SGS-CSTC Standards Technical Services Ltd.
Shenzhen Branch

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Email: ee.shenzhen@sgs.com

FCC REPORT

Application No. :	SZEM1604002965CR
Applicant:	Audio Resource Group, Inc
Manufacturer:	Shenzhen Alcors Technology Co.,Limited
Factory:	Shenzhen Alcors Technology Co.,Limited
Product Name:	Large Area 72MHz Multi-channel Transmitter
Model No.(EUT):	RAW-TX72ST
Add Model No.:	ARG-TX72ST, RAW-TX72ST-1, RAW-TX72ST-2, XXX-TX72ST, XXX-TX72ST-1, XXX-TX72ST-2
Trade Mark:	ARG
FCC ID:	2ACGIARG-TX72ST
Standards:	47 CFR Part 15, Subpart C (2015)
Date of Receipt:	2016-05-05
Date of Test:	2016-05-23 to 2016-06-02
Date of Issue:	2016-06-12
Test Result:	**PASS ***

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00		2016-06-12		Original

Authorized for issue by:				
Tested By		Hank yan. **(Hank Yan) /Project Engineer**		2016-06-02 **Date**
Prepared By		Joyce Shi **(Joyce Shi) /Clerk**		2016-06-12 **Date**
Checked By		Eric Fu **(Eric Fu) /Reviewer**		2016-06-12 **Date**

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3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 (2009)	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 (2009)	PASS
Field Strength of the Fundamental Signal	47 CFR Part 15, Subpart C Section 15.237 (c)	ANSI C63.10 (2009)	PASS
Spurious Emissions	47 CFR Part 15, Subpart C Section 15.237 (c)/15.209	ANSI C63.10 (2009)	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.237 (b)	ANSI C63.10 (2009)	PASS

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5 General Information

5.1 Client Information

Applicant:	Audio Resource Group, Inc
Address of Applicant:	405 Main Ave W, Suite 4G, West Fargo, ND58078, USA
Manufacturer:	Shenzhen Alcors Technology Co.,Limited
Address of Manufacturer:	4th Fl south, LianChuang Sci&Tec Park, Bulan RD, Buji Town, Shenzhen, China
Factory:	Shenzhen Alcors Technology Co.,Limited
Address of Factory:	4th Fl south, LianChuang Sci&Tec Park, Bulan RD, Buji Town, Shenzhen, China

5.2 General Description of EUT

Product Name:	Large Area 72MHz Multi-channel Transmitter
Model No.:	RAW-TX72ST
Trade Mark:	ARG
Operating Frequency:	72.1MHz to 72.9MHz, 74.7MHz, 75.3MHz to 75.9MHz
Modulation Type:	FM
Number of Channels:	9 Channels from 72.1 to 72.9MHz 1 Channel from 74.6 to 74.8MHz 7 Channels from 75.3 to 75.9 MHz
Antenna Type:	Integral
Antenna Gain:	2dBi
Power Supply:	DC 9V

Remark:

Model No.: RAW-TX72ST, ARG-TX72ST, RAW-TX72ST-1, RAW-TX72ST-2, XXX-TX72ST, XXX-TX72ST-1, XXX-TX72ST-2
Only the model RAW-TX72ST was tested, since the circuitry design, PCB layout, electrical components used, internal wiring and functions were identical for all above models. Only different on model number.

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Operation Frequency each of channel					
Channel	Frequency	Channel	Frequency	Channel	Frequency
1	72.1MHz	7	75.9MHz	13	72.8MHz
2	72.5MHz	8	72.2MHz	14	75.4MHz
3	72.9MHz	9	72.3MHz	15	75.5MHz
4	75.7MHz	10	72.4MHz	16	75.6MHz
5	74.7MHz	11	72.6MHz	17	75.8MHz
6	75.3MHz	12	72.7MHz		

Note:

The Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel(CH2)	72.5MHz
The Middle channel(CH5)	74.7MHz
The Highest channel(CH16)	75.6MHz

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5.3 Test Environment and Mode

	Operating Environment:	
	Temperature:	24.0 °C
	Humidity:	52 % RH
	Atmospheric Pressure:	1010 mbar
	Test mode:	
A	Tx mode	Keep the EUT in transmitting mode

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5.4 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.
AC adapter (Output DC 9V 500mA)	Supply by customer	JY41-090-050-UD
Analog Audio Signal Generator	NTi Audio AG	G2P-RAAUM-F2

5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,
No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.
Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

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5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

• **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

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5.10 Equipment List

Conducted Emission						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2016-05-13	2017-05-13
2	LISN	Rohde & Schwarz	ENV216	SEM007-01	2015-10-09	2016-10-09
3	LISN	ETS-LINDGREN	3816/2	SEM007-02	2016-04-25	2017-04-25
4	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	EMC0120	2015-08-30	2016-08-30
5	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	EMC0121	2015-08-30	2016-08-30
6	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	EMC0122	2015-08-30	2016-08-30
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2016-04-25	2017-04-25
8	DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2015-10-09	2016-10-09

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RE in Chamber						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2016-05-13	2017-05-13
2	EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2015-09-16	2016-09-16
3	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2014-11-01	2017-11-01
4	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEM003-11	2015-10-17	2018-10-17
5	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEM003-12	2014-11-24	2017-11-24
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2016-04-25	2017-04-25
7	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A
8	DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2015-10-09	2016-10-09
9	Loop Antenna	Beijing Daze	ZN30401	SEM003-09	2015-05-13	2018-05-13

RF connected test						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2015-10-09	2016-10-09
2	Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2015-10-17	2016-10-17
3	Signal Generator	Rohde & Schwarz	SML03	SEM006-02	2016-04-25	2017-04-25
4	Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2015-10-09	2016-10-09

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6 Test results and Measurement Data

6.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203
15.203 requirement: 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, 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.	
EUT Antenna:	
The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2dBi. 	

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6.2 Conducted Emissions

<table>
<tr><td>Test Requirement:</td><td>47 CFR Part 15C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2009</td></tr>
<tr><td>Test Frequency Range:</td><td>150kHz to 30MHz</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test Procedure:</td><td>
1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2009 on conducted measurement.
</td></tr>
</table>

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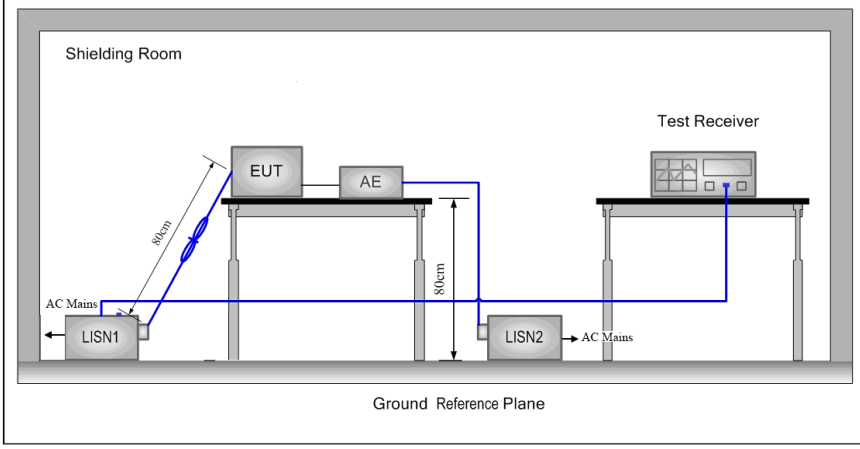
Test Setup:	
Test Mode:	Transmitting mode.
Instruments Used:	Refer to section 5.10 for details.
Test Results:	Pass

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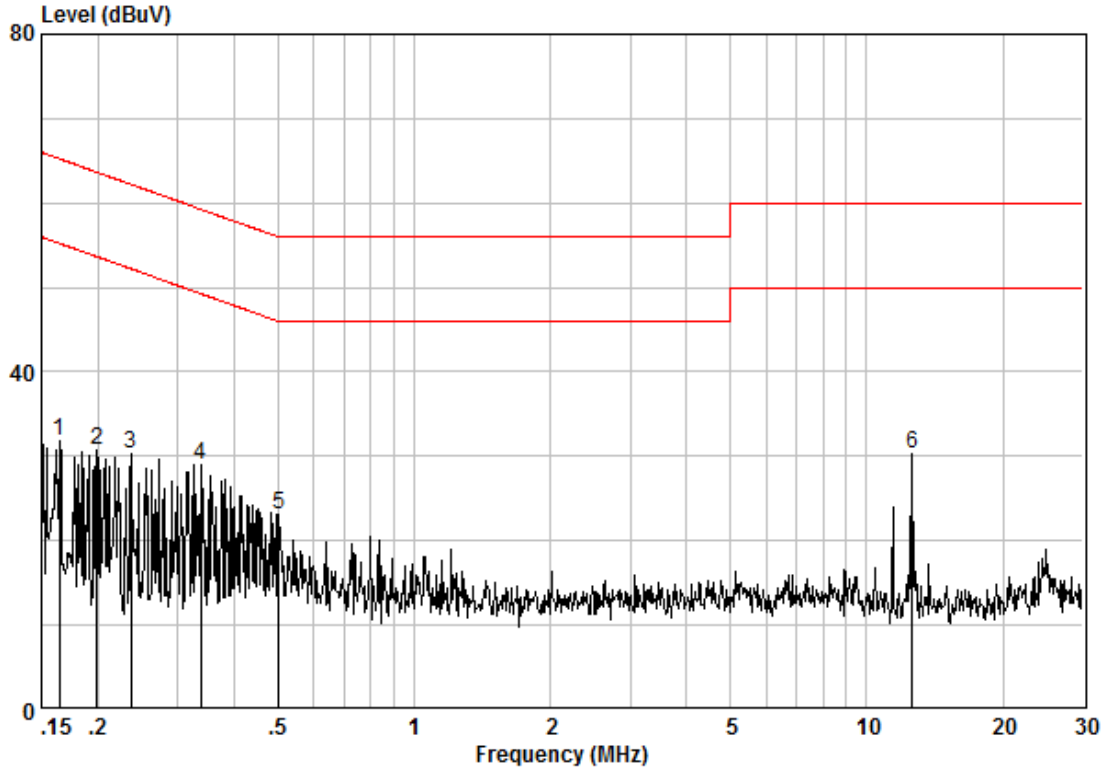
Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live Line:



Site : Shielding Room
Condition : CE LINE
Job No. : 2965CR
Test Mode : TX

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16414	0.02	9.60	22.20	31.81	55.25	-23.44	Peak
2	0.19863	0.02	9.60	21.04	30.66	53.67	-23.01	Peak
3	0.23658	0.02	9.60	20.73	30.34	52.22	-21.87	Peak
4	0.33740	0.01	9.59	19.50	29.10	49.27	-20.17	Peak
5	0.50203	0.01	9.59	13.50	23.10	46.00	-22.90	Peak
6	12.582	0.01	9.74	20.46	30.21	50.00	-19.79	Peak

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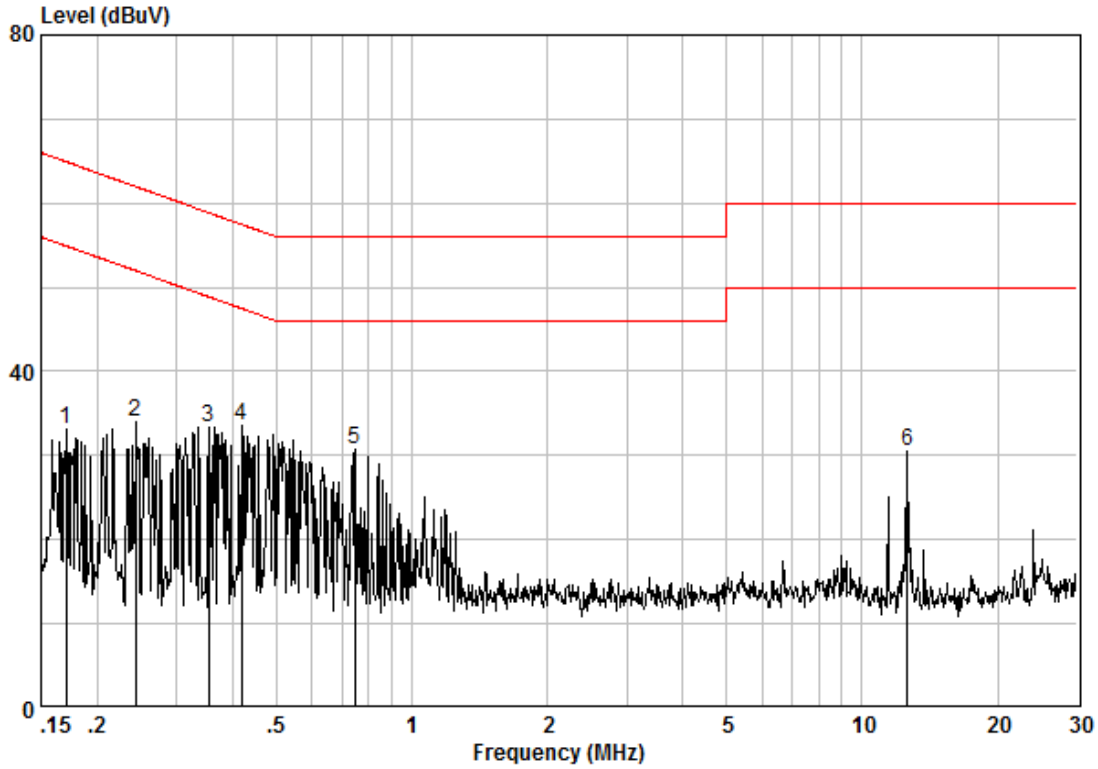
Neutral Line:



Site : Shielding Room
Condition : CE NEUTRAL
Job No. : 2965CR
Test Mode : TX

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17034	0.02	9.60	23.60	33.22	54.94	-21.72	Peak
2	0.24293	0.02	9.61	24.48	34.11	52.00	-17.88	Peak
3	0.35388	0.01	9.62	23.82	33.45	48.87	-15.42	Peak
4 @	0.41927	0.01	9.62	24.03	33.66	47.46	-13.80	Peak
5	0.74697	0.02	9.64	21.13	30.78	46.00	-15.22	Peak
6	12.582	0.01	9.85	20.62	30.49	50.00	-19.51	Peak

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

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6.3 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.237 (c) and 15.209
Test Method:	ANSI C63.10: 2009
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak

Limit:
(Spurious Emissions)

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Limit:
(Field strength of the fundamental signal)

Frequency	Limit (dBuV/m @3m)	Remark
72.0MHz-73.0MHz	98.06	Average Value
74.6MHz-74.8MHz 75.2MHz-76.0MHz	118.06	Peak Value

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Test Setup:	

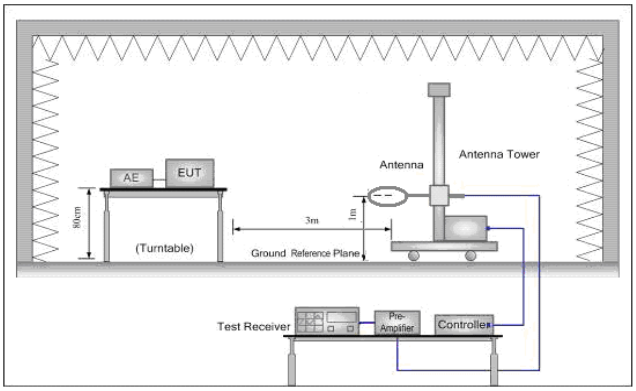

Figure 1. Below 30MHz

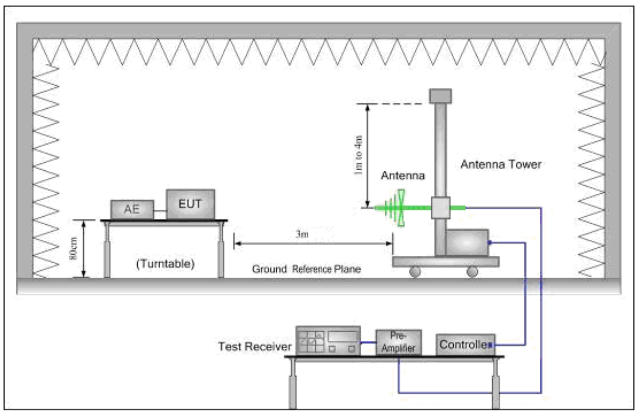

Figure 2. 30MHz to 1GHz

Test Procedure:	
	a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel,the middle channel,the Highest channel h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode,And found the X axis positioning which it is worse case. i. Repeat above procedures until all frequencies measured was complete.

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Exploratory Test Mode:	Transmitting mode, AC Charge +Transmitting mode.
Final Test Mode:	Pretest the EUT at Transmitting mode and AC Charge +Transmitting mode, found the AC Charge + Transmitting mode which it is worse case. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details.
Test Results:	Pass

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Measurement Data

6.3.1.1 Field Strength Of The Fundamental Signal

Remark: The EUT have two Antenna: ANT A and ANT B. Only one antenna could be used at any time. Two antenna is switched by a switch. Pre-test the EUT with ANT A and ANT B, and found the data of ANT B is worse. So only the data of ANT B is recorded in the report.

Peak value:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
72.50	0.88	7.14	25.93	96.94	79.03	118.06	-39.03	Horizontal
72.50	0.88	7.14	25.93	92.02	74.11	118.06	-43.96	Vertical
74.70	0.94	7.34	25.93	100.38	82.73	118.06	-35.33	Horizontal
74.70	0.94	7.34	25.93	93.06	75.41	118.06	-42.65	Vertical
75.60	0.97	7.42	25.92	101.55	84.02	118.06	-34.04	Horizontal
75.60	0.97	7.42	25.92	93.52	75.99	118.06	-42.07	Vertical

Average value:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
72.50	0.88	7.14	25.93	96.21	78.30	98.06	-19.76	Horizontal
72.50	0.88	7.14	25.93	91.25	73.34	98.06	-24.72	Vertical
74.70	0.94	7.34	25.93	99.63	81.98	98.06	-16.08	Horizontal
74.70	0.94	7.34	25.93	92.44	74.79	98.06	-23.27	Vertical
75.60	0.97	7.42	25.92	100.79	83.26	98.06	-14.80	Horizontal
75.60	0.97	7.42	25.92	92.81	75.28	98.06	-22.78	Vertical

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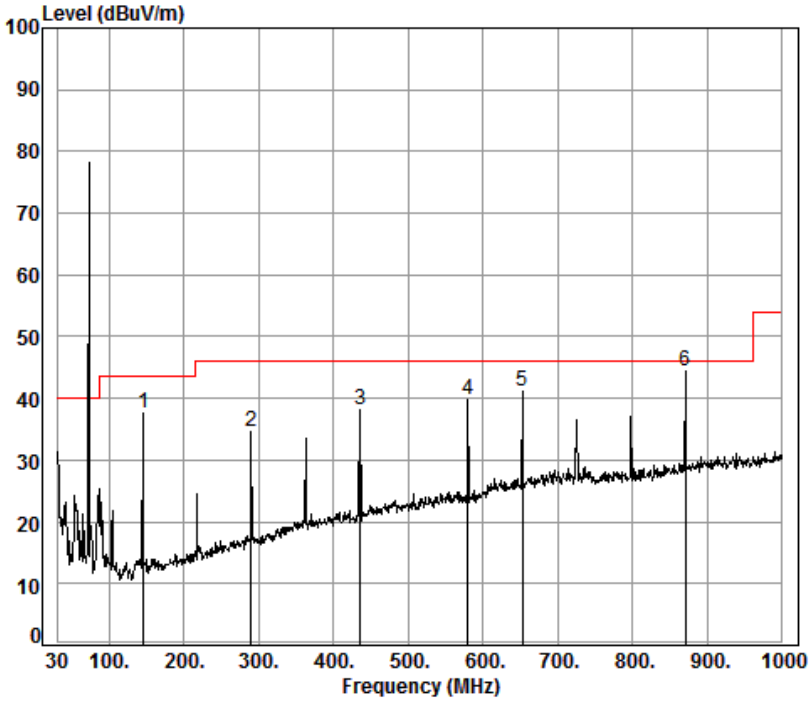
6.3.1.2 Spurious Emissions

30MHz~1GHz	
Test mode:	Transmitting mode

QP value:

Lowest Channel

Vertical:



Condition: 3m VERTICAL
Job No. : 2965CR
Test mode: TX 72.5MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	145.43	1.31	8.90	25.83	53.25	37.63	43.50	-5.87
2	289.96	1.86	13.25	25.71	45.32	34.72	46.00	-11.28
3	435.46	2.35	16.56	25.65	44.96	38.22	46.00	-7.78
4	579.99	2.68	19.14	25.60	43.51	39.73	46.00	-6.27
5	652.74	2.81	20.50	25.66	43.40	41.05	46.00	-4.95
6 pp	870.02	3.48	22.70	25.27	43.51	44.42	46.00	-1.58

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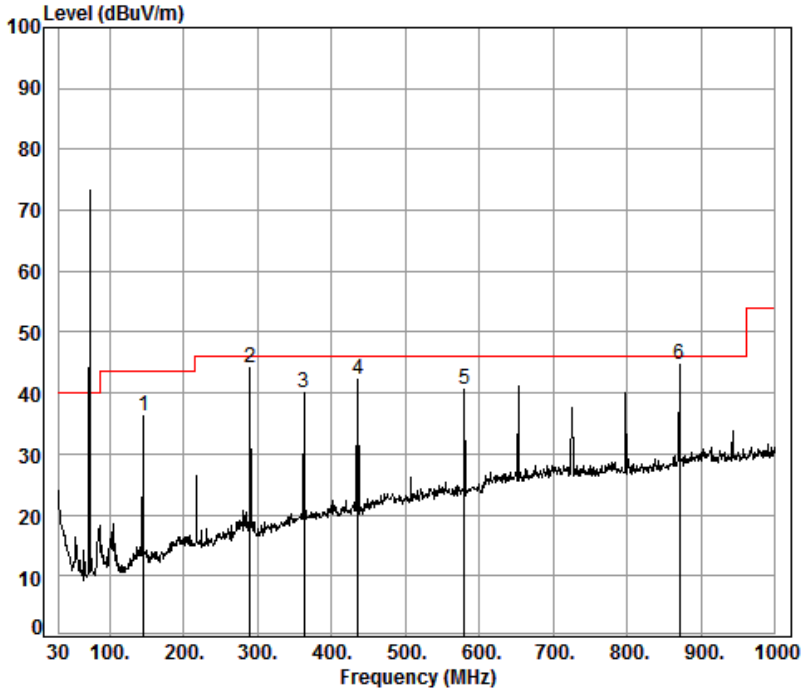
Horizontal:



Condition: 3m HORIZONTAL
Job No. : 2965CR
Test mode: TX 72.5MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	145.43	1.31	8.90	25.83	51.93	36.31	43.50	-7.19
2	289.96	1.86	13.25	25.71	54.83	44.23	46.00	-1.77
3	362.71	2.10	15.71	25.67	47.89	40.03	46.00	-5.97
4	435.46	2.35	16.56	25.65	48.99	42.25	46.00	-3.75
5	579.99	2.68	19.14	25.60	44.49	40.71	46.00	-5.29
6 pp	870.02	3.48	22.70	25.27	43.78	44.69	46.00	-1.31

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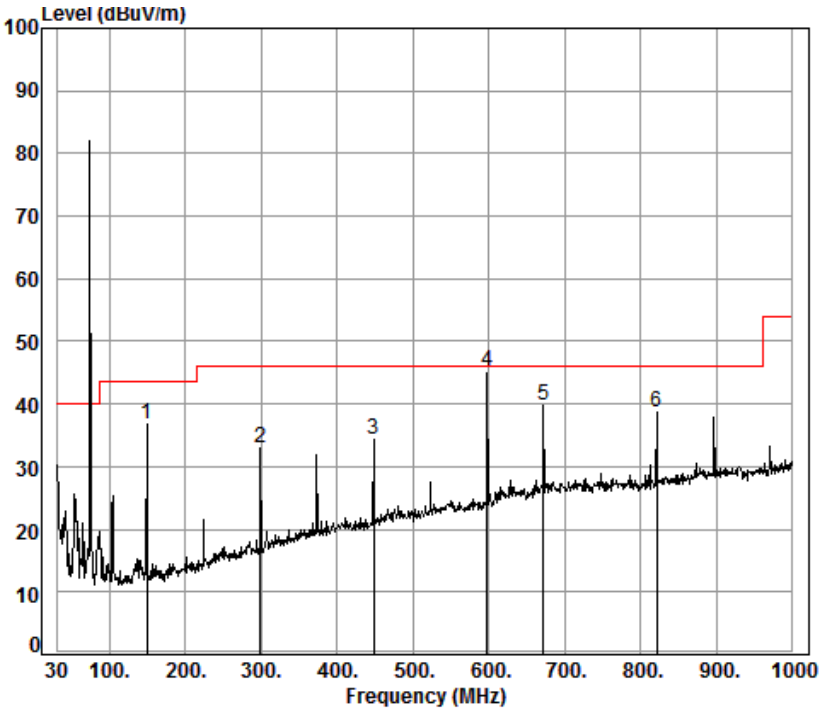
Middle Channel

Vertical:



Condition: 3m VERTICAL
Job No. : 2965CR
Test mode: TX 74.7MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	149.31	1.32	9.24	25.83	52.18	36.91	43.50	-6.59
2	298.69	1.89	13.55	25.70	43.16	32.90	46.00	-13.10
3	448.07	2.40	16.85	25.64	40.80	34.41	46.00	-11.59
4 pp	597.60	2.70	19.63	25.60	48.60	45.33	46.00	-0.67
5	672.14	2.85	21.20	25.68	41.51	39.88	46.00	-6.12
6	821.52	3.29	22.17	25.63	38.80	38.63	46.00	-7.37

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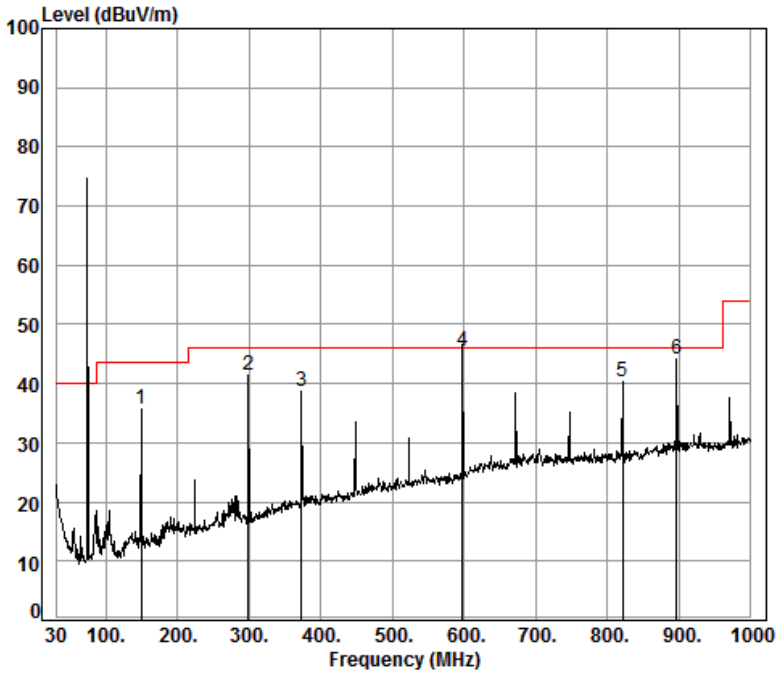
Horizontal:



Condition: 3m HORIZONTAL
Job No. : 2965CR
Test mode: TX 74.7MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	149.31	1.32	9.24	25.83	50.96	35.69	43.50	-7.81
2	298.69	1.89	13.55	25.70	51.68	41.42	46.00	-4.58
3	373.38	2.13	15.87	25.67	46.40	38.73	46.00	-7.27
4 pp	597.60	2.70	19.63	25.60	48.89	45.62	46.00	-0.38
5	821.52	3.29	22.17	25.63	40.48	40.31	46.00	-5.69
6	896.21	3.59	23.14	25.09	42.54	44.18	46.00	-1.82

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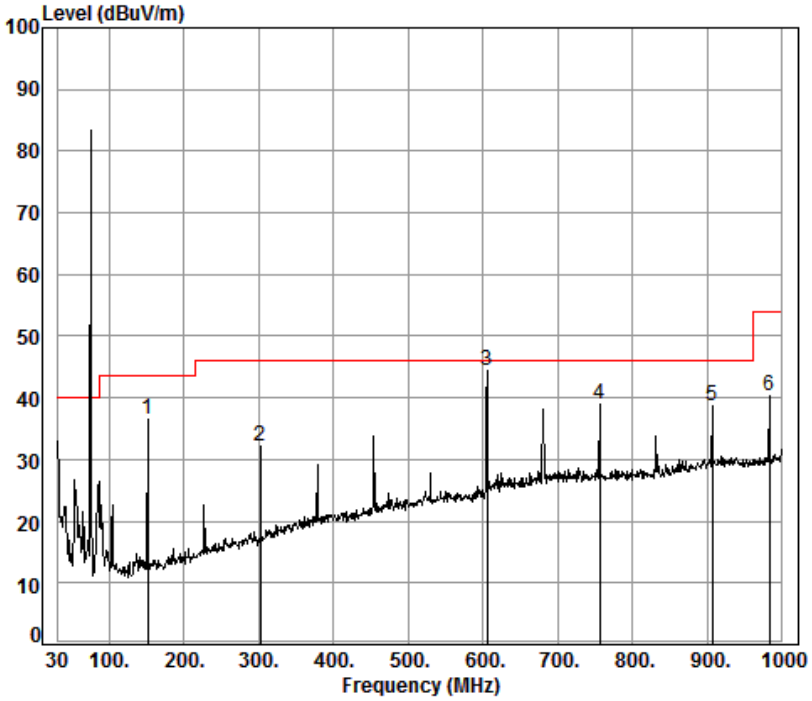
Highest Channel

Vertical:



Condition: 3m VERTICAL
Job No. : 2965CR
Test mode: TX 75.6MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	151.25	1.32	9.35	25.82	51.54	36.39	43.50	-7.11
2	302.57	1.91	13.73	25.70	42.17	32.11	46.00	-13.89
3 pp	605.21	2.71	19.83	25.61	47.48	44.41	46.00	-1.59
4	755.56	3.07	21.67	25.76	40.03	39.01	46.00	-6.99
5	906.88	3.61	23.26	25.01	36.80	38.66	46.00	-7.34
6	982.54	3.68	23.82	24.51	37.32	40.31	54.00	-13.69

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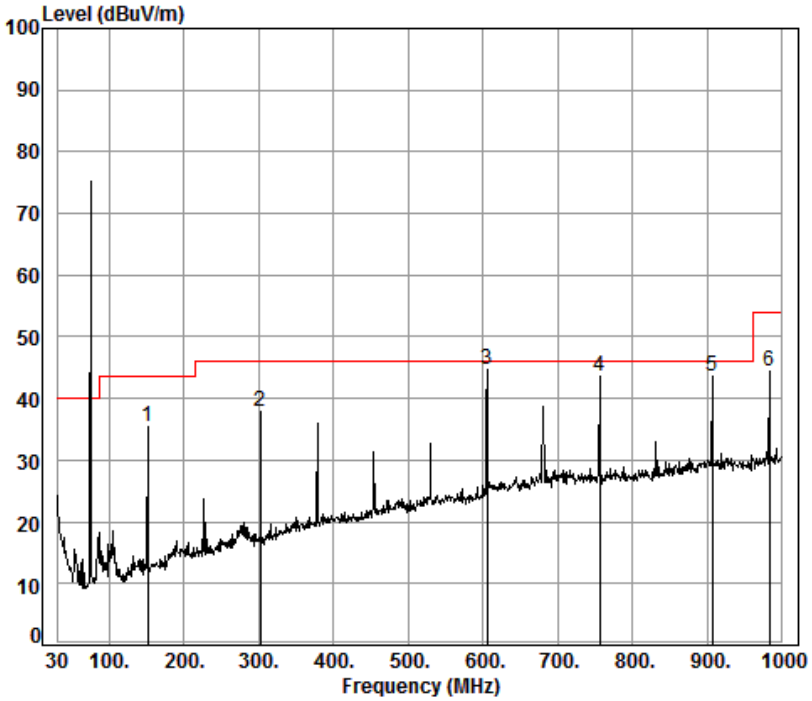
Horizontal:



Condition: 3m HORIZONTAL
Job No. : 2965CR
Test mode: TX 75.6MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	151.25	1.32	9.35	25.82	50.50	35.35	43.50	-8.15
2	302.57	1.91	13.73	25.70	47.99	37.93	46.00	-8.07
3 pp	605.21	2.71	19.83	25.61	47.68	44.61	46.00	-1.39
4	755.56	3.07	21.67	25.76	44.62	43.60	46.00	-2.40
5	906.88	3.61	23.26	25.01	41.71	43.57	46.00	-2.43
6	982.54	3.68	23.82	24.51	41.49	44.48	54.00	-9.52

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Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

   Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

2) Scan from 9kHz to 1GHz,The disturbance below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported .

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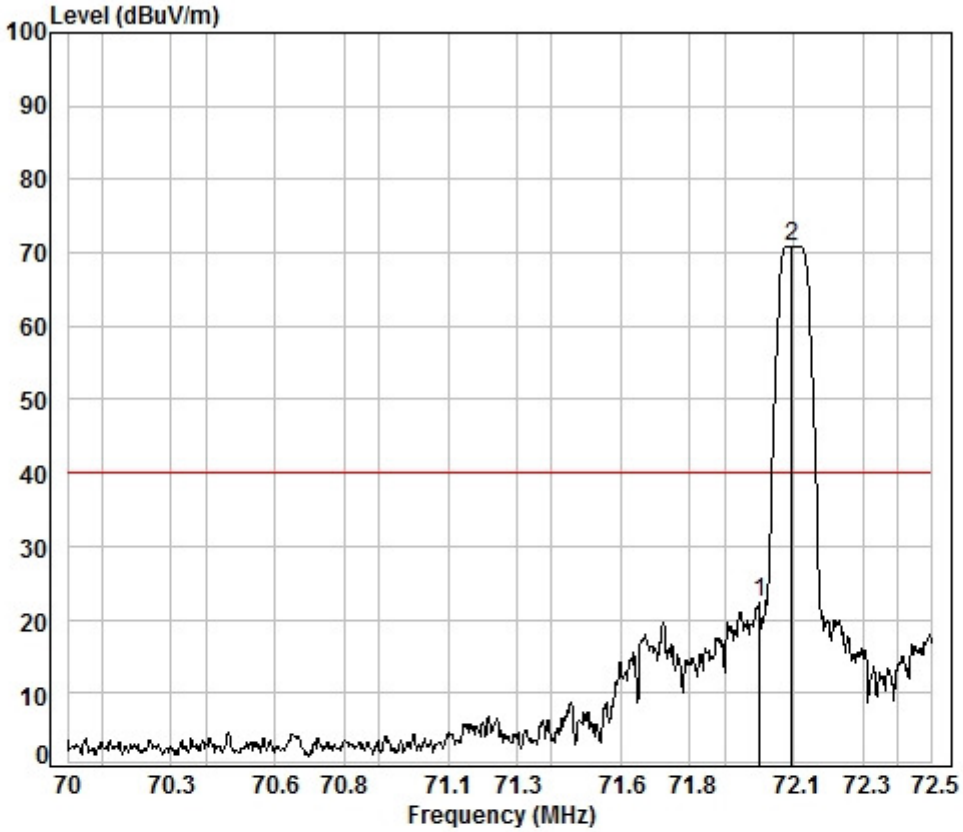
Band edge:

Test Frequency: 72.1MHz



Condition: 3m HORIZONTAL
Job No. : 2965CR
Test mode: TX 72.1MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	72.00	0.86	7.09	25.93	40.40	22.42	40.00	-17.58
2 pp	72.10	0.86	7.10	25.93	88.93	70.96	40.00	30.96

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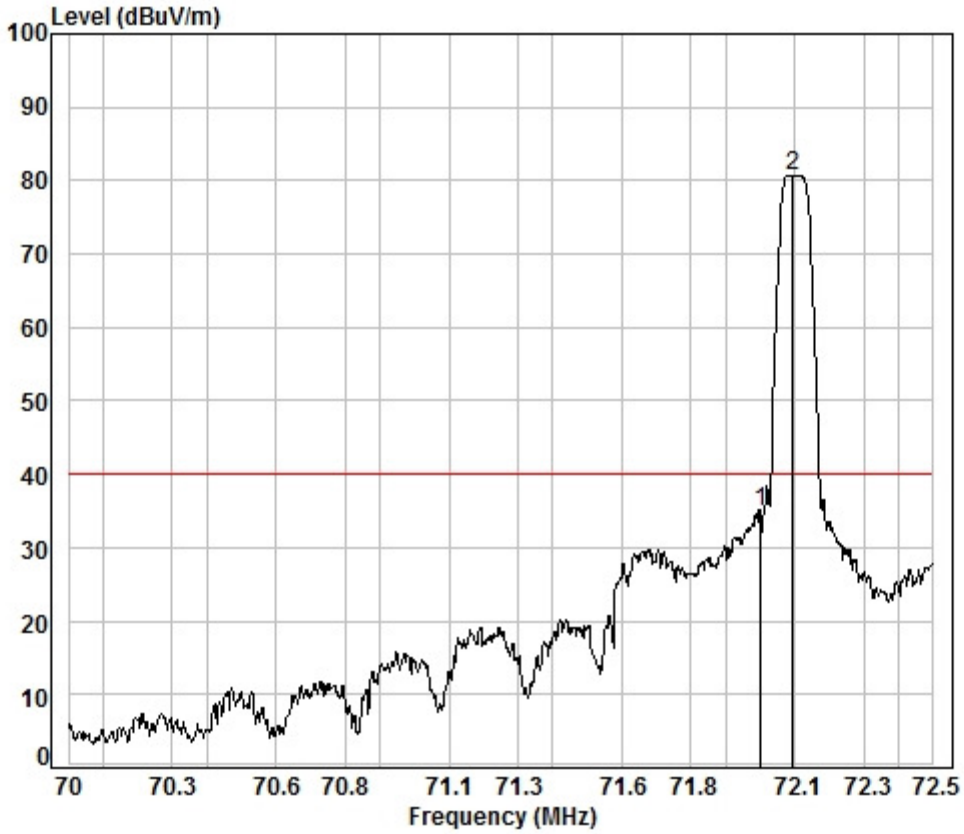

Condition: 3m VERTICAL
Job No. : 2965CR
Test mode: TX 72.1MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	72.00	0.86	7.09	25.93	52.85	34.87	40.00	-5.13
2 pp	72.10	0.86	7.10	25.93	98.71	80.74	40.00	40.74

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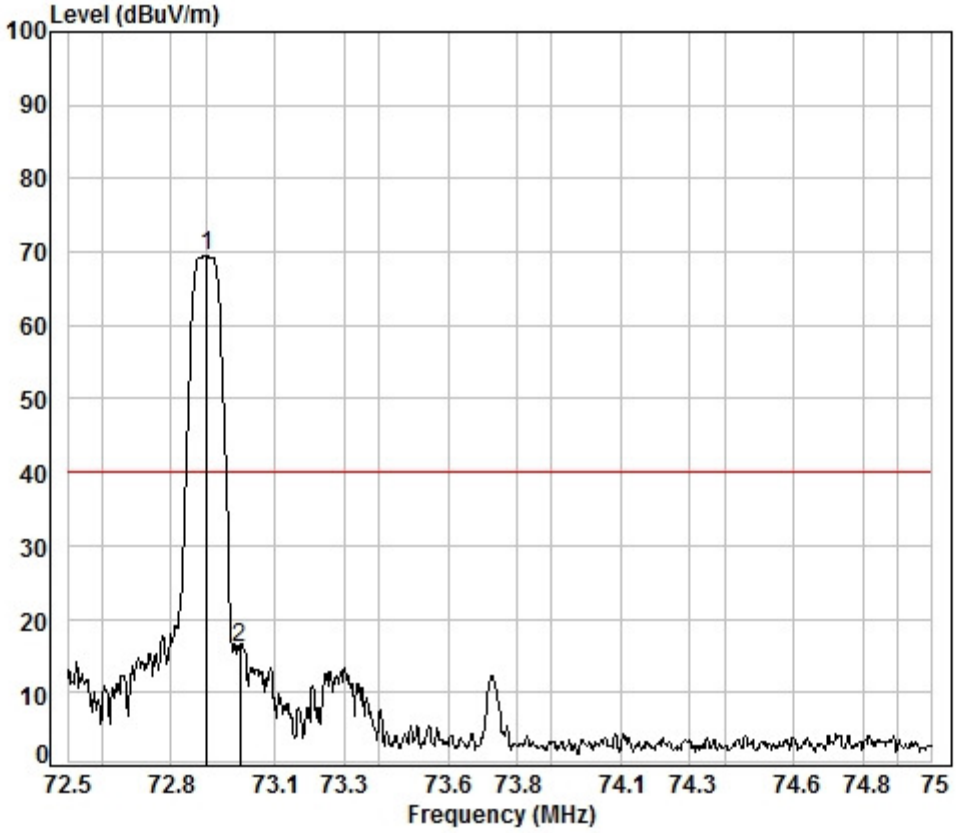
Test Frequency: 72.9MHz



Condition: 3m HORIZONTAL
Job No. : 2965CR
Test mode: TX 72.9MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	72.90	0.89	7.17	25.93	87.26	69.39	40.00	29.39
2	73.00	0.89	7.18	25.93	33.89	16.03	40.00	-23.97

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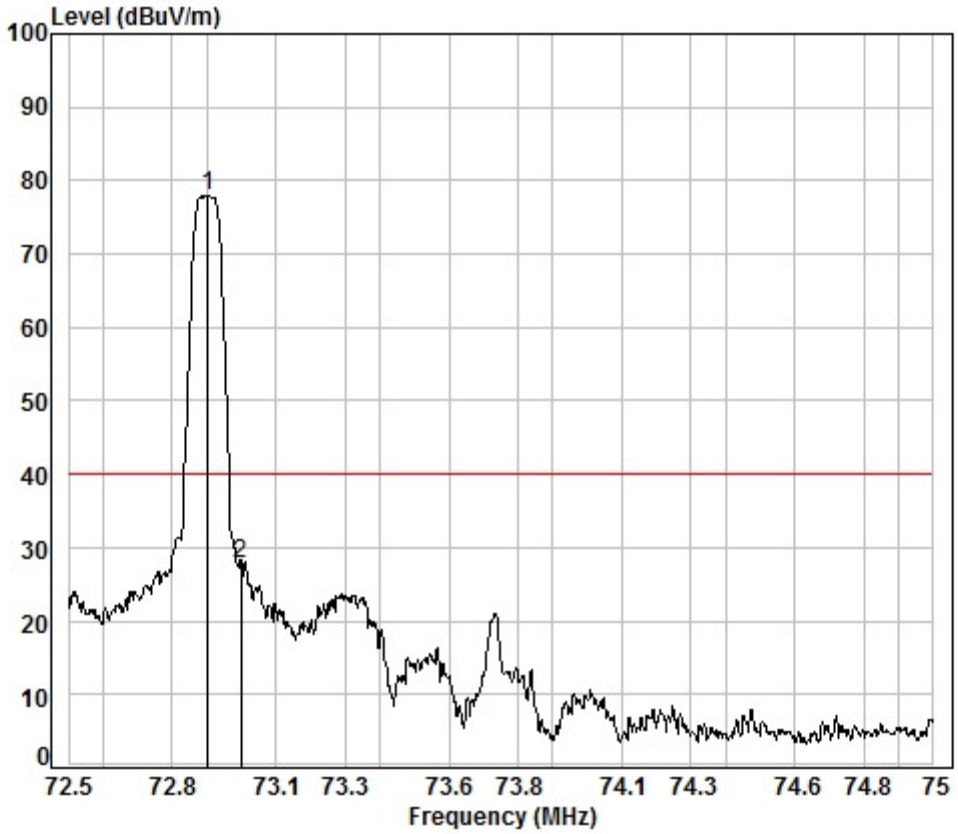

Condition: 3m VERTICAL
Job No. : 2965CR
Test mode: TX 72.9MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	72.90	0.89	7.17	25.93	95.68	77.81	40.00	37.81
2	73.00	0.89	7.18	25.93	45.66	27.80	40.00	-12.20

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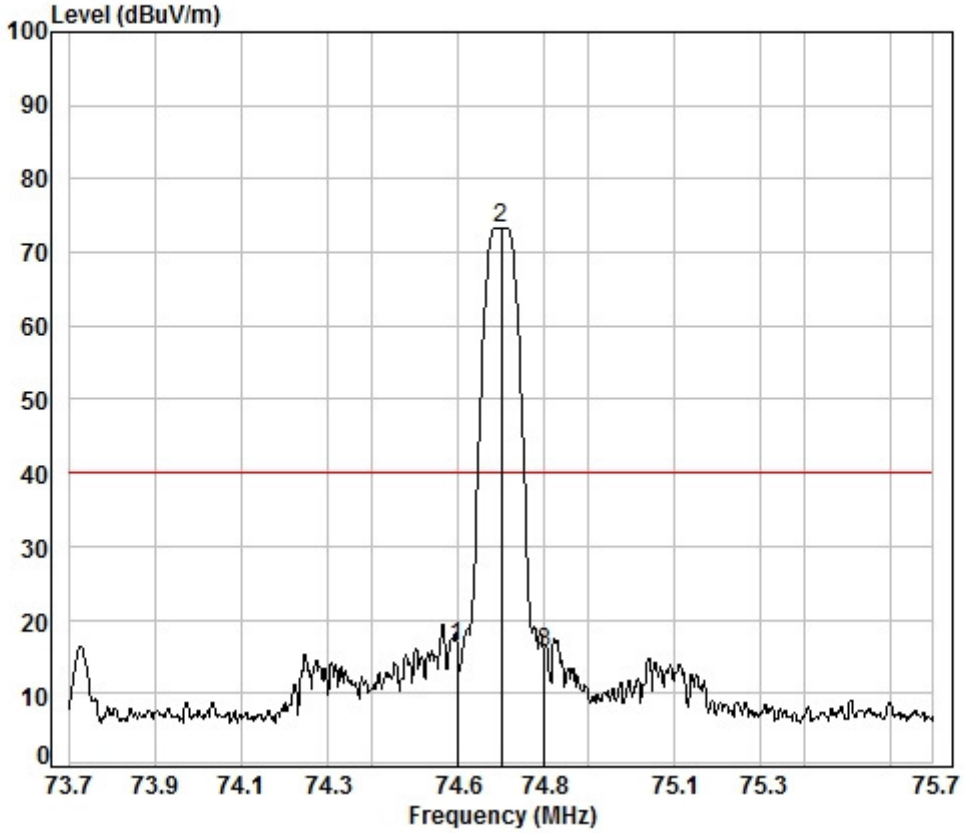
Test Frequency: 74.7MHz



Condition: 3m HORIZONTAL
Job No. : 2965CR
Test mode: TX 74.7MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	74.60	0.94	7.33	25.93	33.93	16.27	40.00	-23.73
2 pp	74.70	0.94	7.34	25.93	91.07	73.42	40.00	33.42
3	74.80	0.95	7.35	25.93	33.13	15.50	40.00	-24.50

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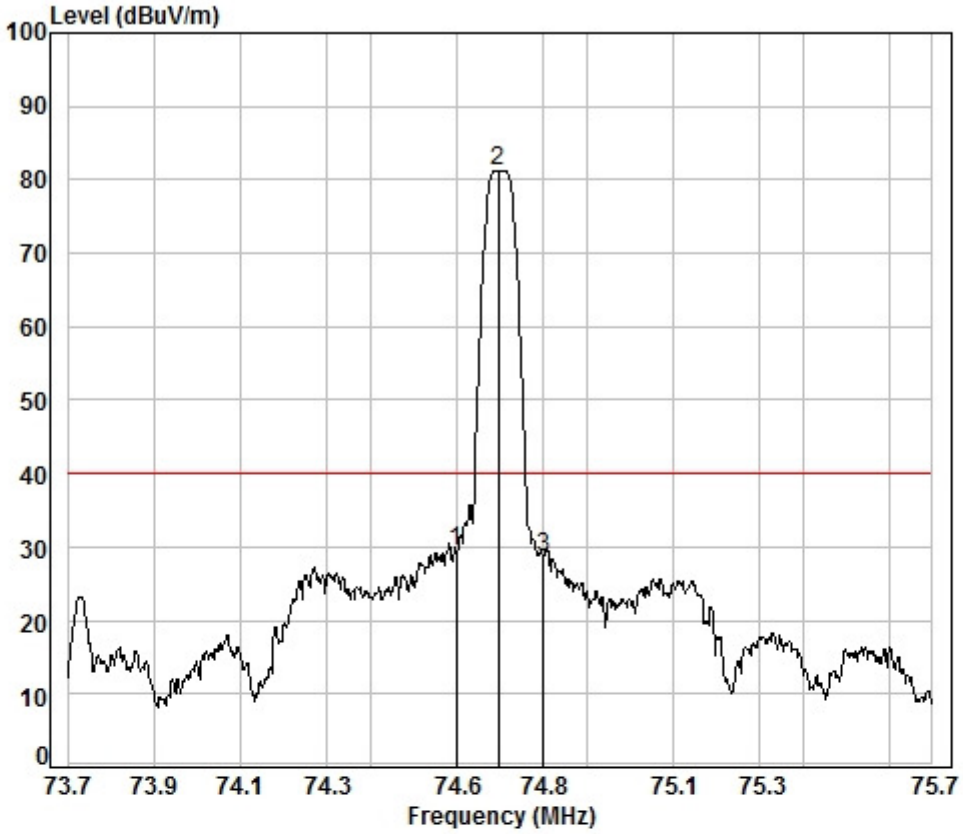

Condition: 3m VERTICAL
Job No. : 2965CR
Test mode: TX 74.7MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	74.60	0.94	7.33	25.93	47.17	29.51	40.00	-10.49
2 pp	74.70	0.94	7.34	25.93	98.82	81.17	40.00	41.17
3	74.80	0.95	7.35	25.93	46.34	28.71	40.00	-11.29

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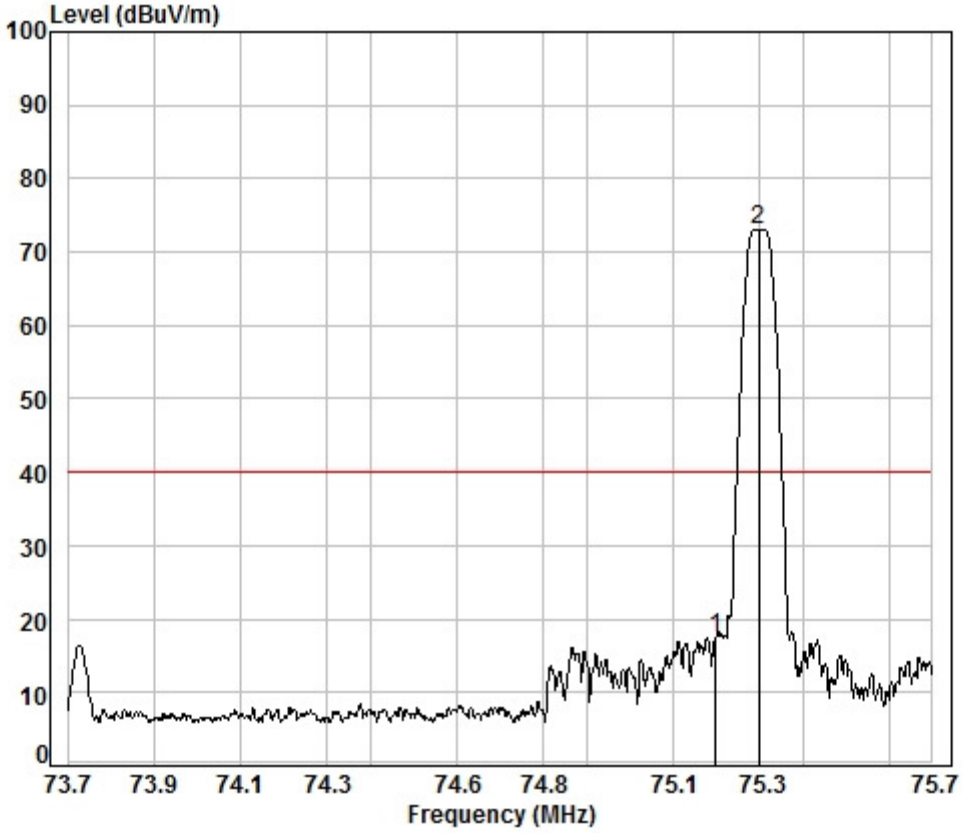
Test Frequency: 75.3MHz



Condition: 3m HORIZONTAL
Job No. : 2965CR
Test mode: TX 75.3MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	75.20	0.96	7.38	25.92	34.98	17.40	40.00	-22.60
2 pp	75.30	0.96	7.39	25.92	90.71	73.14	40.00	33.14

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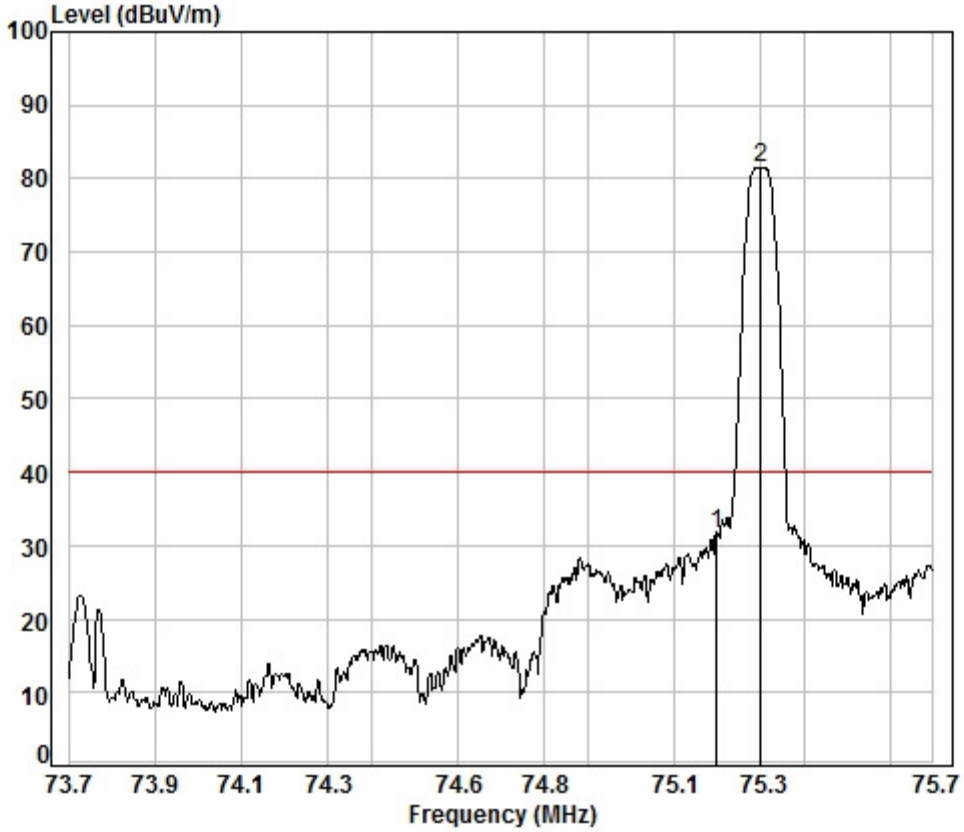

Condition: 3m VERTICAL
Job No. : 2965CR
Test mode: TX 75.3MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	75.20	0.96	7.38	25.92	49.32	31.74	40.00	-8.26
2 pp	75.30	0.96	7.39	25.92	99.02	81.45	40.00	41.45

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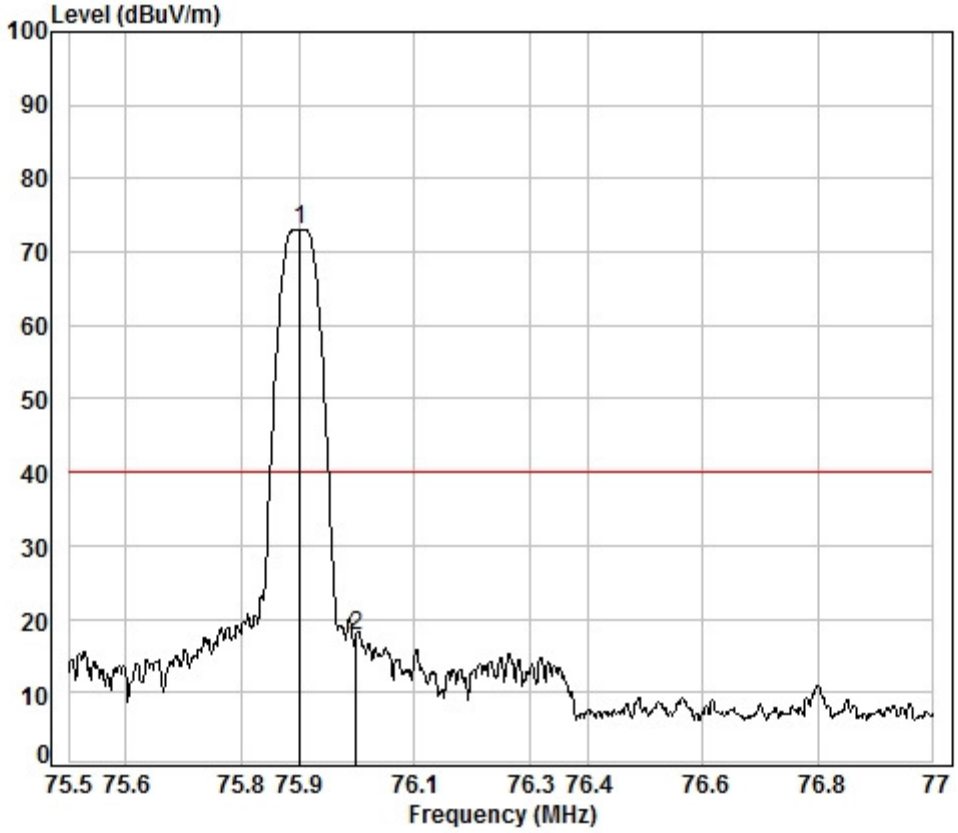
Test Frequency: 75.9MHz



Condition: 3m HORIZONTAL
Job No. : 2965CR
Test mode: TX 75.9MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	75.90	0.98	7.45	25.92	90.48	72.99	40.00	32.99
2	76.00	0.98	7.45	25.92	35.16	17.67	40.00	-22.33

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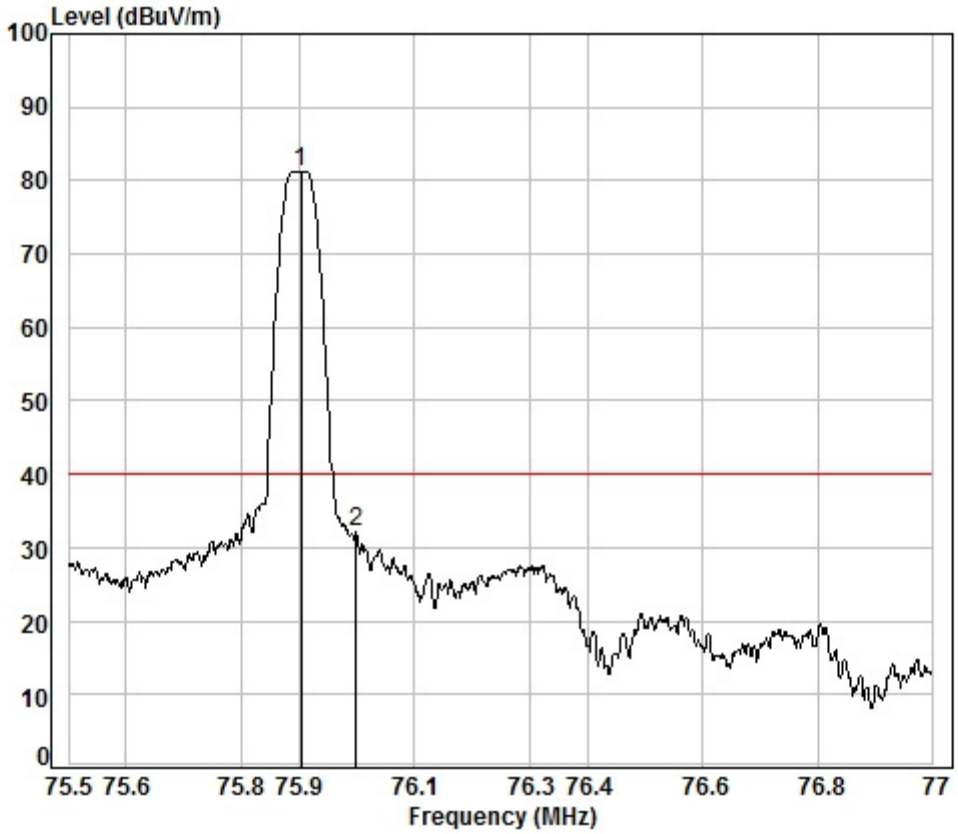

Condition: 3m VERTICAL
Job No. : 2965CR
Test mode: TX 75.9MHz
: ANT B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	75.90	0.98	7.45	25.92	98.82	81.33	40.00	41.33
2	76.00	0.98	7.45	25.92	49.58	32.09	40.00	-7.91

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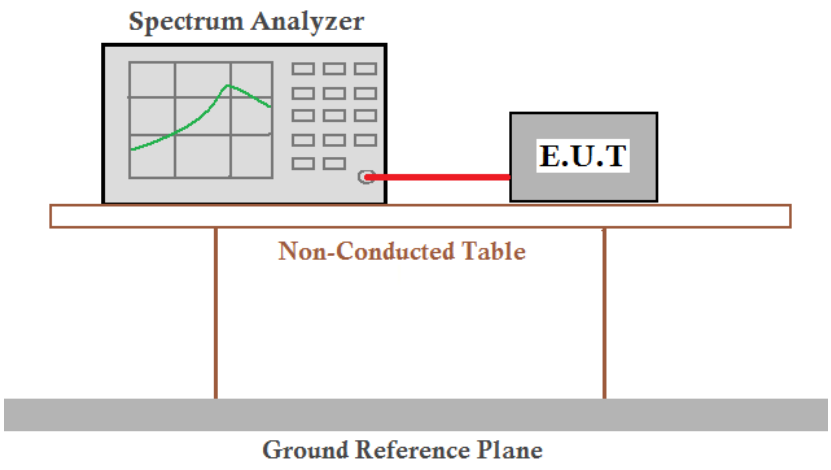
6.4 20dB Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.237 (b)
Test Method:	ANSI C63.10:2009
Test Setup:	
Limit:	200kHz
Exploratory Test Mode:	Transmitting with mode
Instruments Used:	Refer to section 5.10 for details.
Test Results:	Pass

Measurement Data

Test Channel	20dB bandwidth (kHz)	Results
Lowest	56.25	Pass
Middle	39.90	Pass
Highest	35.10	Pass

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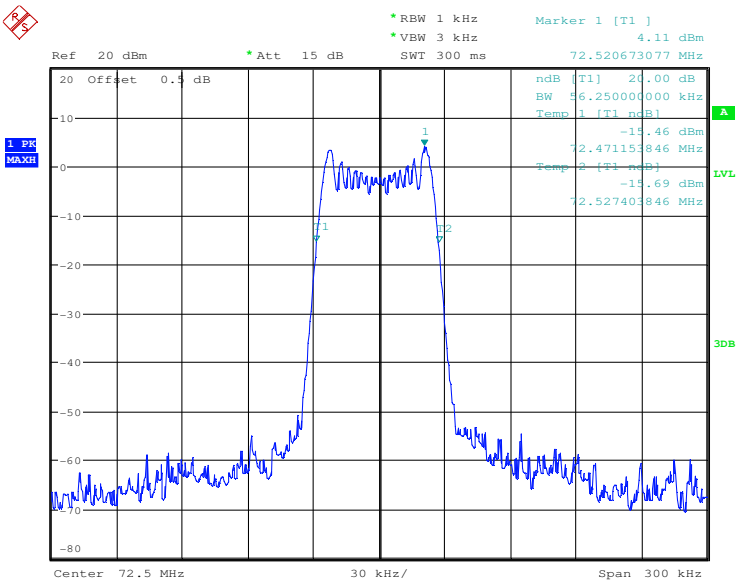
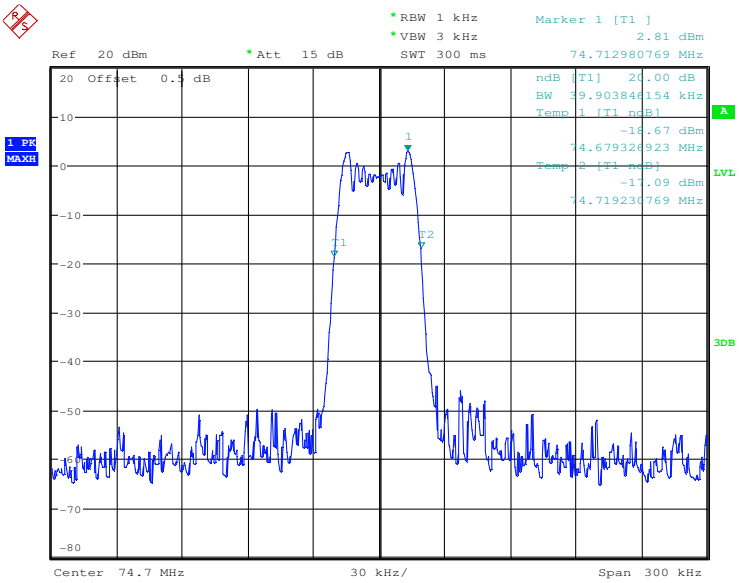
Test plot as follows:

Test channel:	Lowest



Test channel:	Middle



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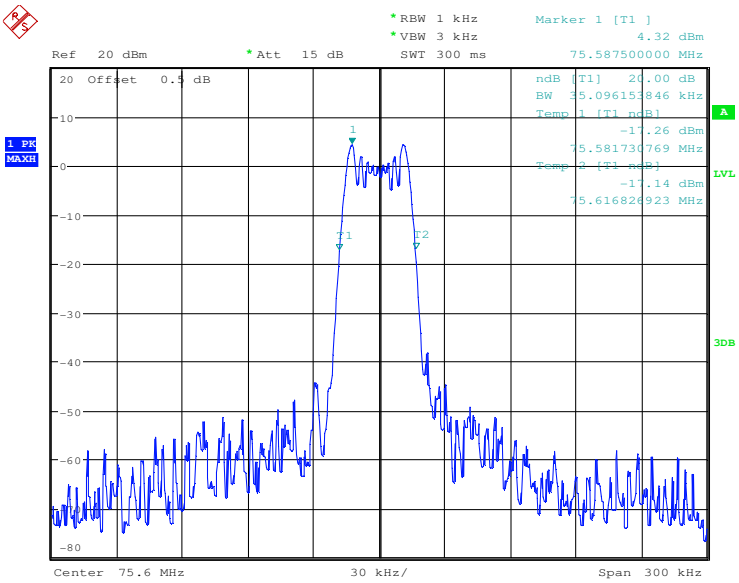
Test channel:	Highest



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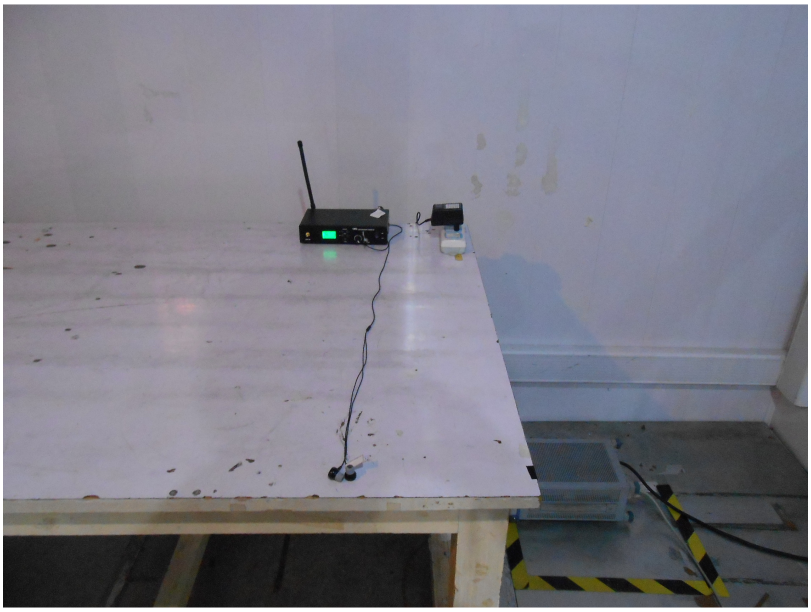
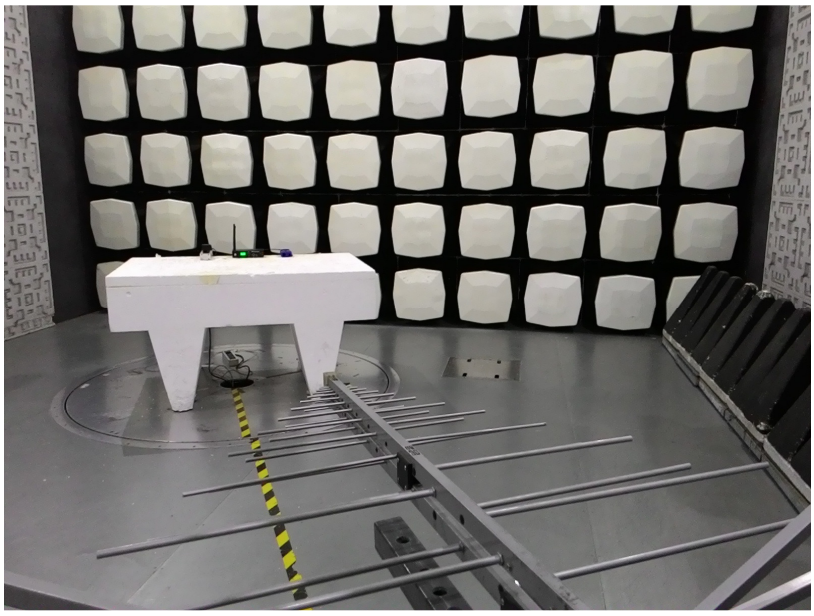
7 Photographs - EUT Test Setup

Test model No.: RAW-TX72ST

7.1 Conducted Emission



7.2 Radiated Emission



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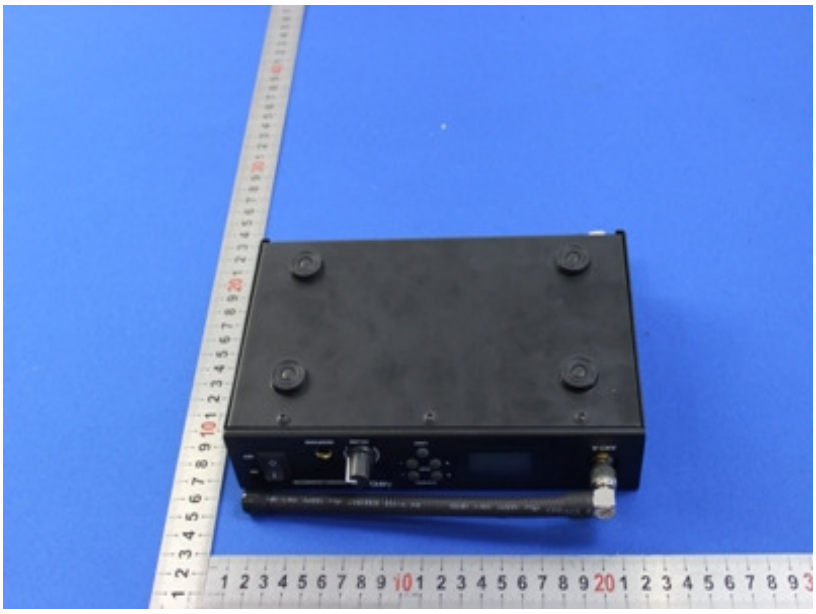
8 Photographs - EUT Constructional Details



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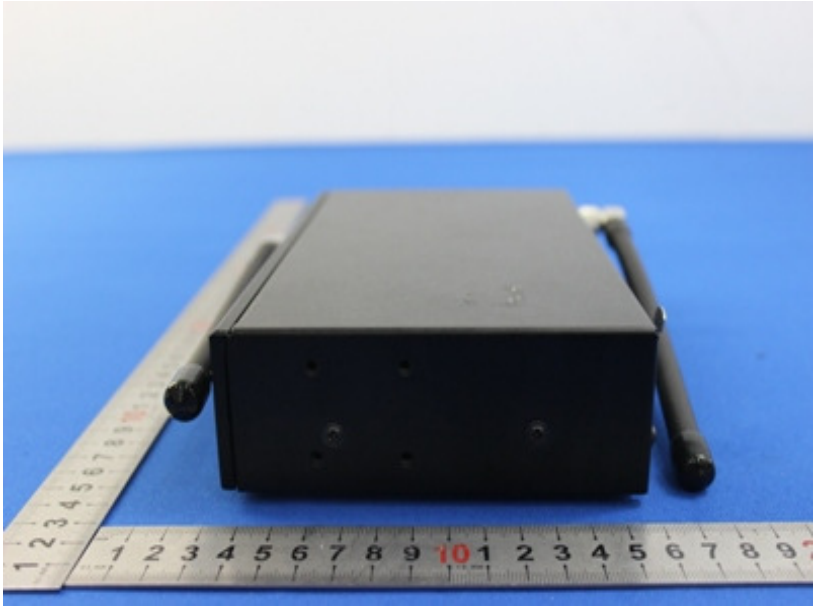

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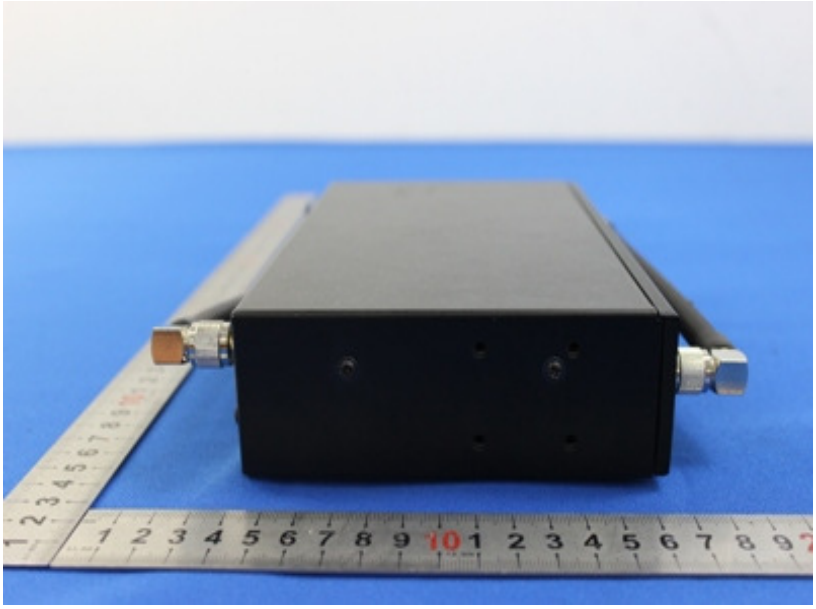

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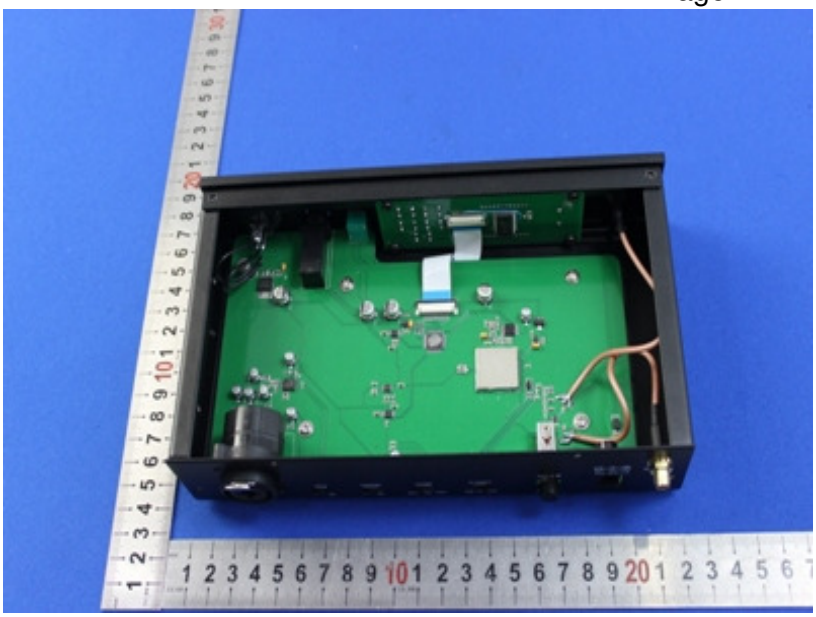

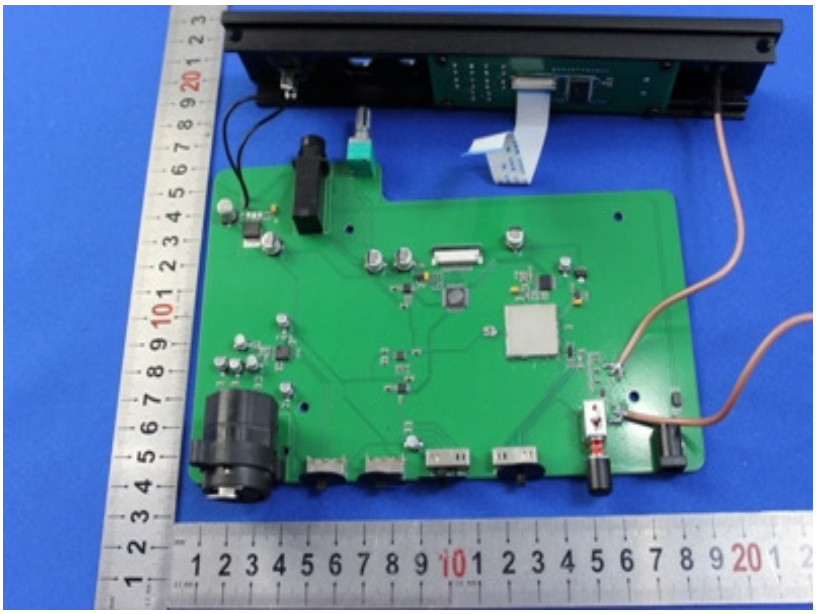

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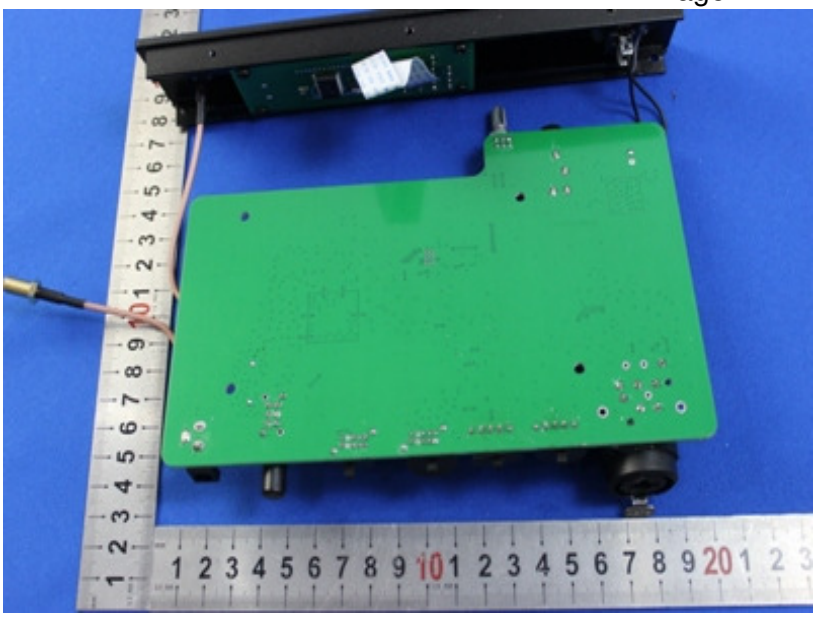

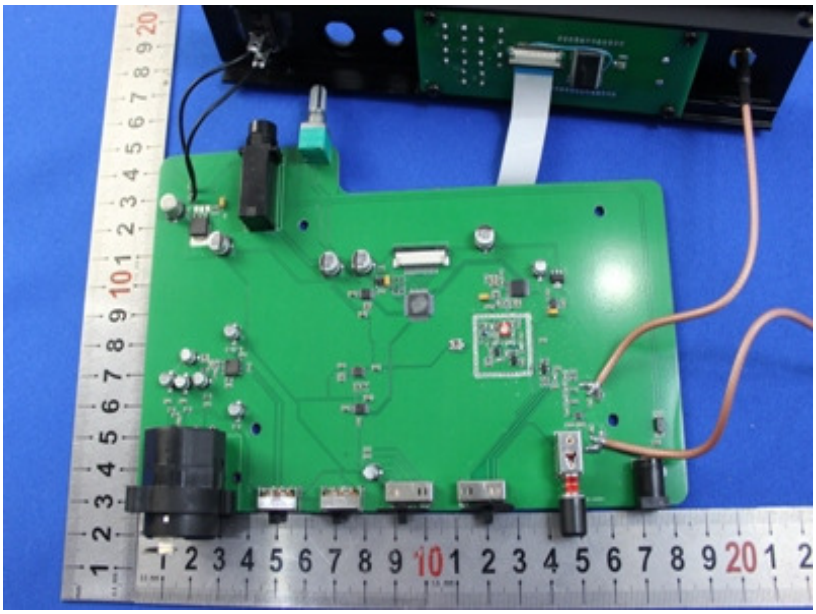

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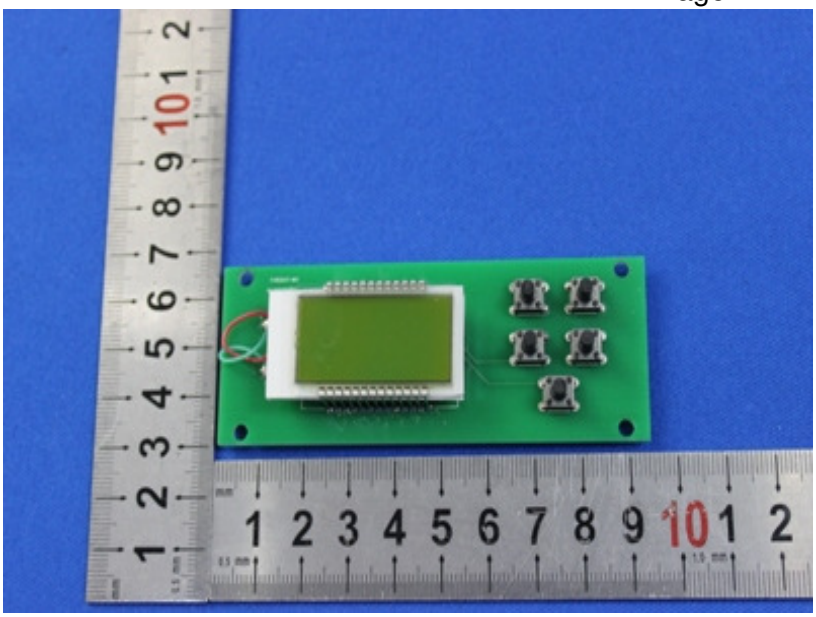

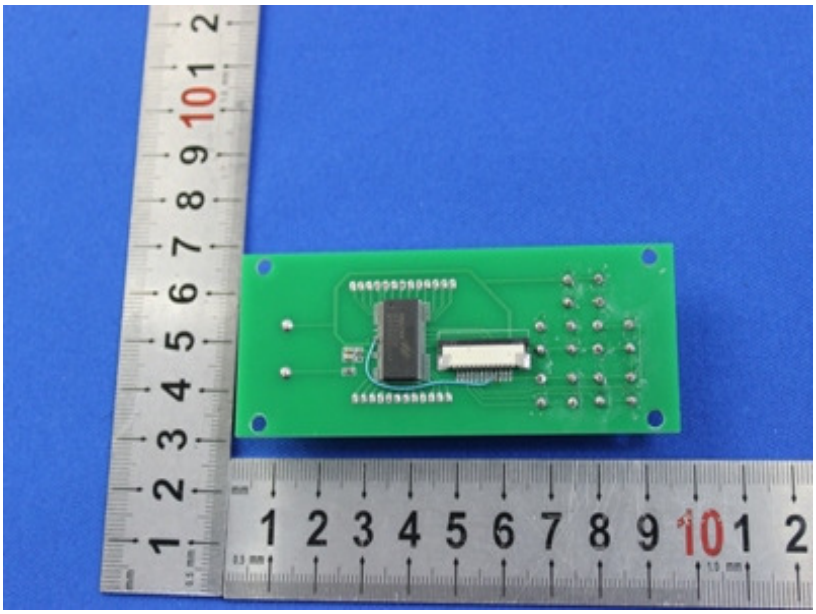

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