.97	-17.08	Peak	257.00	208.89	
7312	49.70	H	53.97	-4.27	Avg	257.00	208.89	
8226	45.22	H	73.97	-28.75	Peak	1.00	159.94	
8226	33.53	H	53.97	-20.44	Avg	1.00	159.94	
9140								No emissions detected
9140								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300
Middle Channel - Z-Axis
Transmit Mode

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1828								N/A - Done via Conducted Not in Restricted Band
2742	54.38	H	73.97	-19.59	Peak	131.75	128.71	
2742	48.68	H	53.97	-5.29	Avg	131.75	128.71	
3656	36.94	H	73.97	-37.03	Peak	62.75	127.64	
3656	25.54	H	53.97	-28.43	Avg	62.75	127.64	
4570	47.73	H	73.97	-26.24	Peak	299.00	111.34	
4570	40.25	H	53.97	-13.72	Avg	299.00	111.34	
5484								N/A - Done via Conducted Not in Restricted Band
6398								N/A - Done via Conducted Not in Restricted Band
7312	53.68	H	73.97	-20.29	Peak	286.25	192.59	
7312	45.14	H	53.97	-8.83	Avg	286.25	192.59	
8226	47.45	H	73.97	-26.52	Peak	17.75	144.71	
8226	35.21	H	53.97	-18.76	Avg	17.75	144.71	
9140								No emissions detected
9140								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300
High Channel - X-Axis
Transmit Mode

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1848								N/A - Done via Conducted Not in Restricted Band
2772	52.49	V	73.97	-21.48	Peak	278.25	111.16	
2772	46.44	V	53.97	-7.53	Avg	278.25	111.16	
3696	48.79	V	73.97	-25.18	Peak	220.00	160.41	
3696	41.36	V	53.97	-12.61	Avg	220.00	160.41	
4620	48.05	V	73.97	-25.92	Peak	256.00	143.88	
4620	40.38	V	53.97	-13.59	Avg	256.00	143.88	
5544								N/A - Done via Conducted Not in Restricted Band
5544								
6468								N/A - Done via Conducted Not in Restricted Band
6468								
7392	49.60	V	73.97	-24.37	Peak	203.50	111.40	
7392	39.26	V	53.97	-14.71	Avg	203.50	111.40	
8316	52.20	V	73.97	-21.77	Peak	118.00	225.25	
8316	42.02	V	53.97	-11.95	Avg	118.00	225.25	
9240								No emissions detected
9240								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300
High Channel - Y-Axis
Transmit Mode

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1848								N/A - Done via Conducted Not in Restricted Band
2772	52.84	V	73.97	-21.13	Peak	75.75	241.73	
2772	46.83	V	53.97	-7.14	Avg	75.75	241.73	
3696	45.64	V	73.97	-28.33	Peak	139.00	127.58	
3696	38.26	V	53.97	-15.71	Avg	139.00	127.58	
4620	45.48	V	73.97	-28.49	Peak	327.50	127.70	
4620	37.10	V	53.97	-16.87	Avg	327.50	127.70	
5544								N/A - Done via Conducted Not in Restricted Band
5544								
6468								N/A - Done via Conducted Not in Restricted Band
7392	53.11	V	73.97	-20.86	Peak	311.75	111.40	
7392	44.43	V	53.97	-9.54	Avg	311.75	111.40	
8316	49.37	V	73.97	-24.60	Peak	311.25	146.47	
8316	38.22	V	53.97	-15.75	Avg	311.25	176.47	
9240								No emissions detected
9240								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300
High Channel - Z-Axis
Transmit Mode

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1848								N/A - Done via Conducted Not in Restricted Band
2772	56.44	V	73.97	-17.53	Peak	72.00	226.37	
2772	50.51	V	53.97	-3.46	Avg	72.00	226.37	
3696	53.14	V	73.97	-20.83	Peak	94.75	160.82	
3696	47.27	V	53.97	-6.70	Avg	94.75	160.82	
4620	50.67	V	73.97	-23.30	Peak	130.75	100.00	
4620	43.78	V	53.97	-10.19	Avg	130.75	100.00	
5544								N/A - Done via Conducted Not in Restricted Band
5544								
6468								N/A - Done via Conducted Not in Restricted Band
6468								
7392	56.07	V	73.97	-17.90	Peak	124.25	100.00	
7392	47.91	V	53.97	-6.06	Avg	124.25	100.00	
8316	51.74	V	73.97	-22.23	Peak	91.75	181.53	
8316	41.45	V	53.97	-12.52	Avg	91.75	181.53	
9240								No emissions detected
9240								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300
High Channel - X-Axis
Transmit Mode

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1848								N/A - Done via Conducted Not in Restricted Band
2772	56.96	H	73.97	-17.01	Peak	63.50	111.28	
2772	50.81	H	53.97	-3.16	Avg	63.50	111.28	
3696	45.64	H	73.97	-28.33	Peak	307.75	159.64	
3696	37.41	H	53.97	-16.56	Avg	307.75	159.64	
4620	47.16	H	73.97	-26.81	Peak	315.25	225.85	
4620	39.29	H	53.97	-14.68	Avg	315.25	225.85	
5544								N/A - Done via Conducted Not in Restricted Band
5544								
6468								N/A - Done via Conducted Not in Restricted Band
7392	52.59	H	73.97	-21.38	Peak	175.25	111.16	
7392	43.74	H	53.97	-10.23	Avg	175.25	111.16	
8316	49.68	H	73.97	-24.29	Peak	197.75	241.79	
8316	38.75	H	53.97	-15.22	Avg	197.75	241.79	
9240								No emissions detected
9240								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300
High Channel - Y-Axis
Transmit Mode

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1848								N/A - Done via Conducted Not in Restricted Band
2772	57.22	H	73.97	-16.75	Peak	1.25	127.46	
2772	51.51	H	53.97	-2.46	Avg	1.25	127.46	
3696	51.41	H	73.97	-22.56	Peak	334.25	192.89	
3696	45.11	H	53.97	-8.86	Avg	334.25	192.89	
4620	51.57	H	73.97	-22.40	Peak	309.25	144.41	
4620	44.38	H	53.97	-9.59	Avg	309.25	144.41	
5544								N/A - Done via Conducted Not in Restricted Band
5544								
6468								N/A - Done via Conducted Not in Restricted Band
6468								
7392	57.24	H	73.97	-16.73	Peak	346.25	111.10	
7392	49.68	H	53.97	-4.29	Avg	346.25	111.10	
8316	50.19	H	73.97	-23.78	Peak	311.25	225.61	
8316	38.30	H	53.97	-15.67	Avg	311.25	225.61	
9240								No emissions detected
9240								

FCC 15.247

Mesh Systems
 Chip Down Module
 Model: CDM-300
High Channel - Z-Axis
Transmit Mode

Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1848								N/A - Done via Conducted Not in Restricted Band
2772	55.14	H	73.97	-18.83	Peak	299.75	242.26	
2772	49.28	H	53.97	-4.69	Avg	299.75	242.26	
3696	47.87	H	73.97	-26.10	Peak	54.25	127.94	
3696	40.53	H	53.97	-13.44	Avg	54.25	127.94	
4620	38.19	H	73.97	-35.78	Peak	276.50	111.64	
4620	27.04	H	53.97	-26.93	Avg	276.50	111.64	
5544								N/A - Done via Conducted Not in Restricted Band
5544								
6468								N/A - Done via Conducted Not in Restricted Band
6468								
7392	54.02	H	73.97	-19.95	Peak	281.50	127.76	
7392	45.29	H	53.97	-8.68	Avg	281.50	127.76	
8316	52.08	H	73.97	-21.89	Peak	12.00	111.10	
8316	41.21	H	53.97	-12.76	Avg	12.00	111.10	
9240								No emissions detected
9240								

FCC 15.247

 Mesh Systems
 Chip Down Module
 Model: CDM-300
High Channel - Z-Axis
Transmit Mode

 Date: 10/26/2020
 Lab: D
 Tested By: Kyle Fujimoto

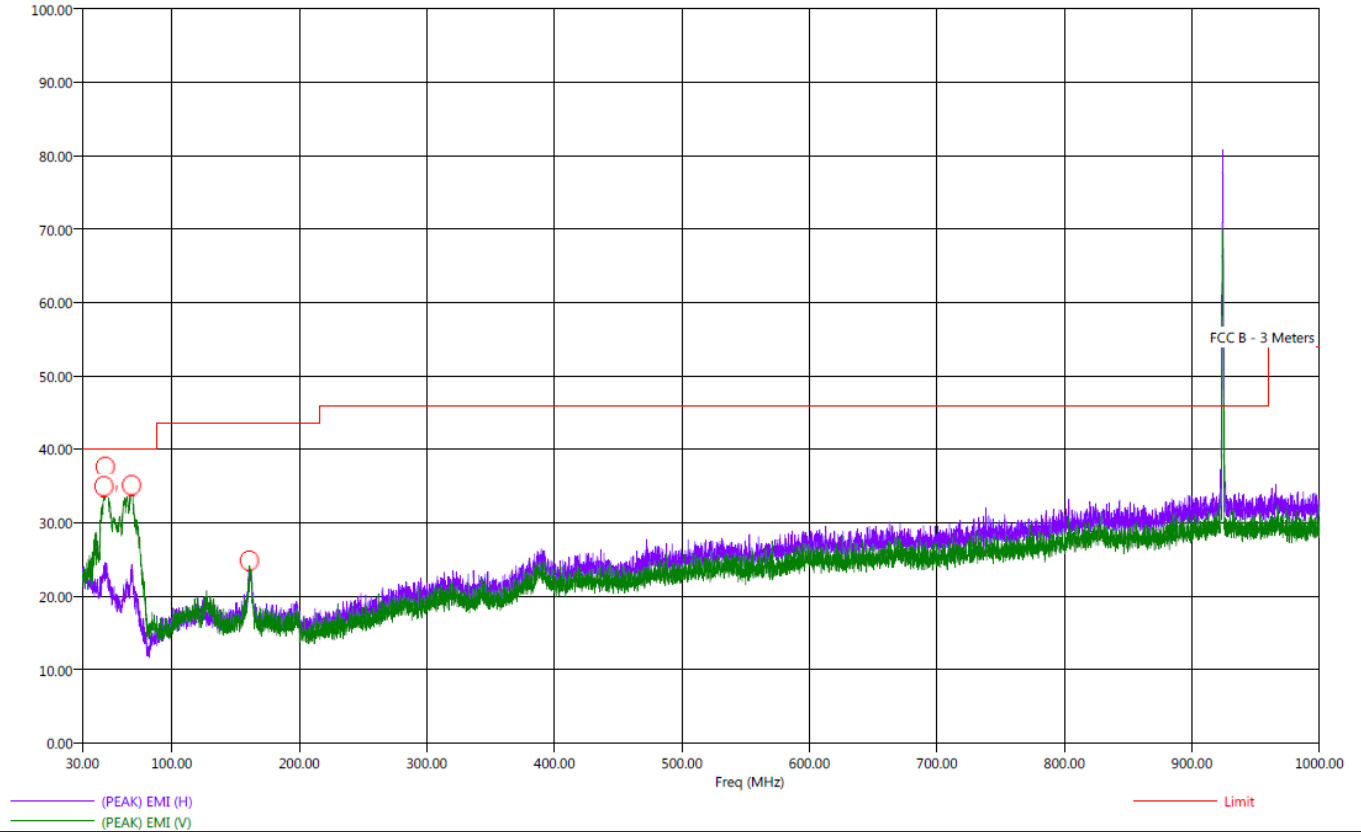
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
								No Emissions Detected
								from the Non Harmonic Emissions
								from the Tx
								9 kHz to 30 MHz
								No Emissions Detected
								from the Non Harmonic Emissions
								from the Tx
								1 GHz to 9.3 GHz
								No Emissions Detected
								from the Digital Portion
								of the EUT
								9 kHz to 30 MHz
								No Emissions Detected
								from the Digital Portion
								of the EUT
								1 GHz to 9.3 GHz
								Tested in both Horizontal and
								Vertical Polarizations

Title: Pre-Scan - FCC Class B
File: 1 - R&S - RE - Pre-Scan - X-Axis - Baseline - FCC-B - 10-29-2020.set
Operator: Kyle Fujimoto
EUT Type: Chip Down Module
EUT Condition: The EUT is continuously transmitting at 924 MHz (High Channel - Worst Case)
Company: Mesh Systems
M/N: CDM-300
S/N: N/A
X-Axis (Worst Case)
Note: The Frequency at 924 MHz is from the intentional radiator and is subject to the limits of FCC 15.247 instead.

10/29/2020 1:17:47 PM
Sequence: Preliminary Scan

FCC Class B

Electric Field Strength (dB μ V/m)



Title: Radiated Final - FCC Class B
 File: 1 - R&S - RE - Final Scan - X-Axis - Baseline - FCC-B - 10-29-2020.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT is continuously transmitting at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/29/2020 1:42:00 PM
 Sequence: Final Measurements

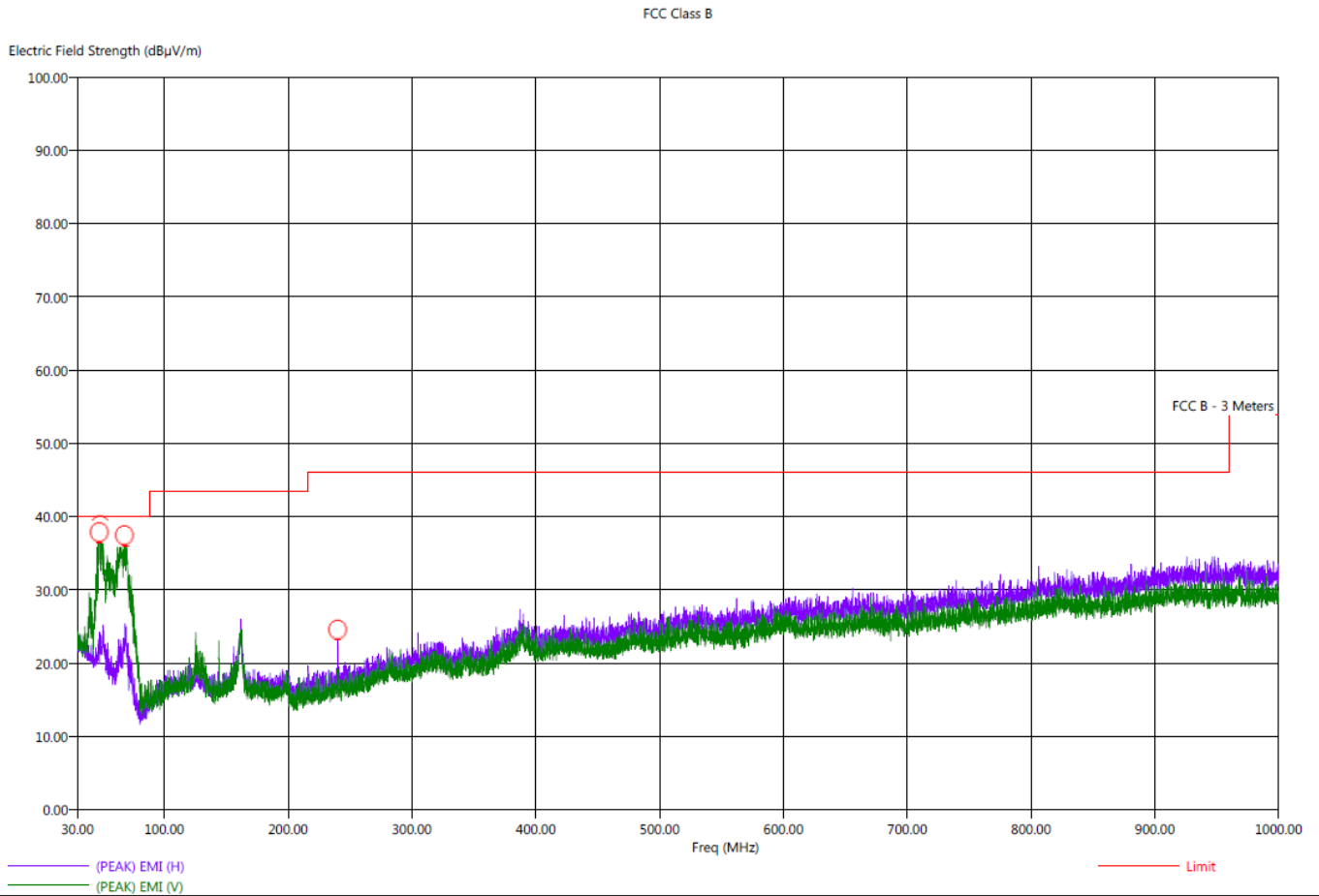
FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBμV/m)	(OP) EMI (dBμV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBμV/m)	Transducer (dB)	Cable (dB)	Ttbl Aql (deq)	Twr Ht (cm)
46.80	V	35.69	33.84	-4.31	-6.16	40.00	19.03	0.42	246.75	111.10
47.80	V	37.56	35.99	-2.44	-4.01	40.00	18.87	0.43	273.50	111.58
48.80	V	37.18	35.56	-2.82	-4.44	40.00	18.67	0.43	191.50	111.40
49.80	V	34.23	32.42	-5.77	-7.58	40.00	18.44	0.44	347.00	128.05
68.50	V	36.01	34.13	-3.99	-5.87	40.00	12.28	0.52	17.50	111.22
68.80	V	35.96	34.62	-4.04	-5.38	40.00	12.20	0.52	355.00	111.34
160.80	H	25.50	19.86	-18.00	-23.64	43.50	21.75	0.88	42.75	383.40



Title: Pre-Scan - FCC Class B
 File: 2 - R&S - RE - Pre-Scan - X-Axis - Rx Mode - FCC-B - 10-29-2020.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT is continuously receiving at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/29/2020 2:42:06 PM
 Sequence: Preliminary Scan



Title: Radiated Final - FCC Class B
 File: 2 - R&S - RE - Final Scan - X-Axis - Rx Mode - FCC-B - 10-29-2020.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT is continuously receiving at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/29/2020 3:04:51 PM
 Sequence: Final Measurements

FCC Class B

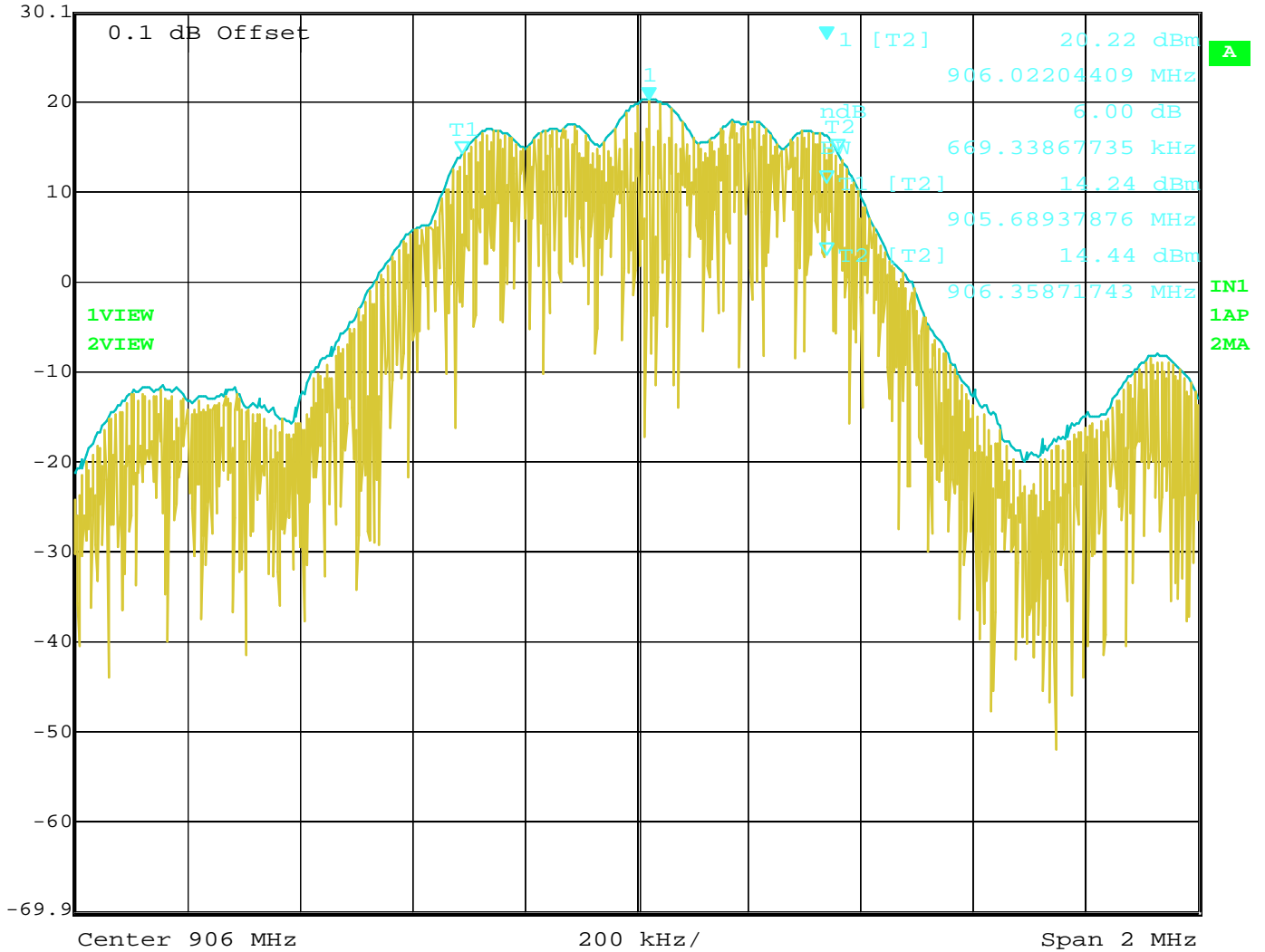
Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(OP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbi Aql (dea)	Twr Ht (cm)
47.50	V	39.41	34.70	-0.59	-5.30	40.00	18.87	0.43	239.75	111.22
48.30	V	37.72	32.96	-2.28	-7.04	40.00	18.76	0.43	161.00	144.41
49.20	V	38.75	33.78	-1.25	-6.22	40.00	18.53	0.44	166.50	111.28
67.80	V	38.65	34.37	-1.35	-5.63	40.00	12.56	0.51	49.00	111.16
68.40	V	39.48	34.97	-0.52	-5.03	40.00	12.41	0.51	360.00	111.34
69.20	V	37.89	33.41	-2.11	-6.59	40.00	12.21	0.52	318.00	176.65
240.10	H	19.92	14.28	-26.08	-31.72	46.00	16.53	1.17	285.25	111.34







Marker 1 [T2 ndB] RBW 100 kHz RF Att 40 dB
 Ref Lvl ndB 6.00 dB VBW 300 kHz
 30.1 dBm BW 669.33867735 kHz SWT 5 ms Unit dBm

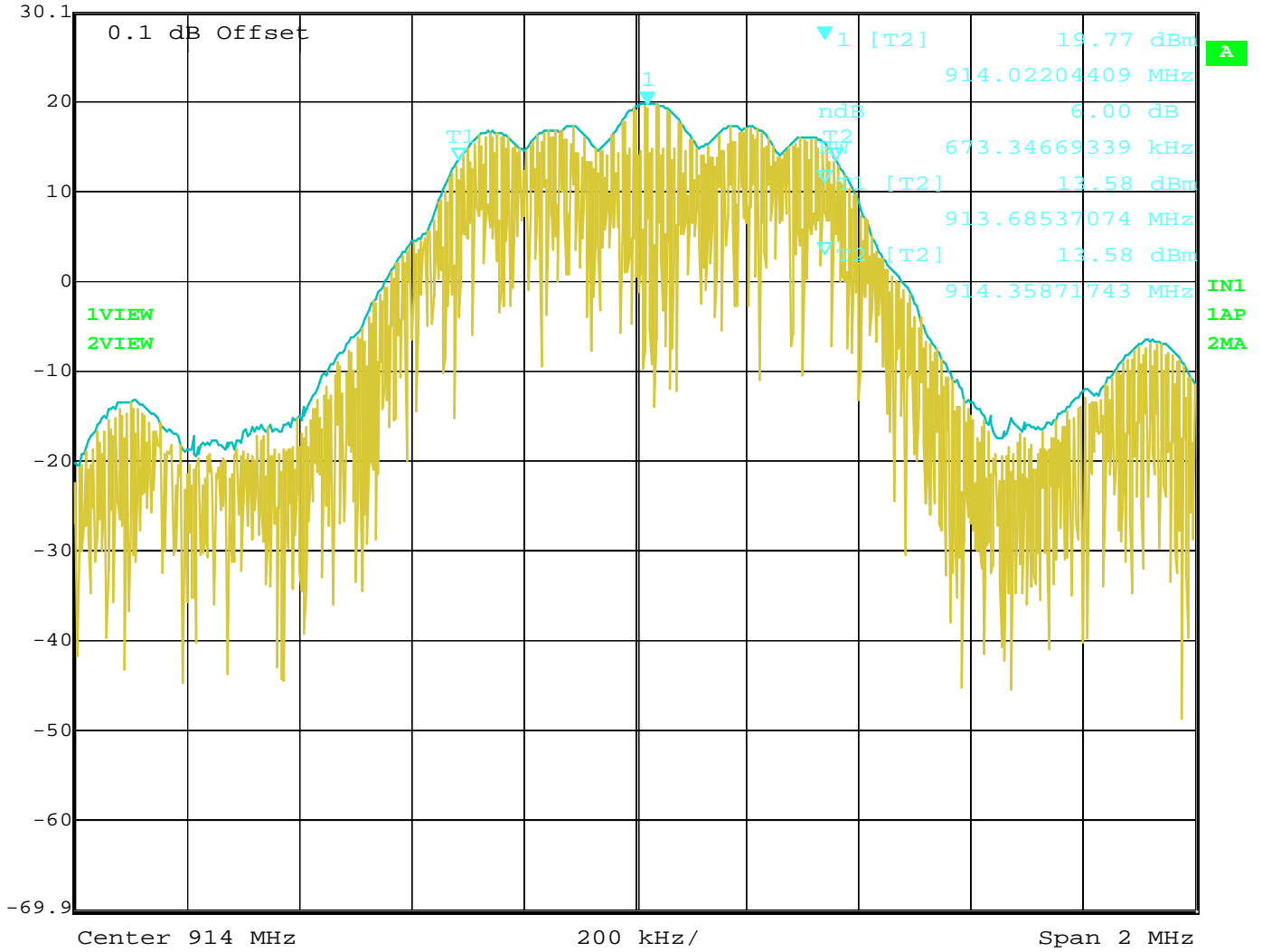


Date: 26.OCT.2020 10:31:40

-6 dB Bandwidth – Low Channel



Ref Lvl	Marker 1 [T2 ndB]	RBW	100 kHz	RF Att	40 dB
30.1 dBm	ndB 6.00 dB	VBW	300 kHz		
	BW 673.34669339 kHz	SWT	5 ms	Unit	dBm

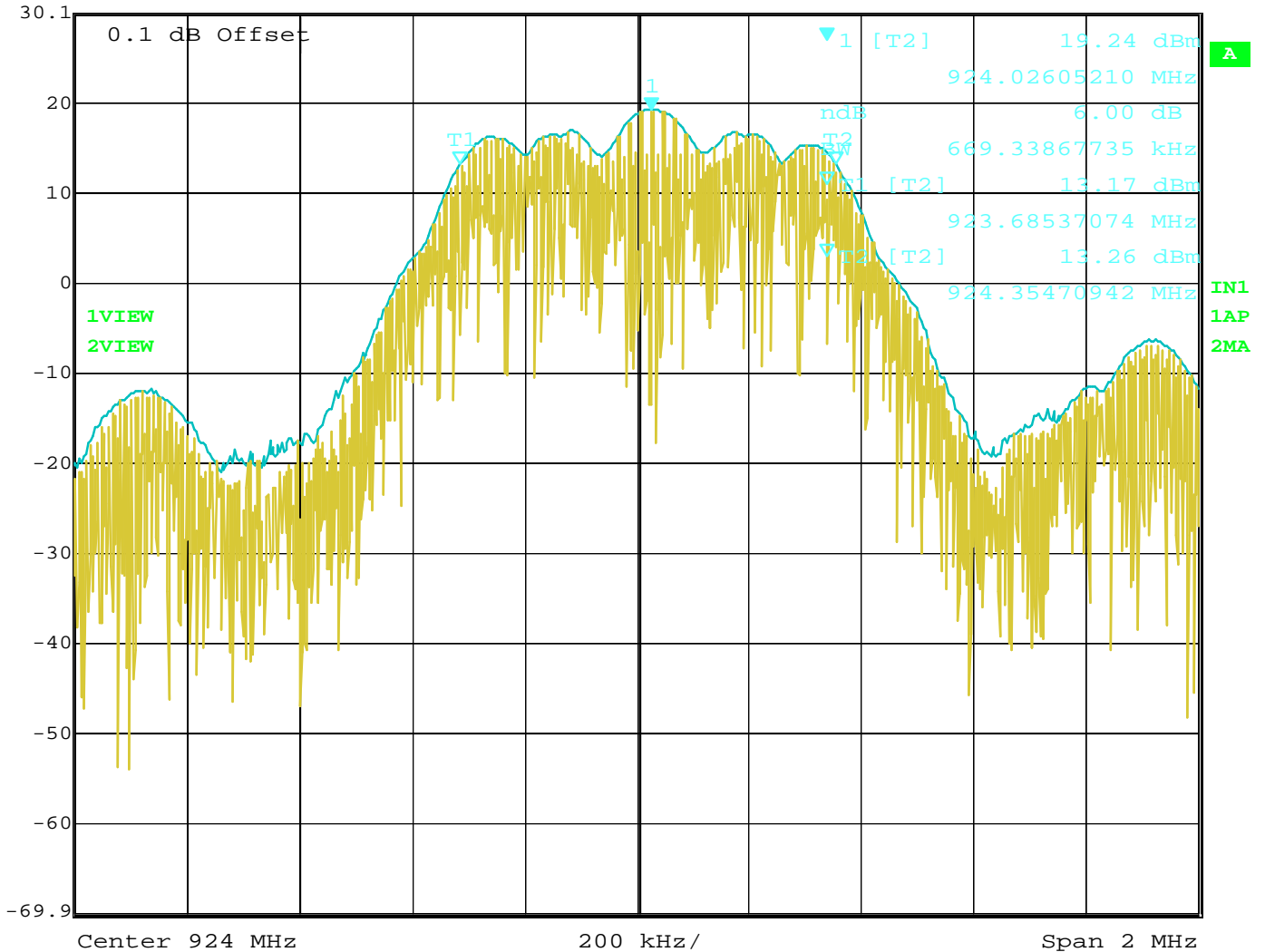


Date: 26.OCT.2020 10:32:29

-6 dB Bandwidth – Middle Channel



Marker 1 [T2 ndB] RBW 100 kHz RF Att 40 dB
 Ref Lvl ndB 6.00 dB VBW 300 kHz
 30.1 dBm BW 669.33867735 kHz SWT 5 ms Unit dBm

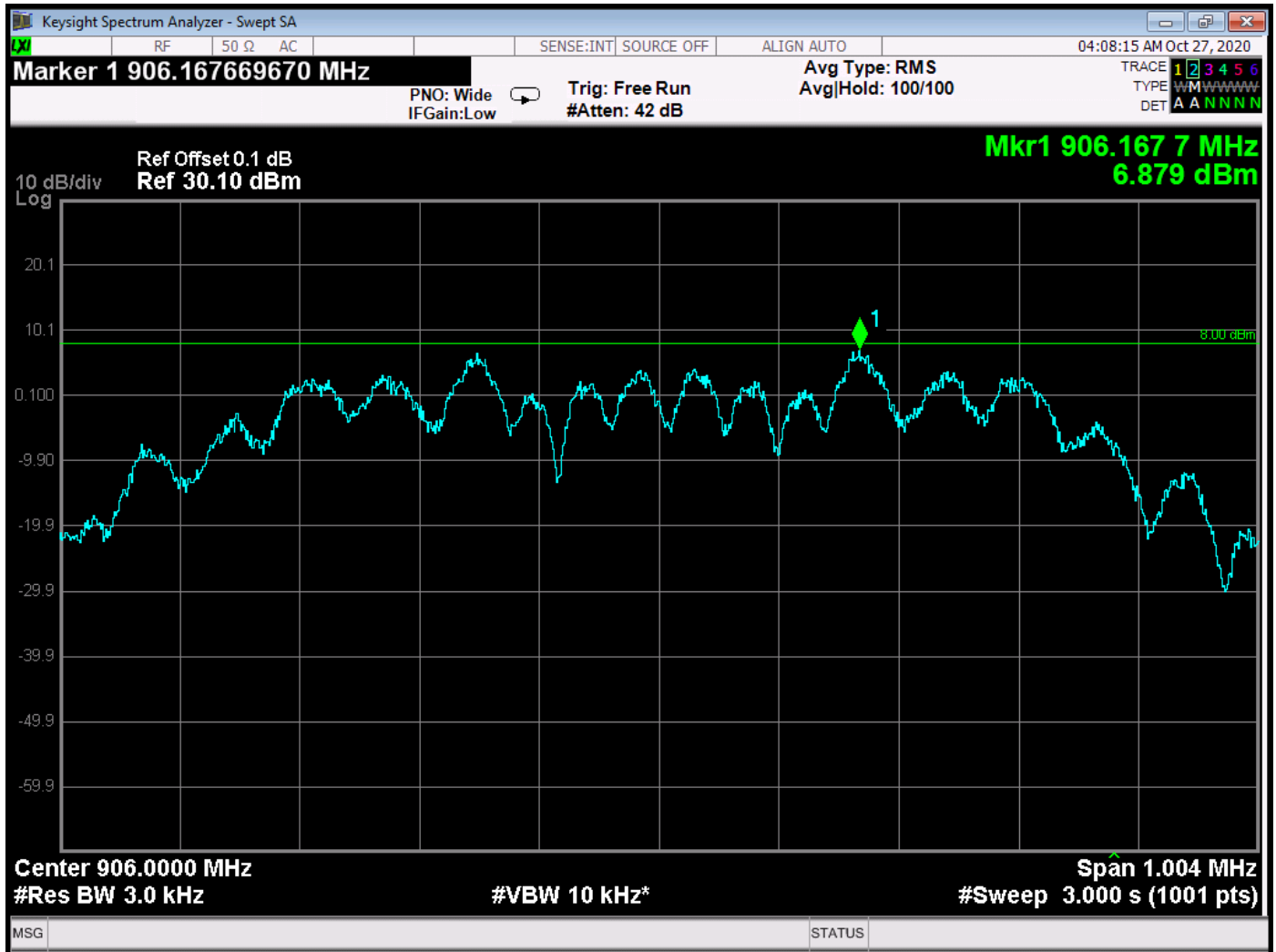


Date: 26.OCT.2020 10:33:12

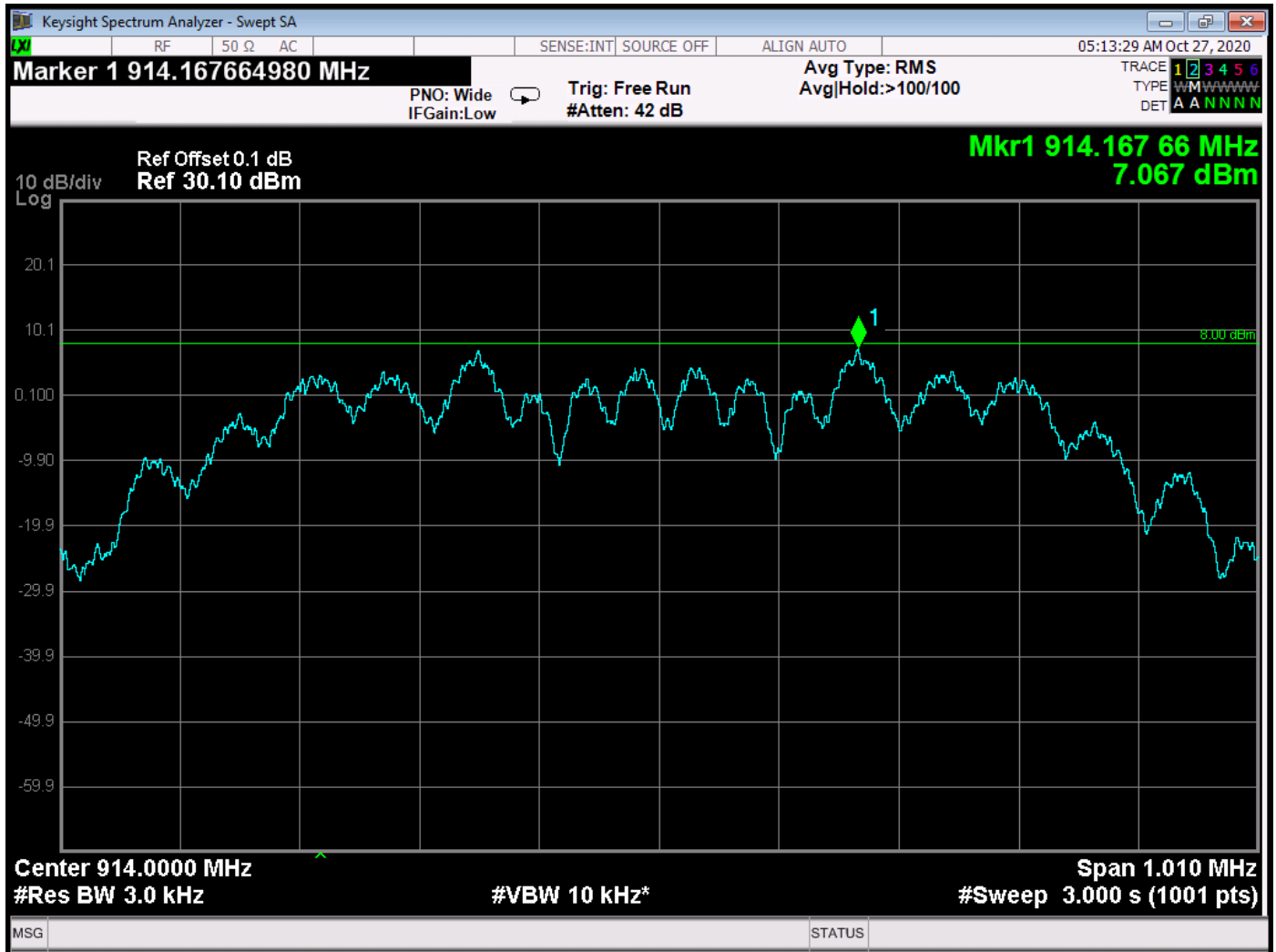
-6 dB Bandwidth – High Channel

SPECTRAL DENSITY OUTPUT

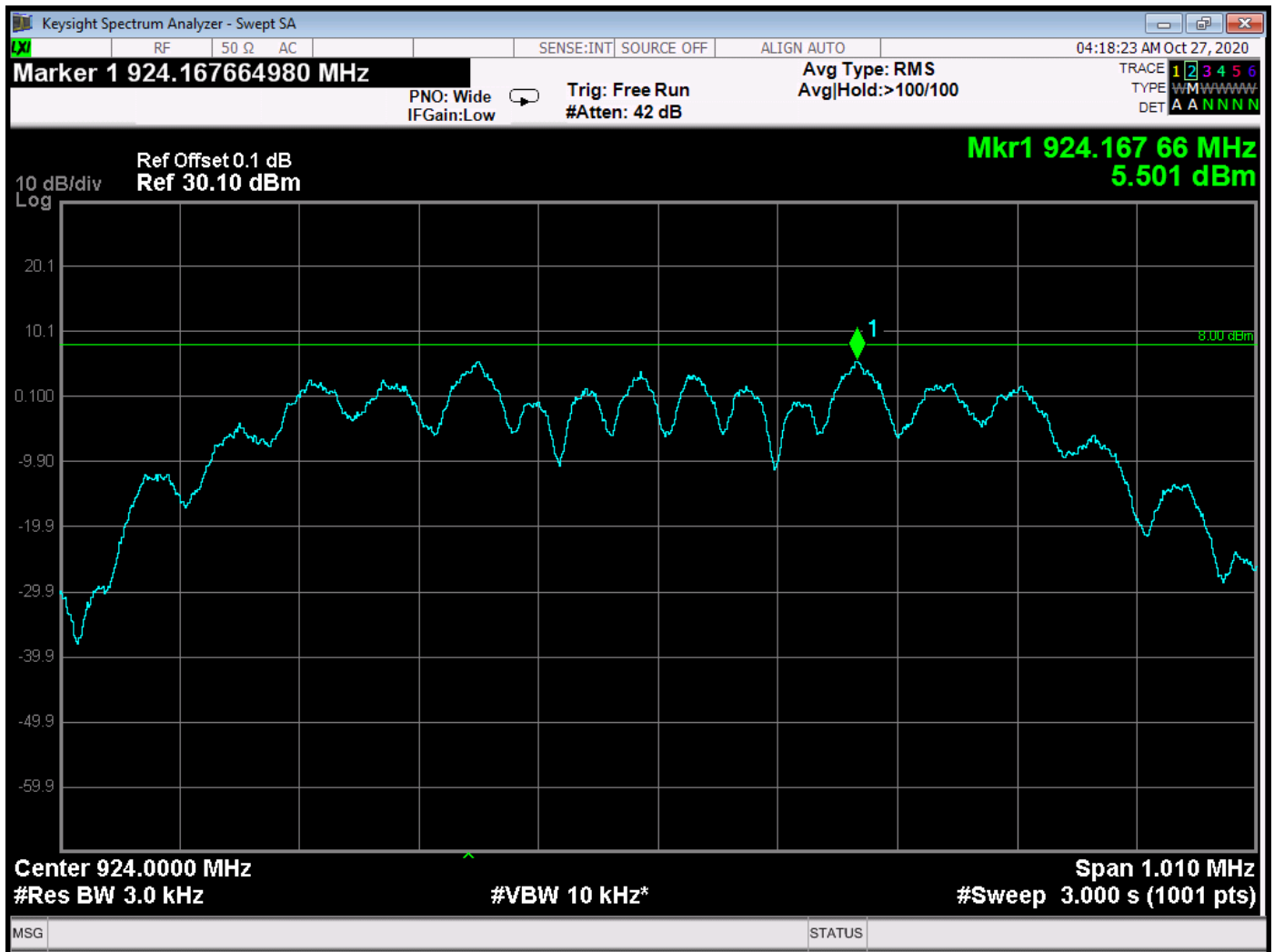
DATA SHEETS



Spectral Density – Low Channel



Spectral Density – Middle Channel



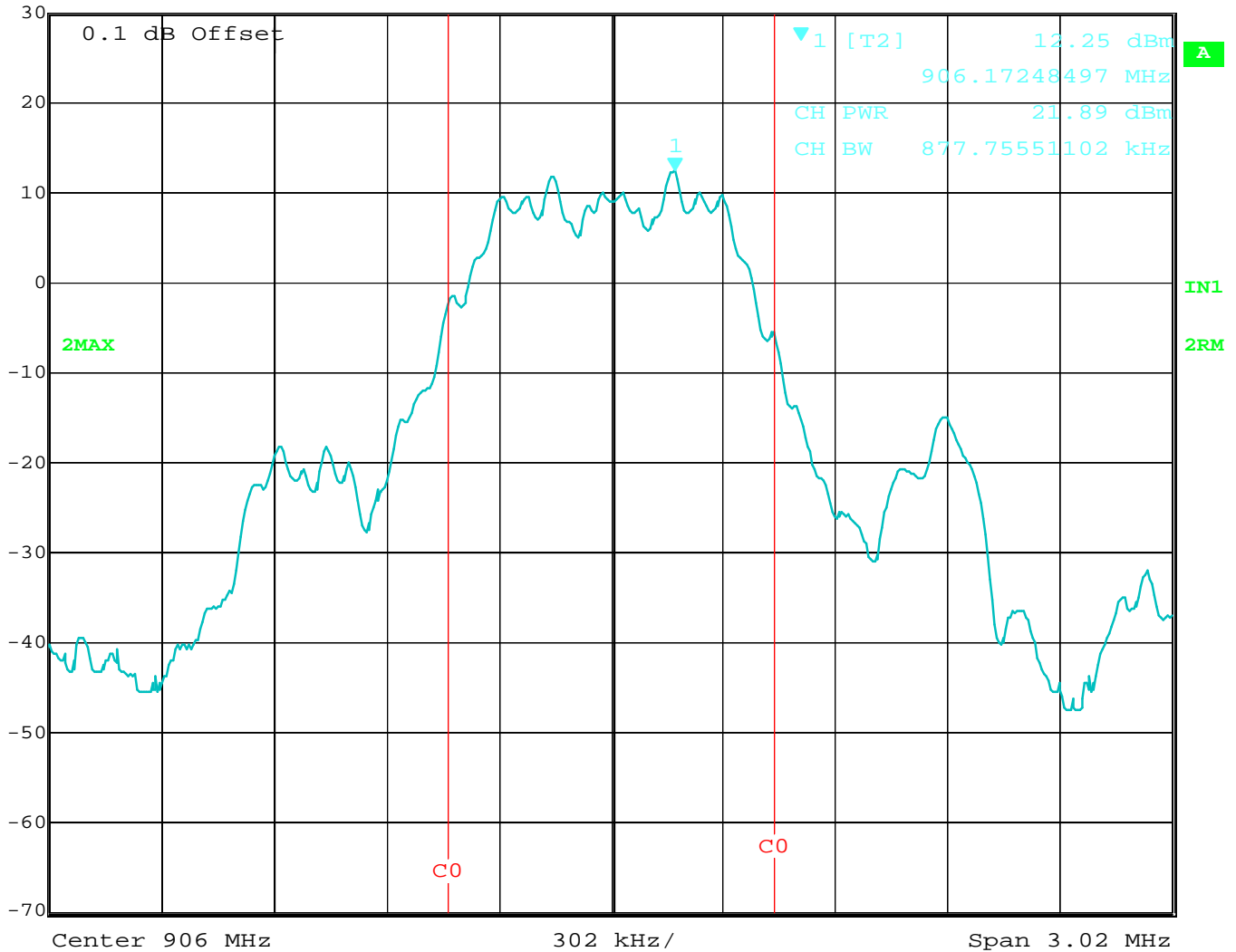
Spectral Density – High Channel

AVERAGE POWER

DATA SHEETS



Marker 1 [T2] RBW 30 kHz RF Att 40 dB
 Ref Lvl 12.25 dBm VBW 100 kHz
 30 dBm 906.17248497 MHz SWT 100 ms Unit dBm



Date: 26.OCT.2020 10:57:31

Average Output Power – Low Channel



Marker 1 [T2]

RBW 30 kHz RF Att 40 dB

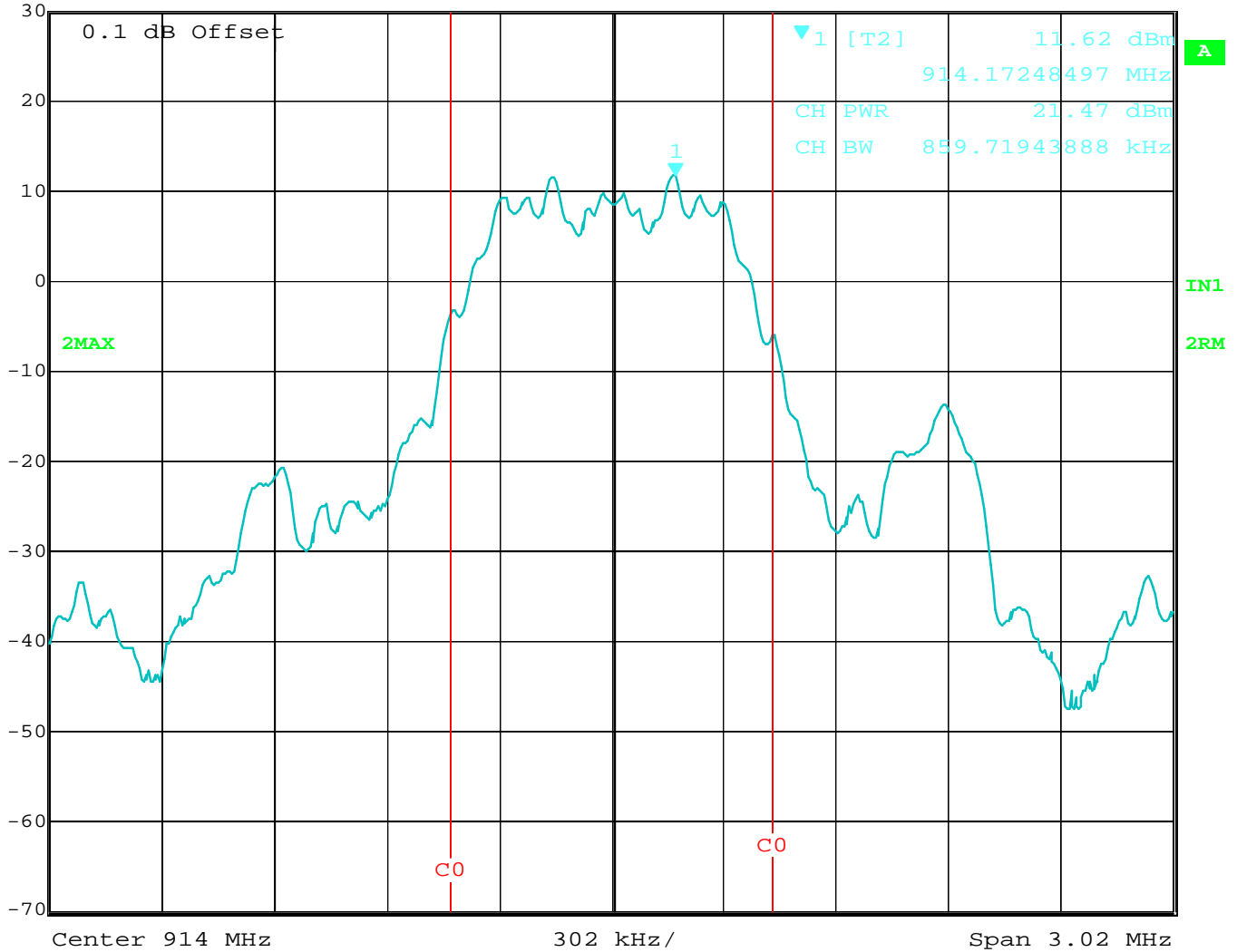
Ref Lvl 11.62 dBm

VBW 100 kHz

30 dBm 914.17248497 MHz

SWT 100 ms

Unit dBm

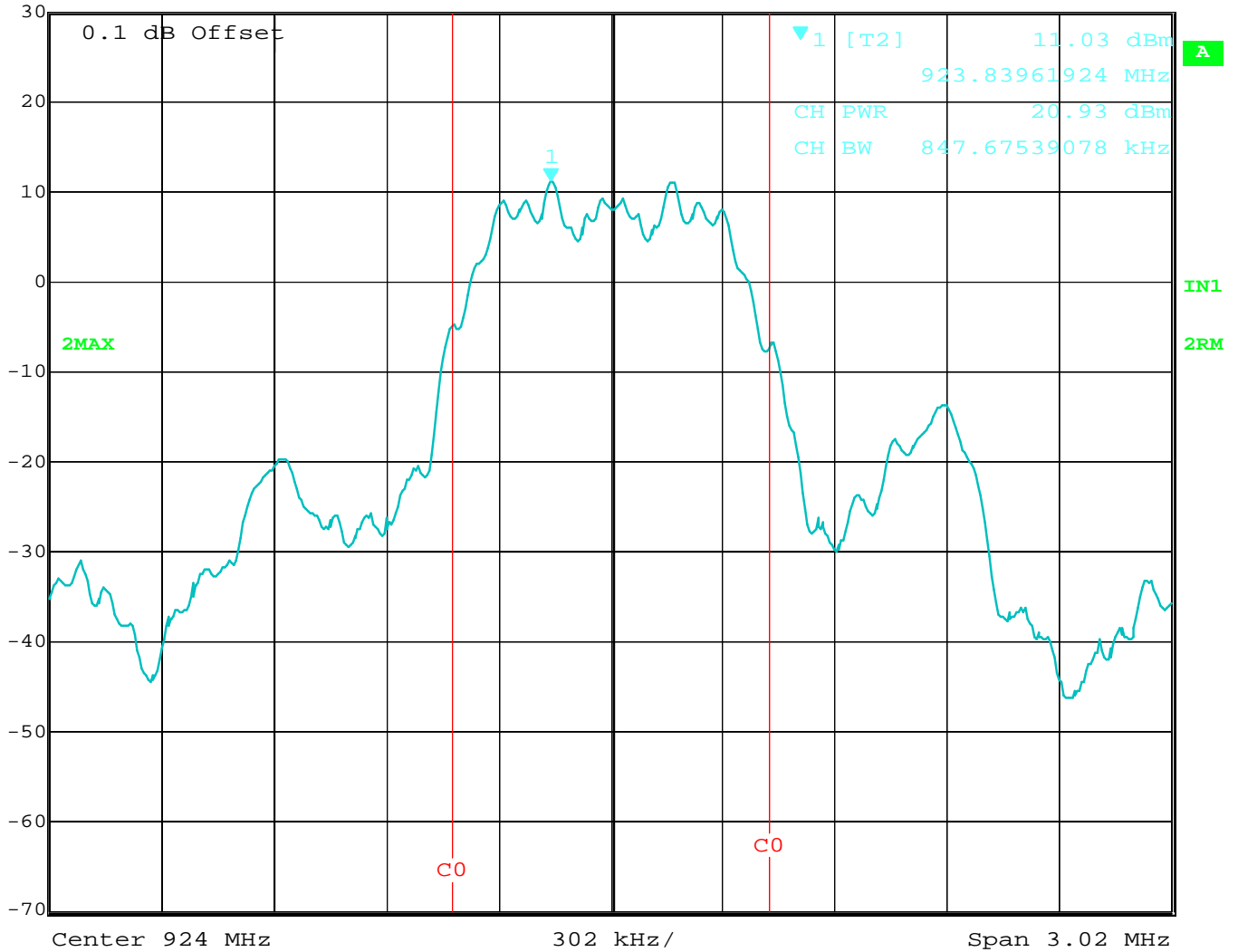


Date: 26.OCT.2020 10:56:38

Average Output Power – Middle Channel

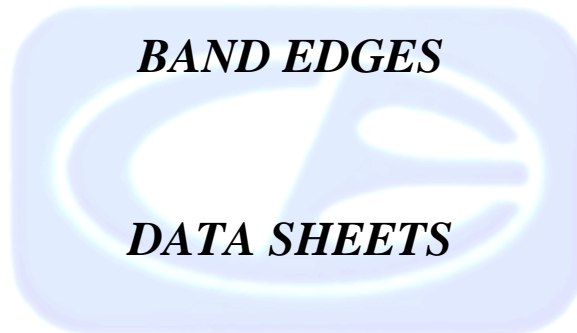


Marker 1 [T2] RBW 30 kHz RF Att 40 dB
 Ref Lvl 11.03 dBm VBW 100 kHz
 30 dBm 923.83961924 MHz SWT 100 ms Unit dBm



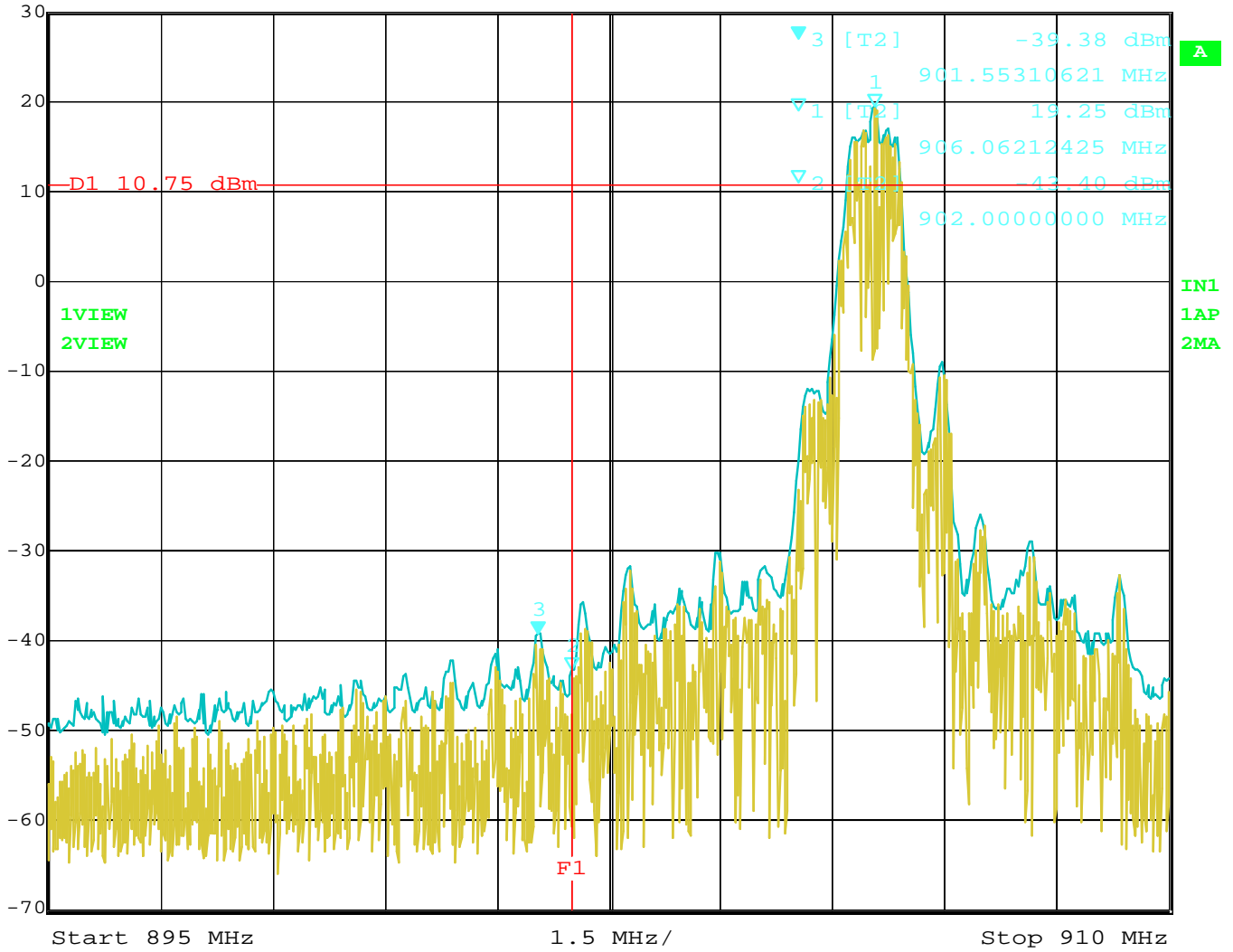
Date: 26.OCT.2020 10:58:46

Average Output Power – High Channel





Marker 3 [T2] RBW 100 kHz RF Att 40 dB
 Ref Lvl -39.38 dBm VBW 300 kHz
 30 dBm 901.55310621 MHz SWT 5 ms Unit dBm



Date: 26.OCT.2020 16:30:33

Band Edges – Low Channel

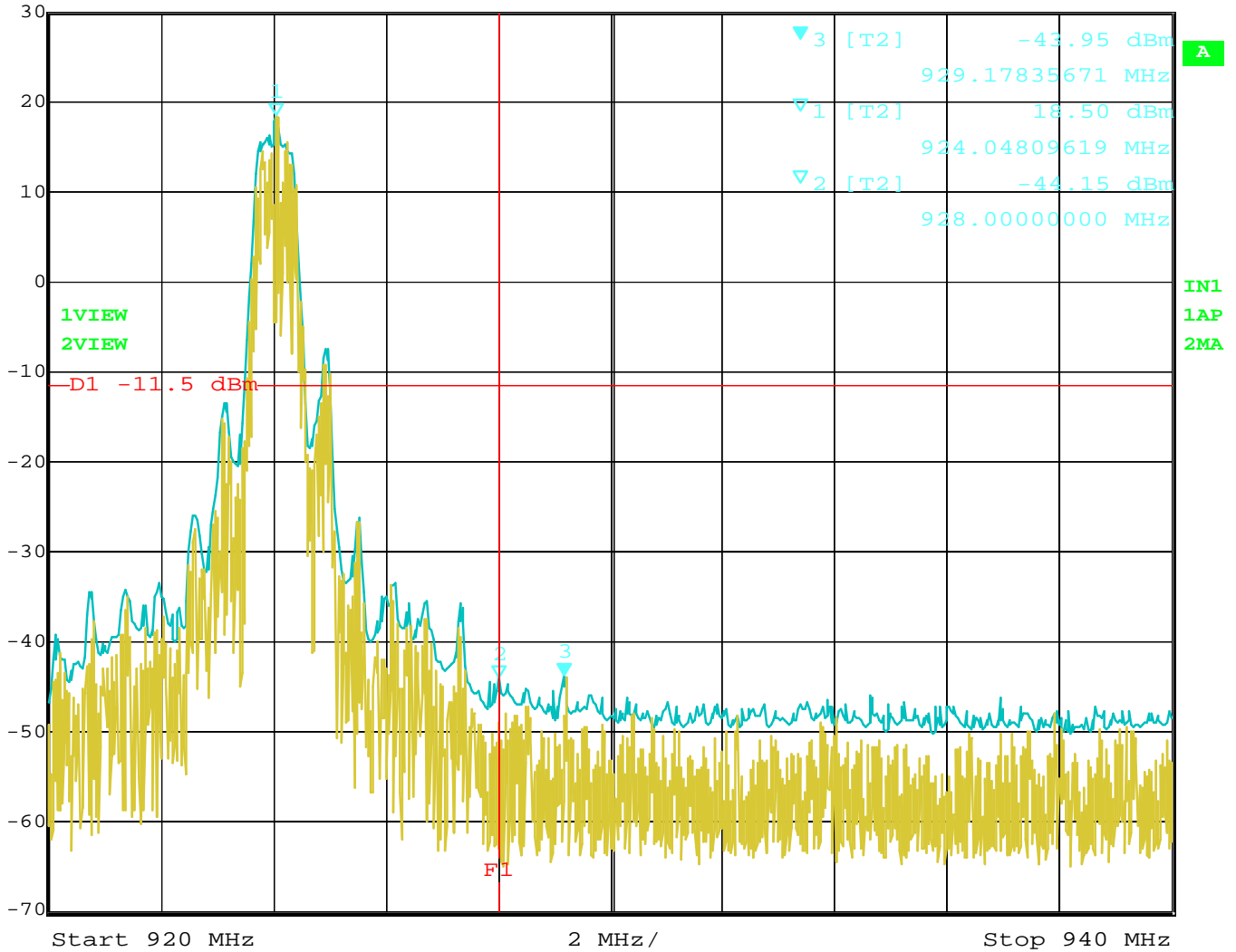
Brea Division
 114 Olinda Drive
 Brea, CA 92823
 (714) 579-0500

Newbury Park Division
 1050 Lawrence Drive
 Newbury Park, CA 91320
 (805) 480-4044

Lake Forest Division
 20621 Pascal Way
 Lake Forest, CA 92630
 (949) 587-0400



Marker 3 [T2] RBW 100 kHz RF Att 40 dB
 Ref Lvl -43.95 dBm VBW 300 kHz
 30 dBm 929.17835671 MHz SWT 5 ms Unit dBm



Date: 26.OCT.2020 16:31:55

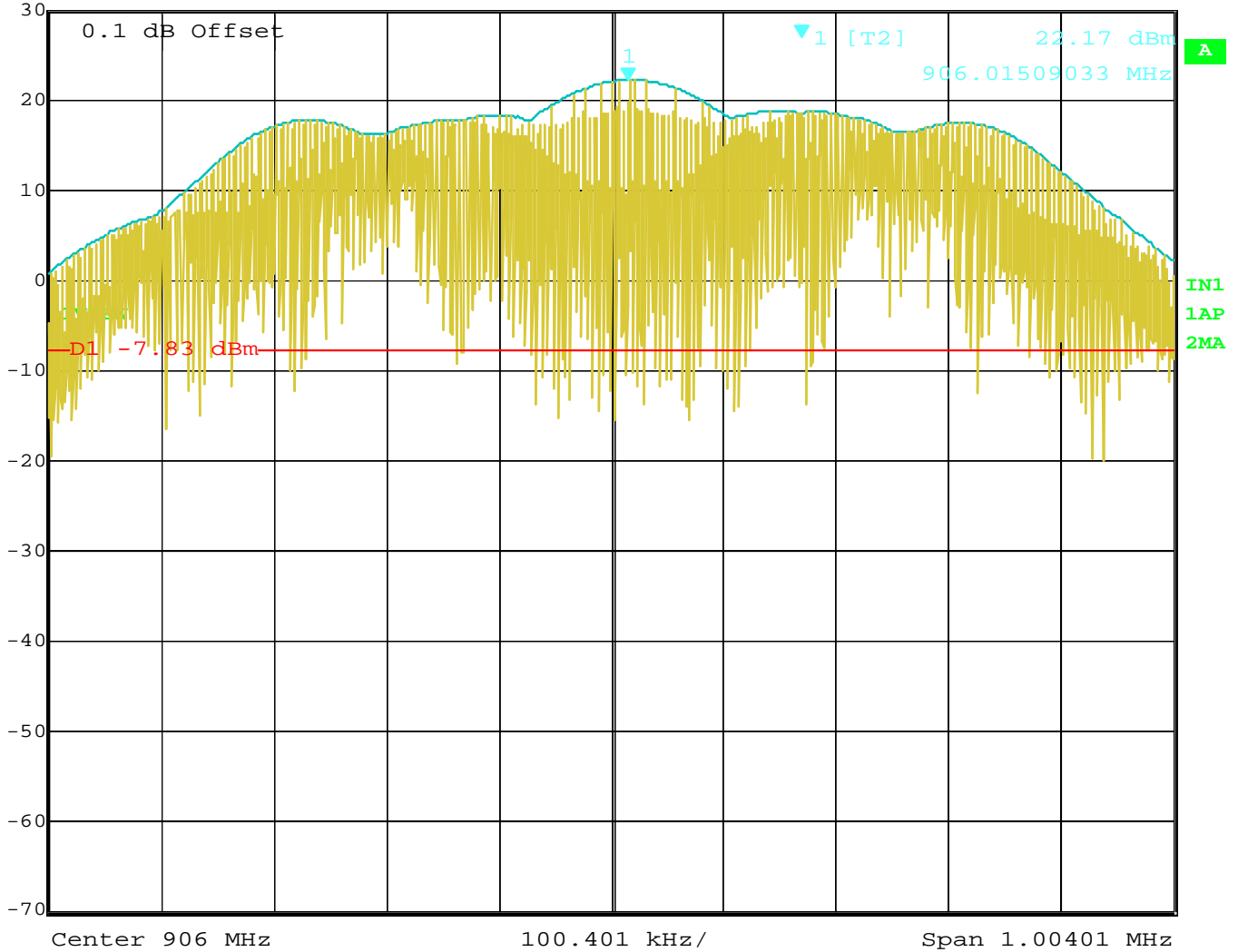
Band Edges – High Channel



**EMISSIONS IN
NON-RESTRICTED BANDS
*DATA SHEETS***



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
 Ref Lvl 22.17 dBm VBW 300 kHz
 30 dBm 906.01509033 MHz SWT 5 ms Unit dBm



Date: 26.OCT.2020 11:41:29

RF Antenna Conducted – Reference Level – Low Channel

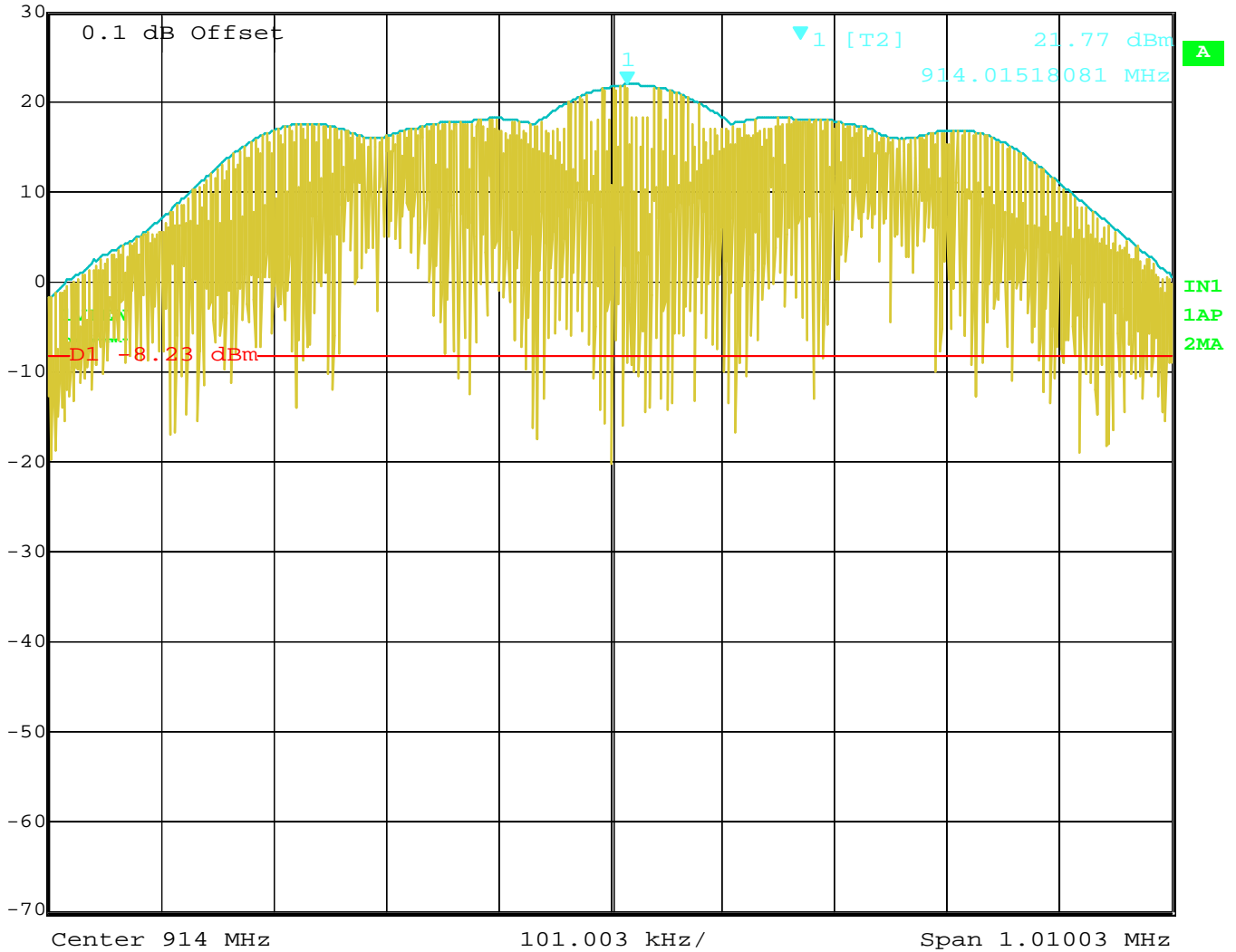
Brea Division
 114 Olinda Drive
 Brea, CA 92823
 (714) 579-0500

Newbury Park Division
 1050 Lawrence Drive
 Newbury Park, CA 91320
 (805) 480-4044

Lake Forest Division
 20621 Pascal Way
 Lake Forest, CA 92630
 (949) 587-0400



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
 Ref Lvl 21.77 dBm VBW 300 kHz
 30 dBm 914.01518081 MHz SWT 5 ms Unit dBm



Date: 26.OCT.2020 11:45:31

RF Antenna Conducted – Reference Level – Middle Channel

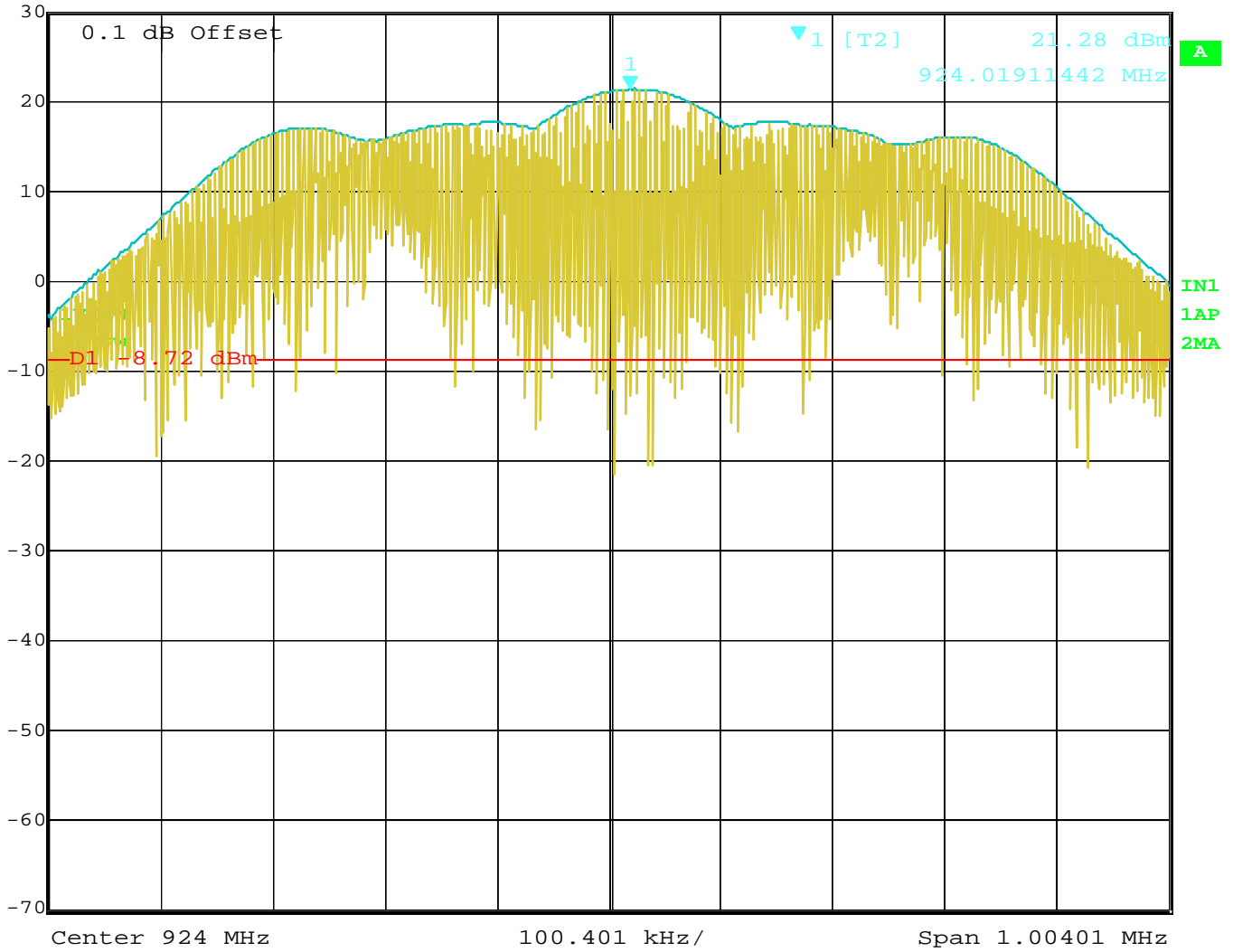
Brea Division
 114 Olinda Drive
 Brea, CA 92823
 (714) 579-0500

Newbury Park Division
 1050 Lawrence Drive
 Newbury Park, CA 91320
 (805) 480-4044

Lake Forest Division
 20621 Pascal Way
 Lake Forest, CA 92630
 (949) 587-0400



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
 Ref Lvl 21.28 dBm VBW 300 kHz
 30 dBm 924.01911442 MHz SWT 5 ms Unit dBm



Date: 26.OCT.2020 11:49:41

RF Antenna Conducted – Reference Level – High Channel

Brea Division
 114 Olinda Drive
 Brea, CA 92823
 (714) 579-0500

Newbury Park Division
 1050 Lawrence Drive
 Newbury Park, CA 91320
 (805) 480-4044

Lake Forest Division
 20621 Pascal Way
 Lake Forest, CA 92630
 (949) 587-0400

MESH SYSTEMS LLC**CHIP DOWN MODULE****MODEL: CDM-300****EMISSIONS IN NON-RESTRICTED BANDS**

FREQUENCY (MHz)	LEVEL (dBm)	Limit* (dBm)	Margin (dB)
1809	-24.57	-7.83	-16.74
1826	-25.56	-8.23	-17.33
1842	-26.09	-8.72	-17.37

Note: The three highest non-restricted emissions are reported.

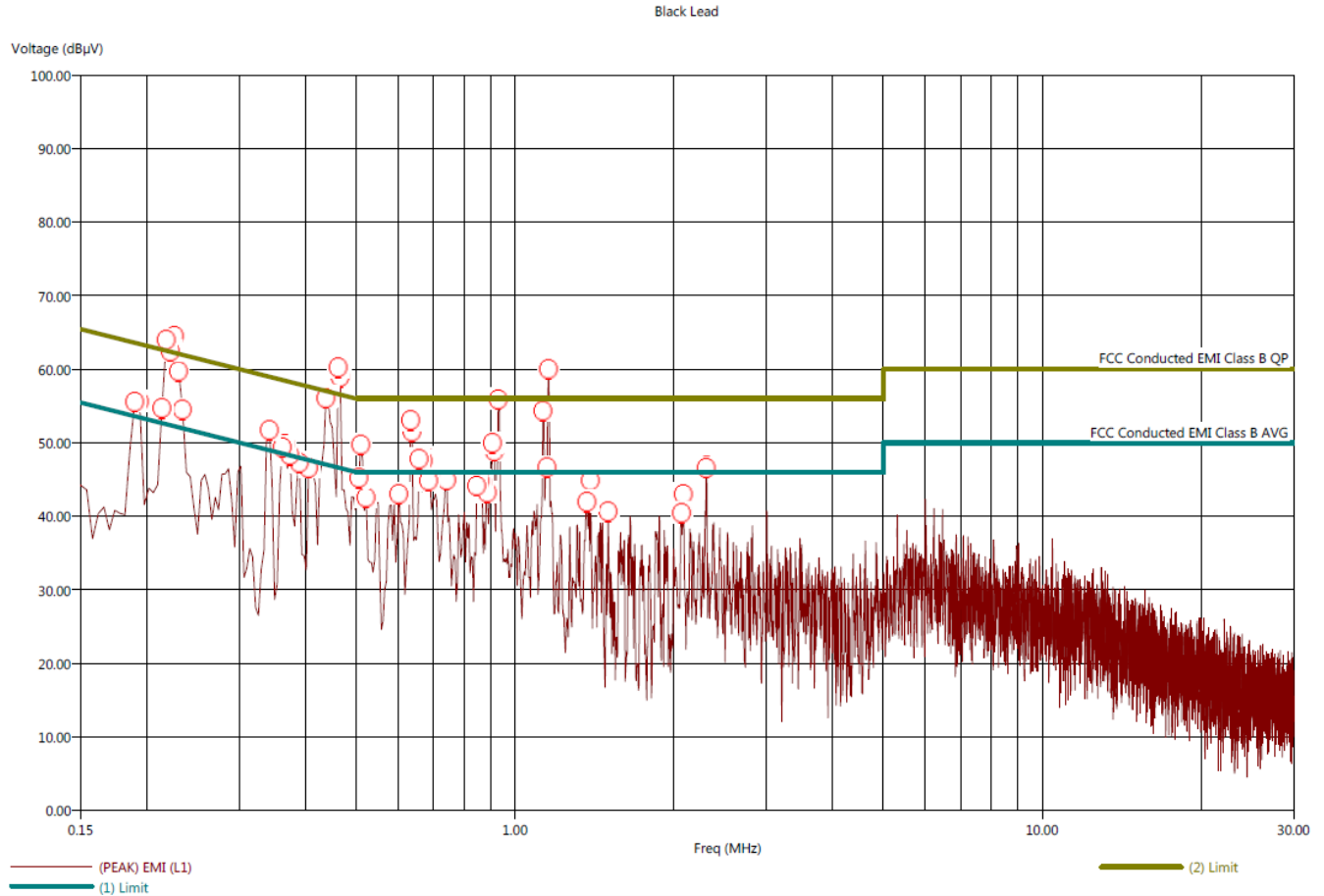
*The Limit is based on 30 dB below the highest reference level obtained on the previous pages.



***CONDUCTED EMISSIONS
DATA SHEETS***

Title: FCC Class B - Black Lead
 File: BL - R&S - Pre-Scan - FCC Class B - Tx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT was transmitting at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/29/2020 4:44:16 PM
 Sequence: Preliminary Scan



Title: FCC Class B - Black Lead
 File: BL - R&S - Final Scan - FCC Class B - Tx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT was transmitting at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/29/2020 4:47:06 PT
 Sequence: Final Measurement

Black Lead - Quasi-Peak

Freq (MHz)	(PEAK) EMI (dBµV)	(OP) EMI (dBµV)	(PEAK) Margin (QP) (dB)	(QP) Margin (QP) (dB)	(OP) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.190	56.46	50.72	-7.20	-12.94	63.66	0.05	0.07	10.00
0.194	56.47	50.90	-7.11	-12.68	63.58	0.05	0.07	10.00
0.214	56.68	51.73	-6.49	-11.45	63.17	0.05	0.07	10.01
0.218	56.84	52.03	-6.16	-10.97	63.00	0.05	0.07	10.01
0.222	58.80	57.43	-3.67	-5.04	62.47	0.06	0.06	10.01
0.226	58.87	57.15	-3.56	-5.28	62.42	0.06	0.06	10.02
0.230	58.96	57.36	-3.48	-5.08	62.44	0.06	0.06	10.02
0.234	58.86	57.10	-3.55	-5.31	62.42	0.06	0.06	10.02
0.342	47.52	43.12	-11.64	-16.04	59.16	0.07	0.05	10.06
0.362	47.45	42.65	-11.28	-16.07	58.73	0.08	0.05	10.06
0.366	47.80	43.32	-10.63	-15.11	58.43	0.08	0.05	10.07
0.374	47.80	43.34	-10.46	-14.91	58.25	0.08	0.05	10.07
0.390	48.21	43.85	-9.69	-14.06	57.91	0.08	0.05	10.07
0.406	49.11	44.45	-8.50	-13.17	57.62	0.08	0.05	10.08
0.438	51.03	45.86	-5.92	-11.09	56.95	0.09	0.05	10.09
0.442	54.67	53.14	-2.03	-3.55	56.70	0.09	0.05	10.09
0.462	55.07	52.92	-1.58	-3.74	56.65	0.09	0.05	10.09
0.466	55.15	53.12	-1.51	-3.54	56.66	0.09	0.05	10.09
0.506	44.99	39.21	-11.01	-16.79	56.00	0.09	0.05	10.10
0.510	44.68	39.34	-11.32	-16.66	56.00	0.09	0.05	10.10
0.522	44.65	39.29	-11.35	-16.71	56.00	0.09	0.05	10.10
0.602	46.57	41.98	-9.43	-14.02	56.00	0.09	0.05	10.10
0.634	47.80	42.85	-8.20	-13.15	56.00	0.09	0.05	10.10
0.638	48.03	43.01	-7.97	-12.99	56.00	0.09	0.05	10.10
0.658	48.37	43.06	-7.63	-12.94	56.00	0.09	0.05	10.10
0.670	50.52	45.69	-5.48	-10.31	56.00	0.09	0.05	10.10
0.674	54.11	51.68	-1.89	-4.32	56.00	0.09	0.05	10.10
0.678	54.31	51.50	-1.69	-4.50	56.00	0.09	0.05	10.10
0.686	54.37	51.59	-1.63	-4.41	56.00	0.09	0.05	10.10
0.742	43.14	37.53	-12.86	-18.47	56.00	0.10	0.05	10.10
0.846	45.21	39.72	-10.79	-16.28	56.00	0.10	0.05	10.10
0.858	45.55	40.22	-10.45	-15.78	56.00	0.10	0.05	10.10
0.866	45.69	40.37	-10.31	-15.63	56.00	0.10	0.05	10.10
0.886	48.96	42.86	-7.04	-13.14	56.00	0.10	0.05	10.10
0.906	49.32	43.77	-6.68	-12.23	56.00	0.10	0.05	10.10
0.910	54.18	51.12	-1.82	-4.88	56.00	0.10	0.05	10.10
0.914	54.09	50.62	-1.91	-5.38	56.00	0.10	0.05	10.10
0.930	54.22	51.11	-1.78	-4.89	56.00	0.10	0.05	10.10
1.130	47.17	41.17	-8.83	-14.83	56.00	0.11	0.05	10.08
1.150	51.86	48.72	-4.14	-7.28	56.00	0.11	0.05	10.08
1.158	51.39	48.16	-4.61	-7.84	56.00	0.11	0.05	10.08
1.370	42.95	38.50	-13.05	-17.50	56.00	0.12	0.05	10.05
1.378	46.61	42.67	-9.39	-13.33	56.00	0.12	0.05	10.05
1.390	46.30	41.95	-9.70	-14.05	56.00	0.12	0.05	10.05
1.502	41.66	35.78	-14.34	-20.22	56.00	0.13	0.05	10.04

Freq (MHz)	(PEAK) EMI (dB μ V)	(QP) EMI (dB μ V)	(PEAK) Margin (QP) (dB)	(QP) Margin (QP) (dB)	(QP) Limit (dB μ V)	Cable (dB)	Transducer (dB)	Filter (dB)
2.070	44.79	40.49	-11.21	-15.51	56.00	0.15	0.05	10.00
2.086	45.82	41.43	-10.18	-14.57	56.00	0.15	0.05	10.00
2.306	47.07	42.96	-8.93	-13.04	56.00	0.16	0.05	10.00
2.310	47.30	43.06	-8.70	-12.94	56.00	0.16	0.05	10.00



Title: FCC Class B - Black Lead
 File: BL - R&S - Final Scan - FCC Class B - Tx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT was transmitting at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/29/2020 4:47:06 PM
 Sequence: Final Measurements

Black Lead - Average

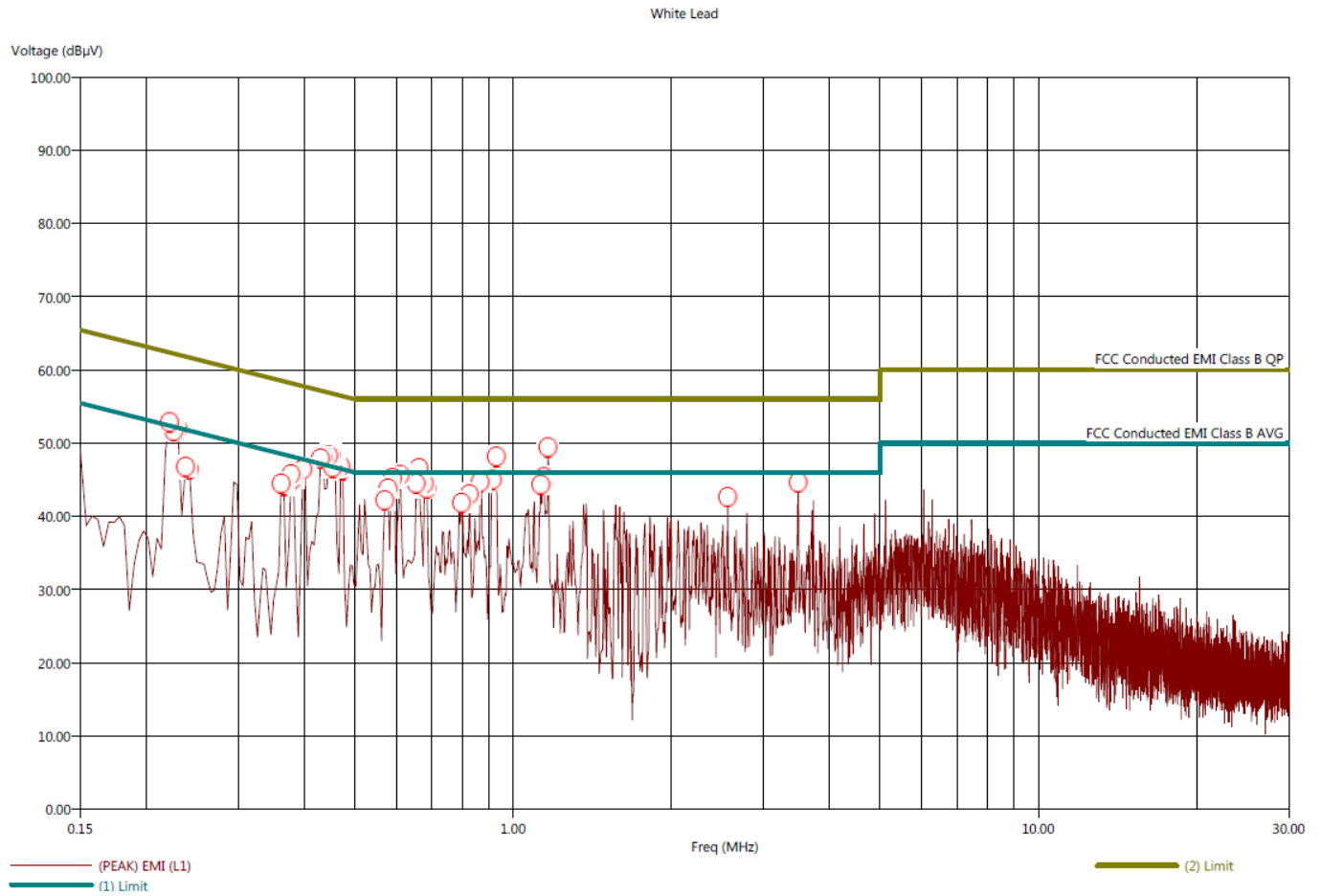
Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin (dB)	(AVG) Margin (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.190	56.46	40.94	2.80	-12.72	53.66	0.05	0.07	10.00
0.194	56.47	40.38	2.89	-13.20	53.58	0.05	0.07	10.00
0.214	56.68	40.93	3.51	-12.24	53.17	0.05	0.07	10.01
0.218	56.84	42.38	3.84	-10.61	53.00	0.05	0.07	10.01
0.222	58.80	46.22	6.33	-6.25	52.47	0.06	0.06	10.01
0.226	58.87	45.76	6.44	-6.67	52.42	0.06	0.06	10.02
0.230	58.96	45.98	6.52	-6.46	52.44	0.06	0.06	10.02
0.234	58.86	45.73	6.45	-6.68	52.42	0.06	0.06	10.02
0.342	47.52	31.44	-1.64	-17.72	49.16	0.07	0.05	10.06
0.362	47.45	31.37	-1.28	-17.36	48.73	0.08	0.05	10.06
0.366	47.80	32.72	-0.63	-15.71	48.43	0.08	0.05	10.07
0.374	47.80	32.65	-0.46	-15.61	48.25	0.08	0.05	10.07
0.390	48.21	32.73	0.31	-15.18	47.91	0.08	0.05	10.07
0.406	49.11	38.64	1.50	-8.98	47.62	0.08	0.05	10.08
0.438	51.03	38.55	4.08	-8.41	46.95	0.09	0.05	10.09
0.442	54.67	41.55	7.97	-5.15	46.70	0.09	0.05	10.09
0.462	55.07	41.22	8.42	-5.44	46.65	0.09	0.05	10.09
0.466	55.15	41.44	8.49	-5.22	46.66	0.09	0.05	10.09
0.506	44.99	31.97	-1.01	-14.03	46.00	0.09	0.05	10.10
0.510	44.68	29.05	-1.32	-16.95	46.00	0.09	0.05	10.10
0.522	44.65	29.23	-1.35	-16.77	46.00	0.09	0.05	10.10
0.602	46.57	34.45	0.57	-11.55	46.00	0.09	0.05	10.10
0.634	47.80	32.83	1.80	-13.17	46.00	0.09	0.05	10.10
0.638	48.03	35.13	2.03	-10.87	46.00	0.09	0.05	10.10
0.658	48.37	36.03	2.37	-9.97	46.00	0.09	0.05	10.10
0.670	50.52	37.67	4.52	-8.33	46.00	0.09	0.05	10.10
0.674	54.11	40.57	8.11	-5.43	46.00	0.09	0.05	10.10
0.678	54.31	39.87	8.31	-6.13	46.00	0.09	0.05	10.10
0.686	54.37	39.99	8.37	-6.01	46.00	0.09	0.05	10.10
0.742	43.14	28.27	-2.86	-17.73	46.00	0.10	0.05	10.10
0.846	45.21	32.99	-0.79	-13.01	46.00	0.10	0.05	10.10
0.858	45.55	34.41	-0.45	-11.59	46.00	0.10	0.05	10.10
0.866	45.69	32.30	-0.31	-13.70	46.00	0.10	0.05	10.10
0.886	48.96	34.13	2.96	-11.87	46.00	0.10	0.05	10.10
0.906	49.32	36.44	3.32	-9.56	46.00	0.10	0.05	10.10
0.910	54.18	39.46	8.18	-6.54	46.00	0.10	0.05	10.10
0.914	54.09	39.09	8.09	-6.91	46.00	0.10	0.05	10.10
0.930	54.22	39.49	8.22	-6.51	46.00	0.10	0.05	10.10
1.130	47.17	32.81	1.17	-13.19	46.00	0.11	0.05	10.08
1.150	51.86	37.38	5.86	-8.62	46.00	0.11	0.05	10.08
1.158	51.39	36.90	5.39	-9.10	46.00	0.11	0.05	10.08
1.370	42.95	29.24	-3.05	-16.76	46.00	0.12	0.05	10.05
1.378	46.61	32.08	0.61	-13.92	46.00	0.12	0.05	10.05
1.390	46.30	31.62	0.30	-14.38	46.00	0.12	0.05	10.05
1.502	41.66	24.25	-4.34	-21.75	46.00	0.13	0.05	10.04

Freq (MHz)	(PEAK) EMI (dB μ V)	(AVG) EMI (dB μ V)	(PEAK) Margin (dB)	(AVG) Margin (AVG) (dB)	(AVG) Limit (dB μ V)	Cable (dB)	Transducer (dB)	Filter (dB)
2.070	44.79	30.85	-1.21	-15.15	46.00	0.15	0.05	10.00
2.086	45.82	31.31	-0.18	-14.69	46.00	0.15	0.05	10.00
2.306	47.07	32.50	1.07	-13.50	46.00	0.16	0.05	10.00
2.310	47.30	32.42	1.30	-13.58	46.00	0.16	0.05	10.00



Title: FCC Class B - White Lead
 File: WL - R&S - Pre-Scan - FCC Class B - Tx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT was transmitting at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/29/2020 5:07:52 PM
 Sequence: Preliminary Sca



Title: FCC Class B - White Lead
 File: WL - R&S - Final Scan - FCC Class B - Tx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT was transmitting at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/29/2020 5:11:46 PM
 Sequence: Final Measurements

White Lead - Quasi-Peak

Freq (MHz)	(PEAK) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) Margin (QP) (dB)	(QP) Margin (QP) (dB)	(QP) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.222	56.52	53.98	-5.90	-8.43	62.41	0.06	0.04	10.02
0.226	56.54	54.02	-5.88	-8.40	62.42	0.06	0.04	10.02
0.230	56.04	53.95	-6.42	-8.51	62.46	0.06	0.04	10.02
0.238	56.12	53.31	-6.24	-9.06	62.37	0.06	0.04	10.02
0.242	56.01	52.98	-6.35	-9.38	62.35	0.06	0.04	10.02
0.362	45.69	40.79	-12.84	-17.75	58.53	0.08	0.03	10.07
0.366	45.63	40.84	-12.89	-17.68	58.52	0.08	0.03	10.07
0.378	46.35	41.87	-11.78	-16.26	58.13	0.08	0.03	10.07
0.382	46.41	41.98	-11.66	-16.09	58.07	0.08	0.03	10.07
0.398	47.17	42.72	-10.57	-15.02	57.73	0.08	0.03	10.08
0.402	47.36	42.69	-10.29	-14.96	57.65	0.08	0.03	10.08
0.430	49.20	44.12	-7.98	-13.06	57.18	0.08	0.03	10.08
0.434	49.43	44.17	-7.59	-12.84	57.02	0.08	0.03	10.09
0.446	52.77	51.25	-3.91	-5.43	56.68	0.09	0.03	10.09
0.450	53.43	50.72	-3.17	-5.88	56.60	0.09	0.03	10.09
0.454	54.02	51.63	-2.60	-4.99	56.62	0.09	0.03	10.09
0.458	53.69	51.90	-2.97	-4.76	56.65	0.09	0.03	10.09
0.470	53.89	51.41	-2.73	-5.20	56.62	0.09	0.03	10.09
0.474	53.16	50.37	-3.43	-6.23	56.59	0.09	0.03	10.09
0.570	45.54	41.01	-10.46	-14.99	56.00	0.09	0.03	10.10
0.578	45.45	40.78	-10.55	-15.22	56.00	0.09	0.03	10.10
0.590	45.40	41.24	-10.60	-14.76	56.00	0.09	0.03	10.10
0.610	46.08	41.38	-9.92	-14.62	56.00	0.09	0.03	10.10
0.654	47.48	42.32	-8.52	-13.68	56.00	0.09	0.03	10.10
0.662	47.71	42.37	-8.29	-13.63	56.00	0.09	0.03	10.10
0.678	53.80	50.93	-2.20	-5.07	56.00	0.09	0.03	10.10
0.686	53.42	51.07	-2.58	-4.93	56.00	0.09	0.03	10.10
0.798	42.44	37.80	-13.56	-18.20	56.00	0.10	0.03	10.10
0.826	43.79	38.85	-12.21	-17.15	56.00	0.10	0.03	10.10
0.866	45.25	39.87	-10.75	-16.13	56.00	0.10	0.03	10.10
0.914	53.36	50.17	-2.64	-5.83	56.00	0.10	0.03	10.10
0.918	53.54	50.57	-2.46	-5.43	56.00	0.10	0.03	10.10
0.922	53.68	50.65	-2.32	-5.35	56.00	0.10	0.03	10.10
0.930	53.64	50.32	-2.36	-5.68	56.00	0.10	0.03	10.10
1.130	46.63	40.89	-9.37	-15.11	56.00	0.11	0.03	10.08
1.138	46.89	42.06	-9.11	-13.94	56.00	0.11	0.03	10.08
1.146	51.74	48.03	-4.26	-7.97	56.00	0.11	0.03	10.08
1.166	51.78	48.03	-4.22	-7.97	56.00	0.11	0.03	10.08
2.562	45.05	40.44	-10.95	-15.56	56.00	0.17	0.03	10.00
3.490	44.76	40.20	-11.24	-15.80	56.00	0.19	0.04	10.00

Title: FCC Class B - White Lead
 File: WL - R&S - Final Scan - FCC Class B - Tx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT was transmitting at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

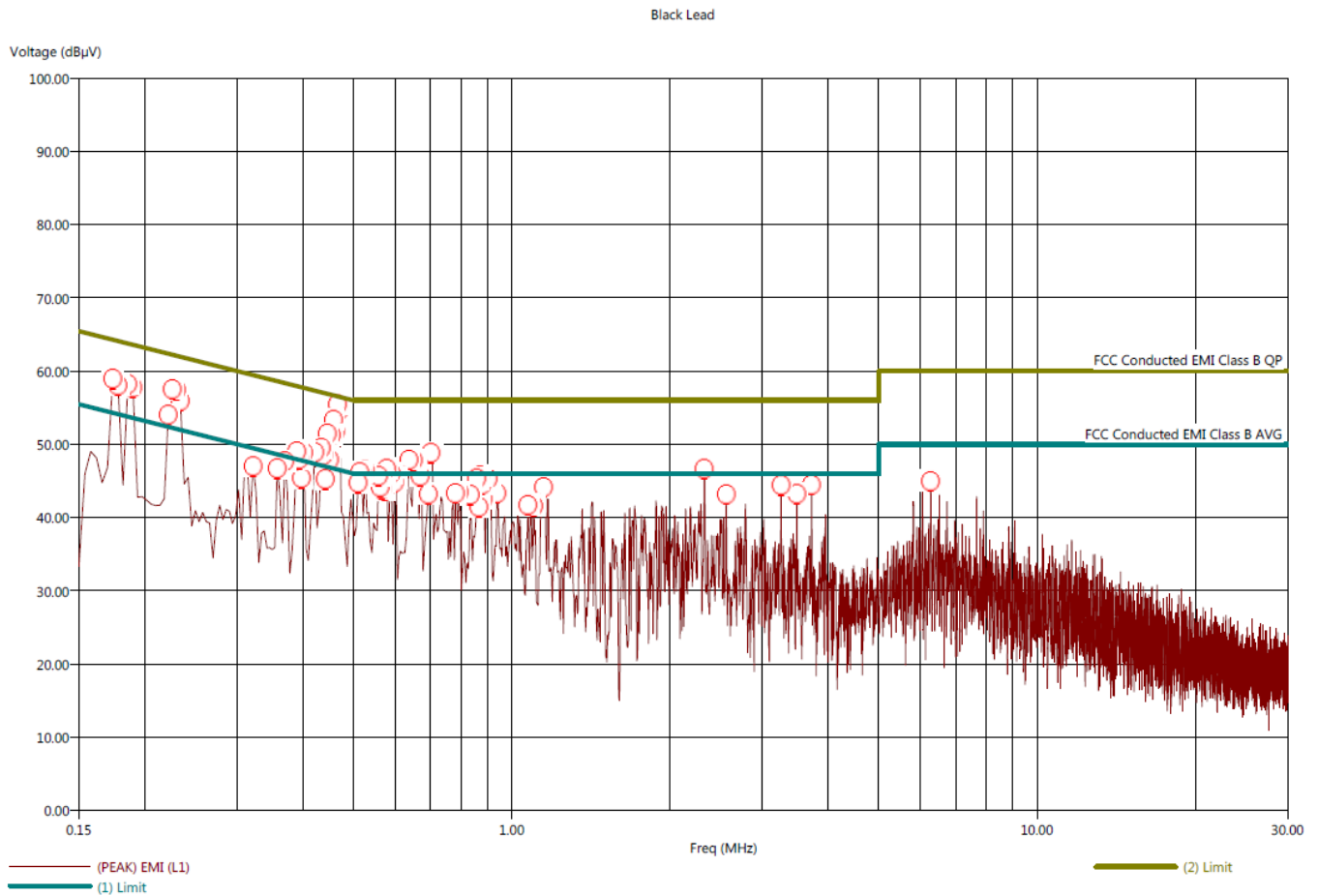
10/29/2020 5:11:46 PM
 Sequence: Final Measurements

White Lead - Average

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin (dB)	(AVG) Margin (AVG) (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.222	56.52	42.64	4.10	-9.77	52.41	0.06	0.04	10.02
0.226	56.54	42.67	4.12	-9.74	52.42	0.06	0.04	10.02
0.230	56.04	42.90	3.58	-9.56	52.46	0.06	0.04	10.02
0.238	56.12	41.94	3.76	-10.43	52.37	0.06	0.04	10.02
0.242	56.01	41.66	3.65	-10.69	52.35	0.06	0.04	10.02
0.362	45.69	29.92	-2.84	-18.61	48.53	0.08	0.03	10.07
0.366	45.63	29.95	-2.89	-18.57	48.52	0.08	0.03	10.07
0.378	46.35	30.65	-1.78	-17.48	48.13	0.08	0.03	10.07
0.382	46.41	30.80	-1.66	-17.27	48.07	0.08	0.03	10.07
0.398	47.17	32.12	-0.57	-15.62	47.73	0.08	0.03	10.08
0.402	47.36	35.24	-0.29	-12.41	47.65	0.08	0.03	10.08
0.430	49.20	38.21	2.02	-8.97	47.18	0.08	0.03	10.08
0.434	49.43	35.44	2.41	-11.58	47.02	0.08	0.03	10.09
0.446	52.77	39.79	6.09	-6.89	46.68	0.09	0.03	10.09
0.450	53.43	39.17	6.83	-7.43	46.60	0.09	0.03	10.09
0.454	54.02	39.82	7.40	-6.80	46.62	0.09	0.03	10.09
0.458	53.69	40.19	7.03	-6.46	46.65	0.09	0.03	10.09
0.470	53.89	39.74	7.27	-6.88	46.62	0.09	0.03	10.09
0.474	53.16	38.70	6.57	-7.90	46.59	0.09	0.03	10.09
0.570	45.54	30.51	-0.46	-15.49	46.00	0.09	0.03	10.10
0.578	45.45	30.33	-0.55	-15.67	46.00	0.09	0.03	10.10
0.590	45.40	33.02	-0.60	-12.98	46.00	0.09	0.03	10.10
0.610	46.08	30.95	0.08	-15.05	46.00	0.09	0.03	10.10
0.654	47.48	32.54	1.48	-13.46	46.00	0.09	0.03	10.10
0.662	47.71	35.80	1.71	-10.20	46.00	0.09	0.03	10.10
0.678	53.80	39.24	7.80	-6.76	46.00	0.09	0.03	10.10
0.686	53.42	39.40	7.42	-6.60	46.00	0.09	0.03	10.10
0.798	42.44	28.80	-3.56	-17.20	46.00	0.10	0.03	10.10
0.826	43.79	29.30	-2.21	-16.70	46.00	0.10	0.03	10.10
0.866	45.25	31.27	-0.75	-14.73	46.00	0.10	0.03	10.10
0.914	53.36	38.93	7.36	-7.07	46.00	0.10	0.03	10.10
0.918	53.54	38.96	7.54	-7.04	46.00	0.10	0.03	10.10
0.922	53.68	38.98	7.68	-7.02	46.00	0.10	0.03	10.10
0.930	53.64	38.53	7.64	-7.47	46.00	0.10	0.03	10.10
1.130	46.63	32.01	0.63	-13.99	46.00	0.11	0.03	10.08
1.138	46.89	33.45	0.89	-12.55	46.00	0.11	0.03	10.08
1.146	51.74	36.82	5.74	-9.18	46.00	0.11	0.03	10.08
1.166	51.78	36.64	5.78	-9.36	46.00	0.11	0.03	10.08
2.562	45.05	29.96	-0.95	-16.04	46.00	0.17	0.03	10.00
3.490	44.76	29.65	-1.24	-16.35	46.00	0.19	0.04	10.00

Title: FCC Class B - Black Lead
 File: BL - R&S - Pre-Scan - FCC Class B - Rx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT was receiving at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/30/2020 8:28:28 AM
 Sequence: Preliminary Scan



Title: FCC Class B - Black Lead
 File: BL - R&S - Final Scan - FCC Class B - Rx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT was receiving at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/30/2020 8:31:42 AM
 Sequence: Final Measurements

Black Lead - Quasi-Peak

Freq (MHz)	(PEAK) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) Margin (QP) (dB)	(QP) Margin (QP) (dB)	(QP) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.174	62.53	53.77	-2.90	-11.66	65.42	0.05	0.10	10.03
0.178	59.08	53.03	-5.14	-11.19	64.23	0.05	0.08	10.01
0.186	57.87	52.23	-6.28	-11.93	64.15	0.05	0.08	10.01
0.190	59.16	53.09	-5.14	-11.22	64.31	0.05	0.08	10.01
0.222	60.05	58.77	-2.39	-3.67	62.44	0.06	0.06	10.02
0.226	59.90	58.23	-2.48	-4.16	62.38	0.06	0.06	10.02
0.230	60.14	58.66	-2.29	-3.77	62.43	0.06	0.06	10.02
0.234	59.40	58.25	-3.09	-4.24	62.49	0.06	0.06	10.01
0.322	49.28	44.18	-10.39	-15.49	59.67	0.07	0.05	10.05
0.358	49.68	44.22	-9.04	-14.50	58.72	0.08	0.05	10.06
0.370	49.15	44.32	-9.17	-14.00	58.32	0.08	0.05	10.07
0.390	49.08	44.88	-8.79	-13.00	57.88	0.08	0.05	10.08
0.394	49.17	45.12	-8.65	-12.69	57.81	0.08	0.05	10.08
0.398	49.39	45.37	-8.35	-12.37	57.74	0.08	0.05	10.08
0.402	49.73	45.50	-7.91	-12.14	57.63	0.08	0.05	10.08
0.422	51.04	46.20	-6.23	-11.07	57.27	0.08	0.05	10.08
0.434	51.10	46.72	-5.99	-10.37	57.10	0.08	0.05	10.09
0.438	51.58	46.70	-5.37	-10.25	56.95	0.08	0.05	10.09
0.442	54.64	53.57	-2.06	-3.13	56.71	0.09	0.05	10.09
0.446	55.74	53.84	-0.90	-2.80	56.64	0.09	0.05	10.09
0.450	55.79	53.80	-0.85	-2.84	56.64	0.09	0.05	10.09
0.454	55.83	54.07	-0.82	-2.58	56.65	0.09	0.05	10.09
0.458	55.83	54.21	-0.84	-2.45	56.67	0.09	0.05	10.09
0.462	55.74	53.66	-0.90	-2.98	56.64	0.09	0.05	10.09
0.466	55.83	54.16	-0.83	-2.50	56.66	0.09	0.05	10.09
0.470	55.83	54.15	-0.84	-2.51	56.66	0.09	0.05	10.09
0.510	47.27	40.49	-8.73	-15.51	56.00	0.09	0.05	10.10
0.514	47.87	40.05	-8.13	-15.95	56.00	0.09	0.05	10.10
0.518	47.47	40.45	-8.53	-15.55	56.00	0.09	0.05	10.10
0.526	47.38	40.35	-8.62	-15.65	56.00	0.09	0.05	10.10
0.558	46.46	41.39	-9.54	-14.61	56.00	0.09	0.05	10.10
0.562	46.38	41.42	-9.62	-14.58	56.00	0.09	0.05	10.10
0.566	47.25	41.55	-8.75	-14.45	56.00	0.09	0.05	10.10
0.570	46.15	41.52	-9.85	-14.48	56.00	0.09	0.05	10.10
0.574	46.54	42.12	-9.46	-13.88	56.00	0.09	0.05	10.10
0.578	46.60	41.79	-9.40	-14.21	56.00	0.09	0.05	10.10
0.590	46.88	42.37	-9.12	-13.63	56.00	0.09	0.05	10.10
0.598	46.96	42.70	-9.04	-13.30	56.00	0.09	0.05	10.10
0.602	47.05	42.68	-8.95	-13.32	56.00	0.09	0.05	10.10
0.638	48.60	43.84	-7.40	-12.16	56.00	0.09	0.05	10.10
0.650	48.80	43.80	-7.20	-12.20	56.00	0.09	0.05	10.10
0.654	48.88	43.74	-7.12	-12.26	56.00	0.09	0.05	10.10
0.658	48.73	43.76	-7.27	-12.24	56.00	0.09	0.05	10.10
0.670	49.82	45.23	-6.18	-10.77	56.00	0.09	0.05	10.10
0.694	54.66	52.02	-1.34	-3.98	56.00	0.09	0.05	10.10

Freq (MHz)	(PEAK) EMI (dB μ V)	(QP) EMI (dB μ V)	(PEAK) Margin (QP) (dB)	(QP) Margin (QP) (dB)	(QP) Limit (dB μ V)	Cable (dB)	Transducer (dB)	Filter (dB)
0.702	54.68	52.00	-1.32	-4.00	56.00	0.09	0.05	10.10
0.706	54.80	52.25	-1.20	-3.75	56.00	0.09	0.05	10.10
0.782	44.02	39.42	-11.98	-16.58	56.00	0.10	0.05	10.10
0.794	44.37	38.95	-11.63	-17.05	56.00	0.10	0.05	10.10
0.834	45.51	40.76	-10.49	-15.24	56.00	0.10	0.05	10.10
0.858	46.27	41.14	-9.73	-14.86	56.00	0.10	0.05	10.10
0.862	46.11	41.15	-9.89	-14.85	56.00	0.10	0.05	10.10
0.866	46.95	41.35	-9.05	-14.65	56.00	0.10	0.05	10.10
0.870	47.37	41.58	-8.63	-14.42	56.00	0.10	0.05	10.10
0.874	46.47	41.31	-9.53	-14.69	56.00	0.10	0.05	10.10
0.878	48.54	42.44	-7.46	-13.56	56.00	0.10	0.05	10.10
0.882	49.46	43.60	-6.54	-12.40	56.00	0.10	0.05	10.10
0.886	49.63	43.96	-6.37	-12.04	56.00	0.10	0.05	10.10
0.902	49.97	44.20	-6.03	-11.80	56.00	0.10	0.05	10.10
0.906	50.84	46.96	-5.16	-9.04	56.00	0.10	0.05	10.10
0.910	54.90	51.92	-1.10	-4.08	56.00	0.10	0.05	10.10
0.938	54.76	51.83	-1.24	-4.17	56.00	0.10	0.05	10.10
1.074	42.70	37.69	-13.30	-18.31	56.00	0.11	0.05	10.09
1.102	47.29	40.15	-8.71	-15.85	56.00	0.11	0.05	10.08
1.150	52.87	49.57	-3.13	-6.43	56.00	0.11	0.05	10.08
1.154	52.92	49.66	-3.08	-6.34	56.00	0.11	0.05	10.08
2.326	48.00	43.92	-8.00	-12.08	56.00	0.16	0.05	10.00
2.562	40.11	33.22	-15.89	-22.78	56.00	0.17	0.05	10.00
3.258	38.50	32.24	-17.50	-23.76	56.00	0.19	0.05	10.00
3.490	40.15	34.75	-15.85	-21.25	56.00	0.19	0.05	10.00
3.722	36.45	29.03	-19.55	-26.97	56.00	0.20	0.05	10.00
6.274	38.67	33.59	-21.33	-26.41	60.00	0.27	0.05	10.03



Title: FCC Class B - Black Lead
 File: BL - R&S - Final Scan - FCC Class B - Rx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: Chip Down Module
 EUT Condition: The EUT was receiving at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/30/2020 8:31:42 AM
 Sequence: Final Measurements

Black Lead - Average

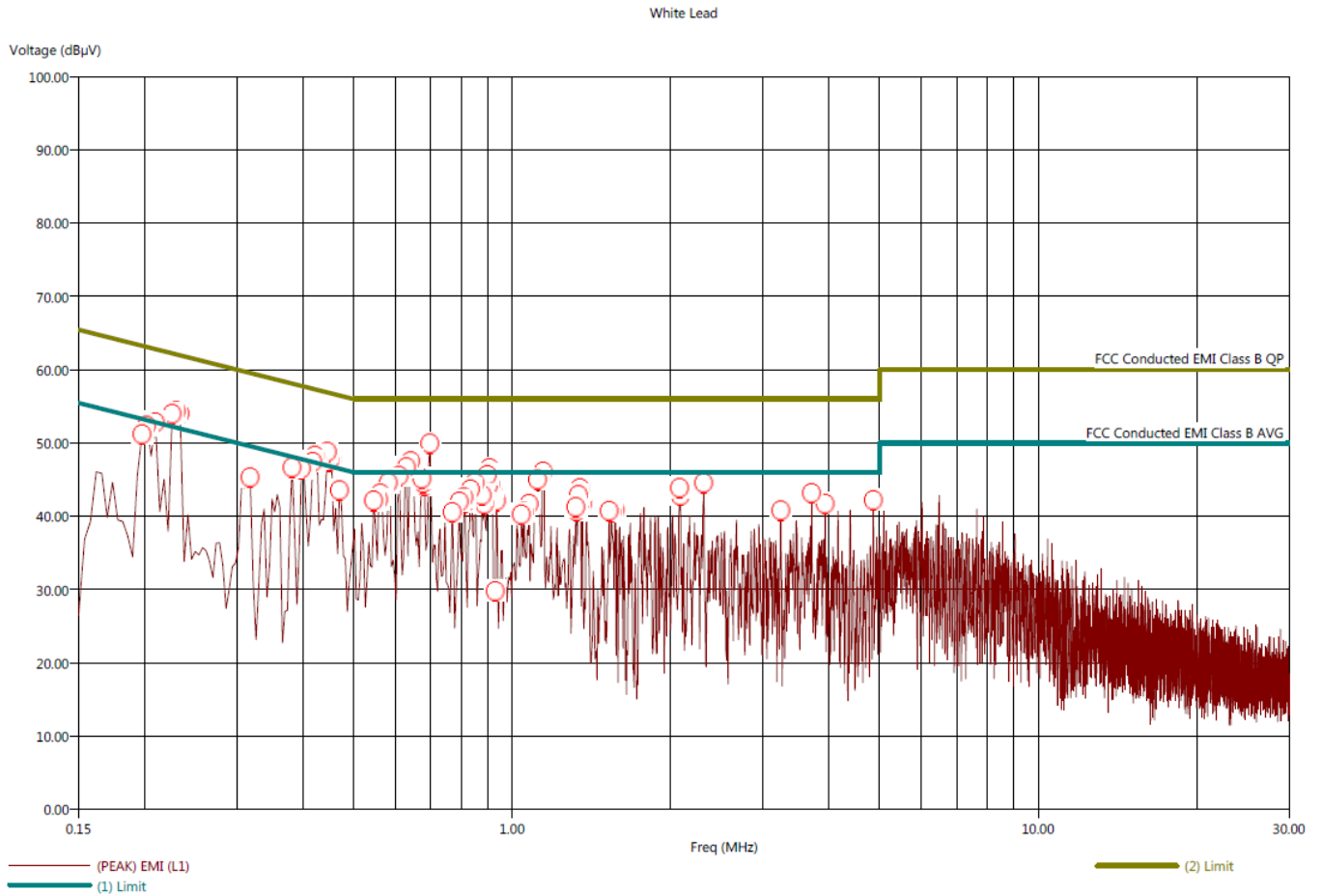
Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin (dB)	(AVG) Margin (AVG) (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.174	62.53	41.54	7.10	-13.89	55.42	0.05	0.10	10.03
0.178	59.08	41.24	4.86	-12.98	54.23	0.05	0.08	10.01
0.186	57.87	40.83	3.72	-13.32	54.15	0.05	0.08	10.01
0.190	59.16	41.24	4.86	-13.07	54.31	0.05	0.08	10.01
0.222	60.05	47.95	7.61	-4.50	52.44	0.06	0.06	10.02
0.226	59.90	47.10	7.52	-5.29	52.38	0.06	0.06	10.02
0.230	60.14	47.75	7.71	-4.67	52.43	0.06	0.06	10.02
0.234	59.40	47.82	6.91	-4.67	52.49	0.06	0.06	10.01
0.322	49.28	33.75	-0.39	-15.92	49.67	0.07	0.05	10.05
0.358	49.68	33.13	0.96	-15.59	48.72	0.08	0.05	10.06
0.370	49.15	33.70	0.83	-14.62	48.32	0.08	0.05	10.07
0.390	49.08	33.93	1.21	-13.95	47.88	0.08	0.05	10.08
0.394	49.17	34.00	1.35	-13.81	47.81	0.08	0.05	10.08
0.398	49.39	34.63	1.65	-13.11	47.74	0.08	0.05	10.08
0.402	49.73	38.37	2.09	-9.26	47.63	0.08	0.05	10.08
0.422	51.04	39.15	3.77	-8.12	47.27	0.08	0.05	10.08
0.434	51.10	37.99	4.01	-9.10	47.10	0.08	0.05	10.09
0.438	51.58	38.84	4.63	-8.11	46.95	0.08	0.05	10.09
0.442	54.64	42.46	7.94	-4.25	46.71	0.09	0.05	10.09
0.446	55.74	42.47	9.10	-4.17	46.64	0.09	0.05	10.09
0.450	55.79	42.48	9.15	-4.16	46.64	0.09	0.05	10.09
0.454	55.83	42.64	9.18	-4.02	46.65	0.09	0.05	10.09
0.458	55.83	42.84	9.16	-3.82	46.67	0.09	0.05	10.09
0.462	55.74	42.29	9.10	-4.35	46.64	0.09	0.05	10.09
0.466	55.83	42.73	9.17	-3.93	46.66	0.09	0.05	10.09
0.470	55.83	42.74	9.16	-3.92	46.66	0.09	0.05	10.09
0.510	47.27	32.27	1.27	-13.73	46.00	0.09	0.05	10.10
0.514	47.87	31.22	1.87	-14.78	46.00	0.09	0.05	10.10
0.518	47.47	30.28	1.47	-15.72	46.00	0.09	0.05	10.10
0.526	47.38	31.77	1.38	-14.23	46.00	0.09	0.05	10.10
0.558	46.46	31.66	0.46	-14.34	46.00	0.09	0.05	10.10
0.562	46.38	31.57	0.38	-14.43	46.00	0.09	0.05	10.10
0.566	47.25	32.26	1.25	-13.74	46.00	0.09	0.05	10.10
0.570	46.15	34.46	0.15	-11.54	46.00	0.09	0.05	10.10
0.574	46.54	32.06	0.54	-13.94	46.00	0.09	0.05	10.10
0.578	46.60	32.49	0.60	-13.51	46.00	0.09	0.05	10.10
0.590	46.88	32.11	0.88	-13.89	46.00	0.09	0.05	10.10
0.598	46.96	32.46	0.96	-13.54	46.00	0.09	0.05	10.10
0.602	47.05	32.31	1.05	-13.69	46.00	0.09	0.05	10.10
0.638	48.60	34.11	2.60	-11.89	46.00	0.09	0.05	10.10
0.650	48.80	34.86	2.80	-11.14	46.00	0.09	0.05	10.10
0.654	48.88	35.18	2.88	-10.82	46.00	0.09	0.05	10.10
0.658	48.73	36.06	2.73	-9.94	46.00	0.09	0.05	10.10
0.670	49.82	37.19	3.82	-8.81	46.00	0.09	0.05	10.10
0.694	54.66	40.76	8.66	-5.24	46.00	0.09	0.05	10.10

Freq (MHz)	(PEAK) EMI (dB μ V)	(AVG) EMI (dB μ V)	(PEAK) Margin (dB)	(AVG) Margin (AVG) (dB)	(AVG) Limit (dB μ V)	Cable (dB)	Transducer (dB)	Filter (dB)
0.702	54.68	40.70	8.68	-5.30	46.00	0.09	0.05	10.10
0.706	54.80	41.14	8.80	-4.86	46.00	0.09	0.05	10.10
0.782	44.02	30.22	-1.98	-15.78	46.00	0.10	0.05	10.10
0.794	44.37	33.90	-1.63	-12.10	46.00	0.10	0.05	10.10
0.834	45.51	31.34	-0.49	-14.66	46.00	0.10	0.05	10.10
0.858	46.27	33.27	0.27	-12.73	46.00	0.10	0.05	10.10
0.862	46.11	32.47	0.11	-13.53	46.00	0.10	0.05	10.10
0.866	46.95	32.91	0.95	-13.09	46.00	0.10	0.05	10.10
0.870	47.37	33.43	1.37	-12.57	46.00	0.10	0.05	10.10
0.874	46.47	33.10	0.47	-12.90	46.00	0.10	0.05	10.10
0.878	48.54	36.01	2.54	-9.99	46.00	0.10	0.05	10.10
0.882	49.46	35.98	3.46	-10.02	46.00	0.10	0.05	10.10
0.886	49.63	35.46	3.63	-10.54	46.00	0.10	0.05	10.10
0.902	49.97	35.64	3.97	-10.36	46.00	0.10	0.05	10.10
0.906	50.84	37.08	4.84	-8.92	46.00	0.10	0.05	10.10
0.910	54.90	40.54	8.90	-5.46	46.00	0.10	0.05	10.10
0.938	54.76	40.48	8.76	-5.52	46.00	0.10	0.05	10.10
1.074	42.70	29.63	-3.30	-16.37	46.00	0.11	0.05	10.09
1.102	47.29	32.34	1.29	-13.66	46.00	0.11	0.05	10.08
1.150	52.87	37.81	6.87	-8.19	46.00	0.11	0.05	10.08
1.154	52.92	37.81	6.92	-8.19	46.00	0.11	0.05	10.08
2.326	48.00	32.95	2.00	-13.05	46.00	0.16	0.05	10.00
2.562	40.11	25.35	-5.89	-20.65	46.00	0.17	0.05	10.00
3.258	38.50	22.89	-7.50	-23.11	46.00	0.19	0.05	10.00
3.490	40.15	25.57	-5.85	-20.43	46.00	0.19	0.05	10.00
3.722	36.45	23.52	-9.55	-22.48	46.00	0.20	0.05	10.00
6.274	38.67	24.45	-11.33	-25.55	50.00	0.27	0.05	10.03



Title: FCC Class B - White Lead
 File: WL - R&S - Pre-Scan - FCC Class B - Rx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: 915 MHz Module
 EUT Condition: The EUT was receiving at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDN-300
 S/N: N/A
 X-Axis (Worst Case)

10/30/2020 9:59:12 AM
 Sequence: Preliminary Scan



Title: FCC Class B - White Lead
 File: WL - R&S - Final Scan - FCC Class B - Rx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: 915 MHz Module
 EUT Condition: The EUT was receiving at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/30/2020 10:03:26 AM
 Sequence: Final Measurements

White Lead - Quasi-Peak

Freq (MHz)	(PEAK) EMI (dBµV)	(OP) EMI (dBµV)	(PEAK) Margin (QP) (dB)	(QP) Margin (QP) (dB)	(OP) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.198	54.91	47.70	-8.79	-15.99	63.70	0.05	0.05	10.00
0.202	55.27	48.44	-8.59	-15.42	63.86	0.05	0.05	10.00
0.210	54.78	48.69	-8.28	-14.37	63.07	0.05	0.05	10.01
0.226	56.75	54.18	-5.67	-8.23	62.42	0.06	0.04	10.02
0.230	56.67	53.82	-5.73	-8.57	62.40	0.06	0.04	10.02
0.234	56.66	54.37	-5.80	-8.09	62.46	0.06	0.04	10.02
0.318	46.35	40.36	-13.36	-19.35	59.71	0.07	0.03	10.05
0.382	47.17	42.27	-10.88	-15.78	58.05	0.08	0.03	10.07
0.398	47.10	42.67	-10.72	-15.14	57.82	0.08	0.03	10.08
0.402	47.66	43.13	-9.99	-14.52	57.65	0.08	0.03	10.08
0.418	48.87	44.06	-8.47	-13.29	57.34	0.08	0.03	10.08
0.422	48.90	44.06	-8.44	-13.29	57.34	0.08	0.03	10.08
0.426	49.48	44.21	-7.69	-12.97	57.18	0.08	0.03	10.08
0.446	53.69	52.03	-3.00	-4.67	56.69	0.09	0.03	10.09
0.450	54.23	52.08	-2.42	-4.58	56.66	0.09	0.03	10.09
0.454	54.06	51.57	-2.59	-5.07	56.64	0.09	0.03	10.09
0.470	54.30	52.17	-2.36	-4.49	56.66	0.09	0.03	10.09
0.546	44.73	39.11	-11.27	-16.89	56.00	0.09	0.03	10.10
0.558	44.61	39.74	-11.39	-16.26	56.00	0.09	0.03	10.10
0.562	46.77	39.40	-9.23	-16.60	56.00	0.09	0.03	10.10
0.566	45.01	40.12	-10.99	-15.88	56.00	0.09	0.03	10.10
0.582	45.10	40.23	-10.90	-15.77	56.00	0.09	0.03	10.10
0.586	45.33	40.29	-10.67	-15.71	56.00	0.09	0.03	10.10
0.610	46.49	42.03	-9.51	-13.97	56.00	0.09	0.03	10.10
0.630	47.03	42.08	-8.97	-13.92	56.00	0.09	0.03	10.10
0.642	47.59	42.57	-8.41	-13.43	56.00	0.09	0.03	10.10
0.646	47.53	42.46	-8.47	-13.54	56.00	0.09	0.03	10.10
0.674	53.62	51.40	-2.38	-4.60	56.00	0.09	0.03	10.10
0.678	53.94	51.05	-2.06	-4.95	56.00	0.09	0.03	10.10
0.682	53.31	51.15	-2.69	-4.85	56.00	0.09	0.03	10.10
0.698	54.05	51.50	-1.95	-4.50	56.00	0.09	0.03	10.10
0.770	43.16	38.32	-12.84	-17.68	56.00	0.10	0.03	10.10
0.794	43.32	38.41	-12.68	-17.59	56.00	0.10	0.03	10.10
0.810	43.16	38.29	-12.84	-17.71	56.00	0.10	0.03	10.10
0.814	44.00	38.95	-12.00	-17.05	56.00	0.10	0.03	10.10
0.834	44.56	39.52	-11.44	-16.48	56.00	0.10	0.03	10.10
0.838	44.55	39.67	-11.45	-16.33	56.00	0.10	0.03	10.10
0.850	44.82	39.76	-11.18	-16.24	56.00	0.10	0.03	10.10
0.878	47.75	41.34	-8.25	-14.66	56.00	0.10	0.03	10.10
0.886	48.87	43.06	-7.13	-12.94	56.00	0.10	0.03	10.10
0.898	49.20	43.37	-6.80	-12.63	56.00	0.10	0.03	10.10
0.902	49.21	43.32	-6.79	-12.68	56.00	0.10	0.03	10.10
0.906	50.13	46.17	-5.87	-9.83	56.00	0.10	0.03	10.10
0.910	54.02	51.03	-1.98	-4.97	56.00	0.10	0.03	10.10
0.914	53.98	51.05	-2.02	-4.95	56.00	0.10	0.03	10.10

Freq (MHz)	(PEAK) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) Margin (QP) (dB)	(QP) Margin (QP) (dB)	(QP) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.918	53.81	50.30	-2.19	-5.70	56.00	0.10	0.03	10.10
0.930	54.08	51.02	-1.92	-4.98	56.00	0.10	0.03	10.10
0.934	54.15	51.07	-1.85	-4.93	56.00	0.10	0.03	10.10
1.042	41.16	36.35	-14.84	-19.65	56.00	0.10	0.03	10.09
1.054	41.31	36.32	-14.69	-19.68	56.00	0.10	0.03	10.09
1.078	42.12	37.00	-13.88	-19.00	56.00	0.11	0.03	10.09
1.118	47.28	41.41	-8.72	-14.59	56.00	0.11	0.03	10.08
1.126	47.02	40.91	-8.98	-15.09	56.00	0.11	0.03	10.08
1.146	52.05	48.74	-3.95	-7.26	56.00	0.11	0.03	10.08
1.150	51.92	48.81	-4.08	-7.19	56.00	0.11	0.03	10.08
1.322	43.31	37.03	-12.69	-18.97	56.00	0.12	0.03	10.06
1.326	43.32	36.13	-12.68	-19.87	56.00	0.12	0.03	10.06
1.338	43.83	38.14	-12.17	-17.86	56.00	0.12	0.03	10.06
1.342	43.80	38.54	-12.20	-17.46	56.00	0.12	0.03	10.06
1.346	43.80	38.55	-12.20	-17.45	56.00	0.12	0.03	10.06
1.350	44.69	37.59	-11.31	-18.41	56.00	0.12	0.03	10.06
1.362	43.73	38.64	-12.27	-17.36	56.00	0.12	0.03	10.06
1.530	42.71	37.10	-13.29	-18.90	56.00	0.13	0.03	10.04
1.546	43.14	35.76	-12.86	-20.24	56.00	0.13	0.03	10.04
1.570	42.44	35.95	-13.56	-20.05	56.00	0.13	0.03	10.03
2.082	45.39	40.94	-10.61	-15.06	56.00	0.15	0.03	10.00
2.090	45.60	41.36	-10.40	-14.64	56.00	0.15	0.03	10.00
2.314	47.39	43.17	-8.61	-12.83	56.00	0.16	0.03	10.00
3.242	42.24	37.02	-13.76	-18.98	56.00	0.19	0.03	10.00
3.710	45.68	40.97	-10.32	-15.03	56.00	0.20	0.04	10.00
3.938	43.08	38.32	-12.92	-17.68	56.00	0.20	0.04	10.00
4.862	42.42	37.82	-13.58	-18.18	56.00	0.22	0.04	9.91



Title: FCC Class B - White Lead
 File: WL - R&S - Final Scan - FCC Class B - Rx Mode - 10-29-20.set
 Operator: Kyle Fujimoto
 EUT Type: 915 MHz Module
 EUT Condition: The EUT was receiving at 924 MHz (High Channel - Worst Case)
 Company: Mesh Systems
 M/N: CDM-300
 S/N: N/A
 X-Axis (Worst Case)

10/30/2020 10:03:26 AM
 Sequence: Final Measurements

White Lead - Quasi-Peak

Freq (MHz)	(PEAK) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) Margin (QP) (dB)	(QP) Margin (QP) (dB)	(QP) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.198	54.91	47.70	-8.79	-15.99	63.70	0.05	0.05	10.00
0.202	55.27	48.44	-8.59	-15.42	63.86	0.05	0.05	10.00
0.210	54.78	48.69	-8.28	-14.37	63.07	0.05	0.05	10.01
0.226	56.75	54.18	-5.67	-8.23	62.42	0.06	0.04	10.02
0.230	56.67	53.82	-5.73	-8.57	62.40	0.06	0.04	10.02
0.234	56.66	54.37	-5.80	-8.09	62.46	0.06	0.04	10.02
0.318	46.35	40.36	-13.36	-19.35	59.71	0.07	0.03	10.05
0.382	47.17	42.27	-10.88	-15.78	58.05	0.08	0.03	10.07
0.398	47.10	42.67	-10.72	-15.14	57.82	0.08	0.03	10.08
0.402	47.66	43.13	-9.99	-14.52	57.65	0.08	0.03	10.08
0.418	48.87	44.06	-8.47	-13.29	57.34	0.08	0.03	10.08
0.422	48.90	44.06	-8.44	-13.29	57.34	0.08	0.03	10.08
0.426	49.48	44.21	-7.69	-12.97	57.18	0.08	0.03	10.08
0.446	53.69	52.03	-3.00	-4.67	56.69	0.09	0.03	10.09
0.450	54.23	52.08	-2.42	-4.58	56.66	0.09	0.03	10.09
0.454	54.06	51.57	-2.59	-5.07	56.64	0.09	0.03	10.09
0.470	54.30	52.17	-2.36	-4.49	56.66	0.09	0.03	10.09
0.546	44.73	39.11	-11.27	-16.89	56.00	0.09	0.03	10.10
0.558	44.61	39.74	-11.39	-16.26	56.00	0.09	0.03	10.10
0.562	46.77	39.40	-9.23	-16.60	56.00	0.09	0.03	10.10
0.566	45.01	40.12	-10.99	-15.88	56.00	0.09	0.03	10.10
0.582	45.10	40.23	-10.90	-15.77	56.00	0.09	0.03	10.10
0.586	45.33	40.29	-10.67	-15.71	56.00	0.09	0.03	10.10
0.610	46.49	42.03	-9.51	-13.97	56.00	0.09	0.03	10.10
0.630	47.03	42.08	-8.97	-13.92	56.00	0.09	0.03	10.10
0.642	47.59	42.57	-8.41	-13.43	56.00	0.09	0.03	10.10
0.646	47.53	42.46	-8.47	-13.54	56.00	0.09	0.03	10.10
0.674	53.62	51.40	-2.38	-4.60	56.00	0.09	0.03	10.10
0.678	53.94	51.05	-2.06	-4.95	56.00	0.09	0.03	10.10
0.682	53.31	51.15	-2.69	-4.85	56.00	0.09	0.03	10.10
0.698	54.05	51.50	-1.95	-4.50	56.00	0.09	0.03	10.10
0.770	43.16	38.32	-12.84	-17.68	56.00	0.10	0.03	10.10
0.794	43.32	38.41	-12.68	-17.59	56.00	0.10	0.03	10.10
0.810	43.16	38.29	-12.84	-17.71	56.00	0.10	0.03	10.10
0.814	44.00	38.95	-12.00	-17.05	56.00	0.10	0.03	10.10
0.834	44.56	39.52	-11.44	-16.48	56.00	0.10	0.03	10.10
0.838	44.55	39.67	-11.45	-16.33	56.00	0.10	0.03	10.10
0.850	44.82	39.76	-11.18	-16.24	56.00	0.10	0.03	10.10
0.878	47.75	41.34	-8.25	-14.66	56.00	0.10	0.03	10.10
0.886	48.87	43.06	-7.13	-12.94	56.00	0.10	0.03	10.10
0.898	49.20	43.37	-6.80	-12.63	56.00	0.10	0.03	10.10
0.902	49.21	43.32	-6.79	-12.68	56.00	0.10	0.03	10.10
0.906	50.13	46.17	-5.87	-9.83	56.00	0.10	0.03	10.10
0.910	54.02	51.03	-1.98	-4.97	56.00	0.10	0.03	10.10
0.914	53.98	51.05	-2.02	-4.95	56.00	0.10	0.03	10.10

Freq (MHz)	(PEAK) EMI (dB μ V)	(AVG) EMI (dB μ V)	(PEAK) Margin (dB)	(AVG) Margin (dB)	(AVG) Limit (dB μ V)	Cable (dB)	Transducer (dB)	Filter (dB)
0.918	53.81	39.18	7.81	-6.82	46.00	0.10	0.03	10.10
0.930	54.08	39.67	8.08	-6.33	46.00	0.10	0.03	10.10
0.934	54.15	39.62	8.15	-6.38	46.00	0.10	0.03	10.10
1.042	41.16	31.20	-4.84	-14.80	46.00	0.10	0.03	10.09
1.054	41.31	28.64	-4.69	-17.36	46.00	0.10	0.03	10.09
1.078	42.12	31.20	-3.88	-14.80	46.00	0.11	0.03	10.09
1.118	47.28	33.26	1.28	-12.74	46.00	0.11	0.03	10.08
1.126	47.02	33.14	1.02	-12.86	46.00	0.11	0.03	10.08
1.146	52.05	36.96	6.05	-9.04	46.00	0.11	0.03	10.08
1.150	51.92	37.08	5.92	-8.92	46.00	0.11	0.03	10.08
1.322	43.31	28.14	-2.69	-17.86	46.00	0.12	0.03	10.06
1.326	43.32	29.10	-2.68	-16.90	46.00	0.12	0.03	10.06
1.338	43.83	29.65	-2.17	-16.35	46.00	0.12	0.03	10.06
1.342	43.80	29.36	-2.20	-16.64	46.00	0.12	0.03	10.06
1.346	43.80	29.99	-2.20	-16.01	46.00	0.12	0.03	10.06
1.350	44.69	28.75	-1.31	-17.25	46.00	0.12	0.03	10.06
1.362	43.73	29.80	-2.27	-16.20	46.00	0.12	0.03	10.06
1.530	42.71	25.43	-3.29	-20.57	46.00	0.13	0.03	10.04
1.546	43.14	25.04	-2.86	-20.96	46.00	0.13	0.03	10.04
1.570	42.44	25.67	-3.56	-20.33	46.00	0.13	0.03	10.03
2.082	45.39	31.01	-0.61	-14.99	46.00	0.15	0.03	10.00
2.090	45.60	31.12	-0.40	-14.88	46.00	0.15	0.03	10.00
2.314	47.39	32.01	1.39	-13.99	46.00	0.16	0.03	10.00
3.242	42.24	27.25	-3.76	-18.75	46.00	0.19	0.03	10.00
3.710	45.68	30.60	-0.32	-15.40	46.00	0.20	0.04	10.00
3.938	43.08	28.08	-2.92	-17.92	46.00	0.20	0.04	10.00
4.862	42.42	28.69	-3.58	-17.31	46.00	0.22	0.04	9.91

