



731 Enterprise Drive
Lexington, KY 40510

Telephone: 859-226-1000
Facsimile: 859-226-1040
www.intertek-etlsemko.com

TEST REPORT

Report Number: 102254548LEX-002
Project Number: G102254548

Report Issue Date: 1/10/2016

Product Name: 3M Tracker – CDMA Variant

FCC Standards: Title 47 CFR Parts 15
Subpart C

Industry Canada Standards: RSS-210 Issue 8

Tested by:
Intertek Testing Services NA, Inc.
731 Enterprise Drive
Lexington, KY 40510

Client:
3M Traffic Safety and Security Division
1838 Gunn Highway
Odessa, FL 55144

Report prepared by

Brian Daffin - Engineer

Report reviewed by

Bryan Taylor – Team Leader



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TABLE OF CONTENTS

1 Introduction and Conclusion 3

2 Test Summary 3

3 Description of Equipment Under Test 4

4 Transmission Timing 8

5 Duty Cycle Correction Factor 9

6 Occupied Bandwidth 11

7 Radiated Spurious Emissions (Transmitter)..... 16

8 Antenna Requirement per FCC Part 15.203..... 23

9 Power Port Conducted Emissions 24

10 Measurement Uncertainty..... 29

11 Revision History 30

1 Introduction and Conclusion

The tests indicated in section 2 were performed on the product constructed as described in section 3. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test method, a list of the actual test equipment used, documentation photos, results and raw data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested complied with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested.

The INTERTEK-Lexington is located at 731 Enterprise Drive, Lexington Kentucky, 40510. The radiated emission test site is a 10-meter semi-anechoic chamber. The chamber meets the characteristics of CISPR 16-1 and ANSI C63.4: 2009. For measurements, a remotely controlled flush-mount metal-top turntable is used to rotate the EUT a full 360 degrees. A remote controlled non-conductive antenna mast is used to scan the antenna height from one to four meters. The test site is listed with the FCC under registration number 485103. The test site is listed with Industry Canada under site number IC 2042M-1.

2 Test Summary

Page	Test full name	FCC Reference	IC Reference	Result
8	Transmission Timing Measurements	§ 15.231(a)	RSS-210 (A1.1.1)	Pass
9	Duty Cycle Correction Factor	ANSI C63.10: 2013	ANSI C63.10: 2013	---
11	Occupied Bandwidth	§ 15.231(c)	RSS-210 (A1.1.3)	Pass
12	Radiated Spurious Emissions (Transmitter)	§ 15.231(b)	RSS-210 (A1.1.2)	Pass
23	Antenna Requirement per FCC Part 15.203	§ 15.203	RSS-Gen (7.1.2)	Pass
24	Conducted Emission Limits	§ 15.207	RSS-Gen (7.2.4)	NA ¹

¹ This device is battery powered and will never connect to the AC mains.

3 Description of Equipment Under Test

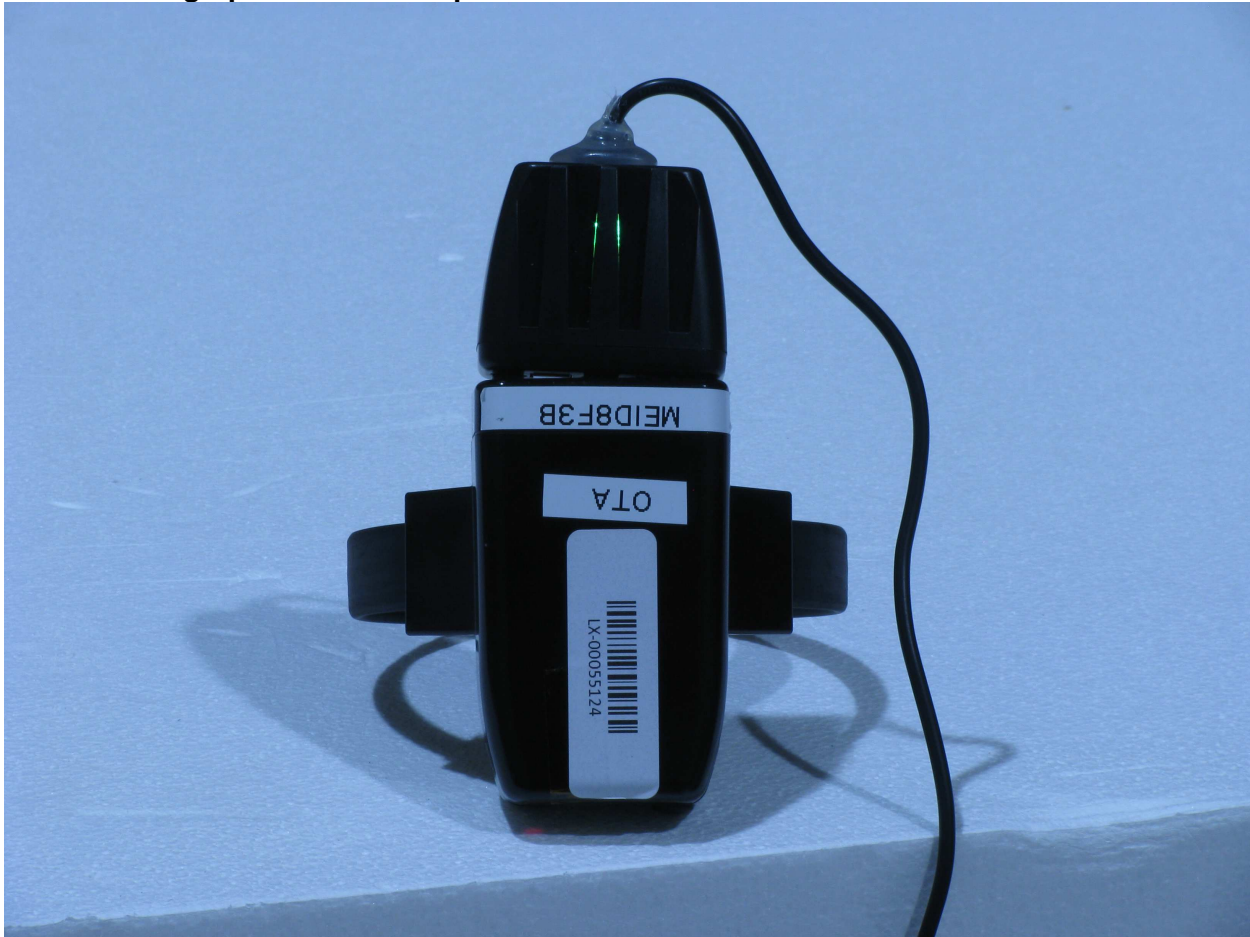
Equipment Under Test	
Manufacturer	3M Traffic Safety and Security Division
Model Number	CDMA Tracker
Serial Number	MEID8F3B
Receive Date	9/2/2015
Test Start Date	9/2/2015
Test End Date	10/1/2015
Device Received Condition	Good
Test Sample Type	Production
Transmission Control	Test Commands
Transmit Frequencies	433.92MHz, 418MHz
Antenna Type (15.203)	PCB Antenna
Operating Voltage	Battery Powered

Description of Equipment Under Test
Ankle worn tracking equipment

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	Transmitting on 433.92MHz or 418MHz.
2	Receive mode / idle mode

3.1 Photographs of Test Sample



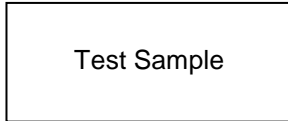
Front



Back

3.2 System setup including cable interconnection details, support equipment and simplified block diagram

3.3 EUT Block Diagram:



3.4 Cables:

The only cable included in the test setup was the charger cable which was 6ft long, unshielded, and connected from the charging terminals to the AC wall adapter.

3.5 Support Equipment:

None

4 Transmission Timing

§ 15.231(a):

The provisions of this section are restricted to periodic operation within the band 40.66-40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation:

(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

(3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

(4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition

(5) Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

4.1 Test Results

The client provided attestation statements indicating the following:

This device does not contain a manually operated transmitter.

The automatically activated transmitter ceases transmission within 5 seconds after activation.

This is a security or safety application. This device transmits at regular predetermined intervals. The total duration of transmissions does not exceed more than two seconds per hour. The total transmission time does not exceed two seconds per hour.

5 Duty Cycle Correction Factor

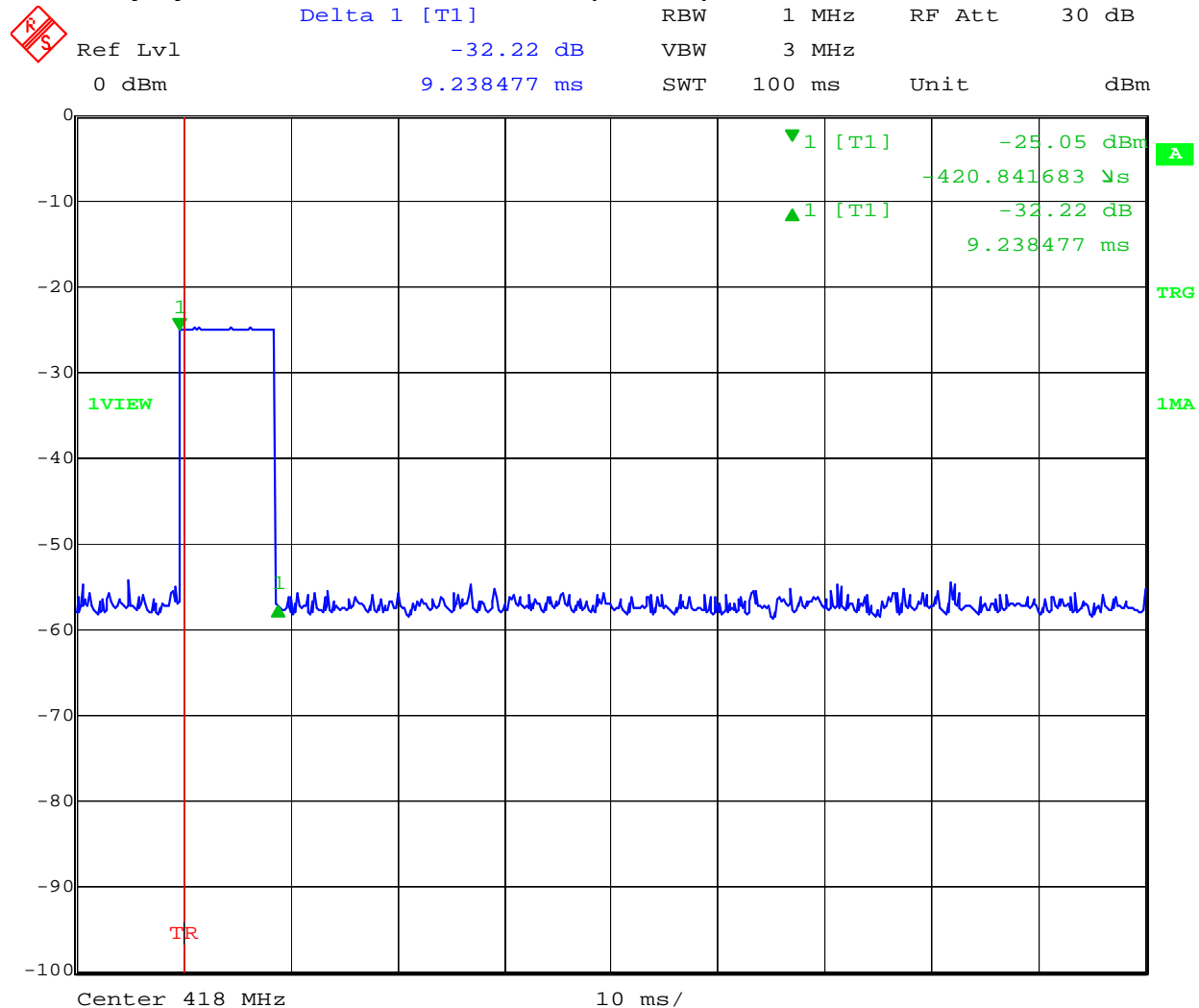
5.1 Test Procedure

ANSI C63.10: 2013 Section 7.5 was followed for measuring the duty cycle and calculating the duty cycle correction factor. When necessary the duty cycle correction factor was used to compute the average value of pulsed emissions during the radiated testing.

5.2 Test Equipment Used:

Description	Serial Number	Manufacturer	Model	Cal. Date	Cal. Due
Spectrum Analyzer	3720	Rohde & Schwarz	FSEK 30	9/19/2015	9/19/2016

5.3 Duty Cycle Correction Factor Results (418MHz):



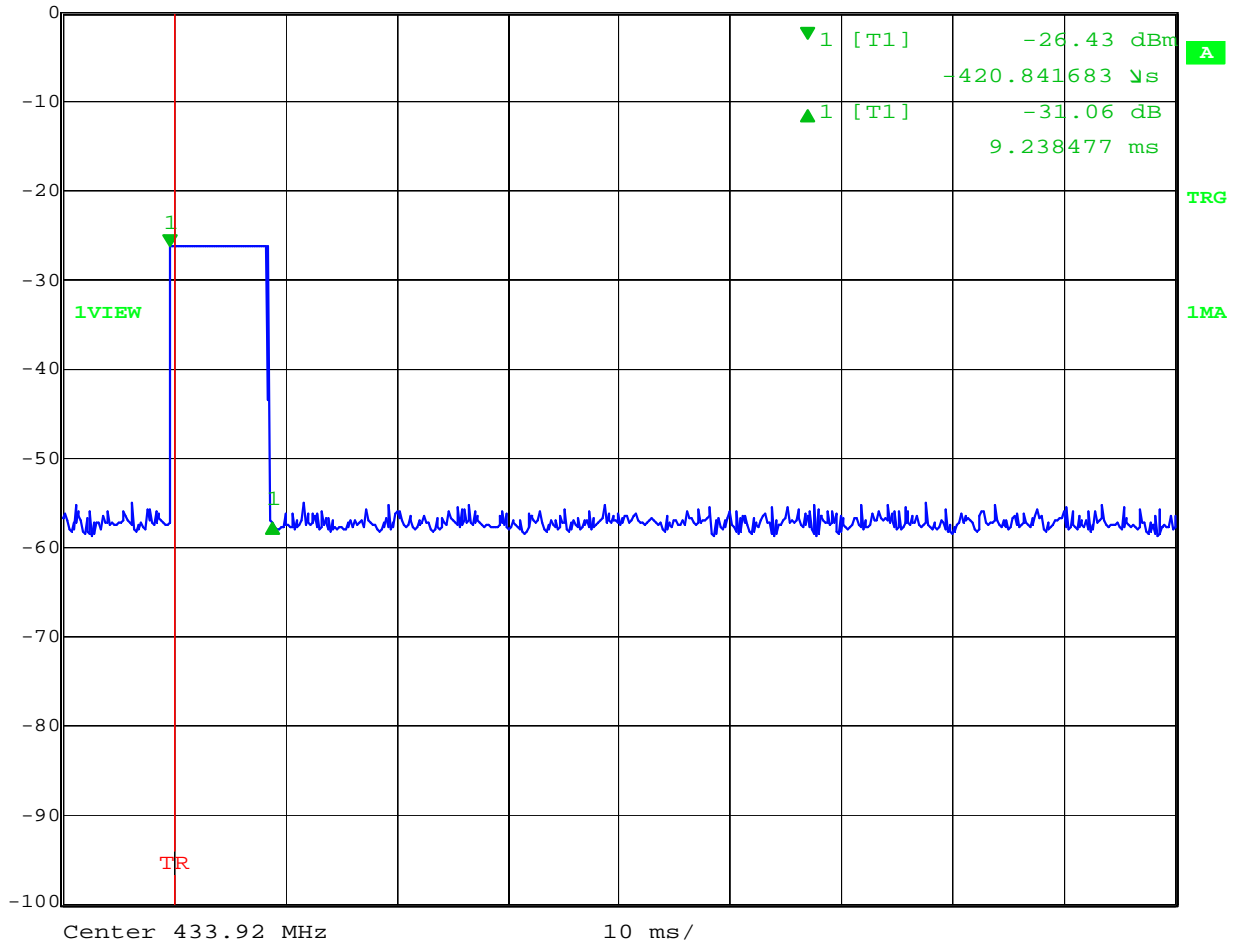
Date: 9.DEC.2015 15:05:25

Pulse "On Time" = 9.2mS
 Total Time = 100mS
 Duty Cycle = (9.2 / 100) x 100 = 9.2%
 Duty Cycle Correction Factor = 20log (.092) = -20.72dB

5.4 Duty Cycle Correction Factor Results (433.92MHz):



	Delta 1 [T1]	RBW	1 MHz	RF Att	30 dB
Ref Lvl	-31.06 dB	VBW	3 MHz		
0 dBm	9.238477 ms	SWT	100 ms	Unit	dBm



Date: 9 .DEC. 2015 15:01:31

Pulse "On Time" = 9.2mS
 Total Time = 100mS
 Duty Cycle = (9.2 / 100) x 100 = 9.2%
 Duty Cycle Correction Factor = 20log (.092) = -20.72dB

6 Occupied Bandwidth

6.1 Test Limits

§ 15.231(c): The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

6.2 Test Procedure

ANSI C63.10: 2013

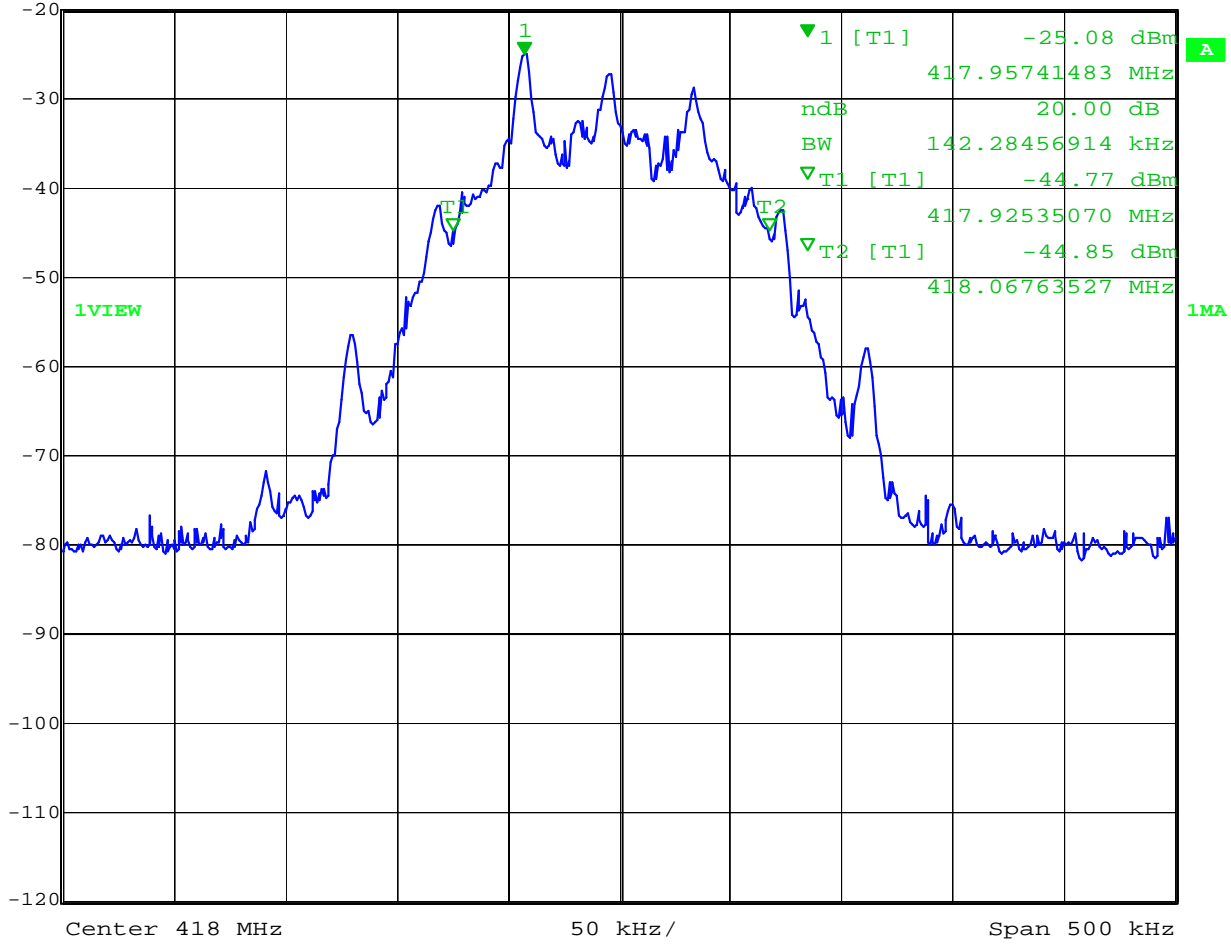
6.3 Test Equipment Used:

Description	Serial Number	Manufacturer	Model	Cal. Date	Cal. Due
Spectrum Analyzer	3720	Rohde & Schwarz	FSEK 30	9/19/2015	9/19/2016

6.4 Results:



Marker 1 [T1 ndB]	RBW	5 kHz	RF Att	30 dB
Ref Lvl	ndB	20.00 dB	VBW	20 kHz
-20 dBm	BW	142.28456914 kHz	SWT	50 ms
			Unit	dBm

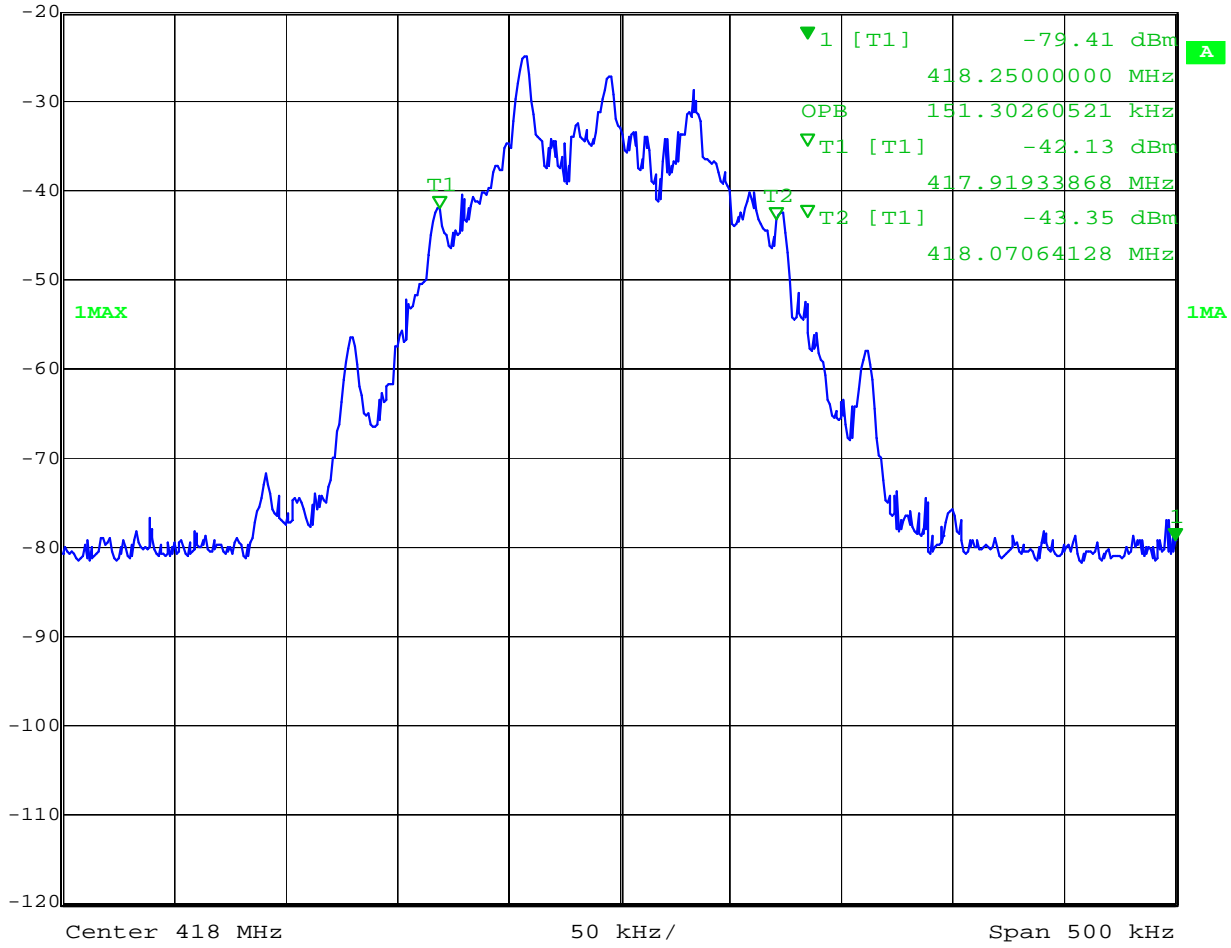


Date: 9.DEC.2015 15:23:55

418MHz 20dB Bandwidth = 142.2kHz



Marker 1 [T1] RBW 5 kHz RF Att 30 dB
Ref Lvl -79.41 dBm VBW 20 kHz
-20 dBm 418.2500000 MHz SWT 50 ms Unit dBm

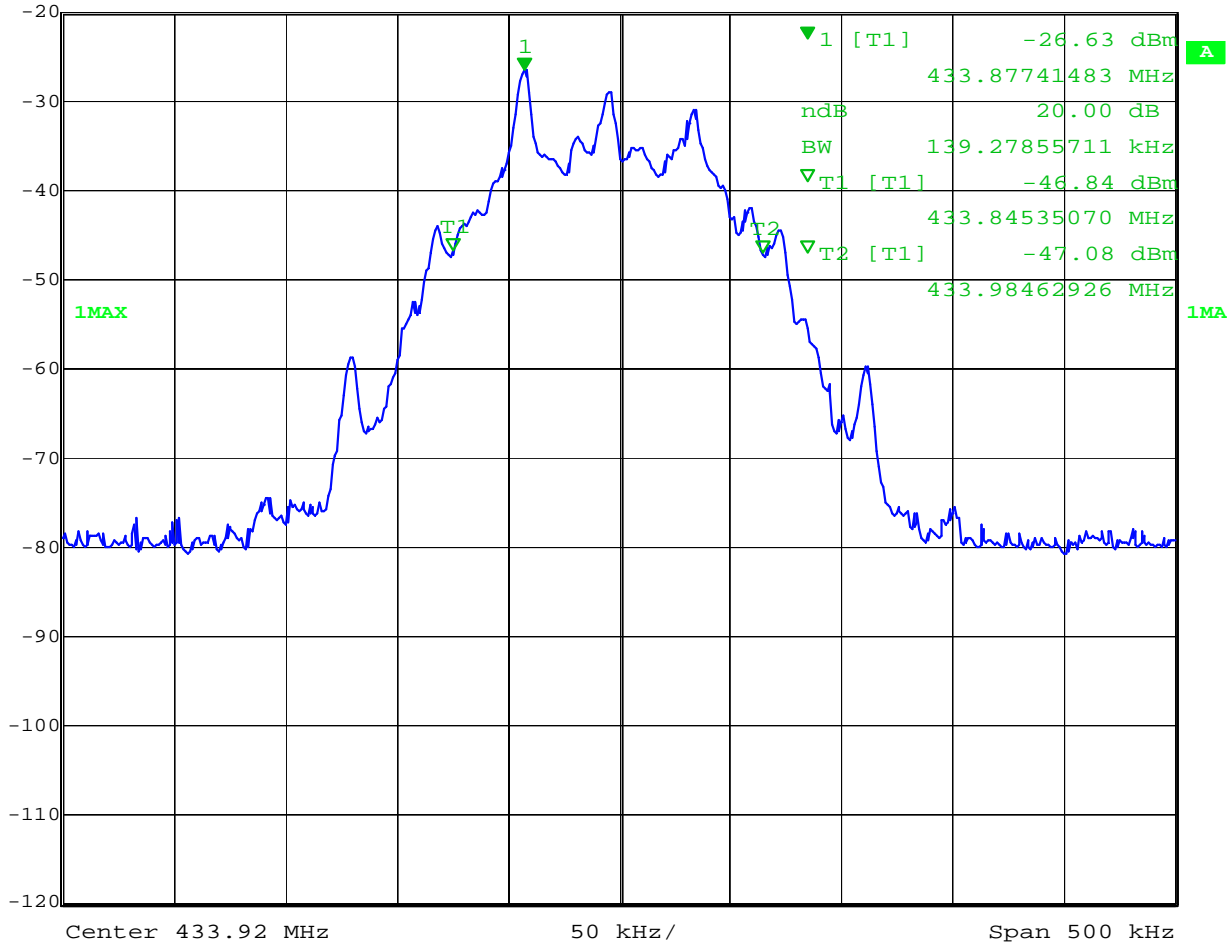


Date: 9.DEC.2015 15:23:06

418MHz 99% Bandwidth = 151.3kHz



Marker 1 [T1 ndB] RBW 5 kHz RF Att 30 dB
Ref Lvl ndB 20.00 dB VBW 20 kHz
-20 dBm BW 139.27855711 kHz SWT 50 ms Unit dBm

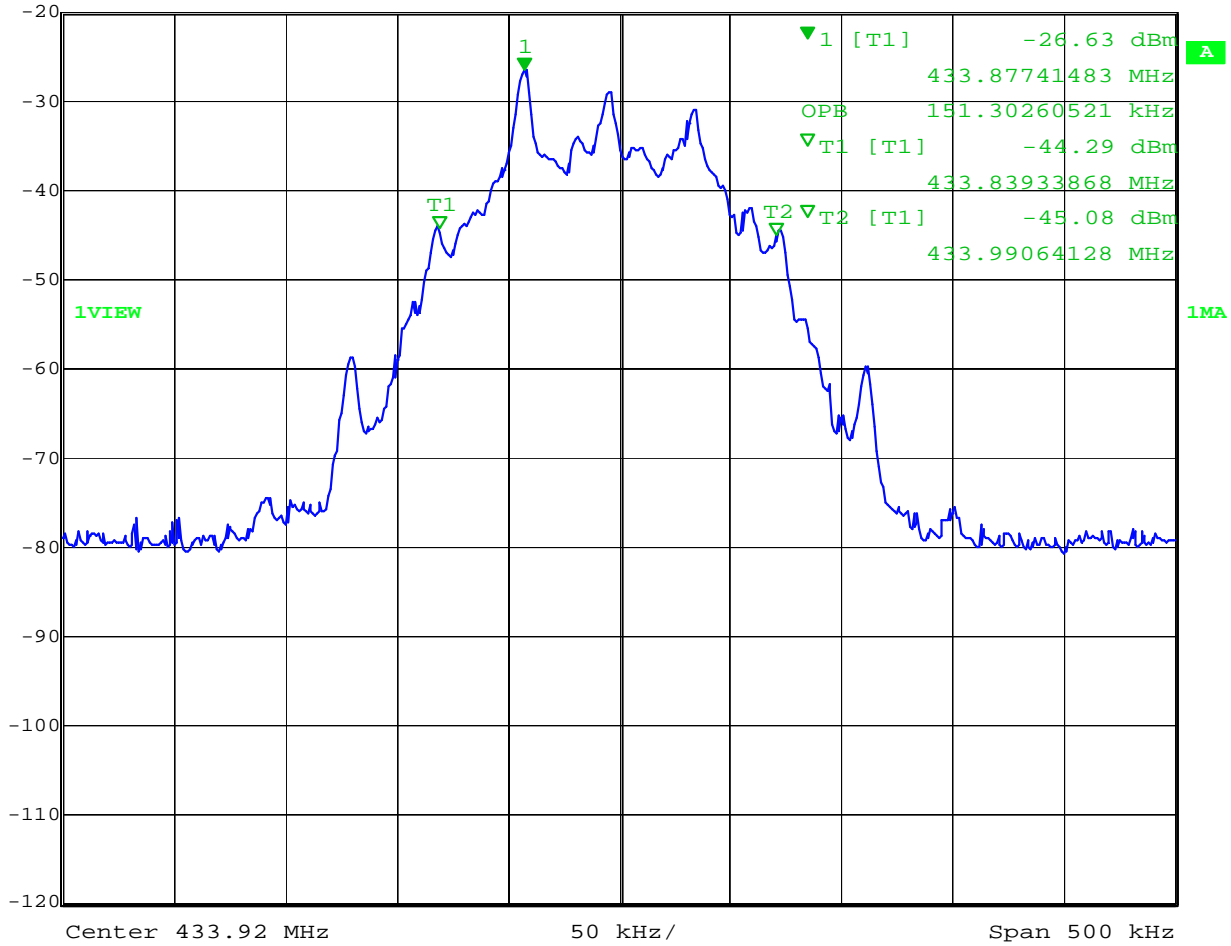


Date: 9.DEC.2015 15:20:47

433.92MHz 20dB Bandwidth = 139.2kHz



Marker 1 [T1] RBW 5 kHz RF Att 30 dB
Ref Lvl -26.63 dBm VBW 20 kHz
-20 dBm 433.87741483 MHz SWT 50 ms Unit dBm



Date: 9.DEC.2015 15:21:44

433.92MHz 99% Bandwidth = 151.3kHz

7 Radiated Spurious Emissions (Transmitter)

7.1 Test Limits

§ 15.231(a): The provisions of this section are restricted to periodic operation within the band 40.66-40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation

(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

(4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition.

(b) In addition to the provisions of §15.205, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	¹ 1,250 to 3,750	¹ 125 to 375
174-260	3,750	375
260-470	¹ 3,750 to 12,500	¹ 375 to 1,250
Above 470	12,500	1,250

¹Linear interpolations.

(1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.

(2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in §15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.

(3) The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

Part 15.205(a): Restricted Bands of Operations

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
¹ 0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675	156.7–156.9	2655–2900	22.01–23.12
8.41425–8.41475	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725	322–335.4	3600–4400	(²)
13.36–13.41.			

¹ Until February 1, 1999, this restricted band shall be 0.490–0.510 MHz.

² Above 38.6

Part 15.209(a): Field Strength Limits for Restricted Bands of Operation

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 - 0.490	2,400 / F (kHz)	300
0.490 - 1.705	24,000 / F (kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.2 Test Procedure

ANSI C63.10: 2013

7.3 Example of Field Strength Calculation Method:

The measured field strength was calculated by summing the readings taken from the spectrum analyzer with the appropriate correction factors associated with the antenna losses and cable losses. The calculation formula and sample calculations are listed below:

Formula:

$$FS = RA + AF + CF$$

FS = Field Strength in dB μ V/m

RA = Receiver Amplitude in dB μ V

AF = Antenna Factor in dB

CF = Cable Attenuation Factor in dB (Including preamplifier and filter attenuation)

Example Calculation:

$$RA = 19.48 \text{ dB}\mu\text{V}$$

$$AF = 18.52 \text{ dB}$$

$$CF = 0.78 \text{ dB}$$

$$FS = 19.48 + 18.52 + 0.78 = 38.78 \text{ dB}\mu\text{V/m}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(38.78 \text{ dB}\mu\text{V/m})/20] = 86.89 \mu\text{V/m}$$

7.1 Test Equipment Used:

Description	Serial Number	Manufacturer	Model	Cal. Date	Cal. Due
EMI Test Receiver	1302.6005.40	Rohde & Schwarz	ESU40	9/19/2015	9/19/2016
Preamplifier	122005	Rohde&Schwarz	TS-PR18	11/26/2014	11/26/2015
Biconnilog Antenna	00051864	ETS	3142C	1/20/2015	1/20/2016
Horn Antenna	00154521	ETS	3117	11/3/2015	11/3/2016
System Controller	121701-1	Sunol Sciences	SC99V	Time of Use	Time of Use
EMC Software	Version 9.15.02	Rohde&Schwarz	EMC32	Time of Use	Time of Use

7.2 Results:

All fundamental and spurious emissions not falling into the restricted bands met the limits outlined in FCC Part 15.231(b). Additionally, all emissions falling within restricted bands of operation were found to be below the limit specified in Part 15.209(a). The emissions listed in the following tables are the worst case emissions and were investigated with the sample positioned in three orthogonal axis in order to report the highest possible field strength.

Worst Case Spurious Measurements (433.92MHz, Peak Detection)

EUT Name: 3m Tracker
 Manufacturer: 3m
 Test Engineer: Bryan Taylor
 Date: 12/10/2015
 Temp/Humidity/Pressure: 21.9C, 54.8%, 983mbar
 Comment: 433.92MHz Transmitter; 15dBm Power Setting

Frequency (MHz)	MaxPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
433.94	98.43	100.83	-2.4	120	206.5	H	13	21.3
30.44	31.06	80.83	-49.77	120	104.9	V	228	18.8
86.055	28.97	80.83	-51.86	120	104.7	V	340	9
99.44	34.6	80.83	-46.23	120	109.8	V	282	10.5
152.8	26.65	80.83	-54.18	120	110.6	V	340	11.6
434.2	49.53	80.83	-31.3	120	110.4	V	137	21.3
705.81	39.4	80.83	-41.43	120	399.6	V	145	27.4
869.14	41.59	80.83	-39.24	120	398.8	V	90	29
915.32	42.99	80.83	-37.84	120	130.8	V	28	30.1
925.28	43.48	80.83	-37.35	120	100.2	H	237	30
930.06	43.13	80.83	-37.7	120	130.7	V	128	30.4
1301.56	56.35	80.83	-24.48	1000	222	V	272	-1.2
1735.48	52.97	80.83	-27.86	1000	200	V	140	-0.1
2169.4	46.57	80.83	-34.26	1000	410	V	258	3.1
2603.32	55.6	80.83	-25.23	1000	225	V	318	3.9
3037.24	55.36	80.83	-25.47	1000	227	H	239	4.9
3471.16	49.61	80.83	-31.22	1000	206	H	256	5.2
3905.08	50.25	80.83	-30.58	1000	236	H	260	6.1
4339	47.82	80.83	-33.01	1000	303	H	272	6.8

Worst Case Spurious Measurements (433.92MHz, Average Detection)

EUT Name: 3m Tracker
 Manufacturer: 3m
 Test Engineer: Bryan Taylor
 Date: 12/10/2015
 Temp/Humidity/Pressure: 21.9C, 54.8%, 983mbar
 Comment: 433.92MHz Transmitter; 15dBm Power Setting

Frequency (MHz)	Average Inc DCF (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
433.94	77.71	80.83	-3.12	120	206.5	H	13	21.3
30.44	10.34	60.83	-50.49	120	104.9	V	228	18.8
86.055	8.25	60.83	-52.58	120	104.7	V	340	9
99.44	13.88	60.83	-46.95	120	109.8	V	282	10.5
152.8	5.93	60.83	-54.9	120	110.6	V	340	11.6
434.2	28.81	60.83	-32.02	120	110.4	V	137	21.3
705.81	18.68	60.83	-42.15	120	399.6	V	145	27.4
869.14	20.87	60.83	-39.96	120	398.8	V	90	29
915.32	22.27	60.83	-38.56	120	130.8	V	28	30.1
925.28	22.76	60.83	-38.07	120	100.2	H	237	30
930.06	22.41	60.83	-38.42	120	130.7	V	128	30.4
1301.56	35.63	60.83	-25.2	1000	222	V	272	-1.2
1735.48	32.25	60.83	-28.58	1000	200	V	140	-0.1
2169.4	25.85	60.83	-34.98	1000	410	V	258	3.1
2603.32	34.88	60.83	-25.95	1000	225	V	318	3.9
3037.24	34.64	60.83	-26.19	1000	227	H	239	4.9
3471.16	28.89	60.83	-31.94	1000	206	H	256	5.2
3905.08	29.53	60.83	-31.3	1000	236	H	260	6.1
4339	27.1	60.83	-33.73	1000	303	H	272	6.8

*Average readings include an additional -20.72dB duty cycle correction factor.

Worst Case Spurious Measurements (418MHz Peak Detection)

EUT Name: 3m Tracker
 Manufacturer: 3m
 Test Engineer: Bryan Taylor
 Date: 12/10/2015
 Temp/Humidity/Pressure: 21.9C, 54.8%, 983mbar
 Comment: 418MHz Transmitter; 15dBm Power Setting

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
418	90.79	100.28	-9.49	120	106.7	V	140	20.8
30.88	30.94	80.28	-49.34	120	111.8	V	212	18.5
87.8	28.64	80.28	-51.64	120	114.6	V	264	9.2
97.128	35.45	80.28	-44.83	120	105.1	V	237	10.5
97.857	34.45	80.28	-45.83	120	105.4	V	190	10.5
99.111	29.21	80.28	-51.07	120	265.4	V	266	10.6
150.96	28.14	80.28	-52.14	120	105.2	V	0	11.5
418.54	41.05	80.28	-39.23	120	109.8	V	172	20.8
695.5	39.68	80.28	-40.6	120	224.9	H	61	27.1
836.06	55.63	80.28	-24.65	120	106.5	V	318	29
950.02	43.5	80.28	-36.78	120	378.2	V	312	30.3
1253.8	52.94	80.28	-27.34	1000	208	V	256	-1
1671.8	48.2	80.28	-32.08	1000	229	V	144	-0.6
2089.8	44.11	80.28	-36.17	1000	200	V	255	2.5
2507.8	57.3	80.28	-22.98	1000	202	V	310	3.9
2925.8	52.85	80.28	-27.43	1000	232	H	260	4.6
3343.8	51.04	80.28	-29.24	1000	237	H	276	5.1
3761.8	54.96	80.28	-25.32	1000	288	H	272	5.9
4179.8	54.93	80.28	-25.35	1000	270	H	261	6.4

Worst Case Spurious Measurements (418MHz Average Detection)

EUT Name: 3m Tracker
 Manufacturer: 3m
 Test Engineer: Bryan Taylor
 Date: 12/10/2015
 Temp/Humidity/Pressure: 21.9C, 54.8%, 983mbar
 Comment: 418MHz Transmitter; 15dBm Power Setting

Frequency (MHz)	Average Inc DCF (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
417.96	70.07	80.28	-10.21	120	106.7	V	140	20.8
30.88	10.22	60.28	-50.06	120	111.8	V	212	18.5
87.8	7.92	60.28	-52.36	120	114.6	V	264	9.2
97.128	14.73	60.28	-45.55	120	105.1	V	237	10.5
97.857	13.73	60.28	-46.55	120	105.4	V	190	10.5
99.111	8.49	60.28	-51.79	120	265.4	V	266	10.6
150.96	7.42	60.28	-52.86	120	105.2	V	0	11.5
418.54	20.33	60.28	-39.95	120	109.8	V	172	20.8
695.5	18.96	60.28	-41.32	120	224.9	H	61	27.1
836.06	34.91	60.28	-25.37	120	106.5	V	318	29
950.02	22.78	60.28	-37.5	120	378.2	V	312	30.3
1253.8	32.22	60.28	-28.06	1000	208	V	256	-1
1671.8	27.48	60.28	-32.8	1000	229	V	144	-0.6
2089.8	23.39	60.28	-36.89	1000	200	V	255	2.5
2507.8	36.58	60.28	-23.7	1000	202	V	310	3.9
2925.8	32.13	60.28	-28.15	1000	232	H	260	4.6
3343.8	30.32	60.28	-29.96	1000	237	H	276	5.1
3761.8	34.24	60.28	-26.04	1000	288	H	272	5.9
4179.8	34.21	60.28	-26.07	1000	270	H	261	6.4

*Average readings include an additional -20.72dB duty cycle correction factor.

8 Antenna Requirement per FCC Part 15.203**8.1 Test Limits**

§ 15.203: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

8.2 Results:

The sample tested met the antenna requirement. The antenna used was permanently attached and integral to the PCB.

9 Power Port Conducted Emissions**9.1 Method**

The test method used was identical to that described in ANSI C63.4:2014.

9.2 Test Location

This test was performed at the Intertek offices located at the following address:

Intertek
731 Enterprise Drive
Lexington, KY 40510

9.3 Test Equipment Used:

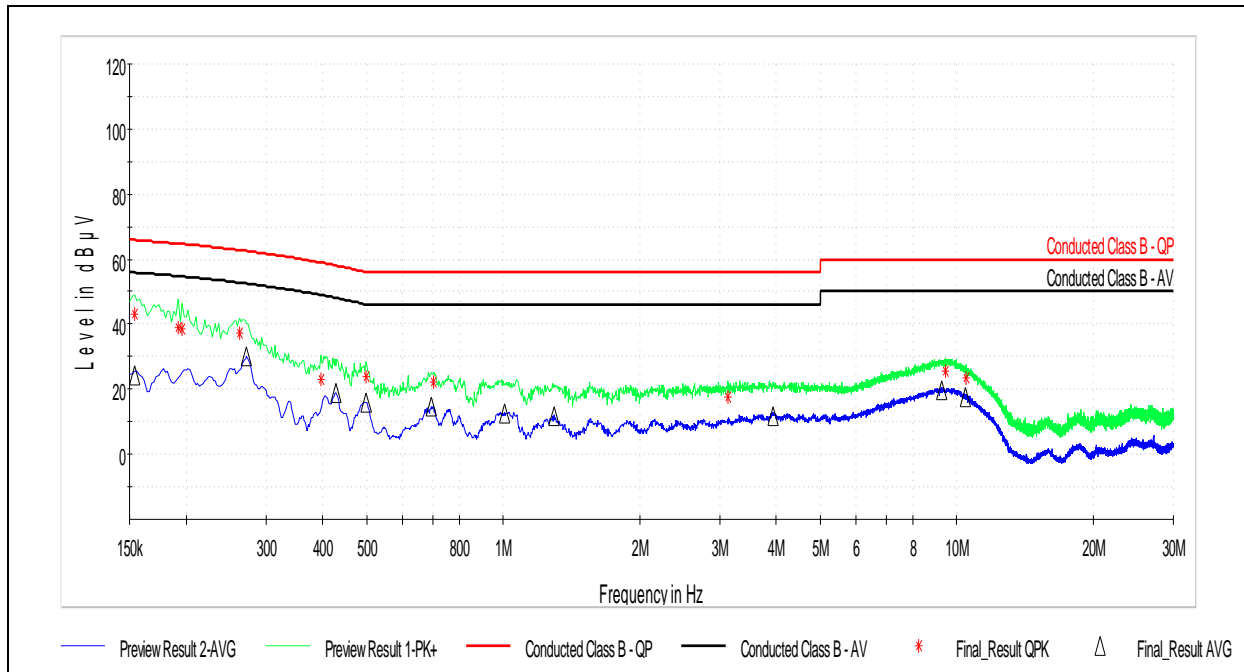
Description	Serial Number	Manufacturer	Model	Cal. Date	Cal. Due
EMI Test Receiver	10887490.26	Rohde & Schwarz	ES126	9/20/2015	9/20/2016
LISN	3333	Teseq	NNB52	5/21/2015	5/21/2016
EMC Software	Version 9.15.02	Rohde&Schwarz	EMC32	Time of Use	Time of Use

9.4 Results:

The sample tested was found to Comply.

9.5 Data (Line 1):

EUT Name: 3m Tracker
 Manufacturer: 3m
 Test Engineer: Bryan Taylor
 Date: 10/30/2015
 Temp/Humidity/Pressure: 21.9C, 54.8%, 983mbar
 Comment: L1 Transmitting 418 MHz



Final_Result_QPK

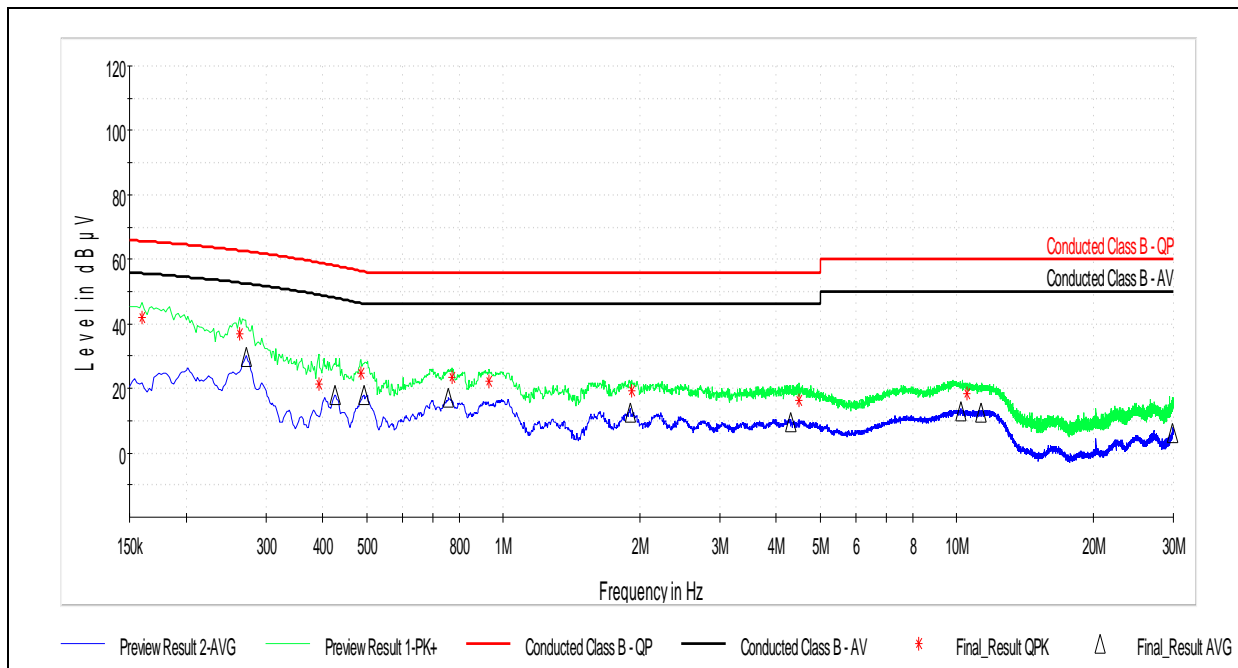
Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Corr. (dB)
0.154000	42.98	65.89	22.91	9.000	0.3
0.192000	39.01	64.80	25.79	9.000	0.3
0.196000	38.43	64.69	26.26	9.000	0.3
0.262000	37.26	62.80	25.54	9.000	0.3
0.396000	22.95	58.97	36.02	9.000	0.3
0.498000	23.71	56.06	32.35	9.000	0.4
0.702000	22.09	56.00	33.91	9.000	0.4
3.124000	17.48	56.00	38.52	9.000	0.9
9.420000	25.56	60.00	34.44	9.000	1.3
10.468000	23.43	60.00	36.57	9.000	1.4

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Corr. (dB)
0.154000	24.45	55.89	31.44	9.000	0.3
0.272000	30.13	52.51	22.38	9.000	0.3
0.428000	18.69	48.06	29.37	9.000	0.3
0.498000	15.87	46.06	30.19	9.000	0.4
0.694000	14.75	46.00	31.25	9.000	0.4
1.008000	12.52	46.00	33.48	9.000	0.5
1.296000	11.69	46.00	34.31	9.000	0.5
3.928000	11.76	46.00	34.24	9.000	1.1
9.268000	19.83	50.00	30.17	9.000	1.3
10.440000	17.77	50.00	32.23	9.000	1.4

9.6 Data (Line 2):

EUT Name: 3m Tracker
 Manufacturer: 3m
 Test Engineer: Bryan Taylor
 Date: 10/30/2015
 Temp/Humidity/Pressure: 21.9C, 54.8%, 983mbar
 Comment: N Transmitting 418 MHz



Final_Result_QPK

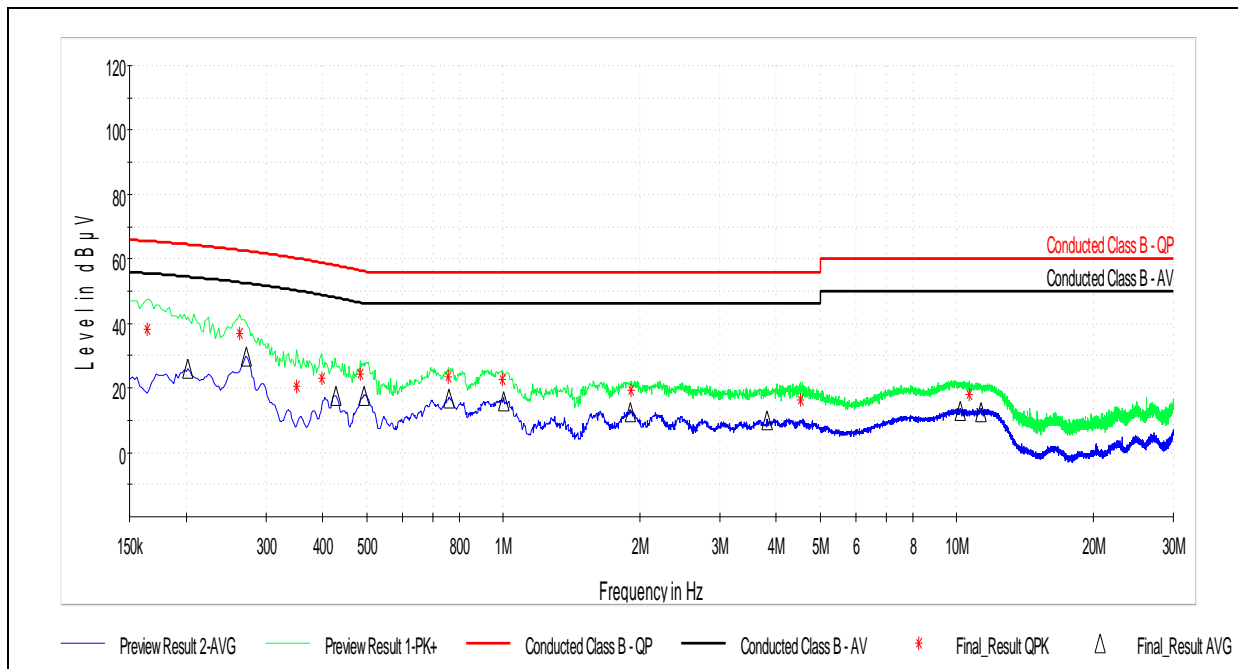
Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Corr. (dB)
0.160000	41.79	65.71	23.92	9.000	0.3
0.262000	36.91	62.80	25.89	9.000	0.3
0.392000	21.31	59.09	37.78	9.000	0.3
0.486000	24.73	56.40	31.67	9.000	0.4
0.770000	23.50	56.00	32.50	9.000	0.5
0.932000	22.26	56.00	33.74	9.000	0.5
1.924000	19.27	56.00	36.73	9.000	0.6
4.492000	16.46	56.00	39.54	9.000	1.1
10.508000	18.21	60.00	41.79	9.000	1.4

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Corr. (dB)
0.272000	29.81	52.51	22.70	9.000	0.3
0.426000	17.75	48.11	30.36	9.000	0.3
0.494000	17.76	46.17	28.41	9.000	0.4
0.758000	16.90	46.00	29.10	9.000	0.5
1.904000	12.58	46.00	33.42	9.000	0.6
4.312000	9.41	46.00	36.59	9.000	1.1
10.204000	12.88	50.00	37.12	9.000	1.4
11.304000	12.48	50.00	37.52	9.000	1.4
29.940000	6.28	50.00	43.72	9.000	3.5

9.1 Data (Line 1):

EUT Name: 3m Tracker
 Manufacturer: 3m
 Test Engineer: Bryan Taylor
 Date: 10/30/2015
 Temp/Humidity/Pressure: 21.9C, 54.8%, 983mbar
 Comment: N Transmitting 433.92 MHz



Final_Result_QPK

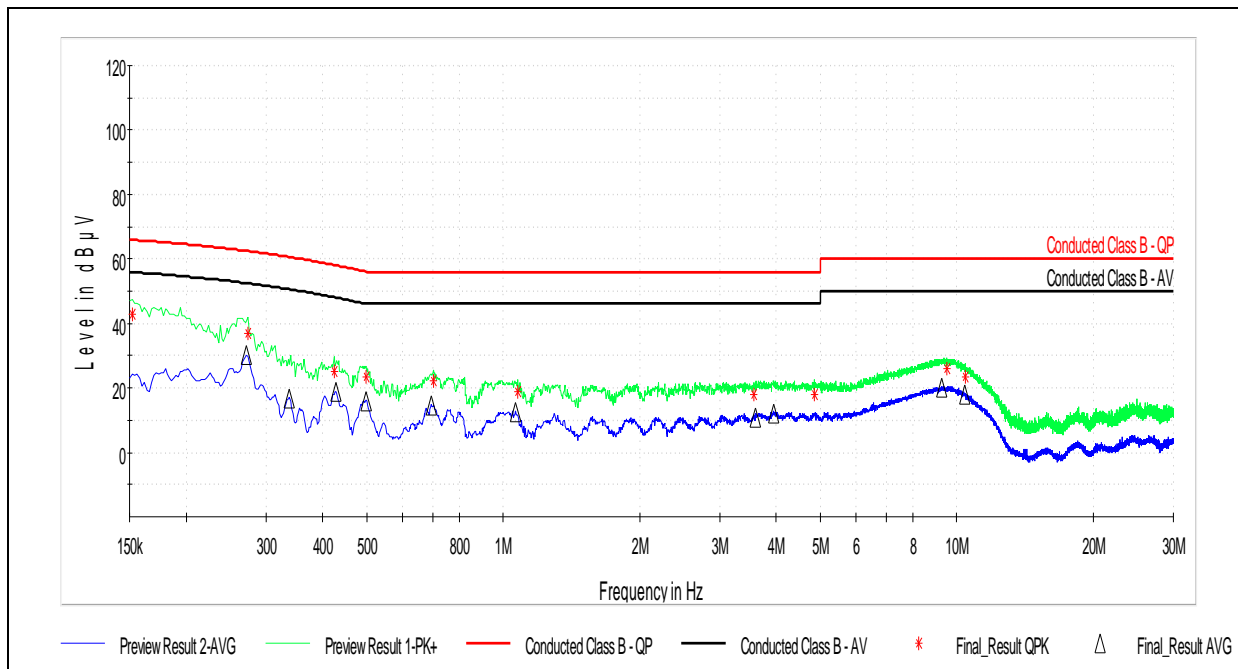
Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Corr. (dB)
0.164000	38.22	65.60	27.38	9.000	0.3
0.262000	36.92	62.80	25.88	9.000	0.3
0.350000	20.29	60.29	40.00	9.000	0.3
0.398000	23.10	58.91	35.81	9.000	0.3
0.484000	24.33	56.46	32.13	9.000	0.4
0.758000	23.51	56.00	32.49	9.000	0.5
0.994000	22.65	56.00	33.35	9.000	0.5
1.916000	19.09	56.00	36.91	9.000	0.6
4.520000	16.40	56.00	39.60	9.000	1.2
10.656000	18.14	60.00	41.86	9.000	1.4

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Corr. (dB)
0.202000	25.89	54.51	28.62	9.000	0.3
0.272000	29.78	52.51	22.73	9.000	0.3
0.428000	17.61	48.06	30.45	9.000	0.3
0.494000	17.68	46.17	28.49	9.000	0.4
0.760000	16.73	46.00	29.27	9.000	0.5
1.004000	15.95	46.00	30.05	9.000	0.5
1.904000	12.59	46.00	33.41	9.000	0.6
3.816000	9.82	46.00	36.18	9.000	1.1
10.168000	12.74	50.00	37.26	9.000	1.4
11.304000	12.48	50.00	37.52	9.000	1.4

9.1 Data (Line 2):

EUT Name: 3m Tracker
 Manufacturer: 3m
 Test Engineer: Bryan Taylor
 Date: 10/30/2015
 Temp/Humidity/Pressure: 21.9C, 54.8%, 983mbar
 Comment: N Transmitting 433.92 MHz



Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Corr. (dB)
0.152000	42.65	65.94	23.29	9.000	0.3
0.274000	36.73	62.46	25.73	9.000	0.3
0.424000	25.20	58.17	32.97	9.000	0.3
0.498000	23.61	56.06	32.45	9.000	0.4
0.702000	22.19	56.00	33.81	9.000	0.4
1.076000	18.74	56.00	37.26	9.000	0.5
3.572000	17.75	56.00	38.25	9.000	1.0
4.860000	17.81	56.00	38.19	9.000	1.4
9.492000	25.77	60.00	34.23	9.000	1.3
10.428000	23.57	60.00	36.43	9.000	1.4

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Corr. (dB)
0.272000	30.05	52.51	22.46	9.000	0.3
0.338000	16.88	50.63	33.75	9.000	0.3
0.428000	18.73	48.06	29.33	9.000	0.3
0.498000	15.76	46.06	30.30	9.000	0.4
0.694000	14.78	46.00	31.22	9.000	0.4
1.064000	12.41	46.00	33.59	9.000	0.5
3.592000	10.98	46.00	35.02	9.000	1.0
3.944000	11.98	46.00	34.02	9.000	1.1
9.268000	19.90	50.00	30.10	9.000	1.3
10.412000	17.83	50.00	32.17	9.000	1.4

10 Measurement Uncertainty

The measured value related to the corresponding limit will be used to decide whether the equipment meets the requirements.

The measurement uncertainty figures were calculated and correspond to a coverage factor of $k = 2$, providing a confidence level of respectively 95.45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian).

Measurement uncertainty Table

Parameter	Uncertainty	Notes
Radiated emissions, 30 to 1000 MHz	+3.9dB	
Radiated emissions, 1 to 18 GHz	+4.2dB	
Radiated emissions, 18 to 40 GHz	+4.3dB	
Power Port Conducted emissions, 150kHz to 30 MHz	+2.8dB	

11 Revision History

Revision Level	Date	Report Number	Notes
0	1/10/2016	102254548LEX-002	Original Issue