TESTING LABORATORY
CERTIFICATE#4323.01

FCC PART 15.245

TEST REPORT

For

Hangzhou Hikvision Digital Technology Co., Ltd.

No. 555 Qianmo Road, Binjiang District, Hangzhou 310052, China

FCC ID: 2ADTD-D0311202

Report Type:	**Product Type:**
Original Report	Outdoor Dual-tech Detector

Test Engineer:	Alisa Gao
Report Number:	RKSA180625005-00A
Report Date:	2018-07-11
Reviewed By:	Oscar Ye RF Leader
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu province, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Hangzhou Hikvision Digital Technology Co., Ltd.
Tested Model	DS-PD2-T12AME-EL
Series Model	DS-QD2-T12AME-EL
Product Type	Outdoor Dual-tech Detector
Dimension	188mm(H)*77mm(W)*84mm(D)
Power Supply	DC 9-16V

Note: The differences between tested model and series model were explained in the declaration letter.

**All measurement and test data in this report was gathered from production sample serial number: 20180625004. (Assigned by the BACL. The EUT supplied by the applicant was received on 2018-06-25)*

Objective

This type approval report is prepared on behalf of *Hangzhou Hikvision Digital Technology Co., Ltd.* in accordance with Part 2-Subpart J, and Part 15-Subparts A and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.209 and 15.245 rules.

Related Submittal(s)/Grant(s)

No related submittal/grant.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Lab Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19dB
RF conducted test with spectrum		0.9dB
RF Output Power with Power meter		0.5dB
Radiated emission	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz~18GHz	5.23dB
	18~40GHz	5.65dB
Occupied Bandwidth		0.5kHz
Temperature		1.0℃
Humidity		6%

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road,Kunshan,Jiangsu province,China.

Bay Area Compliance Laboratories Corp. (Kunshan) Lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4323.01) and the FCC designation No. CN1185 under the FCC KDB 974614 D01. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

SYSTEM TEST CONFIGURATION

Justification

Channel list:

Channel	Frequency (MHz)
1	10515
2	10525
3	10535

EUT Exercise Software

No software was used during the test.

Support Equipment List and Details

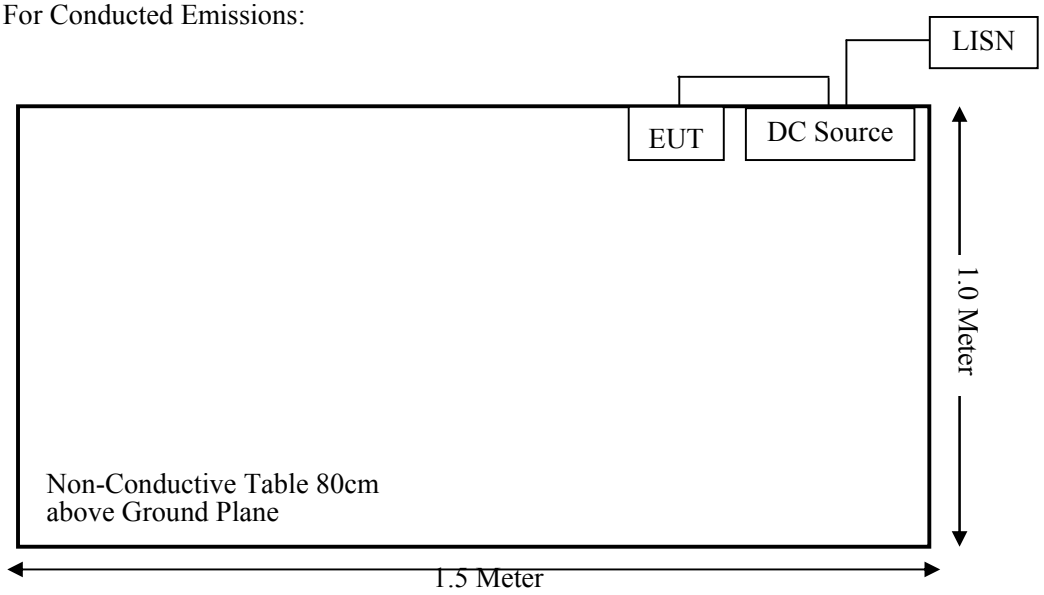
Manufacturer	Description	Model	Serial Number
BEST	DC Power Supply	PS-1502D+	/

External I/O Cable

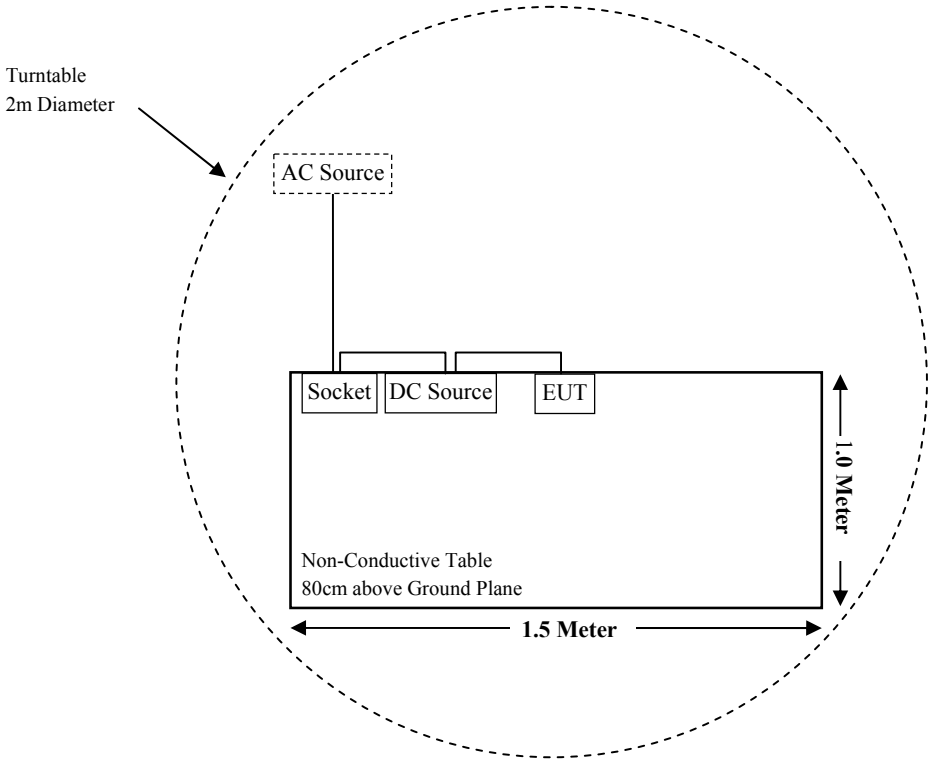
Cable Description	Shielding Type	Length (m)	From Port	To
Power Cable	Un-shielding	0.8	DC Source	EUT

Block Diagram of Test Setup

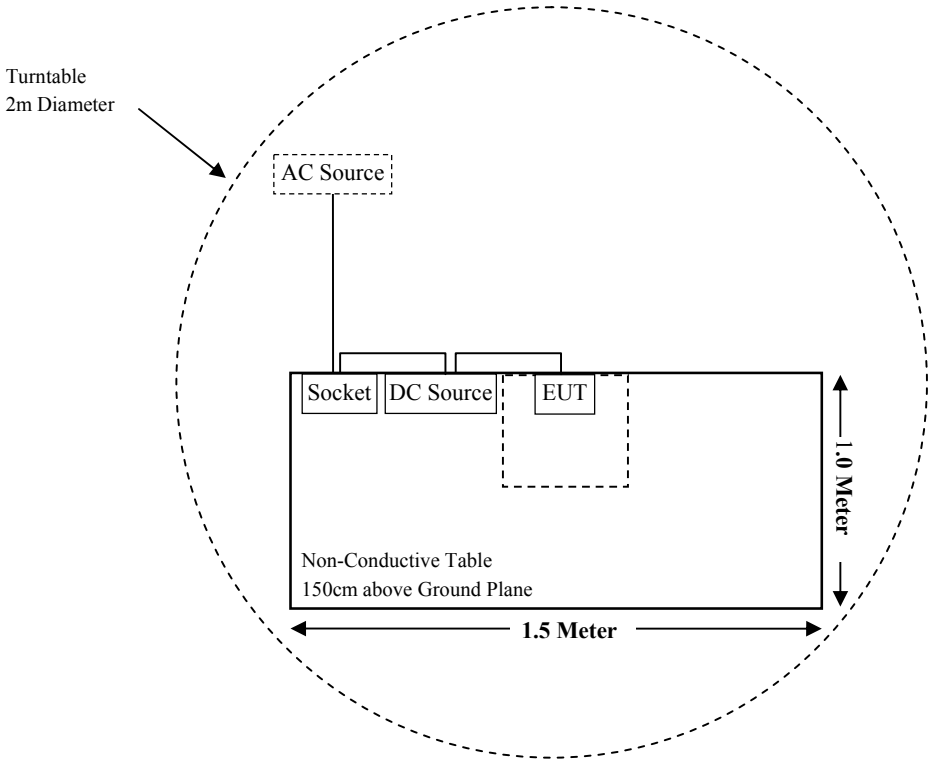
For Conducted Emissions:



For Radiated Emissions(Below 1GHz):



For Radiated Emissions(Above 1GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207(a)	Conducted Emissions	Compliance
15.205, §15.209, §15.245	Radiated Emissions& Out of Band Emission	Compliance
§15.215 (c)	20 dB Bandwidth	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test（Chamber 1#）					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2017-11-12	2018-11-11
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2016-12-26	2019-12-25
Sonoma Instrunent	Pre-amplifier	310N	171205	2017-08-15	2018-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-8	008	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2017-08-15	2018-08-14
BEST	DC Power Supply	PS-1502D+	/	2017-10-10	2018-10-09
Radiated Emission Test（Chamber 2#）					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2017-08-27	2018-08-26
Rohde & Schwarz	FSV40 Signal Analyzer	FSV40	101116	2017-07-22	2018-07-21
HP	Spectrum Analyzer	8565EC	3946A00131	2017-07-22	2018-07-21
ETS-LINDGREN	Horn Antenna	3115	6229	2016-01-11	2019-01-10
ETS-LINDGREN	Horn Antenna	3116	2516	2016-12-12	2019-12-12
Wisewave	Horn Antenna	ARH-1923-02	11648-02	2016-12-12	2019-12-11
Sonoma Instrunent	Pre-amplifier	310N	185700	2017-08-15	2018-08-14
Mini-Circuits	Amplifier	ZVA-183W-S+	220701818	2018-05-20	2019-05-19
EM Electronics Corporation	Amplifier	EM18G40G	060726	2018-03-22	2019-03-21
Narda	Attenuator/10dB	10dB	/	2017-08-15	2018-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-11	011	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2017-08-15	2018-08-14
BEST	DC Power Supply	PS-1502D+	/	2017-10-10	2018-10-09
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCS30	834115/007	2017-11-12	2018-11-11
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2017-11-12	2018-11-11
BACL	Auto test Software	BACL-EMC	CE001	/	/
Narda	Attenuator/6dB	10690812-2	26850-6	2018-01-10	2019-01-09
MICRO-COAX	Coaxial Cable	Cable-15	015	2017-08-15	2018-08-14
BEST	DC Power Supply	PS-1502D+	/	2017-10-10	2018-10-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC§15.203 - ANTENNA REQUIREMENT

Applicable Standard

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used.

Antenna Connector Construction

The EUT has a PCB antenna and the antenna gain is 8dBi, which was furnished by the responsible party, fulfill the requirement of this section, please refer to the EUT photos.

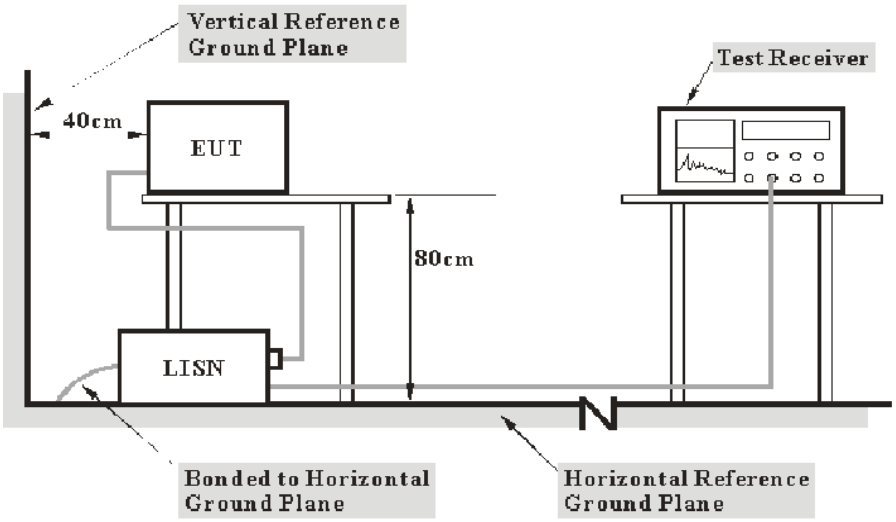
Result: Compliant.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.10-2013. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

ANSI C63.10-2013 clause 6.2

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

The "**Margin**" column of the following data tables indicates the degree of Compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dBμV) – Corrected Amplitude (dBμV)

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

Test Data

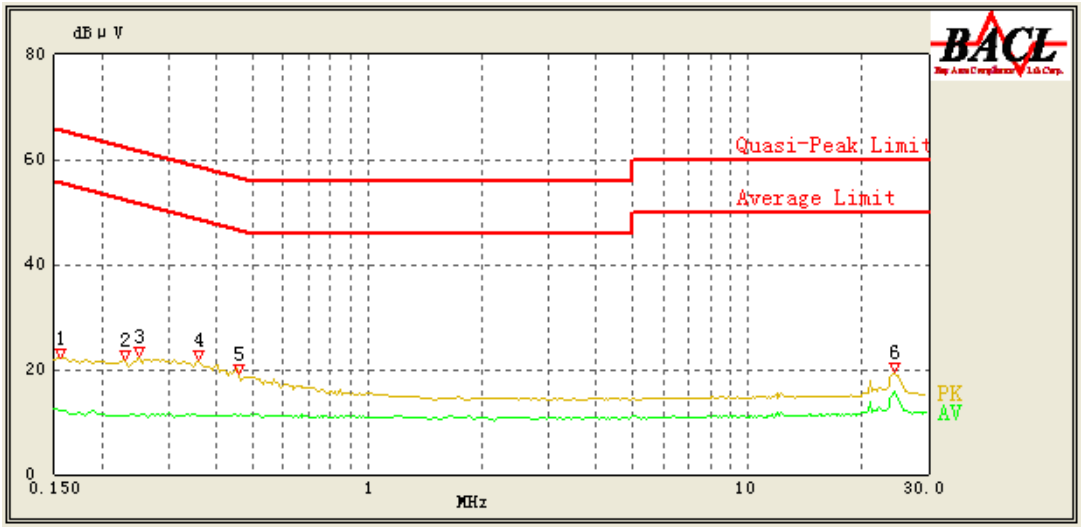
Environmental Conditions

Temperature:	20.2 ℃
Relative Humidity:	51 %
ATM Pressure:	101.3 kPa

The testing was performed by Alisa Gao on 2018-07-11.

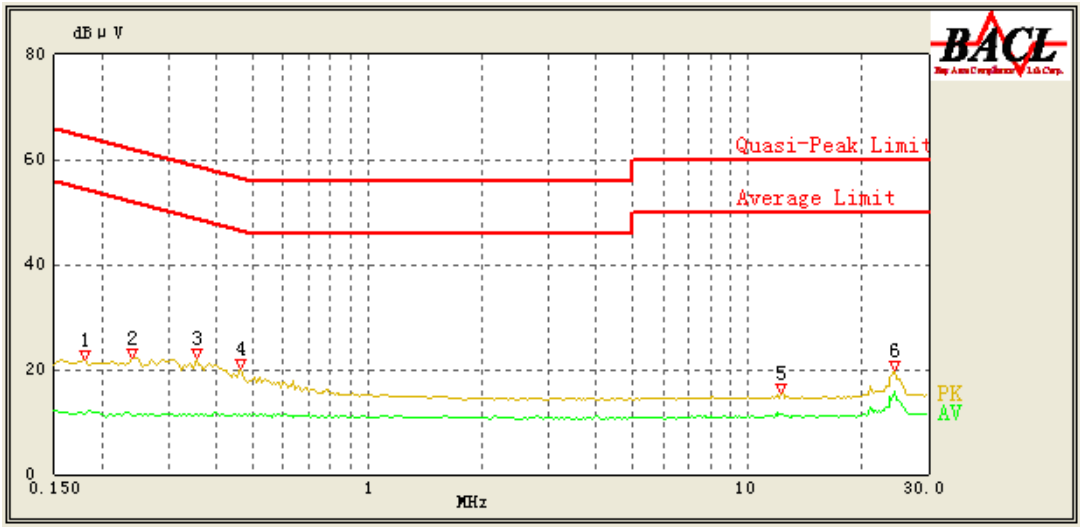
EUT operation mode: Transmitting in channel 1 (worst case)

AC 120V/60 Hz, Line



Frequency (MHz)	Corrected Amplitude (dBµV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBµV)	Margin (dB)	Comment
0.155	22.02	QP	9.000	L1	16.06	65.86	43.84	Compliance
0.155	12.30	AV	9.000	L1	16.06	55.86	43.56	Compliance
0.230	21.69	QP	9.000	L1	16.02	63.71	42.02	Compliance
0.230	11.15	AV	9.000	L1	16.02	53.71	42.56	Compliance
0.250	22.51	QP	9.000	L1	16.02	63.14	40.63	Compliance
0.250	11.23	AV	9.000	L1	16.02	53.14	41.91	Compliance
0.360	21.76	QP	9.000	L1	16.05	60.00	38.24	Compliance
0.360	11.28	AV	9.000	L1	16.05	50.00	38.72	Compliance
0.460	19.21	QP	9.000	L1	16.07	57.14	37.93	Compliance
0.460	11.16	AV	9.000	L1	16.07	47.14	35.98	Compliance
24.350	19.59	QP	9.000	L1	16.46	60.00	40.41	Compliance
24.350	15.88	AV	9.000	L1	16.46	50.00	34.12	Compliance

AC 120V/60 Hz, Neutral



Frequency (MHz)	Corrected Amplitude (dBµV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBµV)	Margin (dB)	Comment
0.180	21.83	QP	9.000	N	16.05	65.14	43.31	Compliance
0.180	11.52	AV	9.000	N	16.05	55.14	43.62	Compliance
0.240	22.15	QP	9.000	N	16.06	63.43	41.28	Compliance
0.240	11.21	AV	9.000	N	16.06	53.43	42.22	Compliance
0.355	22.30	QP	9.000	N	16.08	60.14	37.84	Compliance
0.355	11.47	AV	9.000	N	16.08	50.14	38.67	Compliance
0.465	20.03	QP	9.000	N	16.10	57.00	36.97	Compliance
0.465	11.12	AV	9.000	N	16.10	47.00	35.88	Compliance
12.200	15.34	QP	9.000	N	16.00	60.00	44.66	Compliance
12.200	11.39	AV	9.000	N	16.00	50.00	38.61	Compliance
24.300	19.80	QP	9.000	N	16.23	60.00	40.20	Compliance
24.300	15.88	AV	9.000	N	16.23	50.00	34.12	Compliance

Note:
1) Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
2) Margin (dB) = Limit (dBµV) – Corrected Amplitude (dBµV)

FCC§15.205, §15.209 &§15.245(b) - RADIATED EMISSIONS& OUT OF BAND EMISSION

Applicable Standard

According to FCC§15.245 (b), The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency (MHz)	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (millivolts/meter)
902–928	500	1.6
2435-2465	500	1.6
5785-5815	500	1.6
10500-10550	2500	25.0
24075-24175	2500	25.0

(1) Regardless of the limits shown in the above table, harmonic emissions in the restricted bands below 17.7 GHz, as specified in §15.205, shall not exceed the field strength limits shown in §15.209. Harmonic emissions in the restricted bands at and above 17.7 GHz shall not exceed the following field strength limits:

(i) For the second and third harmonics of field disturbance sensors operating in the 24075-24175 MHz band and for other field disturbance sensors designed for use only within a building or to open building doors, 25.0 mV/m.

(ii) For all other field disturbance sensors, 7.5 mV/m.

(iii) Field disturbance sensors designed to be used in motor vehicles or aircraft must include features to prevent continuous operation unless their emissions in the restricted bands, other than the second and third harmonics from devices operating in the 24075-24175 MHz band, fully comply with the limits given in §15.209. Continuous operation of field disturbance sensors designed to be used in farm equipment, vehicles such as fork lifts that are intended primarily for use indoors or for very specialized operations, or railroad locomotives, railroad cars and other equipment which travels on fixed tracks is permitted. A field disturbance sensor will be considered not to be operating in a continuous mode if its operation is limited to specific activities of limited duration (e.g., putting a vehicle into reverse gear, activating a turn signal, etc.).

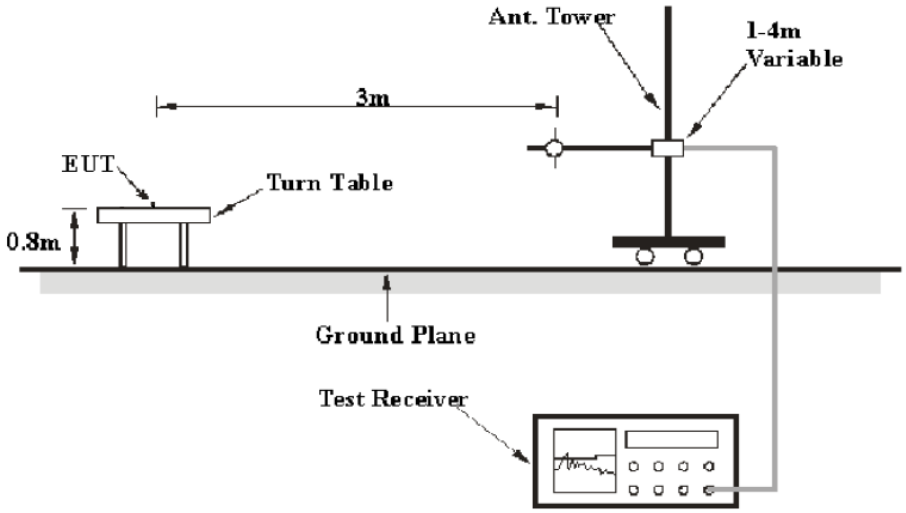
(2) Field strength limits are specified at a distance of 3 meters.

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

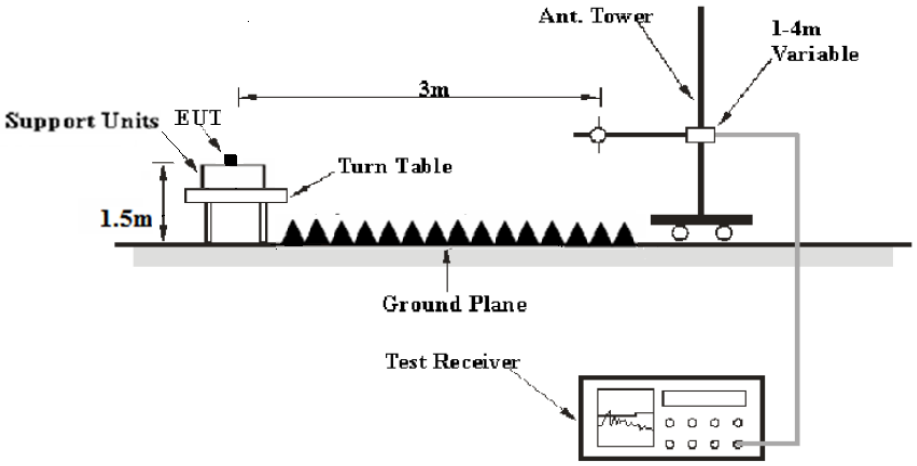
(4) The emission limits shown above are based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

EUT Setup

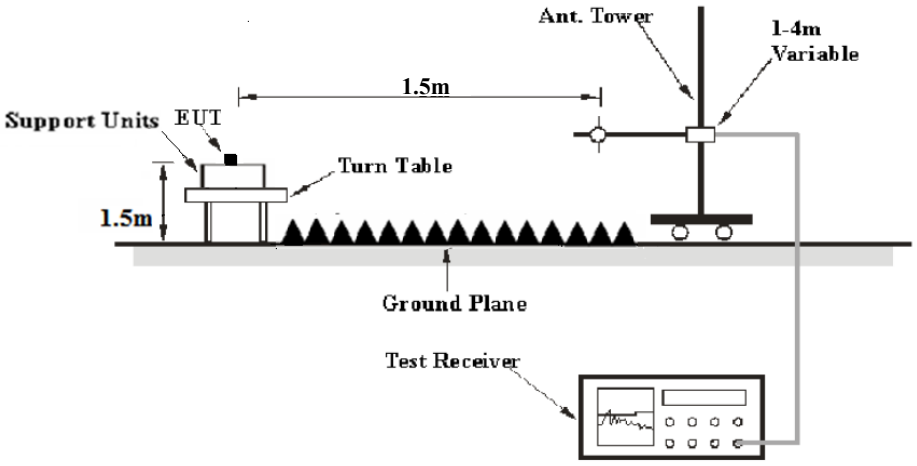
Below 1 GHz:



1 GHz-18GHz:



18 GHz-53GHz:



The radiated emission and out of band emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.205, 15.209 and FCC 15.245 limits.

Test Equipment Setup

The system was investigated from 30 MHz to 53 GHz.

During the radiated emission test, the EMI test receiver setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1GHz	1MHz	3 MHz	/	PK
	1MHz	3 MHz	/	Ave.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detection mode from 30MHz to 1GHz, Peak detection mode above 1 GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude (dB μ V /m) = Meter Reading (dB μ V) + Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.205 &15.209 & 15.245(b).

Test Data

Environmental Conditions

Temperature:	24.2°C
Relative Humidity:	51 %
ATM Pressure:	101.2kPa

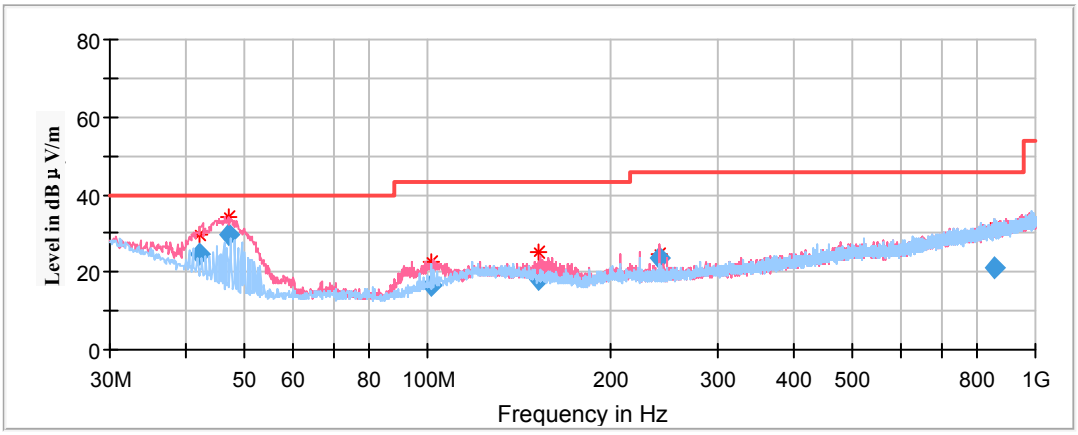
The testing was performed by Alisa Gao from 2018-07-02 to 2018-07-10.

Test mode: Transmitting

Spurious Emissions:

30MHz-1GHz:

(Pre-scan with channel1, channel2, channel3 of operation in the X,Y and Z axes of orientation, the worst case ***channel 1 of operation in the X-axis of orientation*** *was recorded)*

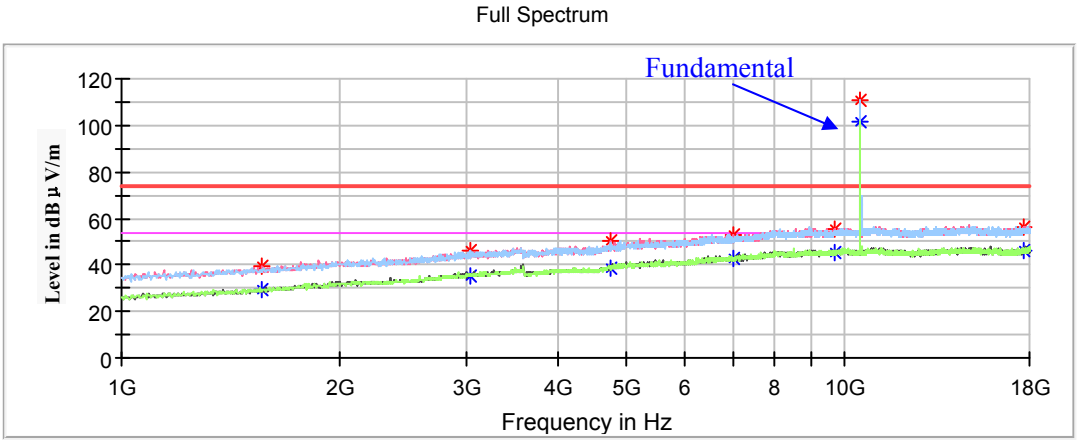


Frequency (MHz)	Corrected Amplitude	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	QuasiPeak (dBµV/m)	Height (cm)	Polar (H/V)				
42.105100	24.68	101.0	V	104.0	-12.6	40.00	15.32
46.996350	29.57	101.0	V	218.0	-15.9	40.00	10.43
101.751700	16.54	101.0	V	202.0	-15.0	43.50	26.96
152.007250	18.24	101.0	V	119.0	-12.9	43.50	25.26
240.058100	23.42	101.0	V	98.0	-12.6	46.00	22.58
855.678950	21.34	101.0	H	103.0	-0.5	46.00	24.66

1GHz-18GHz:

Channel 1: 10515MHz

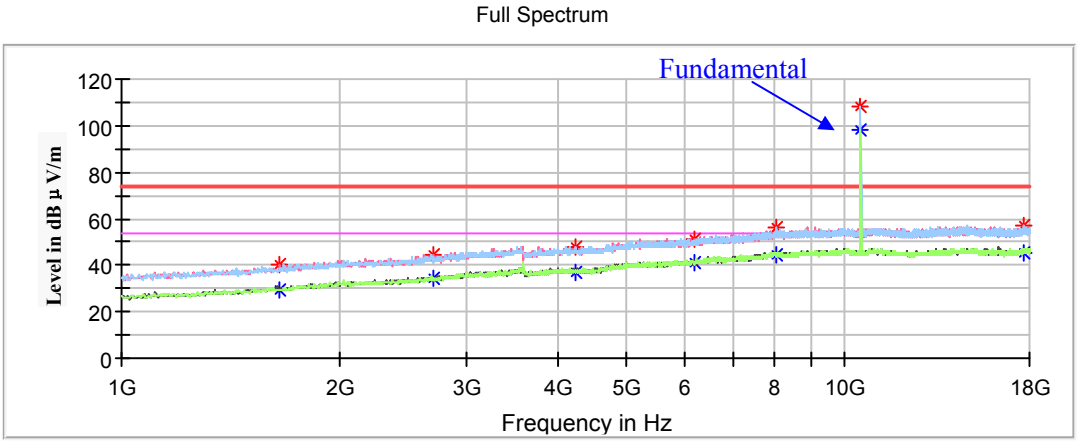
*(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)*



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1567.800000	---	29.59	100.0	V	30.0	-0.8	54.00	24.41
1567.800000	39.49	---	100.0	V	30.0	-0.8	74.00	34.51
3029.800000	---	35.36	100.0	H	165.0	6.1	54.00	18.64
3029.800000	46.17	---	100.0	H	165.0	6.1	74.00	27.83
4757.000000	---	38.33	200.0	V	222.0	10.5	54.00	15.67
4757.000000	50.39	---	200.0	V	222.0	10.5	74.00	23.61
7024.800000	---	42.53	100.0	V	17.0	15.0	54.00	11.47
7024.800000	52.72	---	100.0	V	17.0	15.0	74.00	21.28
9676.800000	---	45.03	200.0	V	228.0	18.0	54.00	8.97
9676.800000	55.01	---	200.0	V	228.0	18.0	74.00	18.99
17683.800000	---	46.39	100.0	V	42.0	18.7	54.00	7.61
17683.800000	56.57	---	100.0	V	42.0	18.7	74.00	17.43

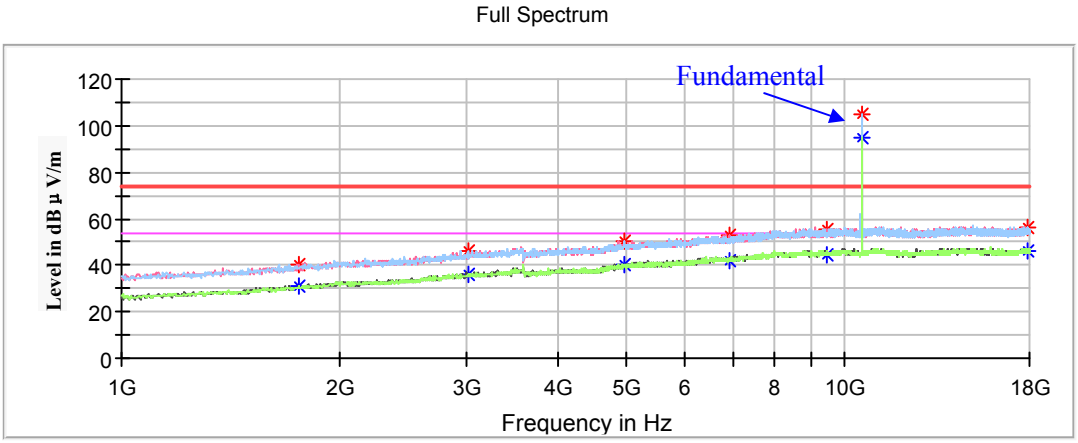
Channel 2: 10525MHz

*(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)*



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1656.200000	40.56	---	200.0	V	10.0	-0.1	74.00	33.44
1656.200000	---	29.70	200.0	V	10.0	-0.1	54.00	24.30
2700.000000	44.53	---	100.0	V	147.0	4.3	74.00	29.47
2700.000000	---	34.16	100.0	V	147.0	4.3	54.00	19.84
4247.000000	48.06	---	100.0	H	144.0	9.2	74.00	25.94
4247.000000	---	37.30	100.0	H	144.0	9.2	54.00	16.70
6195.200000	50.93	---	200.0	V	185.0	13.5	74.00	23.07
6195.200000	---	40.77	200.0	V	185.0	13.5	54.00	13.23
8051.600000	---	44.71	150.0	H	7.0	17.1	54.00	9.29
8051.600000	55.81	---	150.0	H	7.0	17.1	74.00	18.19
17619.200000	---	45.62	200.0	H	165.0	18.6	54.00	8.38
17619.200000	57.07	---	200.0	H	165.0	18.6	74.00	16.93

Channel 3: 10535MHz
*(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)*



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1754.800000	---	31.32	150.0	V	41.0	0.5	54.00	22.68
1754.800000	40.35	---	150.0	V	41.0	0.5	74.00	33.65
3009.400000	---	35.69	150.0	H	75.0	6.0	54.00	18.31
3009.400000	45.91	---	150.0	H	75.0	6.0	74.00	28.09
4964.400000	---	40.29	250.0	H	344.0	11.5	54.00	13.71
4964.400000	50.53	---	250.0	H	344.0	11.5	74.00	23.47
6943.200000	---	41.75	100.0	V	4.0	14.9	54.00	12.25
6943.200000	52.61	---	100.0	V	4.0	14.9	74.00	21.39
9432.000000	---	44.55	250.0	V	52.0	17.8	54.00	9.45
9432.000000	55.61	---	250.0	V	52.0	17.8	74.00	18.39
17847.000000	---	46.34	150.0	H	281.0	19.0	54.00	7.66
17847.000000	56.02	---	150.0	H	281.0	19.0	74.00	17.98

Note:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
Corrected Amplitude (dBµV /m) = Corrected Factor (dB/m) + Reading (dBµV)
Margin (dB) = Limit (dBµV/m) – Corrected Amplitude (dBµV /m)

18GHz-53GHz:

Note:

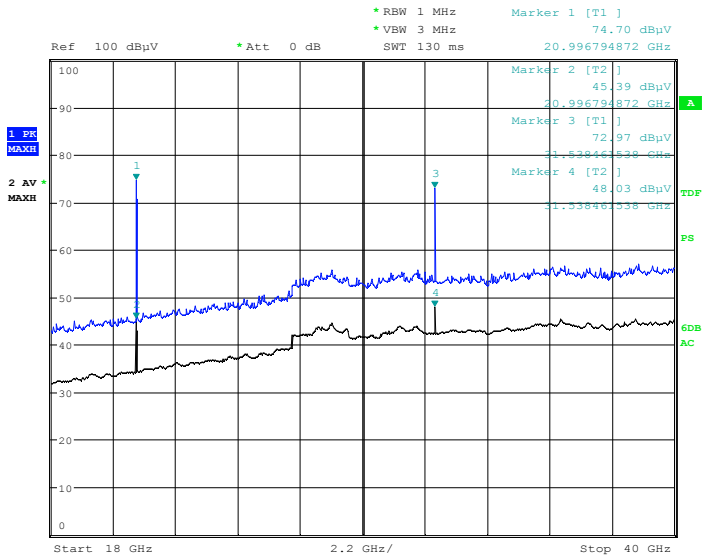
1.The test distance is 1.5m, the limit for Peak is 74dBuV/m@3m= 80dBuV/m @1.5m, the limit for Average is 54dBuV/m@3m= 60dBuV/m @1.5m

2. For 40-53GHz, the spurious emission which is 20dB to the limit was not recorded.

Channel 1: 10515MHz

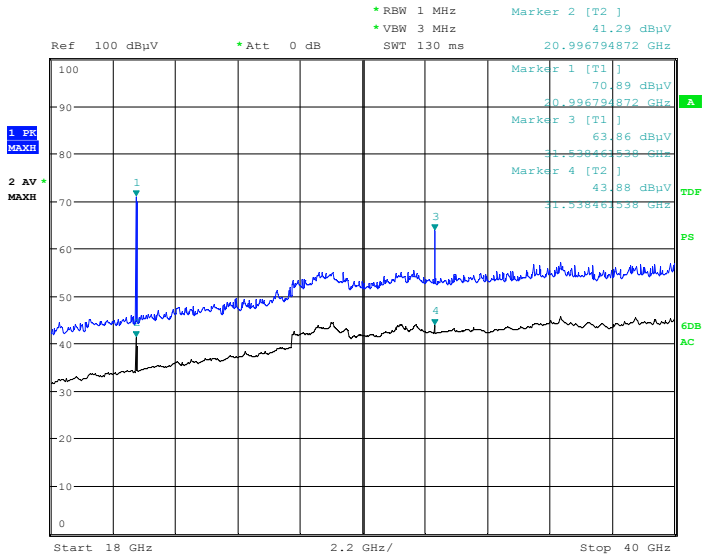
*(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)*

Horizontal Plot



Date: 2.JUL.2018 15:32:15

Vertical Plot

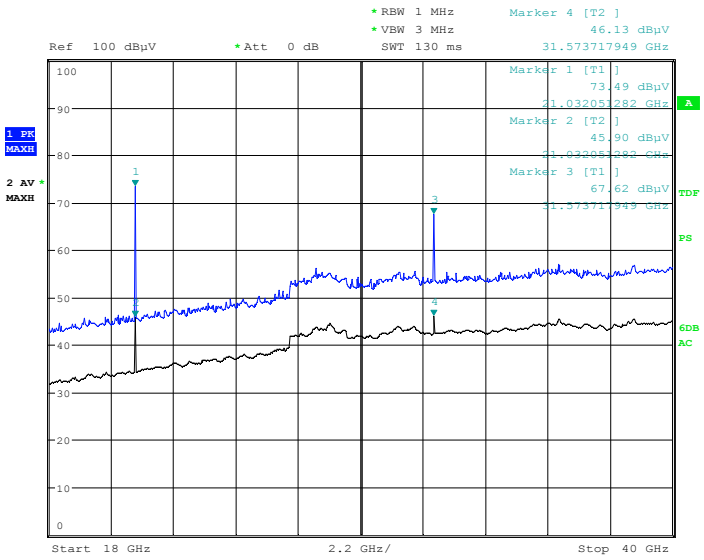


Date: 2.JUL.2018 14:46:18

Channel 2: 10525MHz

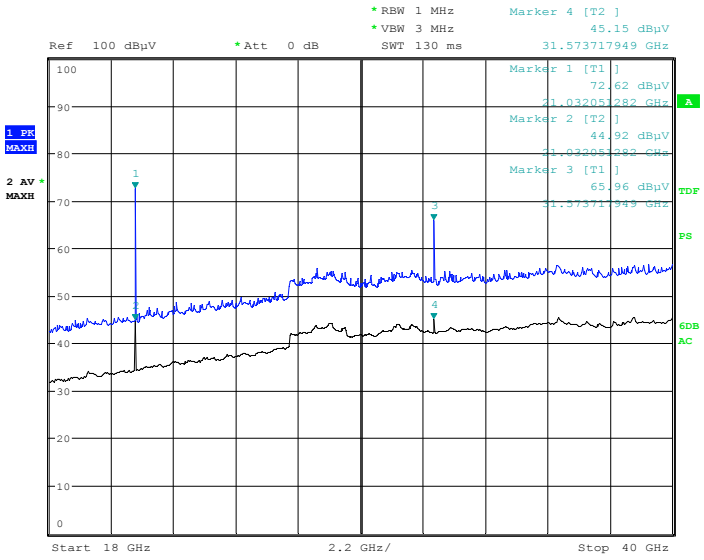
*(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)*

Horizontal Plot



Date: 2.JUL.2018 14:57:53

Vertical Plot

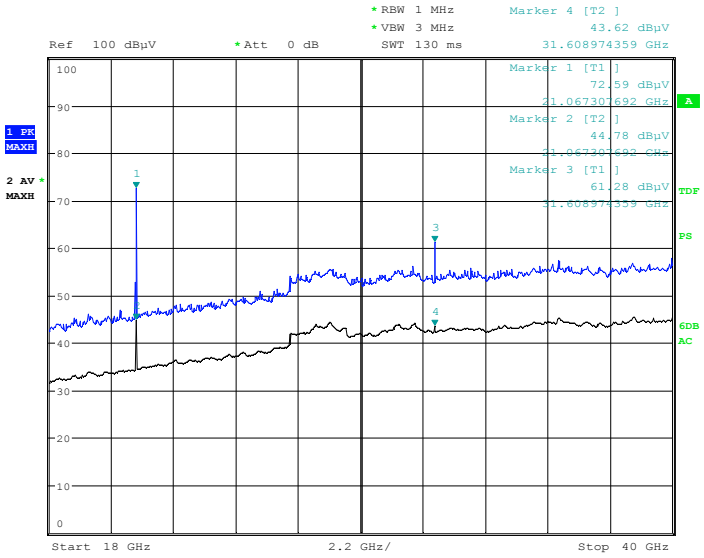


Date: 2.JUL.2018 15:11:32

Channel 3: 10535MHz

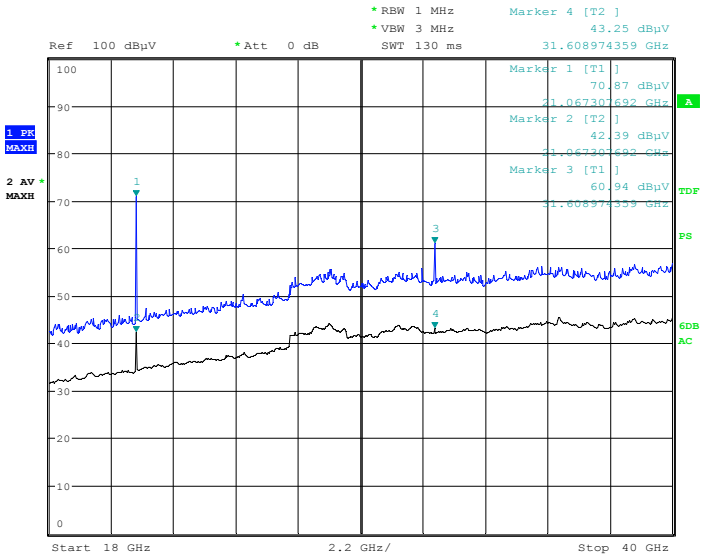
*(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)*

Horizontal Plot



Date: 2.JUL.2018 17:46:20

Vertical Plot



Date: 2.JUL.2018 17:56:01

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Channel 1: 10515MHz								
21030.00	---	45.39	176.0	H	40.0	20.30	94.00	48.61
21030.00	74.70	---	176.0	H	40.0	20.30	114.00	39.30
21030.00	---	41.29	225.0	V	85.0	20.30	94.00	52.71
21030.00	70.89	---	225.0	V	85.0	20.30	114.00	43.11
31545.00	---	48.03	234.0	H	200.0	26.70	94.00	45.97
31545.00	72.97	---	234.0	H	200.0	26.70	114.00	41.03
31545.00	---	43.88	150.0	V	2.0	26.70	94.00	50.12
31545.00	63.86	---	150.0	V	2.0	26.70	114.00	50.14
Channel 2: 10525MHz								
21050.00	---	45.90	165.0	H	162.0	20.30	94.00	48.10
21050.00	73.49	---	165.0	H	162.0	20.30	114.00	40.51
21050.00	---	44.92	193.0	V	225.0	20.30	94.00	49.08
21050.00	72.62	---	193.0	V	225.0	20.30	114.00	41.38
31575.00	---	46.13	226.0	H	249.0	26.70	94.00	47.87
31575.00	67.62	---	226.0	H	249.0	26.70	114.00	46.38
31575.00	---	45.15	243.0	V	189.0	26.70	94.00	48.85
31575.00	65.96	---	243.0	V	189.0	26.70	114.00	48.04
Channel 3: 10535MHz								
21070.00	---	44.78	210.0	H	149.0	20.30	94.00	49.22
21070.00	72.59	---	210.0	H	149.0	20.30	114.00	41.41
21070.00	---	42.39	238.0	V	132.0	20.30	94.00	51.61
21070.00	70.87	---	238.0	V	132.0	20.30	114.00	43.13
31605.00	---	43.62	182.0	H	8.0	26.70	94.00	50.38
31605.00	61.28	---	182.0	H	8.0	26.70	114.00	52.72
31605.00	---	43.25	153.0	V	329.0	26.70	94.00	50.75
31605.00	60.94	---	153.0	V	329.0	26.70	114.00	53.06

Note:

1. The test distance is 1.5m, the limit for Peak is 108dBuV/m@3m= 114dBuV/m @1.5m, the limit for Average is 88dBuV/m@3m= 94dBuV/m @1.5m
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
   Corrected Amplitude (dBμV /m) = Corrected Factor (dB/m) + Reading (dBμV)
   Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Fundamental Test & Restricted Bands Emissions Test:

(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Channel 1: 10515MHz								
10515.00	---	101.86	100.0	V	243.0	17.70	128.00	26.14
10515.00	110.55	---	100.0	V	243.0	17.70	148.00	37.45
10515.00	---	98.91	200.0	H	8.0	17.70	128.00	29.09
10515.00	107.63	---	200.0	H	8.0	17.70	148.00	40.37
10500.00	---	45.67	100.0	V	115.0	17.70	54.00	8.33
10500.00	55.98	---	100.0	V	115.0	17.70	74.00	18.02
Channel 2: 10525MHz								
10525.00	---	97.82	100.0	V	93.0	17.80	128.00	30.18
10525.00	108.67	---	100.0	V	93.0	17.80	148.00	39.33
10525.00	---	94.97	200.0	H	198.0	17.80	128.00	33.03
10525.00	105.80	---	200.0	H	198.0	17.80	148.00	42.20
Channel 3: 10535MHz								
10535.00	---	94.69	200.0	V	21.0	17.80	128.00	33.31
10535.00	104.67	---	200.0	V	21.0	17.80	148.00	43.33
10535.00	---	91.80	100.0	H	0.0	17.80	128.00	36.20
10535.00	101.77	---	100.0	H	0.0	17.80	148.00	46.23
10550.00	---	45.71	250.0	V	178.0	17.80	54.00	8.29
10550.00	56.15	---	250.0	V	178.0	17.80	74.00	17.85

Note:
Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
Corrected Amplitude (dBμV /m) = Corrected Factor (dB/m) + Reading (dBμV)
Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

FCC §15.215(c) – 20 dB BANDWIDTH TESTING

Applicable Standard

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through §15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT on the test table without connection to measurement instrument. Turn on the EUT. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Test Data

Environmental Conditions

Temperature:	24.2°C
Relative Humidity:	51 %
ATM Pressure:	101.2kPa

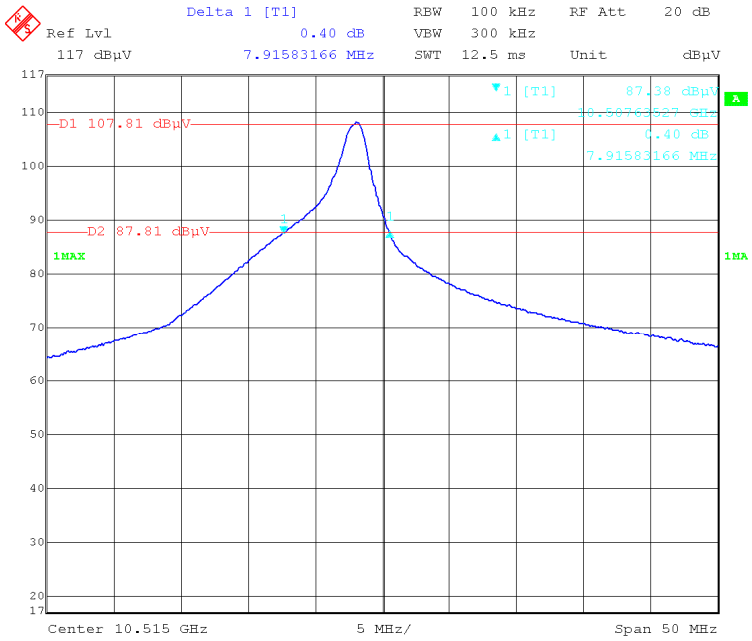
The testing was performed by Alisa Gao on 2018-07-04.

Test Result: Compliant.

Test Mode: Transmitting

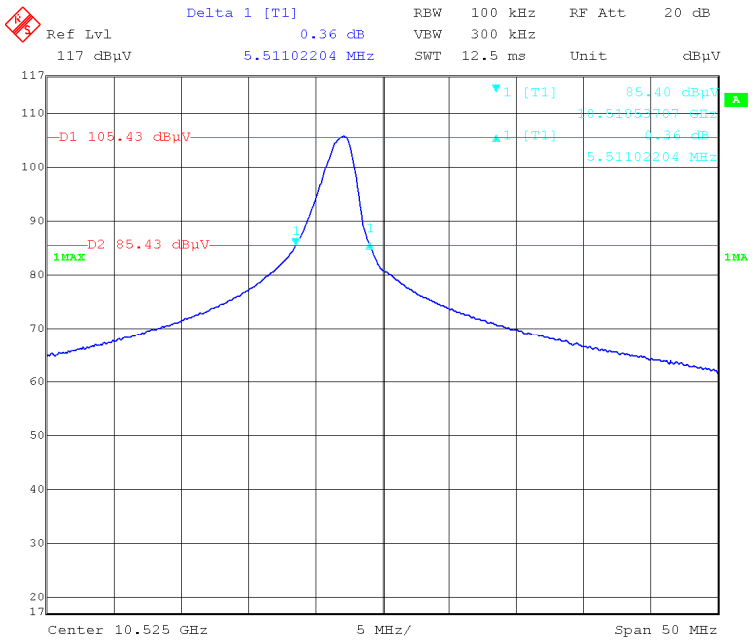
Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
1	10515	7.916
2	10525	5.511
3	10535	8.417

Channel 1



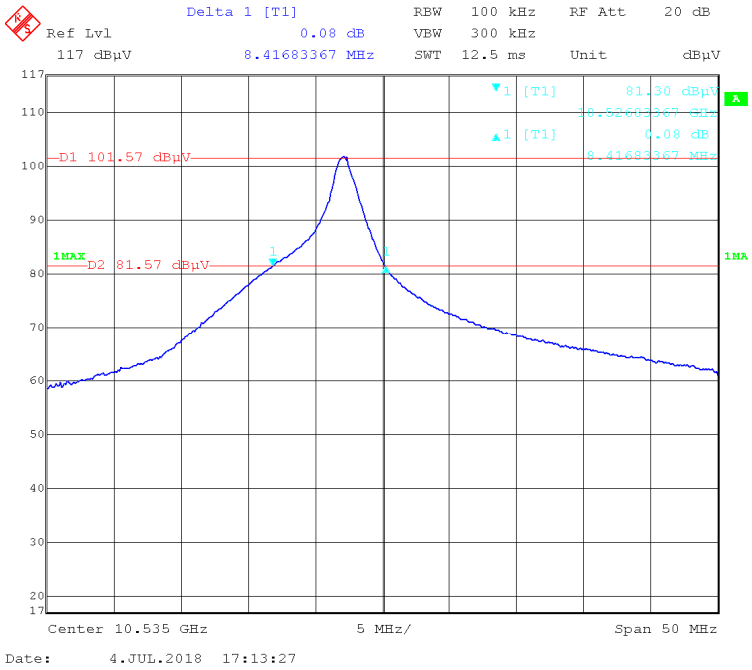
Date: 4.JUL.2018 15:59:59

Channel 2



Date: 4.JUL.2018 16:08:17

Channel 3



******* END OF REPORT *******