

## ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

**Applicant:** HP Inc.  
 1501 Page Mill Road, Palo Alto CA 94304 USA  
**Product Name:** Notebook Computer  
**Brand Name:** HP  
**Model No.:** HSN-I41C  
**Model Difference:** N/A  
**Report Number:** ER/2020/80148  
**FCC ID** B94HNI41CTKR  
**FCC Rule Part:** 2, 22H & 24E & 27 C  
**Issue Date:** Oct. 28, 2020  
**Date of Test:** Aug. 31, 2020 ~ Sep. 30, 2020  
**Date of EUT Received:** Aug. 31, 2020

**We hereby certify that:**

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.26-2015 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

The test results of this partial report relate only to the tested sample identified in this report.

**Approved By:** \_\_\_\_\_



**Jim Chang / Manager**



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## Revision History

Report Number	Revision	Description	Issue Date	Remark
ER/2020/80148	Rev.00	Original.	Oct. 28, 2020	Revised By: Karen Huang

**Note:**

1、Disclaimer

Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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# 1 GENERAL PRODUCT INFORMATION

## 1.1 Product Description

General:

Product Name:	Notebook Computer		
Brand Name:	HP		
Model No.:	HSN-I41C		
Model Difference:	N/A		
Hardware Version:	N/A		
Software Version:	N/A		
WWAN Module:	Model No.: T99W175, Supplier: HON LIN Technology Co., Ltd.		
Power Supply:	11.55Vdc from Rechargeable Li-ion Battery or 5V / 9V / 12V / 15V / 20V from AC/DC Adapter		
	Battery:	Model No.: HSTNN-LB8Q, Supplier: HP	
	Adapter:	Model No.: TPN-CA21, Supplier: Chicony	
IMEI:	AWAN:356081110010618 WNC:356081110008406		

## 1.2 Operation Frequency Range

5G NR n2				5G NR n5			
BW (MHz)	Operation Frequency (MHz)			BW (MHz)	Operation Frequency (MHz)		
5	1852.5	-	1907.5	5	826.5	-	846.5
10	1855.0	-	1905.0	10	829.0	-	844.0
15	1857.5	-	1902.5	15	831.5	-	841.5
20	1860.0	-	1900.0	20	834.0	-	839.0
5G NR n7				5G NR n12			
BW (MHz)	Operation Frequency (MHz)			BW (MHz)	Operation Frequency (MHz)		
5	2502.5	-	2567.5	5	701.5	-	713.5
10	2505.0	-	2565.0	10	704.0	-	711.0
15	2507.5	-	2562.5	15	706.5	-	708.5
20	2510.0	-	2560.0				

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5G NR n41				5G NR n66			
BW (MHz)	Operation Frequency (MHz)			BW (MHz)	Operation Frequency (MHz)		
20	2506	-	2680				
40	2516	-	2670				
50	2521	-	2665				
60	2526	-	2660	5	1712.5	-	1777.5
80	2536	-	2650	10	1715	-	1775
90	2541	-	2645	15	1717.5	-	1772.5
100	2546	-	2640	20	1720	-	1770

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### 1.3 Antenna Designation

Vendor	Type	TX1 / TX2	Antenna Part No.	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
AWAN	PIFA	TX1	6036B0255901 (AUP6Y-100025)	LTE Band 2 or 5G NR n2	1850 ~ 1910	1.68
				LTE Band 5 or 5G NR n5	824 ~ 849	-3.75
				LTE Band 12 or 5G NR n12	699 ~ 716	-1.02
				LTE Band 66 or 5G NR n66	1710 ~ 1780	-1.27

Vendor	Type	TX1 / TX2	Antenna Part No.	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
HONG-BO	PIFA	TX1	6036B0257701 (260-27365)	LTE Band 2 or 5G NR n2	1850 ~ 1910	-0.81
				LTE Band 5 or 5G NR n5	824 ~ 849	-0.78
				LTE Band 12 or 5G NR n12	699 ~ 716	-1.2
				LTE Band 66 or 5G NR n66	1710 ~ 1780	-2.26

Vendor	Type	TX1 / TX2	Antenna Part No.	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
WNC	PIFA	TX1	6036B0253201 (81EABB15.G35)	LTE Band 2 or 5G NR n2	1850 ~ 1910	0.22
				LTE Band 5 or 5G NR n5	824 ~ 849	0.08
				LTE Band 12 or 5G NR n12	699 ~ 716	-1.73
				LTE Band 66 or 5G NR n66	1710 ~ 1780	-1.11

Vendor	Type	TX1 / TX2	Antenna Part No.	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
AWAN	PIFA	TX2	6036B0281501 (AUP6Y-100070)	LTE Band 2 or 5G NR n2	1850 ~ 1910	-1.71
				LTE Band 7 or 5G NR n7	2500 ~ 2570	-3.15
				5G NR n41	2496 ~ 2690	-3.39
				LTE Band 66 or 5G NR n66	1710 ~ 1780	-2.7

Vendor	Type	TX1 / TX2	Antenna Part No.	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
HONG-BO	PIFA	TX2	6036B0278701 (260-27437)	LTE Band 2 or 5G NR n2	1850 ~ 1910	-1.82
				LTE Band 7 or 5G NR n7	2500 ~ 2570	-3.77
				5G NR n41	2496 ~ 2690	-3.77
				LTE Band 66 or 5G NR n66	1710 ~ 1780	-1.52

Vendor	Type	TX1 / TX2	Antenna Part No.	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
WNC	PIFA	TX2	6036B0277201 (81EABD15.G04)	LTE Band 2 or 5G NR n2	1850 ~ 1910	0.5
				LTE Band 7 or 5G NR n7	2500 ~ 2570	-1.95
				5G NR n41	2496 ~ 2690	-0.6
				LTE Band 66 or 5G NR n66	1710 ~ 1780	0.32

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#### 1.4 Test Methodology of Applied Standards

FCC 47 CFR Part 2, 22H, 24E, 27C.

ANSI C63.26-2015

KDB971168 D01 Power Meas license Digital System v03r01

KDB412172 D01 Determining ERP and EIRP v01r01

#### 1.5 Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702)

No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

FCC Designation number: TW0027

#### 1.6 Special Accessories

No special accessories were used during testing.

#### 1.7 Equipment Modifications

There was no modifications incorporated into the EUT.

#### 1.8 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m\*9m\*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

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## 2 SYSTEM TEST CONFIGURATION

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

The EUT (Transmitter) was operated in the continuous transmission mode employed with the simulator of the Base Station that fixates at test default channels to fix the Tx frequency which was for the purpose of the measurements.

### 2.3 Test Procedure

#### 2.3.1 Radiated Emissions (ERP/EIRP)

The EUT is placed on a turn table, for emission measurements below 1 GHz is 0.8 m above ground plane, for emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both Horizontal and Vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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## 2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System (Fixed Channel-Radiated)

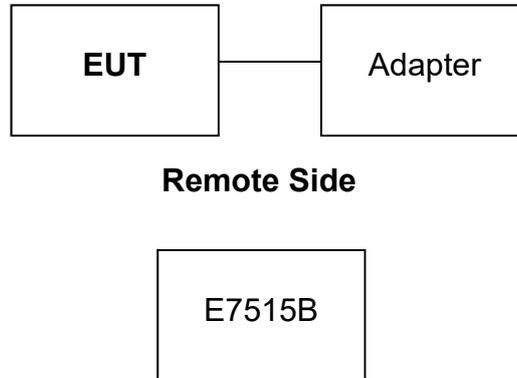


Table 2-1 Equipment Used in

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	UXM 5G	KEYSIGHT	E7515B	MY59321561	shielded	Un-shielded

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### 3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1053 §22.917(a) §24.238(a) §27.53(g) §27.53(h) §27.53(m)(2)	Field Strength of Spurious Radiation	Compliant

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## 4 DESCRIPTION OF TEST MODES

### 4.1 The Worst Test Modes and Channel Details

- 1 The EUT has been tested under operating condition.
- 2 The field strength of radiation emission was measured as NB Plane for Transmitter for channel Low, Mid and High.

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## 4.2 Measurement Configuration

For 5G NR SA mode,

Band	SCS	Test Channel	Channel Bandwidth (MHz)	Modulation	Resource Block Allocation		Antenna
					RBs allocated	RB Start	
n41A	30K	509202	100	DFT-S-OFDM Pi/2 BPSK	1RB Left		AWAN
n41A	30K	518598	100	DFT-S-OFDM Pi/2 BPSK	1RB Left		AWAN
n41A	30K	528000	100	DFT-S-OFDM Pi/2 BPSK	1RB Left		AWAN

For ENDC mode,

Band	SCS	Test Channel	Channel Bandwidth (MHz)	Modulation	Resource Block Allocation		Antenna
					RBs allocated	RB Start	
n2A	15K	372000	20	DFT-S-OFDM Pi/2 BPSK	1RB Left		WNC
n2A	15K	376000	20	DFT-S-OFDM Pi/2 BPSK	1RB Left		WNC
n2A	15K	380000	20	DFT-S-OFDM Pi/2 BPSK	1RB Left		WNC
n5A	15K	166800	20	DFT-S-OFDM Pi/2 BPSK	1RB Left		WNC
n5A	15K	167300	20	DFT-S-OFDM Pi/2 BPSK	1RB Left		WNC
n5A	15K	167800	20	DFT-S-OFDM Pi/2 BPSK	1RB Left		WNC
n7A	15K	502000	20	DFT-S-OFDM Pi/2 BPSK	1RB Left		AWAN
n7A	15K	507000	20	DFT-S-OFDM Pi/2 BPSK	1RB Left		AWAN
n7A	15K	512000	20	DFT-S-OFDM Pi/2 BPSK	1RB Left		AWAN

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## 5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
RF Power Output	+/- 1.10 dB
ERP/ EIRP measurement	Vertical Polarization = +/- 4.74dB Horizontal Polarization = +/- 4.62dB
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

### Radiated Spurious Emission:

Measurement uncertainty (Polarization : <b>Vertical</b> )	9kHz – 30MHz: +/- 2.87 dB
	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB

Measurement uncertainty (Polarization : <b>Horizontal</b> )	9kHz – 30MHz: +/- 2.87 dB
	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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## 6 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

### 6.1 Standard Applicable

According to FCC §2.1053,

#### **FCC §22.917(a), §24.238(a), §27.53(h)**

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

#### **FCC §27.53(g) for LTE B12**

Compliance for operations in the 600 MHz, 698-746 MHz, 746-758 MHz and the 776-788 MHz band with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

#### **FCC §27.53(h)(3) for LTE B66**

Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

#### **FCC §27.53(m) (4) (6) for LTE B7, 41**

For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log(P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log(P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log(P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log(P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log(P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

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**Table 2 — Unwanted Emissions for Mobile, Portable and Low-Power Fixed Subscriber Equipment**

Frequency (MHz)	Attenuation (dB)
<2200	$43 + 10 \log_{10}(p)$
2200 - 2288	$70 + 10 \log_{10}(p)$
2288 - 2292	$67 + 10 \log_{10}(p)$
2292 - 2296	$61 + 10 \log_{10}(p)$
2296 - 2300	$55 + 10 \log_{10}(p)$
2300 - 2305	$43 + 10 \log_{10}(p)$
2305 - 2320	$43 + 10 \log_{10}(p)$ <sup>Note</sup>
2320 - 2324	$55 + 10 \log_{10}(p)$
2324 - 2328	$61 + 10 \log_{10}(p)$
2328 - 2337	$67 + 10 \log_{10}(p)$
2337 - 2341	$61 + 10 \log_{10}(p)$
2341 - 2345	$55 + 10 \log_{10}(p)$
2345 - 2360	$43 + 10 \log_{10}(p)$ <sup>Note</sup>
2360 - 2365	$43 + 10 \log_{10}(p)$
2365 - 2395	$70 + 10 \log_{10}(p)$
>2395	$43 + 10 \log_{10}(p)$

**Note:** Measured at the edges of the highest and lowest frequency range(s) in which the equipment is designed to operate. See Section 1.2 for the permitted frequency ranges for various equipment types.

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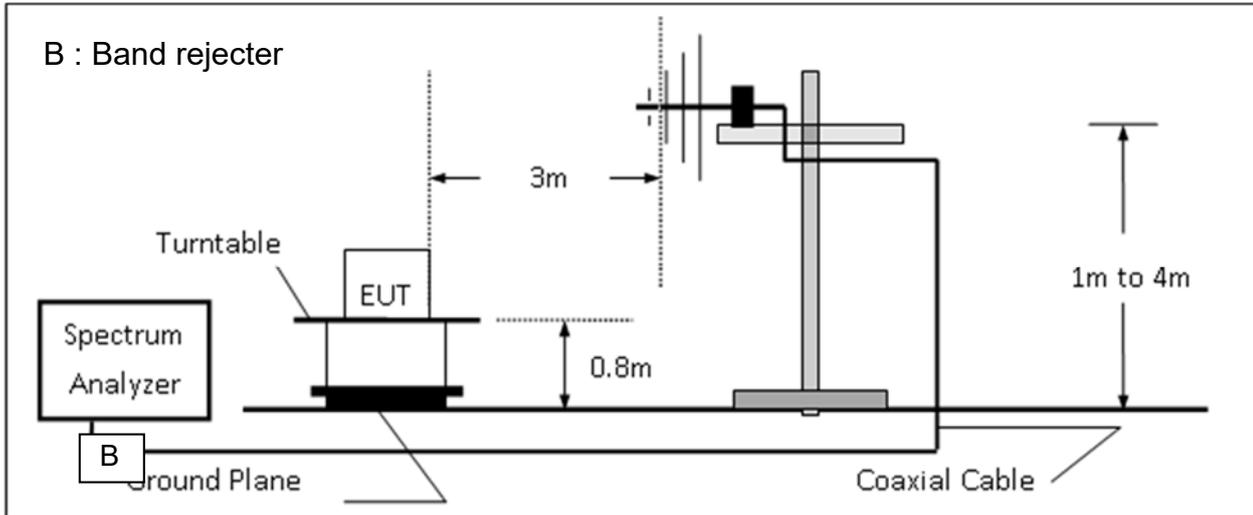
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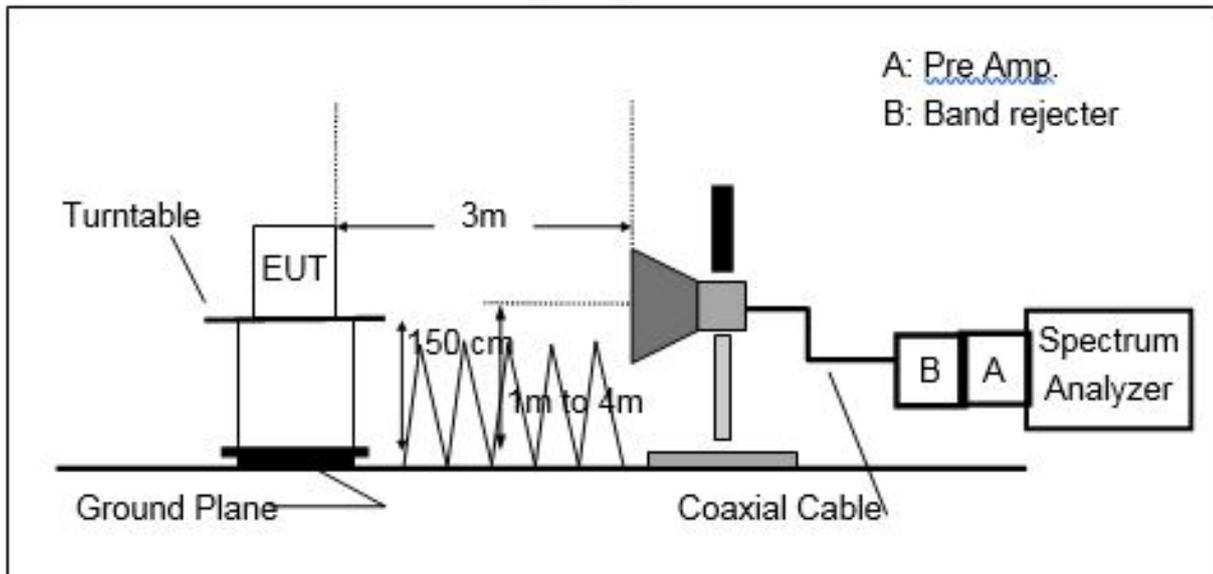
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## 6.2 EUT Setup

### Radiated Emission Test Set-Up, Frequency Below 1000MHz



### Radiated Emission Test Set-UP Frequency Over 1 GHz



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**6.3 Measurement Procedure:**

The EUT was placed on a non-conductive; the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequencies (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

$$\text{ERP (dBm)} = \text{SG Level(dBm)} + \text{Antenna Gain(dBd)} + \text{Cable Loss(dB)}$$

$$\text{EIRP (dBm)} = \text{SG Level(dBm)} + \text{Antenna Gain(dBi)} + \text{Cable Loss(dB)}$$

**6.4 Measurement Equipment Used:**

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Horn Antenna	Schwarzbeck	BBHA9170	184	12/25/2019	12/24/2020
Horn Antenna	Schwarzbeck	BBHA9120D	D803	12/20/2019	12/19/2020
Bi-log Antenna	TESEO	CBL 6112D	35242 & AT-N0555	01/13/2020	01/12/2021
Spectrum Analyzer	Agilent	E4446A	MY51100003	10/23/2019	10/22/2020
EMI Test Receiver	R&S	ESCI 7	100759	07/13/2020	07/12/2021
UXM 5G	KEYSIGHT	E7515B	MY59321561	12/16/2019	12/15/2020
Pre-Amplifier	EMC Instruments	EMC184045B	980135	01/02/2020	01/01/2021
Pre-Amplifier	EMC Instruments	EMC051825	980152	01/02/2020	01/01/2021
Pre-Amplifier	HP	8447D	2944A09469	01/02/2020	01/01/2021
Filter 800-1000	Micro-Tronics	EWT	M1	01/02/2020	01/01/2021
Filter 1700-2000	Micro-Tronics	EWT	M3	01/02/2020	01/01/2021
Filter 2240-2700	Micro-Tronics	WI	2	01/02/2020	01/01/2021
1GHz High Pass Filter	Micro-Tronics	HPM50108	32	01/02/2020	01/01/2021
2GHz High Pass Filter	Micro-Tronics	HPM50110	36	01/02/2020	01/01/2021
High Pass Filter	WI	WHKX4.0/18G-10SS	22	01/02/2020	01/01/2021
Coaxial Cable	Huber Suhner	succoflex 102	MY2622/2	01/02/2020	01/01/2021
Coaxial Cable	Huber Suhner	succoflex 104A	800086/4a	01/02/2020	01/01/2021
Coaxial Cable	Huber Suhner	EMC 104-SM-SM-2000	160123	01/02/2020	01/01/2021

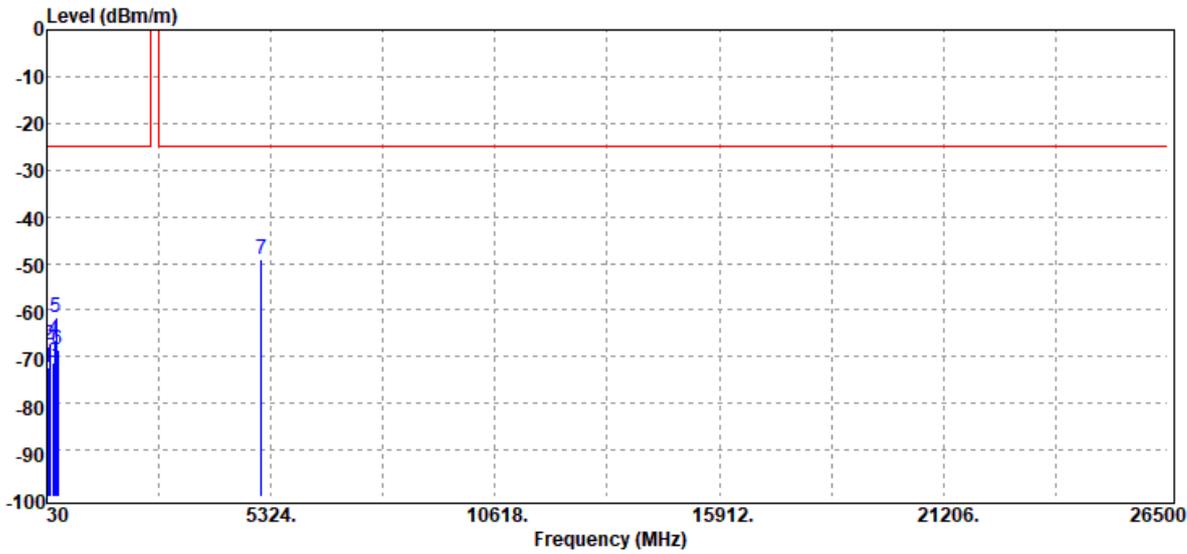
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### 6.5 Measurement Result:

Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:n41A	Test Date	:2020-09-18
Test Mode	:Tx CH Low	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:VERTICAL
Test Frequency	:2546.01 MHz	Engineer	:Neo



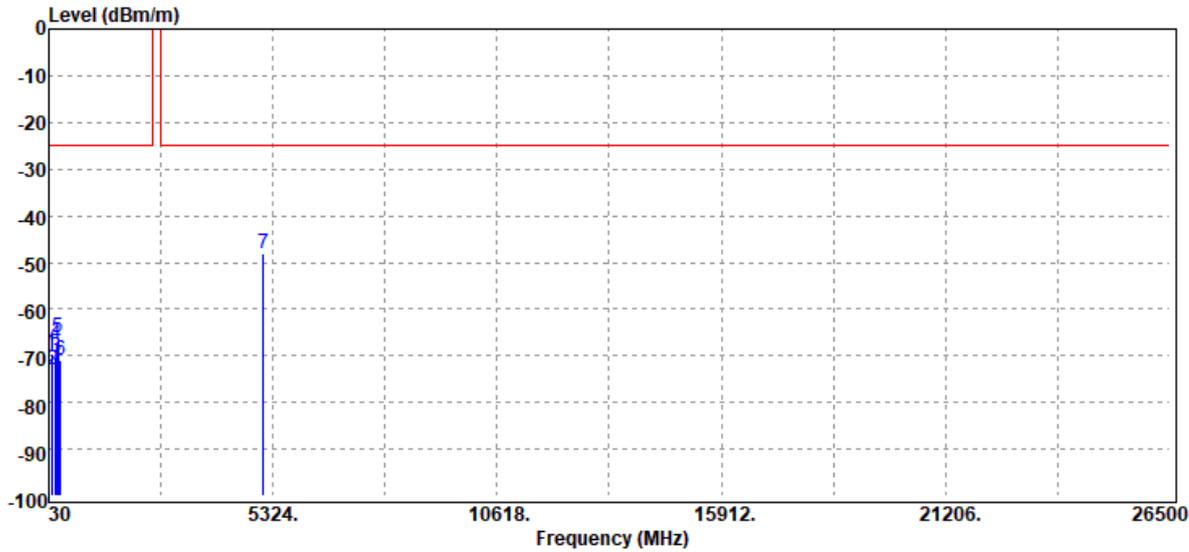
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
65.89	-72.37	-58.49	-13.09	-0.79	-25.00	-47.37
99.84	-67.53	-60.57	-6.01	-0.95	-25.00	-42.53
190.05	-71.37	-67.16	-2.94	-1.27	-25.00	-46.37
217.21	-66.38	-63.27	-1.74	-1.37	-25.00	-41.38
243.40	-61.56	-58.33	-1.74	-1.49	-25.00	-36.56
288.99	-68.67	-65.27	-1.79	-1.61	-25.00	-43.67
5092.02	-49.09	-54.84	12.52	-6.77	-25.00	-24.09

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Report Number :ER/2020/80148  
Operation Mode :n41A  
Test Mode :Tx CH Low  
EUT Pol :NB Plane  
Test Frequency :2546.01 MHz

Test Site :SAC I Chamber  
Test Date :2020-09-18  
Temp./Humi. :25.2/68  
Antenna Pol. :HORIZONTAL  
Engineer :Neo



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
99.84	-69.66	-62.70	-6.01	-0.95	-25.00	-44.66
119.24	-72.92	-64.54	-7.32	-1.06	-25.00	-47.92
190.05	-70.39	-66.18	-2.94	-1.27	-25.00	-45.39
217.21	-67.62	-64.51	-1.74	-1.37	-25.00	-42.62
243.40	-66.24	-63.01	-1.74	-1.49	-25.00	-41.24
309.36	-70.90	-67.70	-1.60	-1.60	-25.00	-45.90
5092.02	-48.14	-53.89	12.52	-6.77	-25.00	-23.14

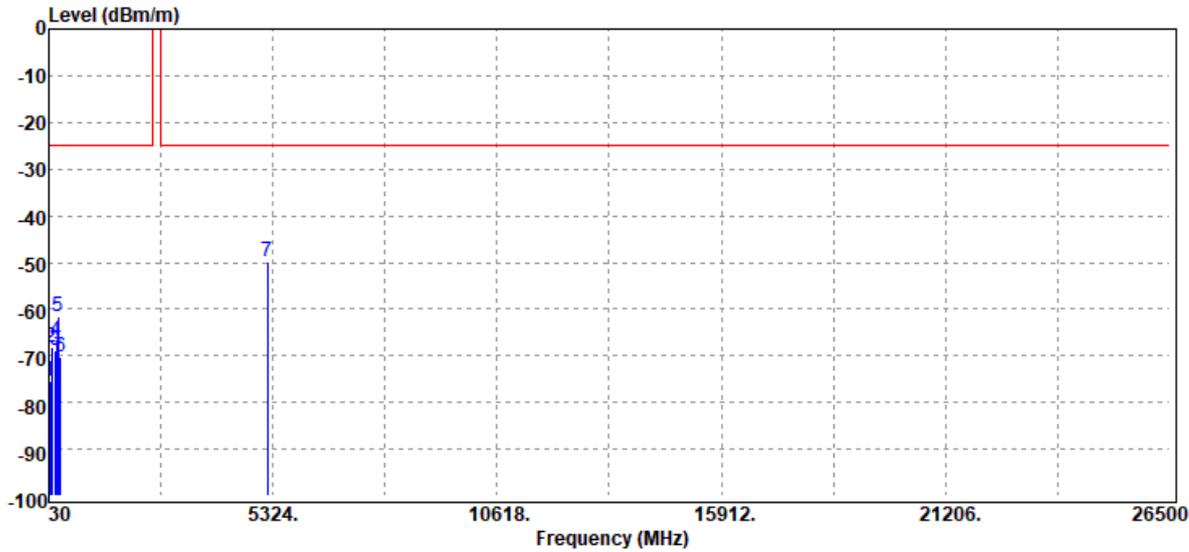
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Report Number :ER/2020/80148  
Operation Mode :n41A  
Test Mode :Tx CH Mid  
EUT Pol :NB Plane  
Test Frequency :2592.99 MHz

Test Site :SAC I Chamber  
Test Date :2020-09-18  
Temp./Humi. :25.2/68  
Antenna Pol. :VERTICAL  
Engineer :Neo



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
63.95	-75.32	-60.64	-13.91	-0.77	-25.00	-50.32
99.84	-68.08	-61.12	-6.01	-0.95	-25.00	-43.08
190.05	-69.03	-64.82	-2.94	-1.27	-25.00	-44.03
217.21	-66.75	-63.64	-1.74	-1.37	-25.00	-41.75
243.40	-61.47	-58.24	-1.74	-1.49	-25.00	-36.47
311.30	-70.34	-67.15	-1.59	-1.60	-25.00	-45.34
5185.98	-49.70	-55.51	12.92	-7.11	-25.00	-24.70

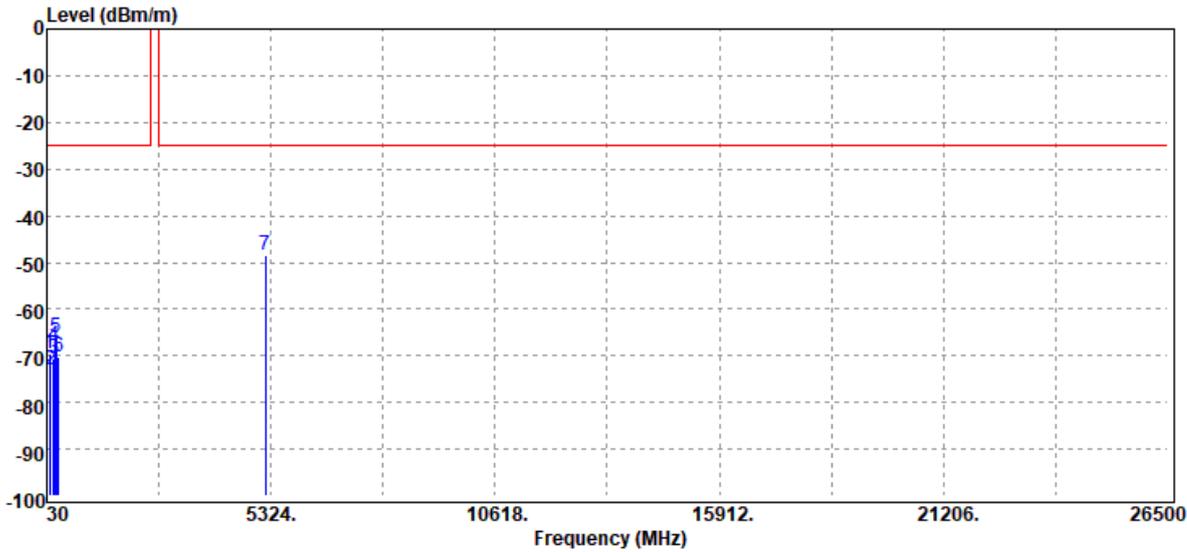
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Report Number :ER/2020/80148  
Operation Mode :n41A  
Test Mode :Tx CH Mid  
EUT Pol :NB Plane  
Test Frequency :2592.99 MHz

Test Site :SAC I Chamber  
Test Date :2020-09-18  
Temp./Humi. :25.2/68  
Antenna Pol. :HORIZONTAL  
Engineer :Neo



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
99.84	-69.49	-62.53	-6.01	-0.95	-25.00	-44.49
118.27	-72.95	-64.59	-7.30	-1.06	-25.00	-47.95
190.05	-70.68	-66.47	-2.94	-1.27	-25.00	-45.68
217.21	-67.79	-64.68	-1.74	-1.37	-25.00	-42.79
243.40	-66.00	-62.77	-1.74	-1.49	-25.00	-41.00
311.30	-70.28	-67.09	-1.59	-1.60	-25.00	-45.28
5185.98	-48.52	-54.33	12.92	-7.11	-25.00	-23.52

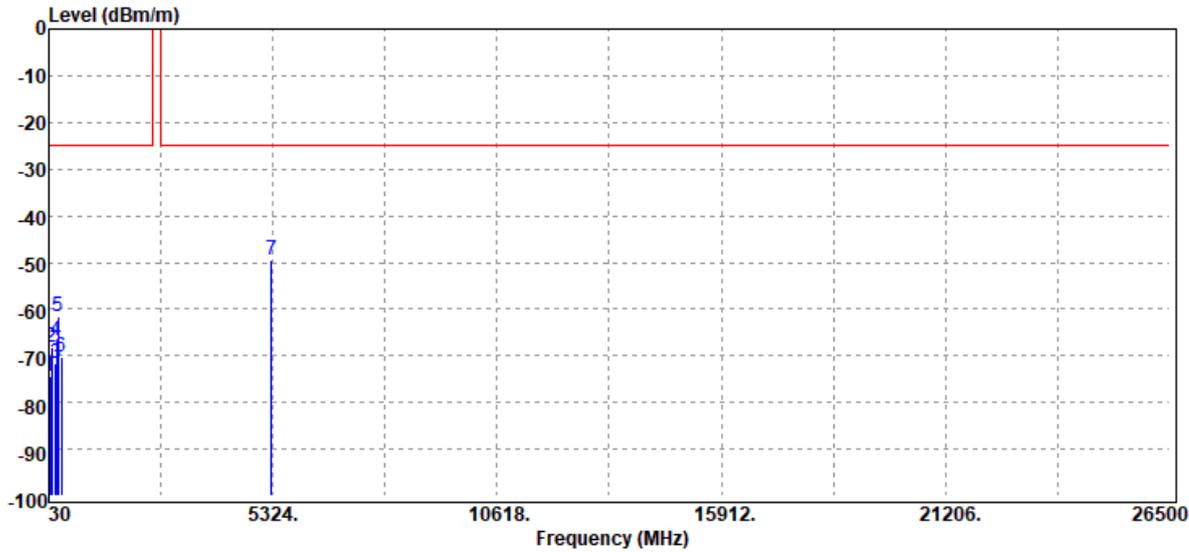
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Report Number :ER/2020/80148  
Operation Mode :n41A  
Test Mode :Tx CH High  
EUT Pol :NB Plane  
Test Frequency :2640 MHz

Test Site :SAC I Chamber  
Test Date :2020-09-18  
Temp./Humi. :25.2/68  
Antenna Pol. :VERTICAL  
Engineer :Neo



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
65.89	-74.48	-60.60	-13.09	-0.79	-25.00	-49.48
99.84	-68.12	-61.16	-6.01	-0.95	-25.00	-43.12
190.05	-71.69	-67.48	-2.94	-1.27	-25.00	-46.69
217.21	-66.80	-63.69	-1.74	-1.37	-25.00	-41.80
243.40	-61.48	-58.25	-1.74	-1.49	-25.00	-36.48
318.09	-70.31	-67.13	-1.54	-1.64	-25.00	-45.31
5280.00	-49.53	-55.73	13.36	-7.16	-25.00	-24.53

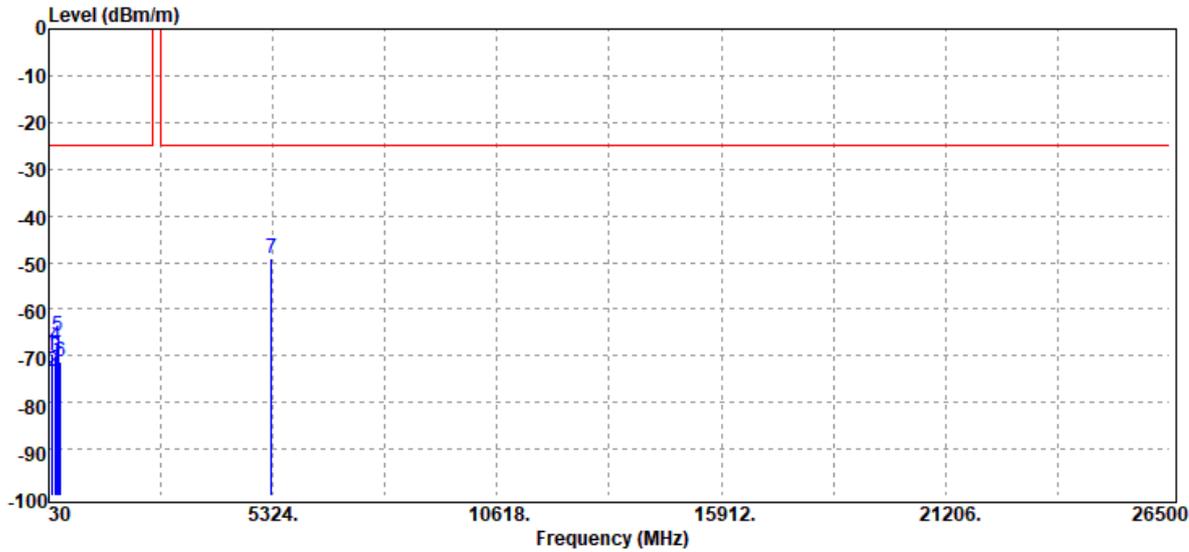
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Report Number :ER/2020/80148  
Operation Mode :n41A  
Test Mode :Tx CH High  
EUT Pol :NB Plane  
Test Frequency :2640 MHz

Test Site :SAC I Chamber  
Test Date :2020-09-18  
Temp./Humi. :25.2/68  
Antenna Pol. :HORIZONTAL  
Engineer :Neo



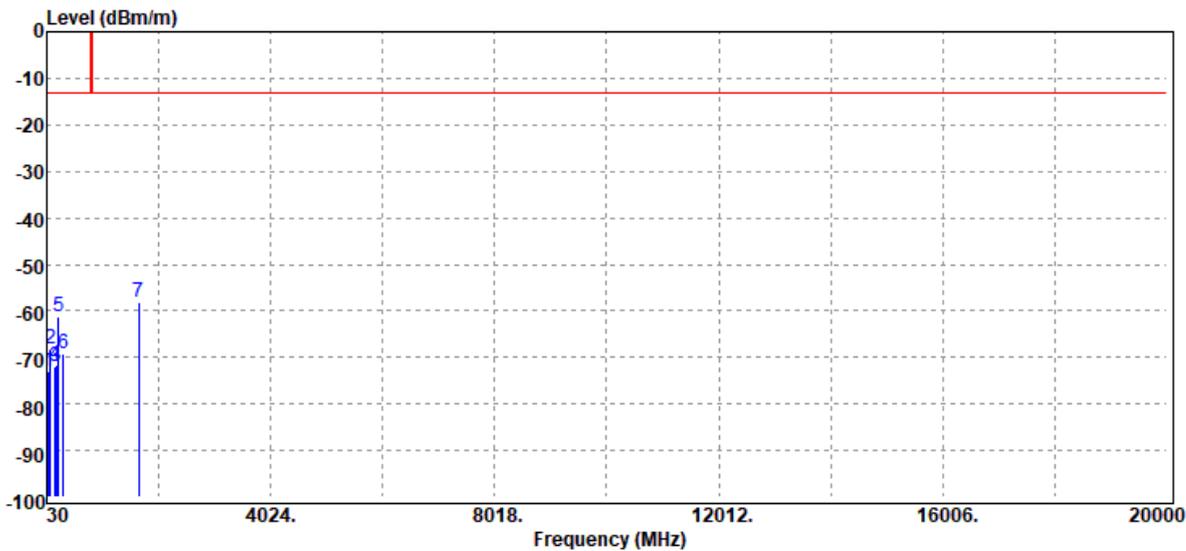
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
99.84	-69.50	-62.54	-6.01	-0.95	-25.00	-44.50
119.24	-73.39	-65.01	-7.32	-1.06	-25.00	-48.39
190.05	-70.41	-66.20	-2.94	-1.27	-25.00	-45.41
217.21	-67.99	-64.88	-1.74	-1.37	-25.00	-42.99
243.40	-65.89	-62.66	-1.74	-1.49	-25.00	-40.89
311.30	-71.25	-68.06	-1.59	-1.60	-25.00	-46.25
5280.00	-49.15	-55.35	13.36	-7.16	-25.00	-24.15

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:2A_n5A	Test Date	:2020-09-18
Test Mode	:Tx CH Low	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:VERTICAL
Test Frequency	:1950 MHz_831.5 MHz	Engineer	:Neo



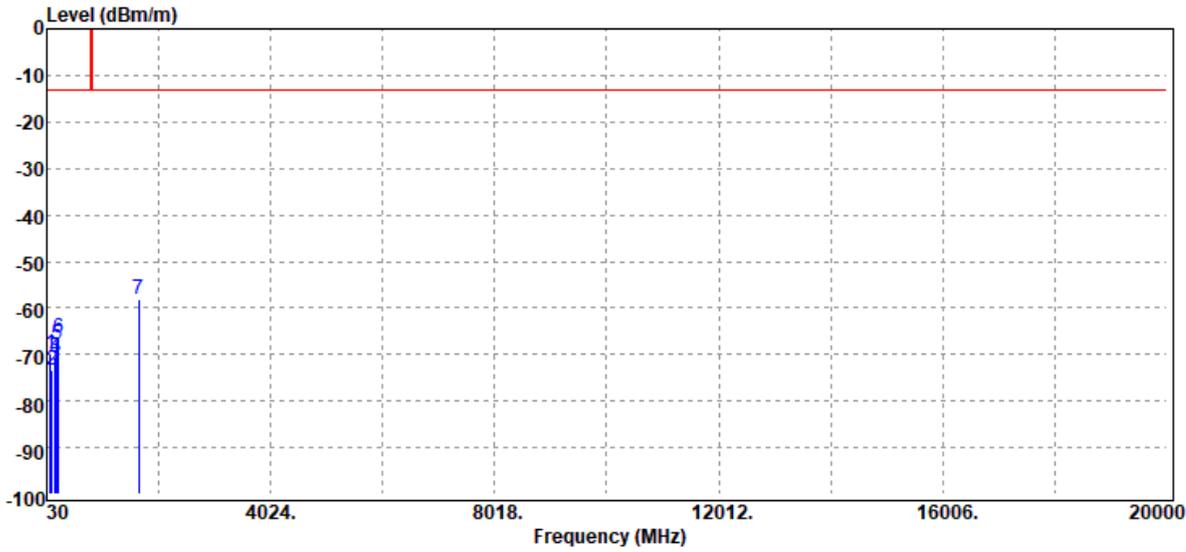
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
65.89	-73.18	-59.30	-13.09	-0.79	-13.00	-60.18
99.84	-68.18	-61.22	-6.01	-0.95	-13.00	-55.18
182.29	-71.84	-66.80	-3.81	-1.23	-13.00	-58.84
190.05	-71.46	-67.25	-2.94	-1.27	-13.00	-58.46
243.40	-61.19	-57.96	-1.74	-1.49	-13.00	-48.19
319.06	-69.18	-66.00	-1.53	-1.65	-13.00	-56.18
1663.00	-58.23	-64.15	9.80	-3.88	-13.00	-45.23

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:2A_n5A	Test Date	:2020-09-18
Test Mode	:Tx CH Low	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:HORIZONTAL
Test Frequency	:1950 MHz_831.5 MHz	Engineer	:Neo



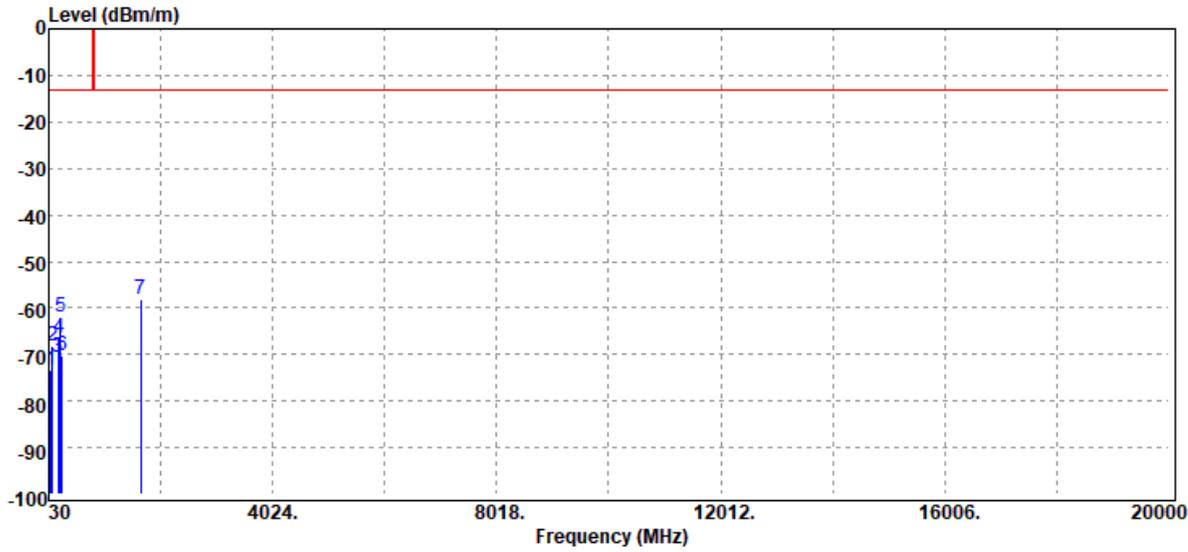
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
97.90	-69.94	-63.21	-5.79	-0.94	-13.00	-56.94
119.24	-73.53	-65.15	-7.32	-1.06	-13.00	-60.53
180.35	-70.76	-65.36	-4.17	-1.23	-13.00	-57.76
190.05	-70.73	-66.52	-2.94	-1.27	-13.00	-57.73
217.21	-67.72	-64.61	-1.74	-1.37	-13.00	-54.72
243.40	-66.39	-63.16	-1.74	-1.49	-13.00	-53.39
1663.00	-58.18	-64.10	9.80	-3.88	-13.00	-45.18

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:2A_n5A	Test Date	:2020-09-18
Test Mode	:Tx CH Mid	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:VERTICAL
Test Frequency	:1950 MHz_836.5 MHz	Engineer	:Neo



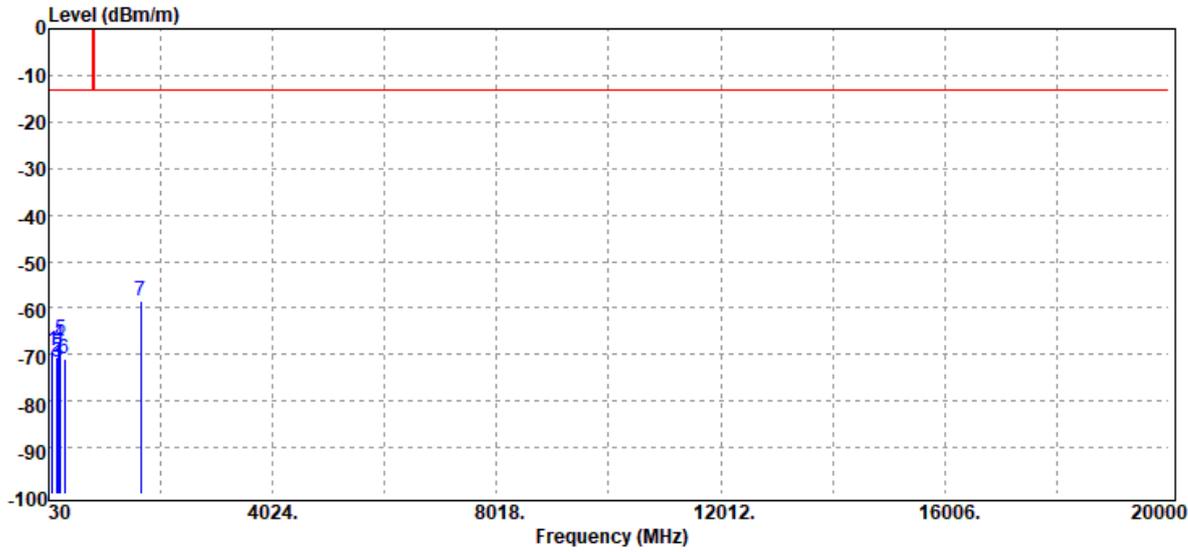
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
65.89	-73.24	-59.36	-13.09	-0.79	-13.00	-60.24
99.84	-68.00	-61.04	-6.01	-0.95	-13.00	-55.00
190.05	-70.62	-66.41	-2.94	-1.27	-13.00	-57.62
217.21	-66.33	-63.22	-1.74	-1.37	-13.00	-53.33
243.40	-61.98	-58.75	-1.74	-1.49	-13.00	-48.98
275.41	-70.31	-67.02	-1.75	-1.54	-13.00	-57.31
1673.00	-58.29	-64.19	9.80	-3.90	-13.00	-45.29

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:2A_n5A	Test Date	:2020-09-18
Test Mode	:Tx CH Mid	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:HORIZONTAL
Test Frequency	:1950 MHz_836.5 MHz	Engineer	:Neo



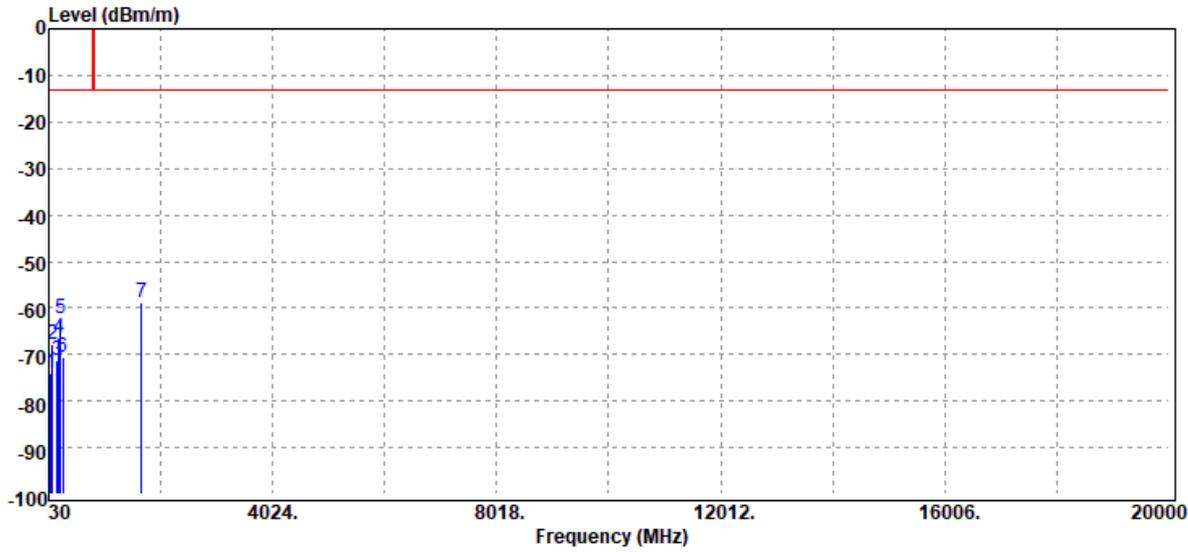
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
99.84	-69.35	-62.39	-6.01	-0.95	-13.00	-56.35
180.35	-70.69	-65.29	-4.17	-1.23	-13.00	-57.69
190.05	-71.73	-67.52	-2.94	-1.27	-13.00	-58.73
217.21	-67.73	-64.62	-1.74	-1.37	-13.00	-54.73
243.40	-66.83	-63.60	-1.74	-1.49	-13.00	-53.83
311.30	-71.03	-67.84	-1.59	-1.60	-13.00	-58.03
1673.00	-58.51	-64.41	9.80	-3.90	-13.00	-45.51

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:2A_n5A	Test Date	:2020-09-18
Test Mode	:Tx CH High	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:VERTICAL
Test Frequency	:1950 MHz_841.5 MHz	Engineer	:Neo



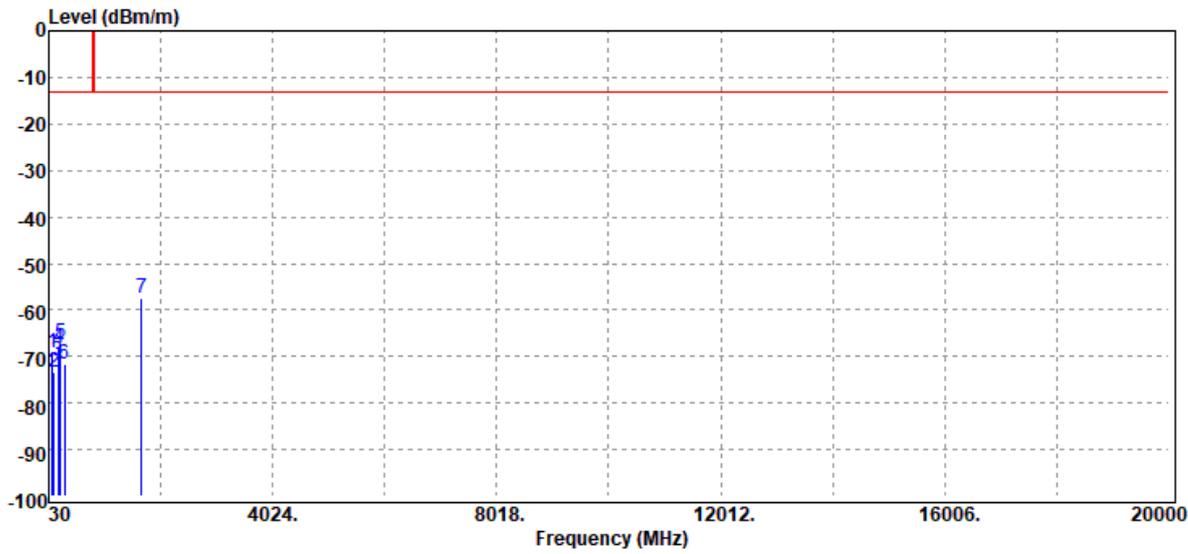
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
65.89	-74.17	-60.29	-13.09	-0.79	-13.00	-61.17
99.84	-67.99	-61.03	-6.01	-0.95	-13.00	-54.99
187.14	-71.44	-66.91	-3.27	-1.26	-13.00	-58.44
217.21	-66.56	-63.45	-1.74	-1.37	-13.00	-53.56
243.40	-62.24	-59.01	-1.74	-1.49	-13.00	-49.24
277.35	-70.52	-67.16	-1.81	-1.55	-13.00	-57.52
1683.00	-58.76	-64.65	9.80	-3.91	-13.00	-45.76

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:2A_n5A	Test Date	:2020-09-18
Test Mode	:Tx CH High	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:HORIZONTAL
Test Frequency	:1950 MHz_841.5 MHz	Engineer	:Neo



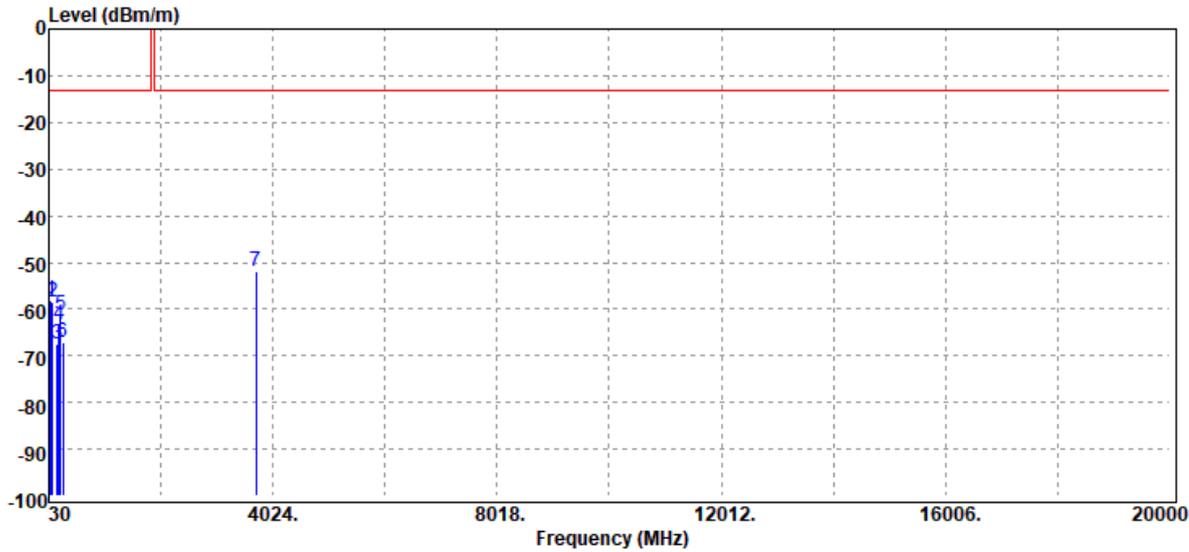
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
97.90	-69.13	-62.40	-5.79	-0.94	-13.00	-56.13
117.30	-73.23	-64.84	-7.34	-1.05	-13.00	-60.23
190.05	-71.08	-66.87	-2.94	-1.27	-13.00	-58.08
217.21	-68.24	-65.13	-1.74	-1.37	-13.00	-55.24
243.40	-67.24	-64.01	-1.74	-1.49	-13.00	-54.24
311.30	-71.52	-68.33	-1.59	-1.60	-13.00	-58.52
1683.00	-57.57	-63.46	9.80	-3.91	-13.00	-44.57

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:5A_n2A	Test Date	:2020-09-18
Test Mode	:Tx CH Low	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:VERTICAL
Test Frequency	:836.5 MHz_1860 MHz	Engineer	:Neo



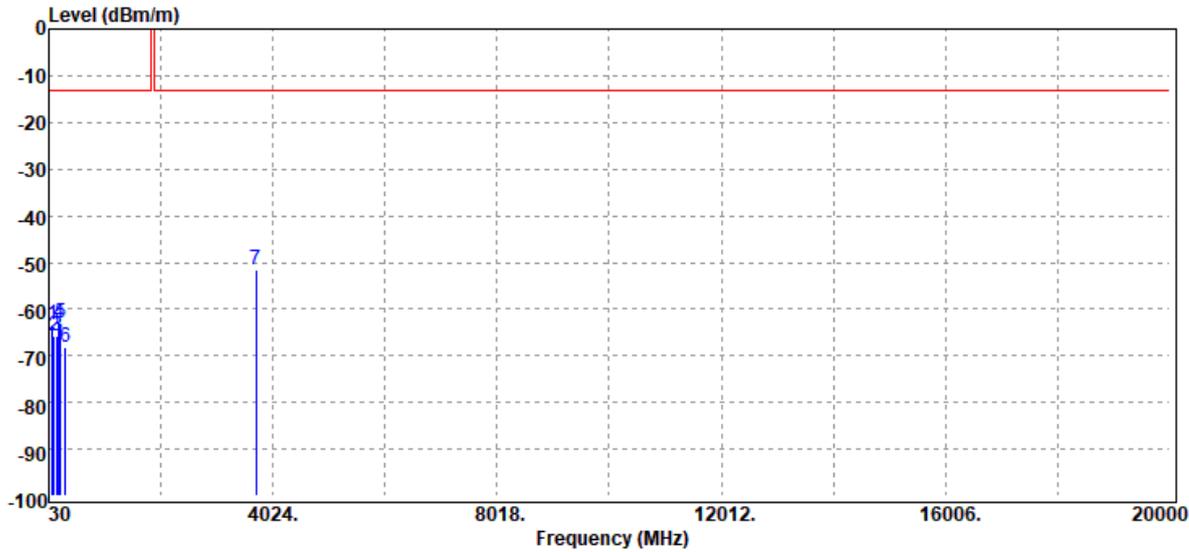
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
59.10	-58.25	-42.34	-15.18	-0.73	-13.00	-45.25
97.90	-58.54	-51.81	-5.79	-0.94	-13.00	-45.54
178.41	-67.41	-61.72	-4.46	-1.23	-13.00	-54.41
217.21	-63.48	-60.37	-1.74	-1.37	-13.00	-50.48
243.40	-61.23	-58.00	-1.74	-1.49	-13.00	-48.23
284.14	-67.06	-63.64	-1.84	-1.58	-13.00	-54.06
3720.00	-51.73	-58.31	12.40	-5.82	-13.00	-38.73

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Operation Mode	:5A_n2A	Test Date	:2020-09-18
Test Mode	:Tx CH Low	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:HORIZONTAL
Test Frequency	:836.5 MHz_1860 MHz	Engineer	:Neo



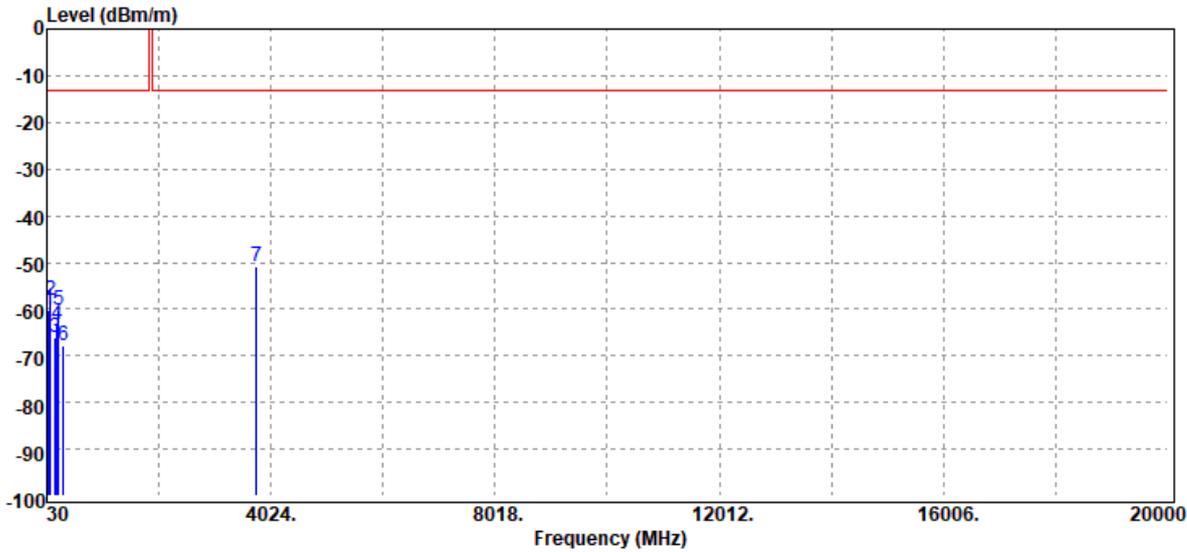
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
91.11	-63.31	-56.76	-5.64	-0.91	-13.00	-50.31
119.24	-65.68	-57.30	-7.32	-1.06	-13.00	-52.68
183.26	-65.88	-60.90	-3.74	-1.24	-13.00	-52.88
217.21	-62.80	-59.69	-1.74	-1.37	-13.00	-49.80
243.40	-63.06	-59.83	-1.74	-1.49	-13.00	-50.06
323.91	-68.23	-64.99	-1.57	-1.67	-13.00	-55.23
3720.00	-51.46	-58.04	12.40	-5.82	-13.00	-38.46

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:5A_n2A	Test Date	:2020-09-18
Test Mode	:Tx CH Mid	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:VERTICAL
Test Frequency	:836.5 MHz_1880 MHz	Engineer	:Neo



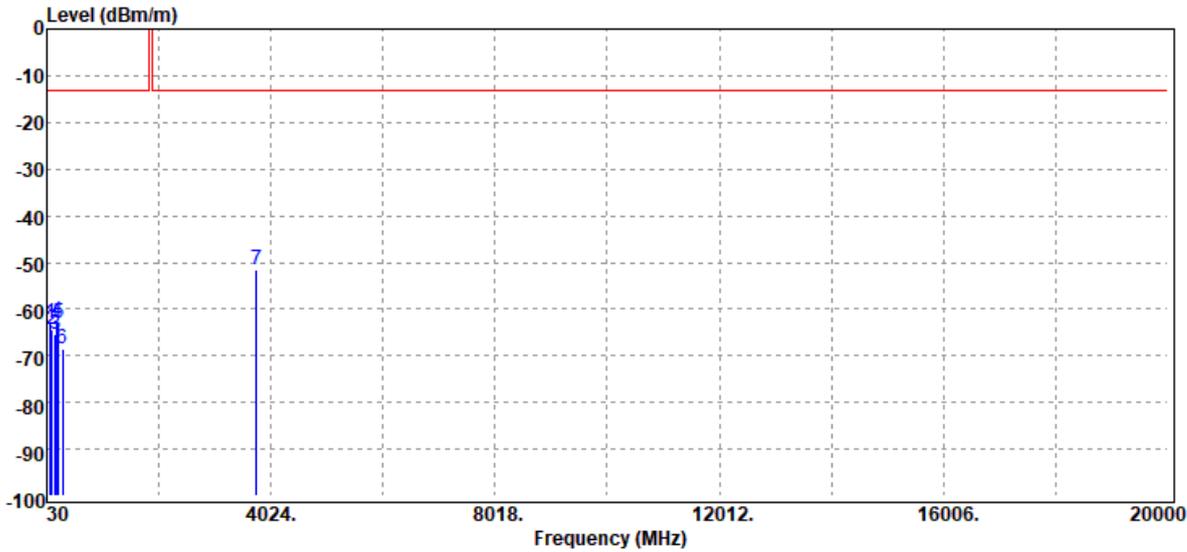
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
61.04	-60.12	-44.76	-14.61	-0.75	-13.00	-47.12
99.84	-58.07	-51.11	-6.01	-0.95	-13.00	-45.07
180.35	-66.04	-60.64	-4.17	-1.23	-13.00	-53.04
217.21	-63.31	-60.20	-1.74	-1.37	-13.00	-50.31
243.40	-60.21	-56.98	-1.74	-1.49	-13.00	-47.21
319.06	-67.94	-64.76	-1.53	-1.65	-13.00	-54.94
3760.00	-50.99	-57.65	12.40	-5.74	-13.00	-37.99

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:5A_n2A	Test Date	:2020-09-18
Test Mode	:Tx CH Mid	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:HORIZONTAL
Test Frequency	:836.5 MHz_1880 MHz	Engineer	:Neo



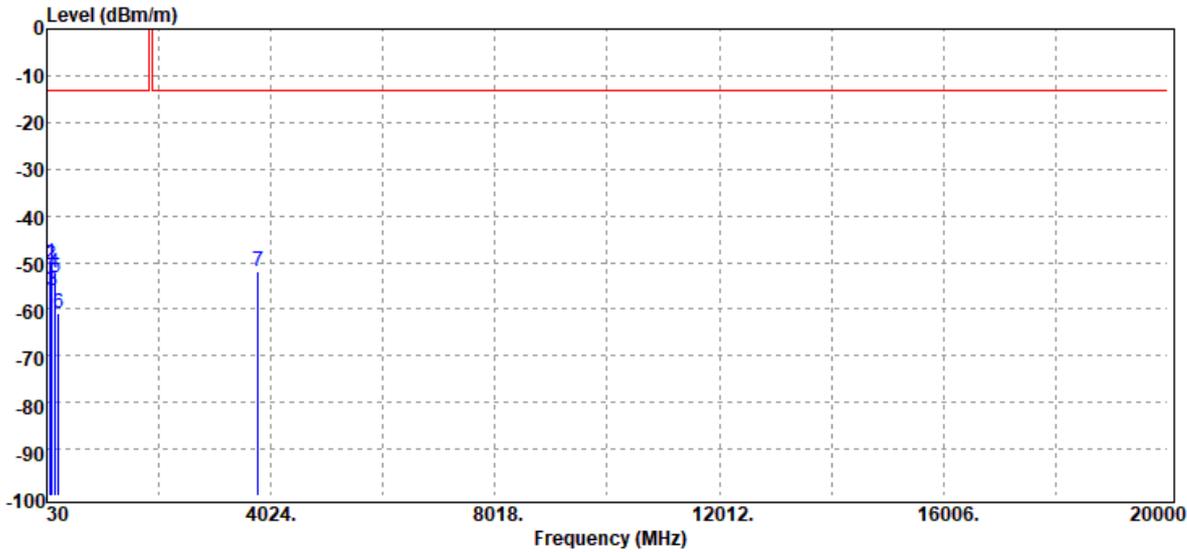
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
88.20	-63.04	-55.95	-6.20	-0.89	-13.00	-50.04
117.30	-64.50	-56.11	-7.34	-1.05	-13.00	-51.50
180.35	-65.38	-59.98	-4.17	-1.23	-13.00	-52.38
217.21	-62.70	-59.59	-1.74	-1.37	-13.00	-49.70
243.40	-62.84	-59.61	-1.74	-1.49	-13.00	-49.84
311.30	-68.36	-65.17	-1.59	-1.60	-13.00	-55.36
3760.00	-51.39	-58.05	12.40	-5.74	-13.00	-38.39

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:5A_n2A	Test Date	:2020-09-18
Test Mode	:Tx CH High	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:VERTICAL
Test Frequency	:836.5 MHz_1900 MHz	Engineer	:Neo



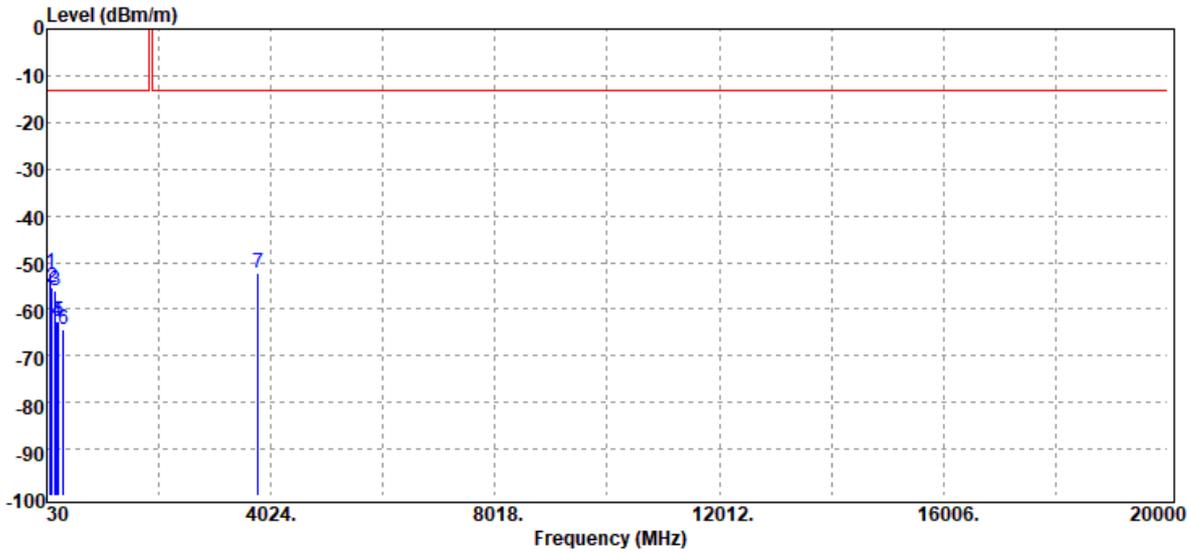
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
94.99	-50.23	-43.73	-5.57	-0.93	-13.00	-37.23
104.69	-50.68	-43.04	-6.67	-0.97	-13.00	-37.68
120.21	-55.95	-47.54	-7.35	-1.06	-13.00	-42.95
170.65	-52.37	-45.28	-5.82	-1.27	-13.00	-39.37
178.41	-53.26	-47.57	-4.46	-1.23	-13.00	-40.26
243.40	-60.81	-57.58	-1.74	-1.49	-13.00	-47.81
3800.00	-51.94	-58.68	12.40	-5.66	-13.00	-38.94

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:5A_n2A	Test Date	:2020-09-18
Test Mode	:Tx CH High	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:HORIZONTAL
Test Frequency	:836.5 MHz_1900 MHz	Engineer	:Neo



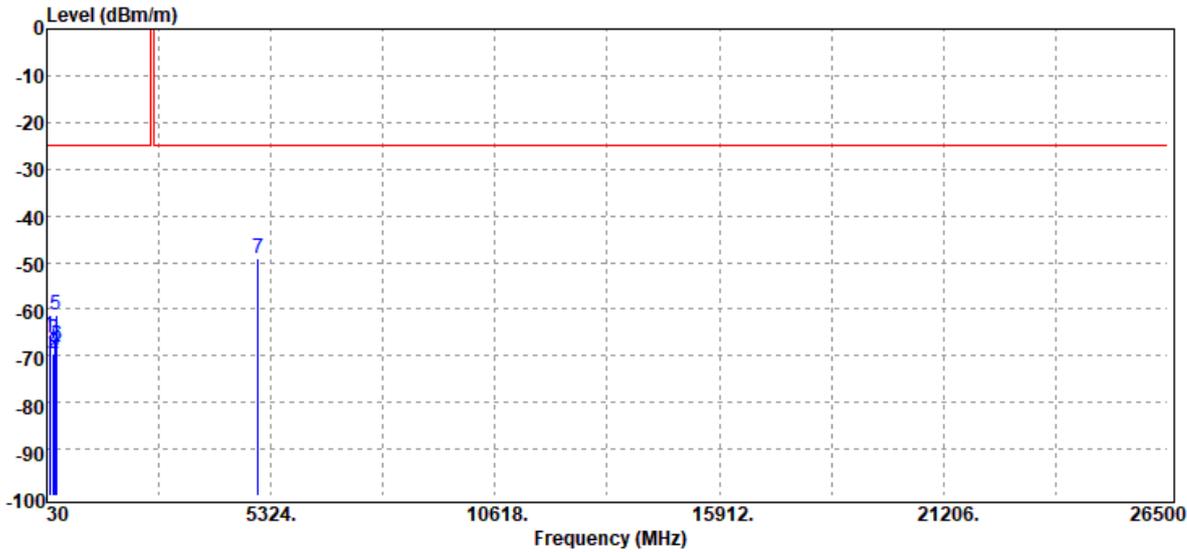
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
94.99	-52.11	-45.61	-5.57	-0.93	-13.00	-39.11
120.21	-55.35	-46.94	-7.35	-1.06	-13.00	-42.35
175.50	-55.96	-49.78	-4.94	-1.24	-13.00	-42.96
217.21	-62.80	-59.69	-1.74	-1.37	-13.00	-49.80
243.40	-62.77	-59.54	-1.74	-1.49	-13.00	-49.77
330.70	-64.41	-60.95	-1.75	-1.71	-13.00	-51.41
3800.00	-52.10	-58.84	12.40	-5.66	-13.00	-39.10

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:5A_n7A	Test Date	:2020-09-18
Test Mode	:Tx CH Low	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:VERTICAL
Test Frequency	:836.5 MHz_2510 MHz	Engineer	:Neo



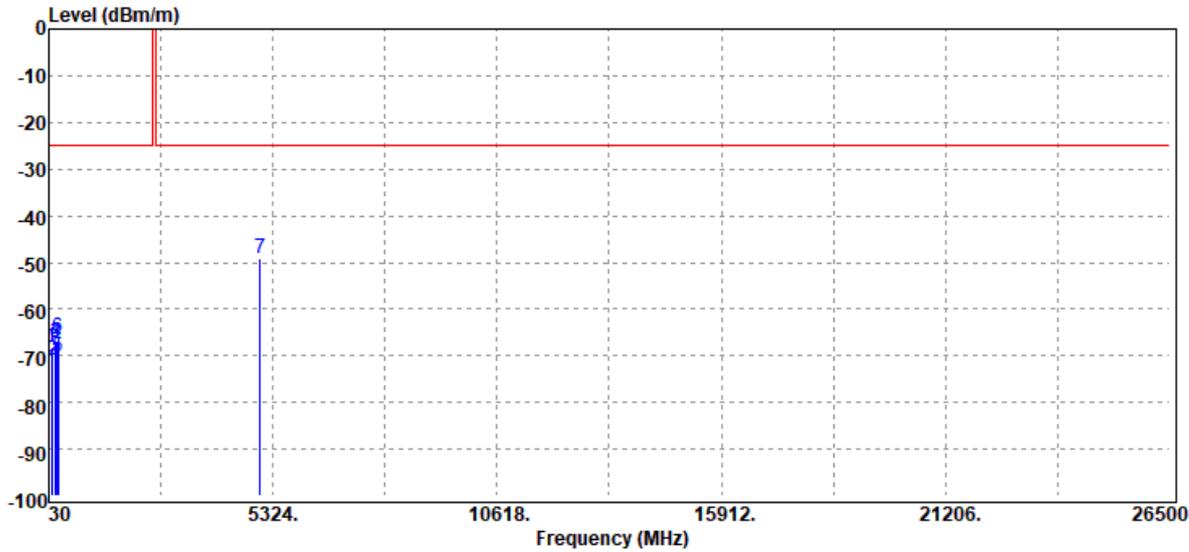
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
100.81	-65.60	-58.45	-6.20	-0.95	-25.00	-40.60
190.05	-69.71	-65.50	-2.94	-1.27	-25.00	-44.71
217.21	-66.34	-63.23	-1.74	-1.37	-25.00	-41.34
226.91	-68.78	-66.04	-1.33	-1.41	-25.00	-43.78
243.40	-61.15	-57.92	-1.74	-1.49	-25.00	-36.15
264.74	-67.77	-64.58	-1.66	-1.53	-25.00	-42.77
5020.00	-49.12	-54.93	12.66	-6.85	-25.00	-24.12

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:5A_n7A	Test Date	:2020-09-18
Test Mode	:Tx CH Low	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:HORIZONTAL
Test Frequency	:836.5 MHz_2510 MHz	Engineer	:Neo



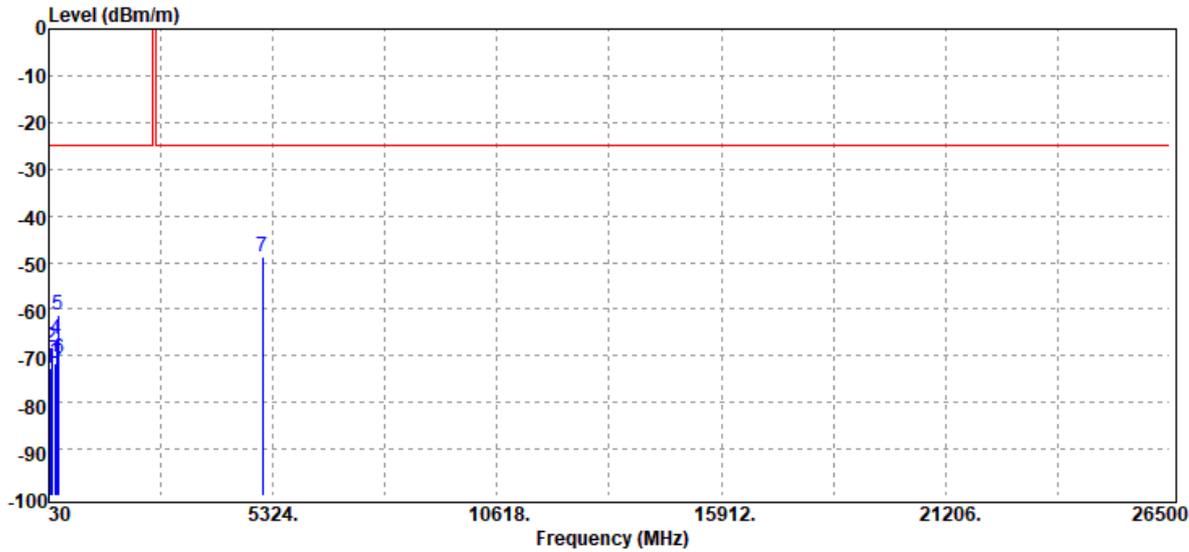
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
95.96	-68.32	-61.81	-5.58	-0.93	-25.00	-43.32
117.30	-70.79	-62.40	-7.34	-1.05	-25.00	-45.79
183.26	-67.00	-62.02	-3.74	-1.24	-25.00	-42.00
217.21	-67.21	-64.10	-1.74	-1.37	-25.00	-42.21
228.85	-70.14	-67.35	-1.37	-1.42	-25.00	-45.14
243.40	-66.25	-63.02	-1.74	-1.49	-25.00	-41.25
5020.00	-49.11	-54.92	12.66	-6.85	-25.00	-24.11

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:5A_n7A	Test Date	:2020-09-18
Test Mode	:Tx CH Mid	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:VERTICAL
Test Frequency	:836.5 MHz_2535 MHz	Engineer	:Neo



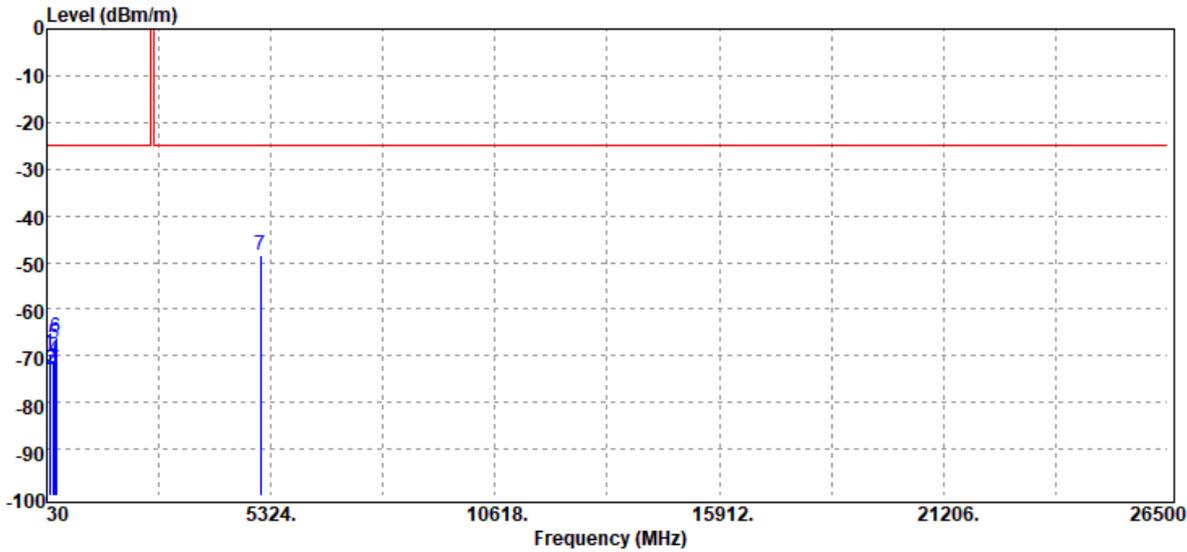
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
63.95	-72.71	-58.03	-13.91	-0.77	-25.00	-47.71
99.84	-68.13	-61.17	-6.01	-0.95	-25.00	-43.13
187.14	-71.55	-67.02	-3.27	-1.26	-25.00	-46.55
217.21	-66.52	-63.41	-1.74	-1.37	-25.00	-41.52
243.40	-61.33	-58.10	-1.74	-1.49	-25.00	-36.33
270.56	-70.56	-67.24	-1.79	-1.53	-25.00	-45.56
5070.00	-48.73	-54.49	12.56	-6.80	-25.00	-23.73

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:5A_n7A	Test Date	:2020-09-18
Test Mode	:Tx CH Mid	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:HORIZONTAL
Test Frequency	:836.5 MHz_2535 MHz	Engineer	:Neo



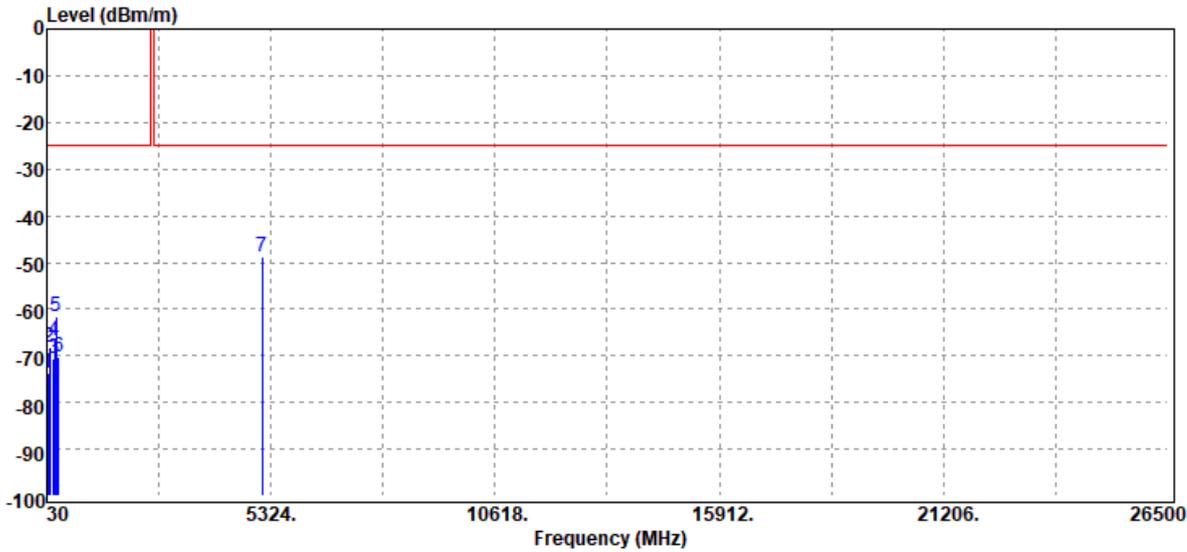
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
100.81	-69.50	-62.35	-6.20	-0.95	-25.00	-44.50
118.27	-73.15	-64.79	-7.30	-1.06	-25.00	-48.15
177.44	-72.53	-66.74	-4.55	-1.24	-25.00	-47.53
190.05	-71.00	-66.79	-2.94	-1.27	-25.00	-46.00
217.21	-67.39	-64.28	-1.74	-1.37	-25.00	-42.39
243.40	-66.18	-62.95	-1.74	-1.49	-25.00	-41.18
5070.00	-48.56	-54.32	12.56	-6.80	-25.00	-23.56

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Report Number	:ER/2020/80148	Test Site	:SAC I Chamber
Operation Mode	:5A_n7A	Test Date	:2020-09-18
Test Mode	:Tx CH High	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:VERTICAL
Test Frequency	:836.5 MHz_2560 MHz	Engineer	:Neo



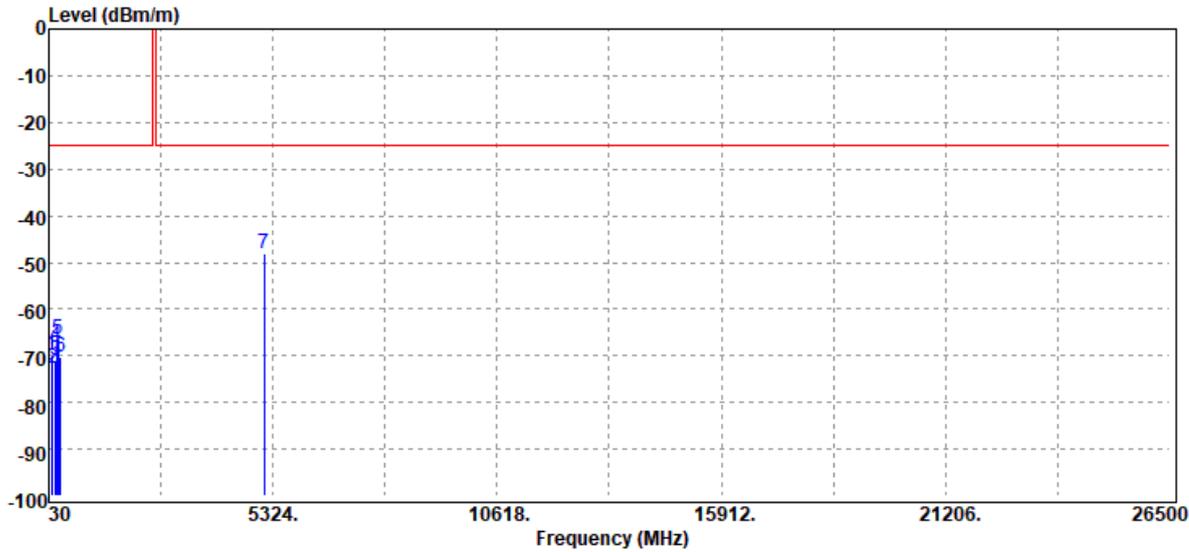
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
65.89	-73.67	-59.79	-13.09	-0.79	-25.00	-48.67
99.84	-68.04	-61.08	-6.01	-0.95	-25.00	-43.04
187.14	-70.55	-66.02	-3.27	-1.26	-25.00	-45.55
217.21	-66.90	-63.79	-1.74	-1.37	-25.00	-41.90
243.40	-61.72	-58.49	-1.74	-1.49	-25.00	-36.72
311.30	-70.38	-67.19	-1.59	-1.60	-25.00	-45.38
5120.00	-48.82	-54.55	12.58	-6.85	-25.00	-23.82

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Operation Mode	:5A_n7A	Test Date	:2020-09-18
Test Mode	:Tx CH High	Temp./Humi.	:25.2/68
EUT Pol	:NB Plane	Antenna Pol.	:HORIZONTAL
Test Frequency	:836.5 MHz_2560 MHz	Engineer	:Neo



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
99.84	-69.84	-62.88	-6.01	-0.95	-25.00	-44.84
119.24	-72.66	-64.28	-7.32	-1.06	-25.00	-47.66
190.05	-71.09	-66.88	-2.94	-1.27	-25.00	-46.09
217.21	-67.83	-64.72	-1.74	-1.37	-25.00	-42.83
243.40	-66.34	-63.11	-1.74	-1.49	-25.00	-41.34
309.36	-70.29	-67.09	-1.60	-1.60	-25.00	-45.29
5120.00	-48.08	-53.81	12.58	-6.85	-25.00	-23.08

~ End of Report ~

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