

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E INDUSTRY CANADA RSS-130, RSS-132 REQUIREMENT CLASS II & IV PC REPORT

OF

Product Name:	WWAN 3G Module
Brand Name:	N/A
Model No.:	DLX3G
Model Difference:	N/A
FCC ID:	U4GDLX3G
IC ID:	3862E-DLX3G
Report No.:	E2/2016/60067
Issue Date:	Aug. 10, 2016
FCC Rule Part:	2 , 22H & 24E
IC Rule Part	RSS 132 Issue 3 Jan. 2013, RSS 133 Issue 6 Jan.
Prepared for:	Datalogic S.r.l. Via San Vitalino no. 13, Calderara di Reno - 40012 (Bologna) - Italy
Prepared by:	SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

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VERIFICATION OF COMPLIANCE

Applicant: Datalogic S.r.l.
Via San Vitalino no. 13, Calderara di Reno - 40012 (Bologna) - Italy

Product Name: WWAN 3G Module

Brand Name: N/A

Model No.: DLX3G

Model Difference: N/A

FCC ID: U4GDLX3G

IC ID: 3862E-DLX3G

File Number: E2/2016/60067

Date of test: Jul. 04, 2016 ~ Aug. 05, 2016

Date of EUT Received: Jul. 04, 2016

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C-2004 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 report relate only to the tested sample identified in this report.

Test By:

Aken Huang

Date:

Aug. 10, 2016

Aken Huang / Engineer**Prepared By:**

Tiffany Kao

Date:

Aug. 10, 2016

Tiffany Kao / Clerk**Approved By:**

Jim Chang

Date:

Aug. 10, 2016

Jim Chang / Asst. Manager

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Revision History

Report Number	Revision	Description	Issue Date
E2/2016/60067	Rev.00	Initial creation of document	Aug. 10, 2016

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1. GENERAL PRODUCT INFORMATION

1.1. Product Description

General:

Product Name of Host:	Personal Device Assistant	
Brand Name:	Datalogic	
Model No. of Host:	DL-Axist WWAN	
Model Difference:	N/A	
Product SW/HW version:	Android 4.4.4 / ES4	
Radio SW/HW version:	N/A / N/A	
Test SW Version:	N/A	
RF power setting in TEST SW:	N/A	
Model No. of BT/WLAN Module:	DLX3G	
Module FCC ID:	U4GDLX3G	
Module IC:	3862E-DLX3G	
Scope:	The test report covers the radiated emissions requirements of the standards referenced in the report to allow system level approval of the module in this specific host.	
Class II & Class IV Permissive change:	WWAN 3G Module (DLX3G) INSTALLED IN Personal Device Assistant	
Power Supply:	3.8Vdc from Rechargeable Li-polymer Battery or 5V from AC/DC Adapter	
	Battery:	1. Model No.: Standard BTDL1, Supplier: JMS 2. Model No.: Extended BTDL1, Supplier: JMS
	Adapter:	1. Model No.: SYS1561-1005, Supplier: Sunny
IMEI:	359998042687758	

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GSM / WCDMA :

Cellular Phone Standards Frequency Range and Power	Operating Frequency		Rated Power
	GSM/GPRS 850	824.2 MHz– 848.8 MHz	33dBm
	EDGE 850	824.2 MHz– 848.8 MHz	27dBm
	GSM/GPRS 1900	1850.2MHz – 1909.8MHz	30dBm
	EDGE 1900	1850.2MHz – 1909.8MHz	26dBm
	WCDMA/HSUPA/HSDPA /HSPA+ Band II	1852.4MHz – 1907.6MHz	24dBm
	WCDMA/HSUPA/HSDPA /HSPA+ Band V	826.4MHz - 846.6MHz	24dBm
Type of Emission:	GSM 850	249KGXW	
	GPRS 850	249KGXW	
	EDGE 850	235KG7W	
	GSM 1900	247KGXW	
	GPRS 1900	247KGXW	
	EDGE 1900	241KG7W	
	WCDMA Band II	4M17F9W	
	WCDMA Band V	4M15F9W	
	HSDPA Band II	4M15F9W	
	HSDPA Band V	4M15F9W	
	HSUPA Band II	4M17F9W	
	HSUPA Band V	4M17F9W	
Antenna Designation:	PIFA Antenna, Gain: -0.3dBi (850MHz) Gain: 2.8dBi (1900MHz)		

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Max ERP/EIRP Power Measurement Result:

	dBm		W
GSM 850	32.4	ERP	1.738
GPRS 850	32.4	ERP	1.738
EDGE 850	29.4	ERP	0.871
GSM 1900	32.8	EIRP	1.905
GPRS 1900	32.8	EIRP	1.905
EDGE 1900	31.2	EIRP	1.318
WCDMA Band II	29.68	EIRP	0.929
WCDMA Band V	27.08	ERP	0.511
HSDPA Band II	30.16	EIRP	1.038
HSDPA Band V	27.06	ERP	0.508
HSUPA Band II	29.76	EIRP	0.946
HSUPA Band V	27.29	ERP	0.536

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1.2. Test Methodology of Applied Standards

FCC 47 CFR Part 2, 22, 24

ANSI / TIA / EIA 603C-C-2004

KDB971168 D01 Power Meas license Digital System v02r01

KDB941225 of the Output power Procedure of (SAR Measurement Procedures for 3G Devices, WCDMA / HSPA) was used for EUT and Base station setting.

TS 151 010-1 is used to set, and measure the output power.

RSS Gen Issue 4 Nov. 2015

RSS-132 Issue 3 Jan. 2013,

RSS-133 Issue 6 Jan. 2013

Note:

1. All test items have been performed and record as per the above standards.
2. The composite system is compliance with FCC Subpart B is authorized under the certification procedure.

1.3. Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333 (TAF code 0513)

FCC Registration Numbers are: 735305

Canada Registration Number: 4620A-5.

1.4. Special Accessories

No special accessories were used during testing.

1.5. Equipment Modifications

There were no modifications incorporated into the EUT.

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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 Conducted Measurement at Antenna Port

According to measurement procured TIA/EIA 603C, the EUT is placed on a turn table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

2.3.2 Radiated Emissions (ERP/EIRP)

According to measurement procured TIA/EIA 603C, The EUT is a placed on as turn table which is 0.8 m above ground plane. 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 according to the requirements in Section 8 and 13.

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2.4. Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Following shows an offset computation example with cable loss 0.3 dB for low band and high band with 10 dB attenuator and 4.0 splitter.

Low Band: Offset = RF cable loss (dB)+ attenuation factor(dB) =0.3+10+4=14.3(dB)

High Band: Offset = RF cable loss (dB)+ attenuation factor(dB) =0.3+10+4=14.3(dB)

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2.5. Configuration of Tested System

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

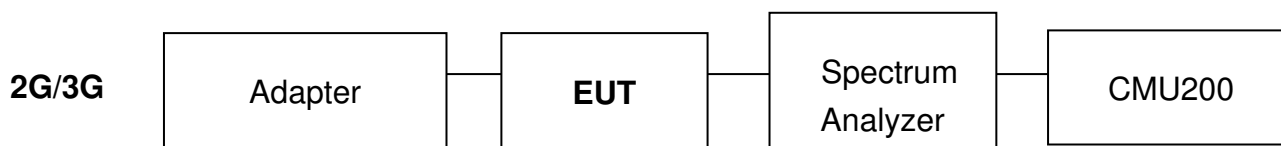


Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)

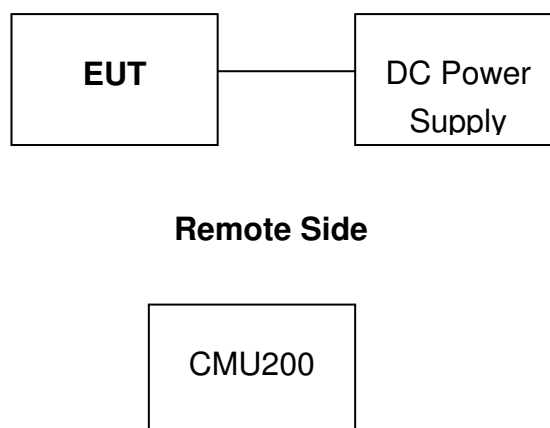


Table 2-1 Equipment Used in

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Universal Radio Communication Tester	R&S	CMU200	102189	shielded	Un-shielded
2.	DC Power Supply	Agilent	E3640A	MY53140006	N/A	Un-shielded

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3. SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§2.1046(a)	N/A	RF Power Output	Compliant
§2.1046(a) §22.913(a)(2) §24.232(c)	§4.8 (RSS-Gen Issue 3) §5.4 (RSS-132) §6.4 (RSS-133)	ERP/ EIRP measurement	Compliant
§2.1053 §22.917(a) §24.238(a)	§4.9 (RSS-Gen Issue 3) §5.5 (RSS-132) §6.5 (RSS-133)	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. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, X(E1)Y(E2)Z(H) axis and antenna ports. The worst case was found as listed below. Following channel(s) was (were) selected for the final test as listed below:

BAND	RADIATED EMISSION
GSM/GPRS/EDGE 850	E2-plan
GSM/GPRS/EDGE 1900	E2-plan
WCDMA/HSPA Band II	E2-plan
WCDMA/HSPA Band V	E2-plan

GSM/GPRS/EDGE MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
ERP	128 to 251	128, 190, 251	GSM/GPRS/EDGE 850
EIRP	512 to 810	512, 661, 810	GSM/GPRS/EDGE 1900
RADIATED EMISSION	128 to 251 512 to 810	128, 190, 251 512, 661, 810	GSM 850 GPRS 1900

WCDMA/HSPA MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
ERP	4132 to 4233	4132, 4183, 4233	WCDMA/HSPA Band V
EIRP	9262 to 9538 1312 to 1513	9262, 9400, 9583 1312, 1413, 1513	WCDMA/HSPA Band II
RADIATED EMISSION	4132 to 4233 1312 to 1513 9262 to 9538	4132, 4183, 4233 1312, 1413, 1513 9262, 9400, 9583	WCDMA Band II WCDMA Band V

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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
99% Occupied Bandwidth	+/- 5.19 Hz
Out of Band Emissions at Antenna Terminals and Band Edge	+/- 0.70 dB
Peak to Average Ratio	+/- 0.70 dB
Frequency Stability vs. Temperature	+/- 5.19 Hz
Frequency Stability vs. Voltage	+/- 5.19 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

Radiated Spurious Emission:

Measurement uncertainty (Polarization : Vertical)	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB

Measurement uncertainty (Polarization : Horizontal)	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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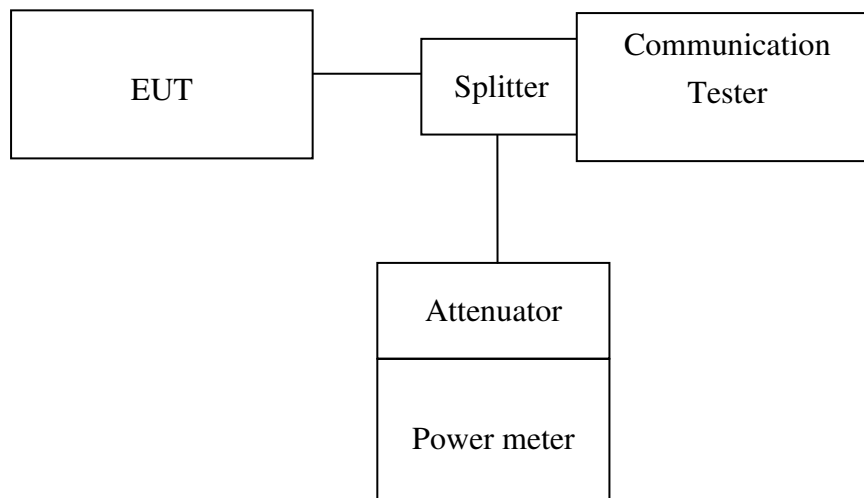
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6. RF CONDUCTED OUTPUT POWER MEASUREMENT

6.1. Standard Applicable

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals.

6.2. Test Set-up



Note: Measurement setup for testing on Antenna connector

6.3. Measurement Procedure

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading. TS 151 010-1 is reference to conduct the test measurement of output power.

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, (WCDMA/HSPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing, and KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results

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6.4. Measurement Equipment Used

Conducted Emission (measured at antenna port) Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2016	04/13/2017
Communication Tester	Anritsu	MT8820C	6201107337	05/25/2016	05/24/2017
Coaxial Cable 30cm	WOKEN	00100A1F1A 195C	RF01	12/12/2015	12/11/2016
Temperature Chamber	TERCHY	MHK-120LK	1020582	06/16/2016	06/15/2017
DC Block	PASTERNAK	PE8210	RF29	12/12/2015	12/11/2016
Splitter	RF-LAMBDA	RFLT2W1G1 8G	RF35	12/12/2015	12/11/2016
Attenuator	WOKEN	218FS-10	RF23	12/12/2015	12/11/2016
DC Power Supply	Agilent	E3640A	MY53140006	05/04/2016	05/03/2017

6.5. Measurement Result

RF Conducted Output Power

GSM/GPRS/EDGE (GMSK; 8-PSK) Result:

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Averager Burst Power (dBm)
GSM 850	824.2	128	32.70	32.30
	836.6	190	32.70	32.30
	848.8	251	32.70	32.30
GSM 1900	1850.2	512	29.70	29.50
	1880.0	661	29.50	29.30
	1909.8	810	30.00	29.80

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EUT Mode	Frequency (MHz)	CH	Peak Power (4DN 1UP) Class 8 (dBm)	Average Burst Power (4DN 1UP) Class 8 (dBm)	Peak Power (4DN 2UP) Class 10 (dBm)	Average Burst Power (4DN 2UP) Class 10 (dBm)	Peak Power (4DN 3UP) Class 12 (dBm)	Average Burst Power (4DN 3UP) Class 12 (dBm)	Peak Power (4DN 4UP) Class 12 (dBm)	Average Burst Power (4DN 4UP) Class 12 (dBm)
GPRS 850	824.2	128	32.70	32.30	31.30	31.00	29.60	29.40	28.20	28.10
	836.6	190	32.70	32.30	31.30	31.00	29.60	29.40	28.10	28.00
	848.8	251	32.70	32.30	31.20	31.00	29.40	29.20	28.00	27.90
GPRS 1900	1850.2	512	29.70	29.50	28.10	27.90	26.40	26.20	25.10	24.90
	1880.0	661	29.50	29.30	28.10	27.90	26.30	26.10	24.80	24.70
	1909.8	810	30.00	29.80	28.00	28.00	26.60	26.30	25.20	25.10
EDGE 850	824.2	128	29.70	26.50	29.50	26.40	29.20	26.10	29.20	26.10
	836.6	190	29.60	26.40	29.50	26.30	29.20	26.10	29.10	26.00
	848.8	251	29.50	26.30	29.40	26.20	29.10	26.00	29.00	25.90
EDGE 1900	1850.2	512	28.30	25.10	28.10	24.90	27.70	24.50	27.50	24.30
	1880.0	661	28.30	25.10	28.10	24.90	27.80	24.60	27.50	24.30
	1909.8	810	28.40	25.20	28.30	25.00	27.80	24.60	27.60	24.40

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WCDMA MODE:

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V8.4.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7). RMC 12.2kps is used for this testing.

Results:

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Avg. Power (dBm)
WCDMA Band II	1852.4	9262	26.88	23.72
	1880.0	9400	26.56	23.26
	1907.6	9538	26.47	23.28
WCDMA Band V	826.4	4132	27.33	23.97
	836.6	4183	27.38	23.98
	846.6	4233	27.23	23.93
HSDPA Band II	1852.4	9262	26.89	23.24
	1880.0	9400	26.63	22.76
	1907.6	9538	26.58	22.78
HSDPA Band V	826.4	4132	27.26	23.62
	836.6	4183	27.36	23.66
	846.6	4233	27.32	23.68
HSUPA Band II	1852.4	9262	26.96	23.25
	1880.0	9400	26.68	22.88
	1907.6	9538	26.72	22.71
HSUPA Band V	826.4	4132	27.14	23.48
	836.6	4183	27.59	23.58
	846.6	4233	27.33	23.52

Note: The results above reflect max power with all up bits.

Cable loss offset Low Band: 14.3dB

Cable loss offset High Band: 14.3dB

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HSDPA Release 6 MODE:

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C10.1.4 & C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing.

HSDPA SUB-TEST Setting

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH(FOR HSDPA)

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

Note: The recommended HSDPA MPRs are implemented as per following sub-tests.

Results:

Mode	Sub-test	Avg. Power (dBm) Channel			Power Class 3 Lim- itation (dBm)	Comments
		9262	9400	9538		
HSDPA (B2)	1	23.89	23.15	23.14	20.3dBm – 25.7dBm	Pass
	2	23.60	23.12	23.13	20.3dBm – 25.7dBm	Pass
	3	23.41	22.70	22.61	19.8dBm – 25.7dBm	Pass
	4	23.48	22.71	22.73	19.8dBm – 25.7dBm	Pass

Mode	Sub-test	Avg. Power (dBm) Channel			Power Class 3 Lim- itation (dBm)	Comments
		4132	4183	4233		
HSDPA (B5)	1	23.76	23.84	24.05	20.3dBm – 25.7dBm	Pass
	2	23.90	23.87	23.80	20.3dBm – 25.7dBm	Pass
	3	23.30	23.36	23.56	19.8dBm – 25.7dBm	Pass
	4	23.35	23.40	23.62	19.8dBm – 25.7dBm	Pass

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HSPA (HSDPA & HSUPA) Release 6 MODE

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing

HSPA SUB-TEST Setting

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH(FOR HSUPA)

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS}	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (Code s)	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps)
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

Note: The recommended HSUPA MPRs are implemented as per following sub-tests.

Results:

Mode	Sub-test	Avg. Power (dBm)			Power Class 3 Limitation (dBm)	Comments
		9262	9400	9538		
HSUPA(B2)	1	23.64	23.24	23.22	18.8dBm – 25.7dBm	Pass
	2	21.69	21.31	21.26	16.8dBm – 25.7dBm	Pass
	3	22.70	22.26	22.30	17.8dBm – 25.7dBm	Pass
	4	21.82	21.36	21.30	16.8dBm – 25.7dBm	Pass
	5	23.53	23.10	23.13	18.8dBm – 25.7dBm	Pass

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Mode	Sub-test	Avg. Power (dBm) Channel			Power Class 3 Limitation (dBm)	Comments
		4132	4183	4233		
HSUPA(B5)	1	23.93	23.91	23.85	18.8dBm – 25.7dBm	Pass
	2	21.99	21.99	21.89	16.8dBm – 25.7dBm	Pass
	3	22.97	22.97	22.93	17.8dBm – 25.7dBm	Pass
	4	22.04	22.05	21.97	16.8dBm – 25.7dBm	Pass
	5	23.79	23.74	23.74	18.8dBm – 25.7dBm	Pass

Minimum Communications Power Measurement PCS 1900 band

PCL	0	1	2	3	4	5	6	7	8
Output power (dBm)	29.5	27.55	25.43	22.94	21.52	19.58	17.5	15.55	13.82

PCL	9	10	11	12	13	14	15
Output power (dBm)	11.78	9.95	7.84	5.65	3.92	1.7	-0.4

Note: The EUT output power was controlled by simulator. Set Communication Tester CMU200 PCL as above, and get the mobile phone output power reading.

WCDMA/HSDPA/HSUPA band II, V

The EUT output power was controlled by simulator. Set Communication Tester CMU200 function key “UE Power Control” and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm. Then record the read (see page 15 for measurement data) . The min. power was measures by a function key “minimum power” then record the read. It is -52.3dBm. The power variation can be 0.1dB step by setting.

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7. EFFECTIVE RADIATED POWER AND EQUIVALENT ISOTROPIC RADIATED POWER MEASUREMENT

7.1. Standard Applicable

According to FCC §2.1046

FCC 22.913(a) Mobile station is limited to 7W ERP.

FCC 24.232(b) Mobile and portable stations are limited to 2 W EIRP.

According to RSS-132, section 5.4.

The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment shall not exceed 11.5 watts.

According to RSS-133 §6.4

The peak e.i.r.p. for transmitters operating in the band 1850-1910 MHz shall not exceed the limits 2W given in SRSP-510.

7.2. Test SET-UP

Refer to section 6.2 in this report.

7.3. Measurement Procedure

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading. TS 151 010-1 is reference to conduct the test measurement of output power.

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, (WCDMA/HSPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing, and KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results

7.4. Measurement Equipment Used

Refer to section 6.4 in this report.

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7.5. Measurement Result: (Peak) –using option of peak measurement

EUT			Measurement			
Operation Band	Fundamental Frequency	CH	Peak Power	Antenna Gain	ERP	Limit

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EUT			Measurement			
Operation Band	Fundamental Frequency	CH	Peak Power	Antenna Gain	EIRP	Limit

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EUT			Measurement			
Operation Band	Fundamental Frequency	CH	Peak Power	Antenna Gain	EIRP	Limit

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EUT			Measurement			
Operation Band	Fundamental Frequency	CH	Peak Power	Antenna Gain	ERP	Limit

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8. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

8.1. Standard Applicable

According to FCC §2.1053,

FCC §22.917(a) , §24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than $43 + 10 \log$ (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm).

According to RSS-132 §5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

(i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).

(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

According to RSS-133 §6.5.1

Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).

(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

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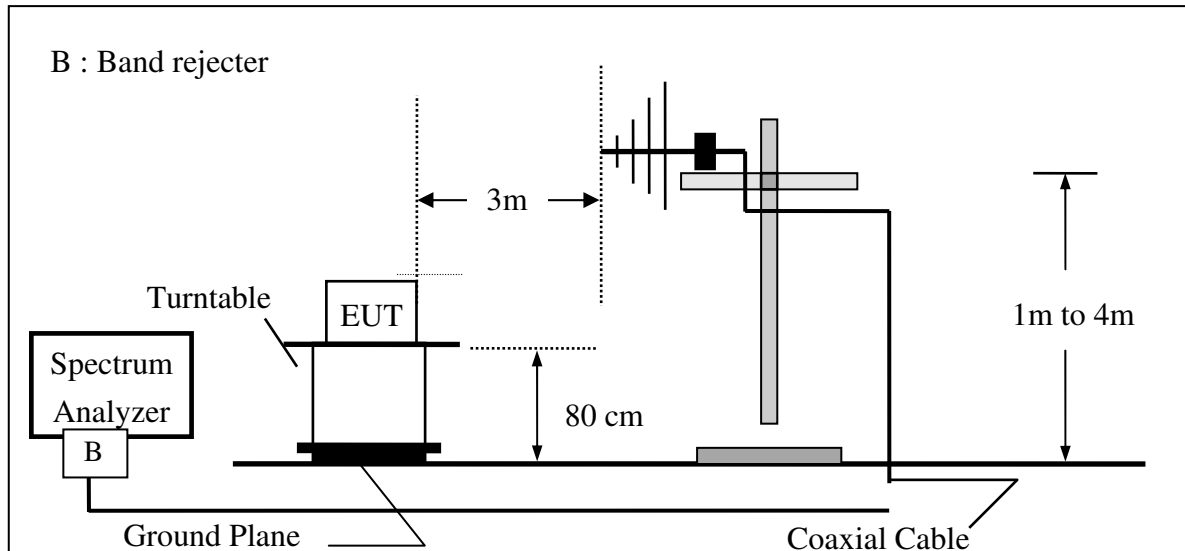
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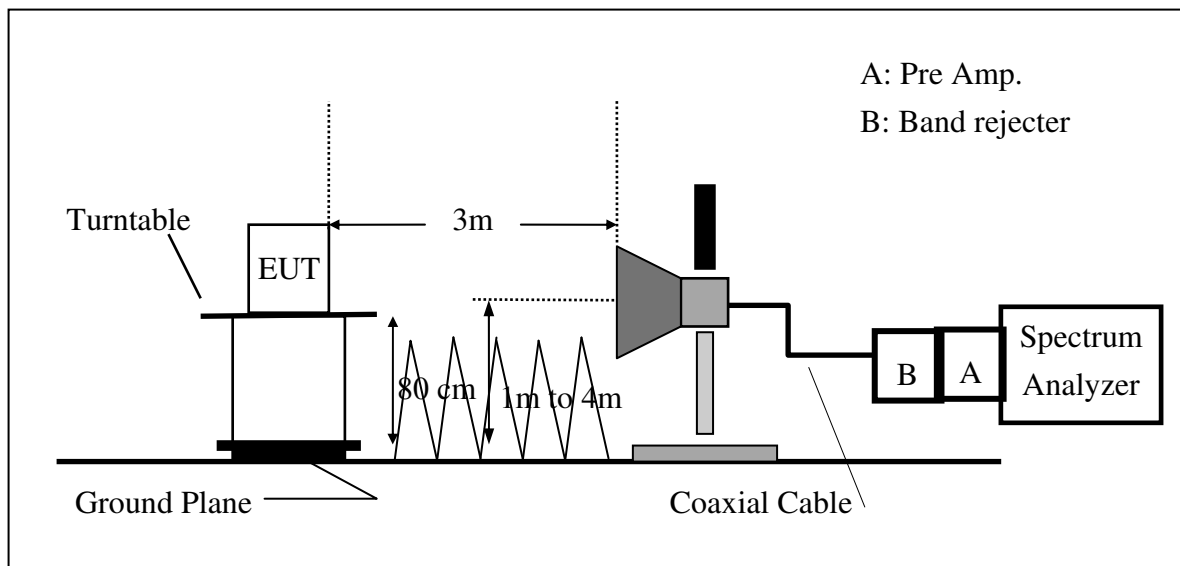
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8.2. EUT Setup

Radiated Emission Test Set-Up, Frequency Below 1000MHz



Radiated Emission Test Set-UP Frequency Over 1 GHz



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8.3. 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.

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

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

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

“---” : denotes Noise Floor.

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8.4. Measurement Equipment Used:

ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESU 40	100363	04/12/2016	04/11/2017
Broadband Antenna	TESEQ	CBL 6112D	35240	10/28/2015	10/27/2016
Broadband Antenna	TESEQ	CBL 6112D	35243	11/09/2015	11/08/2016
Horn Antenna	ETS-Lindgren	3117	00143272	12/16/2015	12/15/2016
Horn Antenna	ETS-Lindgren	3117	00143279	11/05/2015	11/04/2016
Horn Antenna	Schwarzbeck	BBHA9170	184	12/11/2015	12/10/2016
Horn Antenna	Schwarzbeck	BBHA9170	185	07/18/2016	07/17/2017
Pre Amplifier	EMC Instruments	EMC330	980096	12/12/2015	12/11/2016
Pre Amplifier	EMC Instruments	EMC0011830	980199	12/12/2015	12/11/2016
Pre Amplifier	R&S	SCU-18	10204	12/12/2015	12/11/2016
Pre Amplifier	R&S	SCU-26	100780	12/12/2015	12/11/2016
Pre Amplifier	EMC Instruments	EMC184045B	980135	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	RG 214/U	966Rx 9K-30M	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	RG 214/U SUCOFLEX 104	966Rx 30M-3G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Rx 1G-18G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	mini 141-12 SUCOFLEX 104	966Rx 18G-40G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Tx 30M-18G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	966Tx 18G-40G	12/12/2015	12/11/2016
Attenuator	WOKEN	218FS-10	RF27	12/12/2015	12/11/2016
Communication Tester	Anritsu	MT8820C	6201107337	05/25/2016	05/24/2017
Site NSA	SGS	966 Chamber C	SAC-C	03/04/2016	03/03/2017
Site VSWR	SGS	966 Chamber C	SAC-C	03/04/2016	03/03/2017
DC Power Supply	HOLA	DP-3003	D7070035	05/04/2016	05/03/2017
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.
Test Software	World-Pallas	Dr. E	V 3.0 Lite	N.C.R.	N.C.R.

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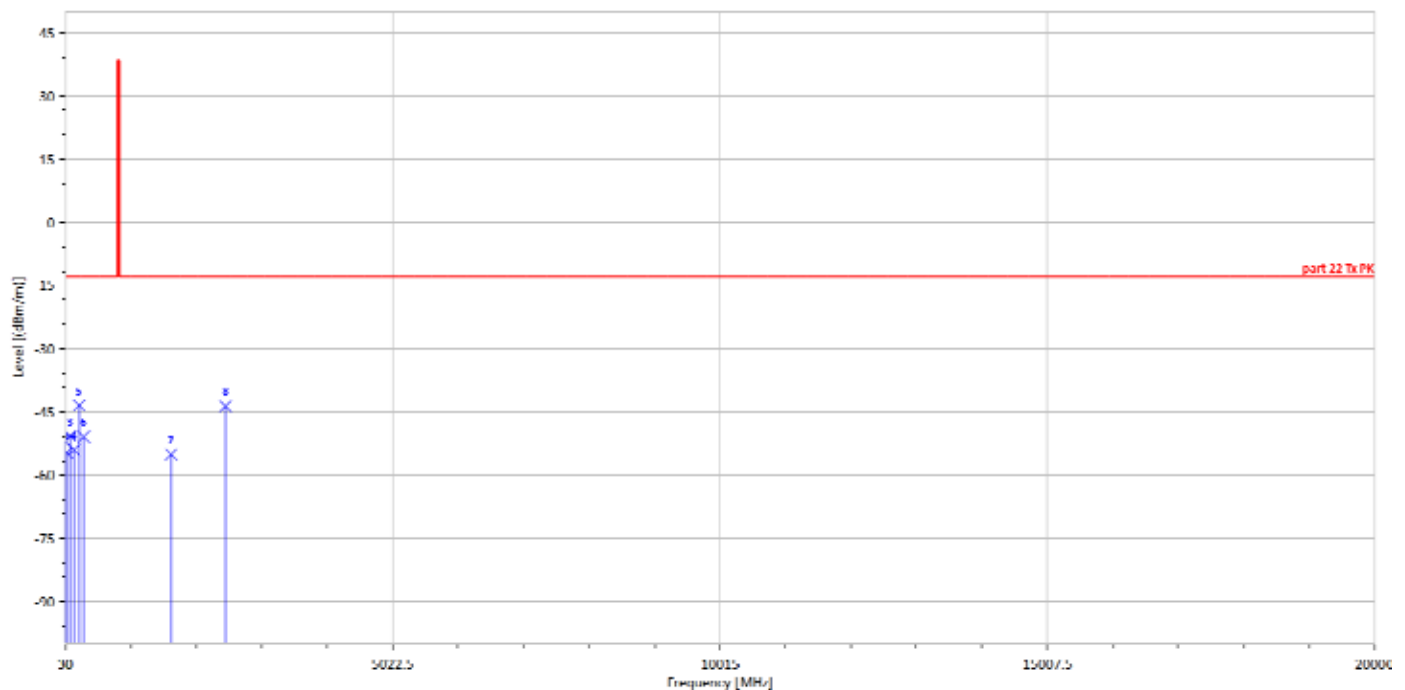
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8.5. Measurement Result:

Radiated Spurious Emission Measurement Result: GSM 850 Mode

Operation Mode :	GSM_850	Test Date :	2016/7/7
Fundamental Frequency :	824.2 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
31.94	S	-52.05	-31.43	-20.31	-0.31	-13	-39.05
58.13	S	-54.74	-38.59	-15.68	-0.47	-13	-41.74
109.54	S	-50.76	-42.81	-7.36	-0.59	-13	-37.76
167.74	S	-54.08	-46.93	-6.40	-0.75	-13	-41.08
247.28	S	-43.39	-41.07	-1.40	-0.93	-13	-30.39
314.21	S	-50.94	-48.35	-1.51	-1.08	-13	-37.94
1648.40	H	-55.17	-59.56	6.82	-2.44	-13	-42.17
2472.60	H	-43.61	-48.90	8.33	-3.03	-13	-30.61

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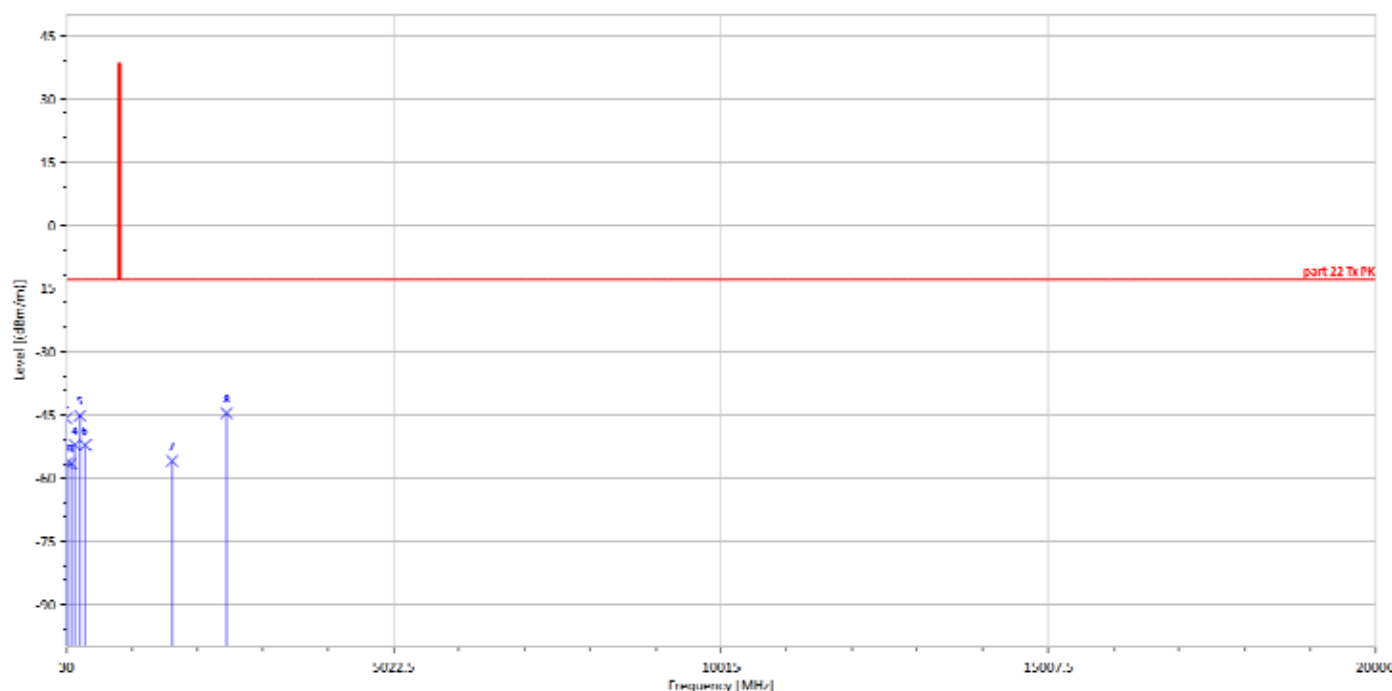
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Operation Mode :	GSM_850	Test Date :	2016/7/7
Fundamental Frequency :	824.2 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
31.94	S	-45.83	-25.21	-20.31	-0.31	-13	-32.83
47.46	S	-56.51	-38.17	-17.92	-0.41	-13	-43.51
107.60	S	-56.59	-48.82	-7.19	-0.58	-13	-43.59
163.86	S	-52.17	-44.61	-6.80	-0.75	-13	-39.17
242.43	S	-45.17	-42.81	-1.44	-0.92	-13	-32.17
321.97	S	-52.22	-49.64	-1.46	-1.12	-13	-39.22
1648.40	H	-56.00	-60.39	6.82	-2.44	-13	-43.00
2472.60	H	-44.53	-49.83	8.33	-3.03	-13	-31.53

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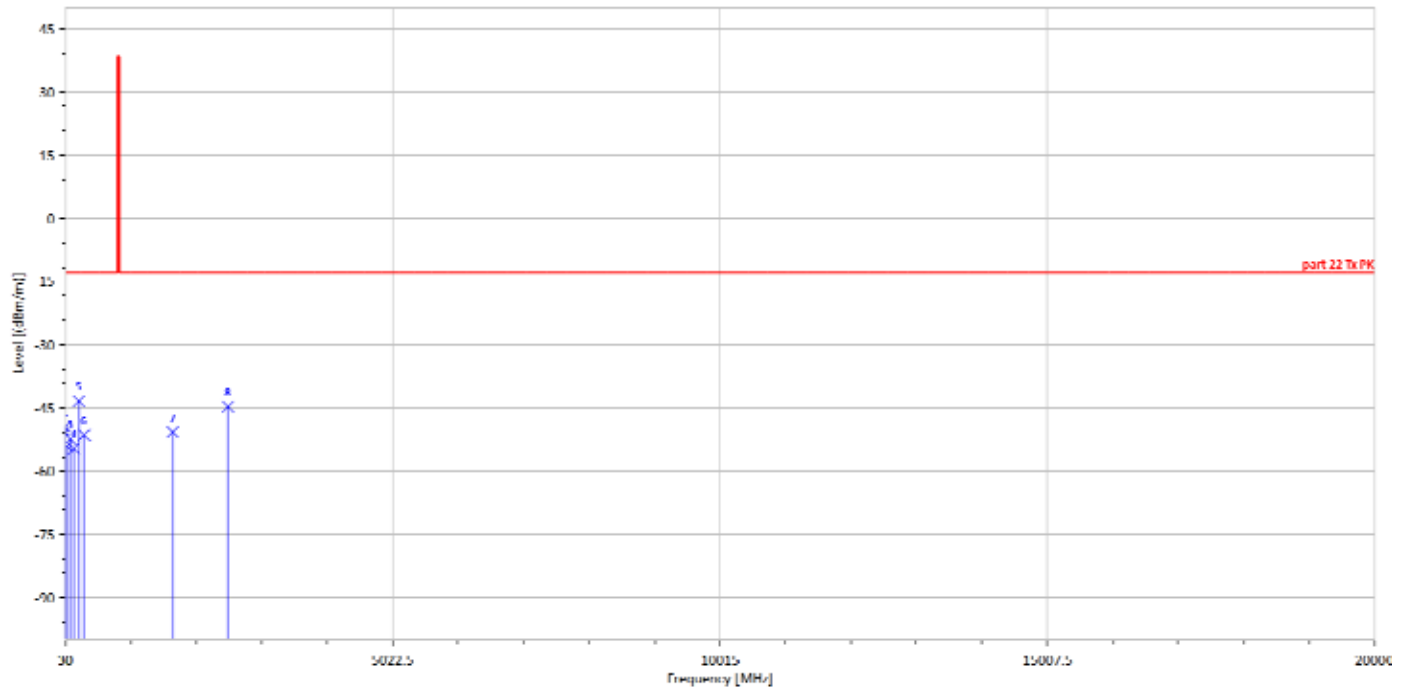
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Operation Mode :	GSM_850	Test Date :	2016/7/7
Fundamental Frequency :	836.6 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
31.94	S	-49.48	-28.87	-20.31	-0.31	-13	-36.48
57.16	S	-54.14	-37.77	-15.90	-0.47	-13	-41.14
109.54	S	-52.43	-44.48	-7.36	-0.59	-13	-39.43
164.83	S	-54.70	-47.25	-6.70	-0.75	-13	-41.70
242.43	S	-43.35	-40.98	-1.44	-0.92	-13	-30.35
319.06	S	-51.46	-48.88	-1.48	-1.11	-13	-38.46
1673.20	H	-50.79	-55.24	6.90	-2.45	-13	-37.79
2509.80	H	-44.66	-49.98	8.37	-3.04	-13	-31.66

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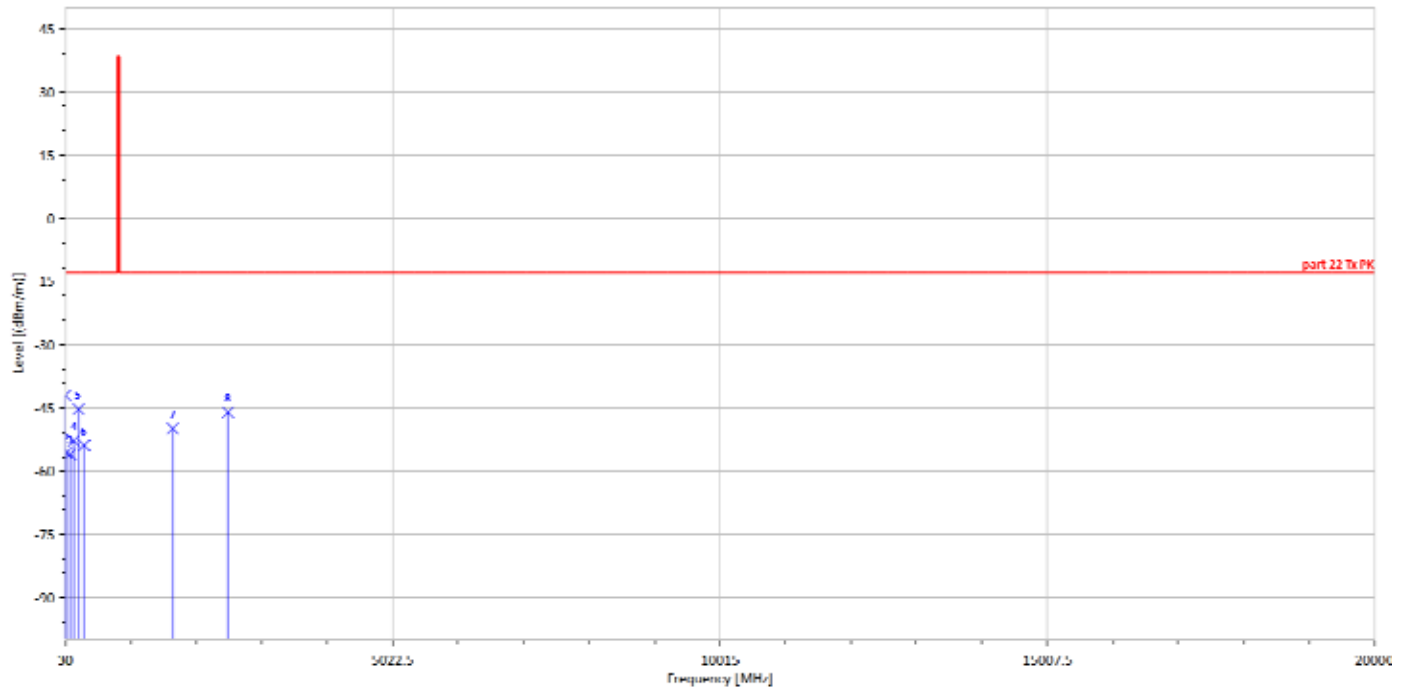
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Operation Mode :	GSM_850	Test Date :	2016/7/7
Fundamental Frequency :	836.6 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
31.94	S	-41.93	-21.31	-20.31	-0.31	-13	-28.93
47.46	S	-55.74	-37.41	-17.92	-0.41	-13	-42.74
107.60	S	-56.06	-48.29	-7.19	-0.58	-13	-43.06
163.86	S	-52.86	-45.31	-6.80	-0.75	-13	-39.86
236.61	S	-45.30	-43.20	-1.18	-0.91	-13	-32.30
321.00	S	-53.95	-51.37	-1.47	-1.11	-13	-40.95
1673.20	H	-49.93	-54.38	6.90	-2.45	-13	-36.93
2509.80	H	-46.03	-51.35	8.37	-3.04	-13	-33.03

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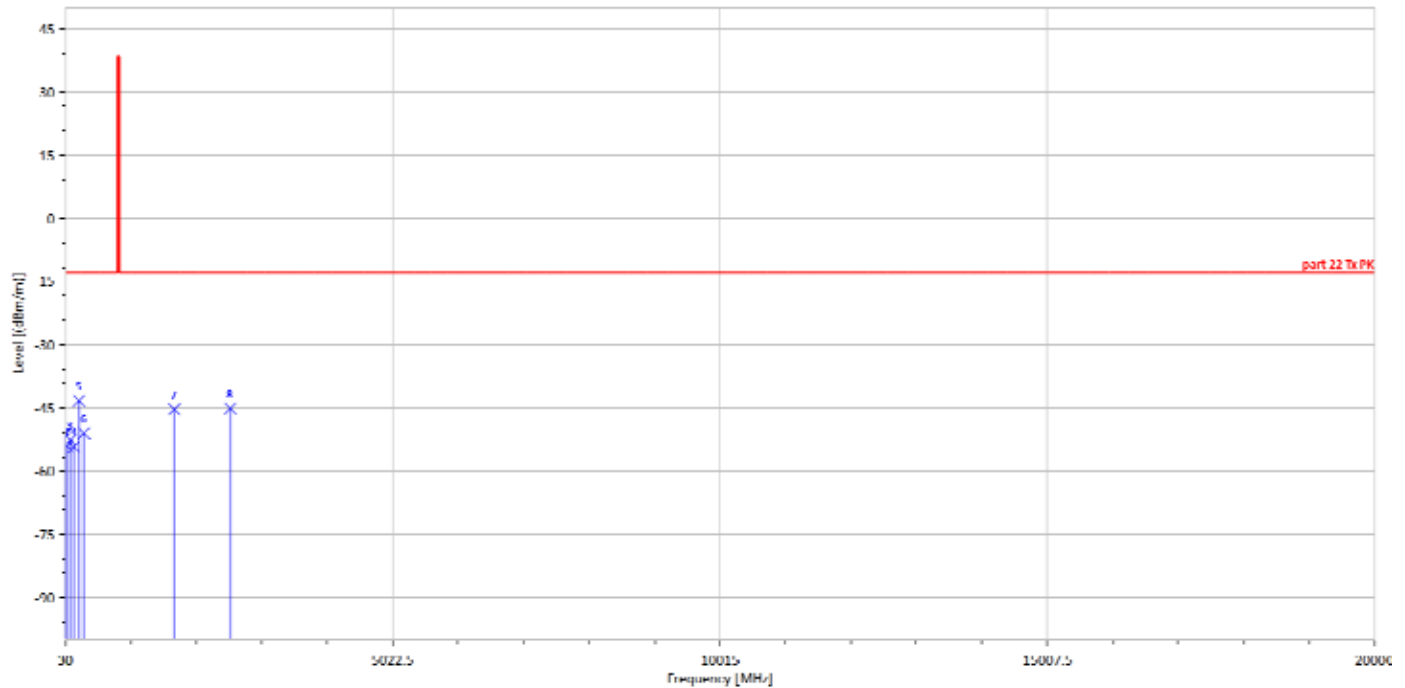
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Operation Mode :	GSM_850	Test Date :	2016/7/7
Fundamental Frequency :	848.8 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
31.94	S	-51.44	-30.83	-20.31	-0.31	-13	-38.44
58.13	S	-54.10	-37.95	-15.68	-0.47	-13	-41.10
109.54	S	-52.65	-44.71	-7.36	-0.59	-13	-39.65
163.86	S	-54.33	-46.77	-6.80	-0.75	-13	-41.33
243.40	S	-43.23	-40.87	-1.43	-0.93	-13	-30.23
316.15	S	-51.03	-48.45	-1.50	-1.09	-13	-38.03
1697.60	H	-45.31	-49.81	6.98	-2.49	-13	-32.31
2546.40	H	-45.08	-50.44	8.42	-3.06	-13	-32.08

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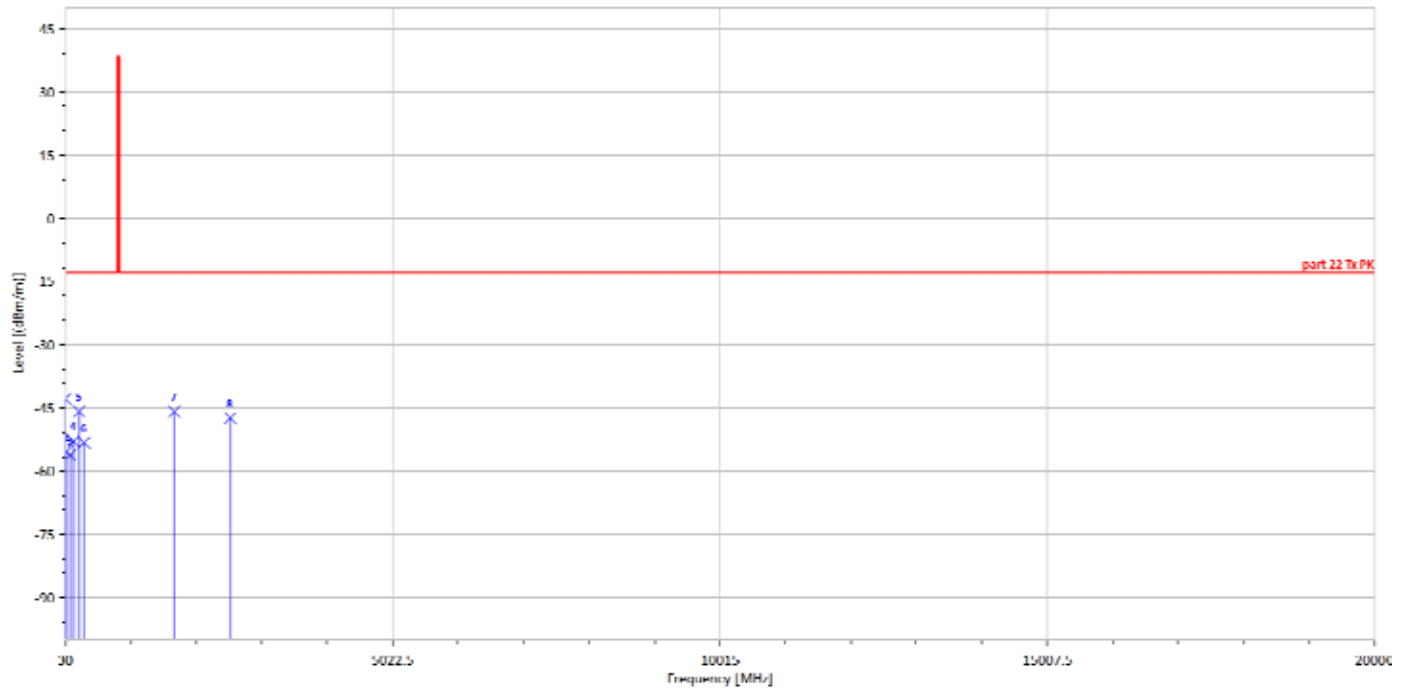
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Operation Mode :	GSM_850	Test Date :	2016/7/7
Fundamental Frequency :	848.8 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
31.94	S	-42.76	-22.15	-20.31	-0.31	-13	-29.76
47.46	S	-55.48	-37.14	-17.92	-0.41	-13	-42.48
107.60	S	-56.26	-48.49	-7.19	-0.58	-13	-43.26
159.01	S	-53.02	-45.03	-7.23	-0.76	-13	-40.02
245.34	S	-45.84	-43.50	-1.42	-0.93	-13	-32.84
320.03	S	-53.30	-50.72	-1.47	-1.11	-13	-40.30
1697.60	H	-45.86	-50.36	6.98	-2.49	-13	-32.86
2546.40	H	-47.39	-52.75	8.42	-3.06	-13	-34.39

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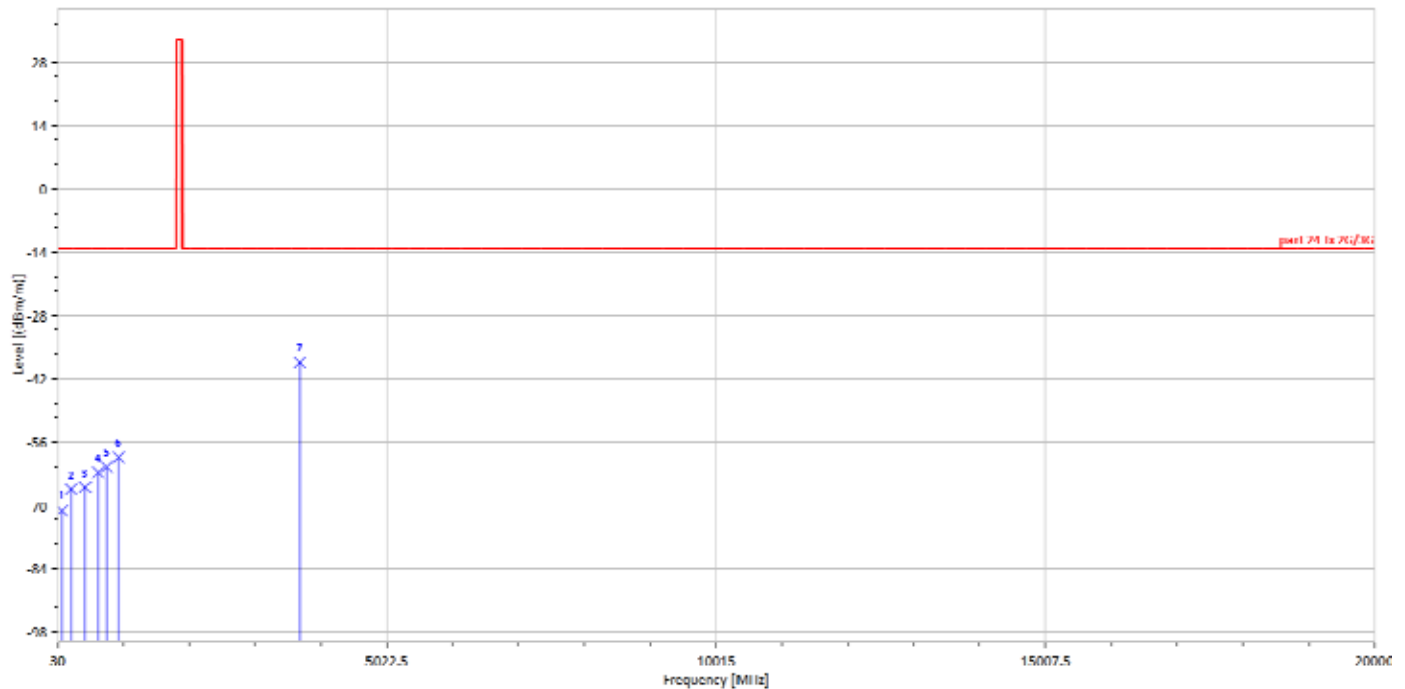
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Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode :	GPRS_1900	Test Date :	2016/7/7
Fundamental Frequency :	1850.2 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBi	Loss dB	@3m dBm/m	dB
97.90	S	-71.06	-66.19	-4.32	-0.55	-13	-58.06
239.52	S	-66.45	-66.25	0.72	-0.92	-13	-53.45
449.04	S	-66.03	-65.47	0.63	-1.19	-13	-53.03
639.16	S	-62.73	-61.56	0.23	-1.40	-13	-49.73
770.11	S	-61.48	-59.84	-0.03	-1.62	-13	-48.48
953.44	S	-59.34	-57.64	0.16	-1.87	-13	-46.34
3700.40	H	-38.33	-46.97	12.38	-3.74	-13	-25.33

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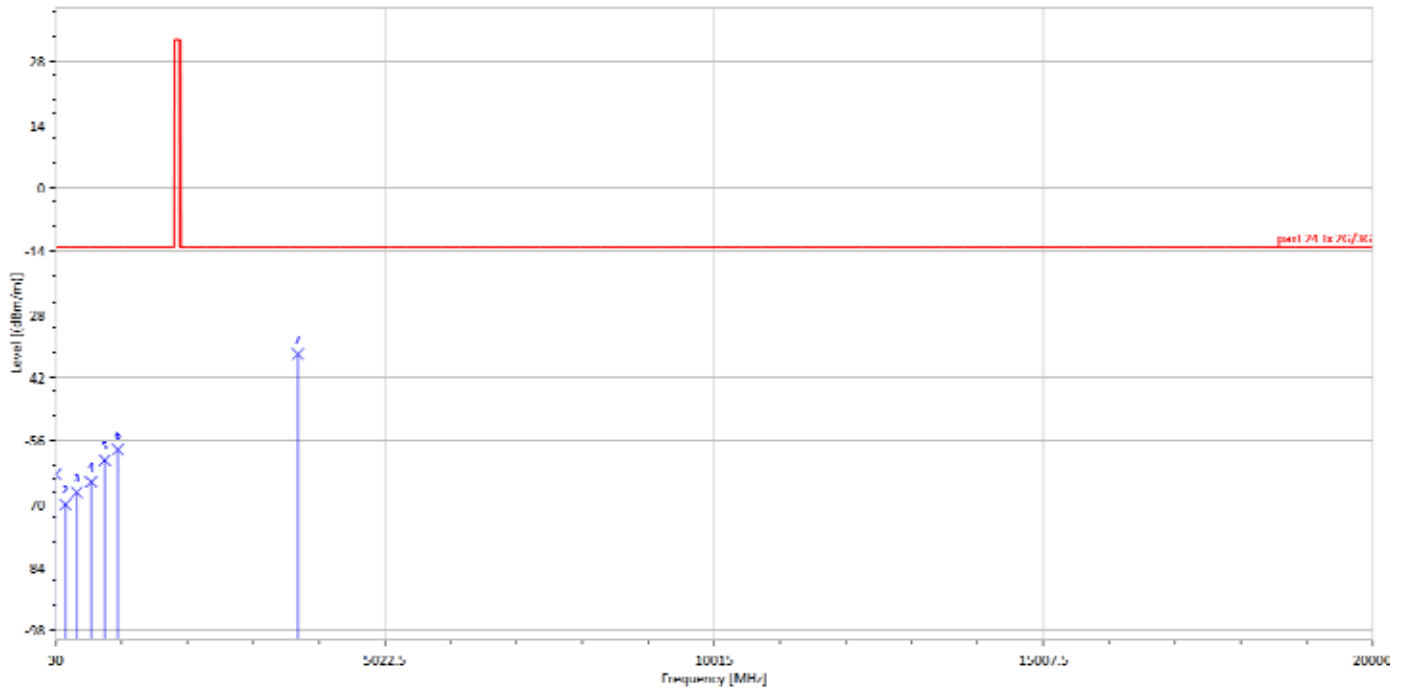
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Operation Mode :	GPRS_1900	Test Date :	2016/7/7
Fundamental Frequency :	1850.2 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBi	Loss dB	@3m dBm/m	dB
34.85	S	-63.33	-45.33	-17.68	-0.32	-13	-50.33
182.29	S	-70.07	-67.42	-1.89	-0.76	-13	-57.07
354.95	S	-67.33	-67.07	0.82	-1.08	-13	-54.33
565.44	S	-65.01	-64.17	0.57	-1.42	-13	-52.01
770.11	S	-60.35	-58.70	-0.03	-1.62	-13	-47.35
971.87	S	-57.99	-56.42	0.28	-1.85	-13	-44.99
3700.40	H	-36.80	-45.44	12.38	-3.74	-13	-23.80

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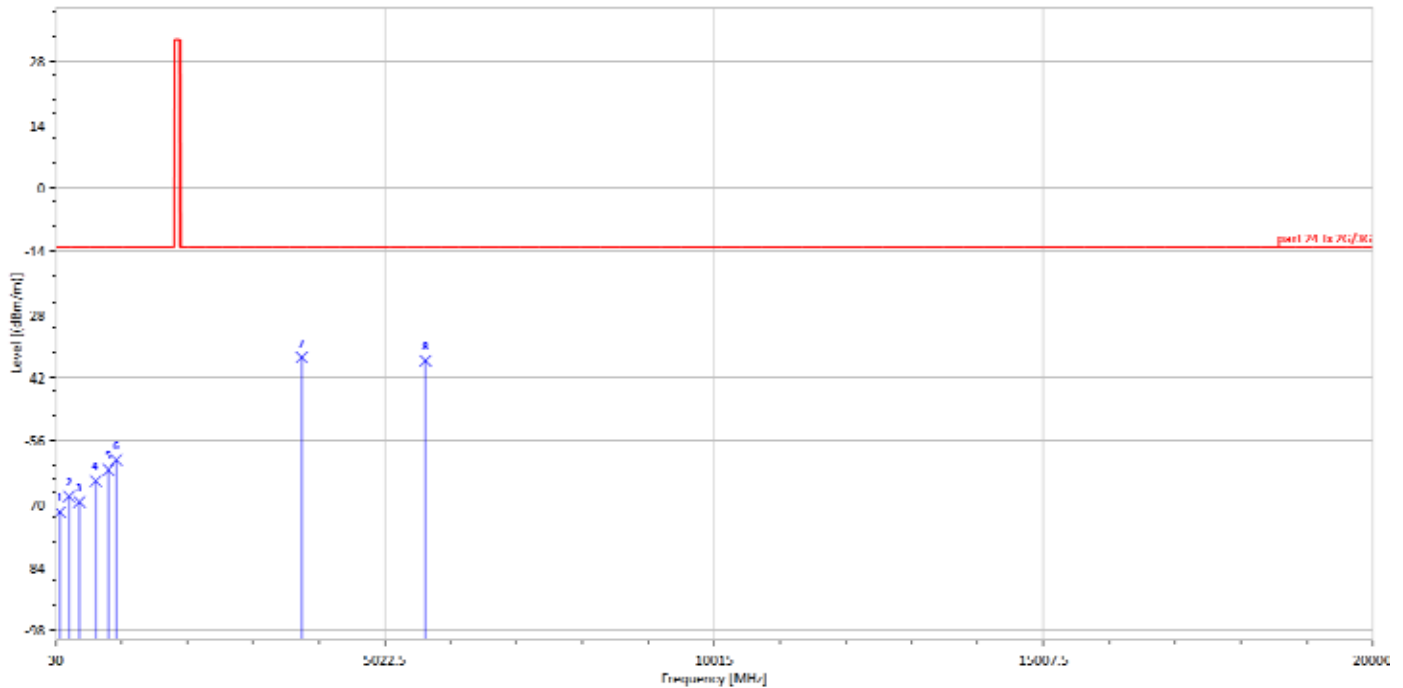
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Operation Mode :	GPRS_1900	Test Date :	2016/7/7
Fundamental Frequency :	1880 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBi	Loss dB	@3m dBm/m	dB
97.12	S	-71.74	-66.88	-4.31	-0.55	-13	-58.74
236.87	S	-68.22	-68.25	0.94	-0.91	-13	-55.22
395.93	S	-69.49	-68.96	0.74	-1.27	-13	-56.49
633.15	S	-64.77	-63.62	0.22	-1.37	-13	-51.77
828.07	S	-62.40	-61.04	0.21	-1.57	-13	-49.40
948.51	S	-60.28	-58.57	0.14	-1.85	-13	-47.28
3760.00	H	-37.53	-46.16	12.40	-3.77	-13	-24.53
5640.00	H	-38.28	-46.47	12.86	-4.67	-13	-25.28

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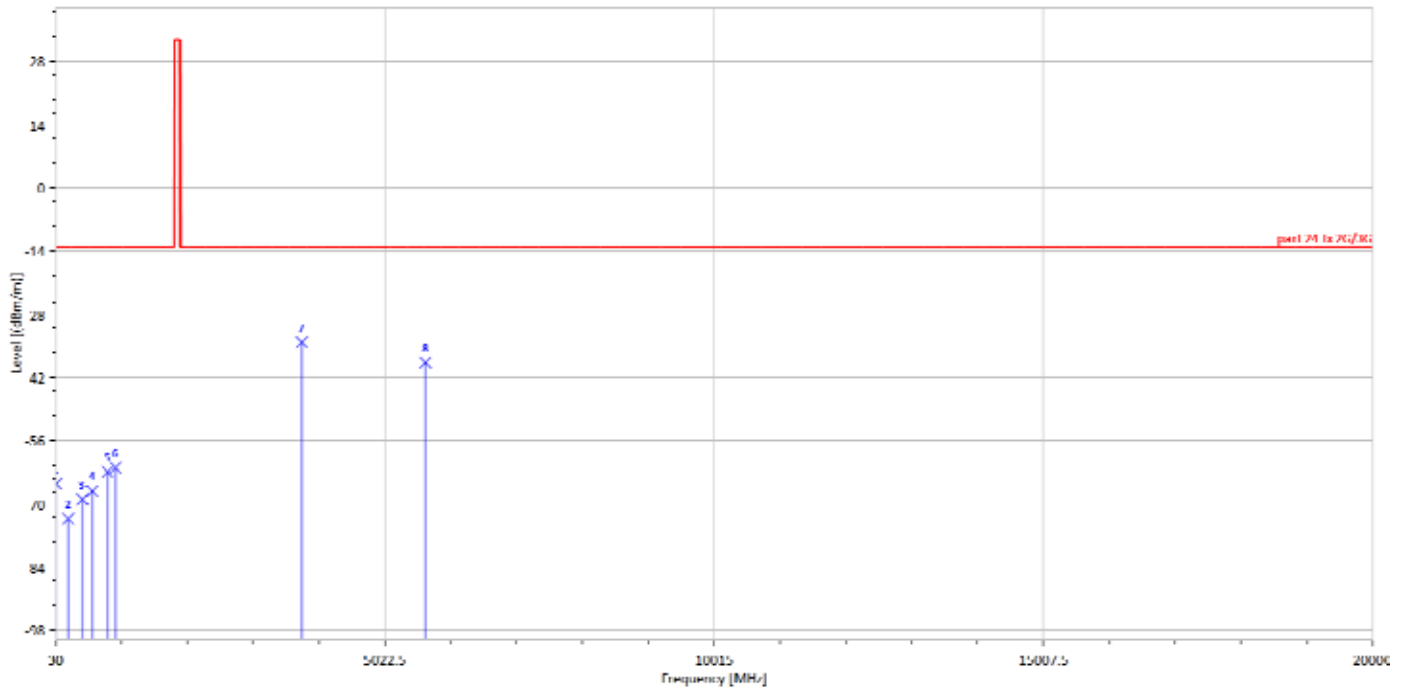
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Operation Mode :	GPRS_1900	Test Date :	2016/7/7
Fundamental Frequency :	1880 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBi	Loss dB	@3m dBm/m	dB
38.27	S	-65.43	-47.97	-17.11	-0.35	-13	-52.43
225.84	S	-73.26	-73.86	1.48	-0.88	-13	-60.26
440.99	S	-68.93	-68.37	0.66	-1.21	-13	-55.93
579.82	S	-67.06	-65.99	0.40	-1.47	-13	-54.06
813.36	S	-62.87	-61.49	0.23	-1.60	-13	-49.87
935.64	S	-61.95	-60.32	0.17	-1.80	-13	-48.95
3760.00	H	-34.15	-42.79	12.40	-3.77	-13	-21.15
5640.00	H	-38.68	-46.87	12.86	-4.67	-13	-25.68

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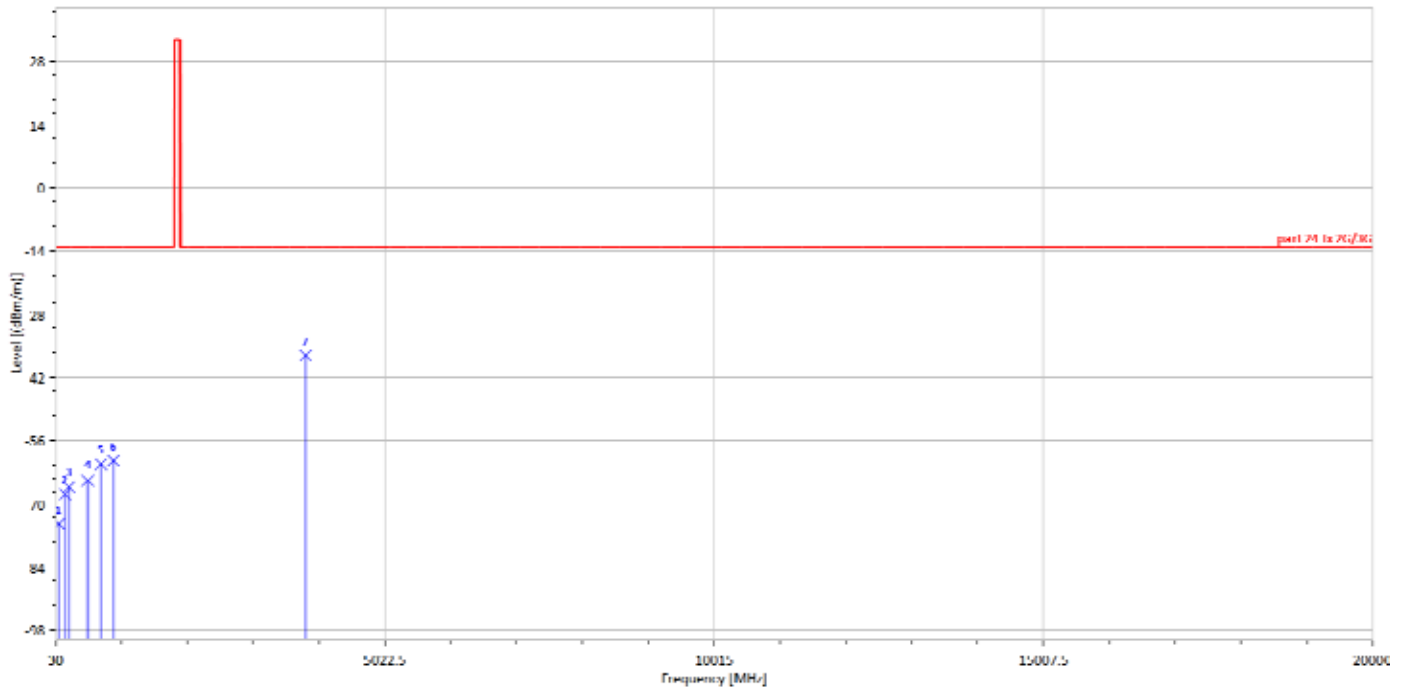
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Operation Mode :	GPRS_1900	Test Date :	2016/7/7
Fundamental Frequency :	1909.8 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBi	Loss dB	@3m dBm/m	dB
82.38	S	-74.40	-67.73	-6.16	-0.52	-13	-61.40
176.47	S	-67.75	-64.07	-2.93	-0.75	-13	-54.75
237.58	S	-66.12	-66.08	0.88	-0.92	-13	-53.12
517.91	S	-64.71	-64.16	0.80	-1.35	-13	-51.71
711.91	S	-61.21	-60.02	0.31	-1.50	-13	-48.21
903.97	S	-60.46	-58.98	0.23	-1.70	-13	-47.46
3819.60	H	-37.11	-45.72	12.43	-3.82	-13	-24.11

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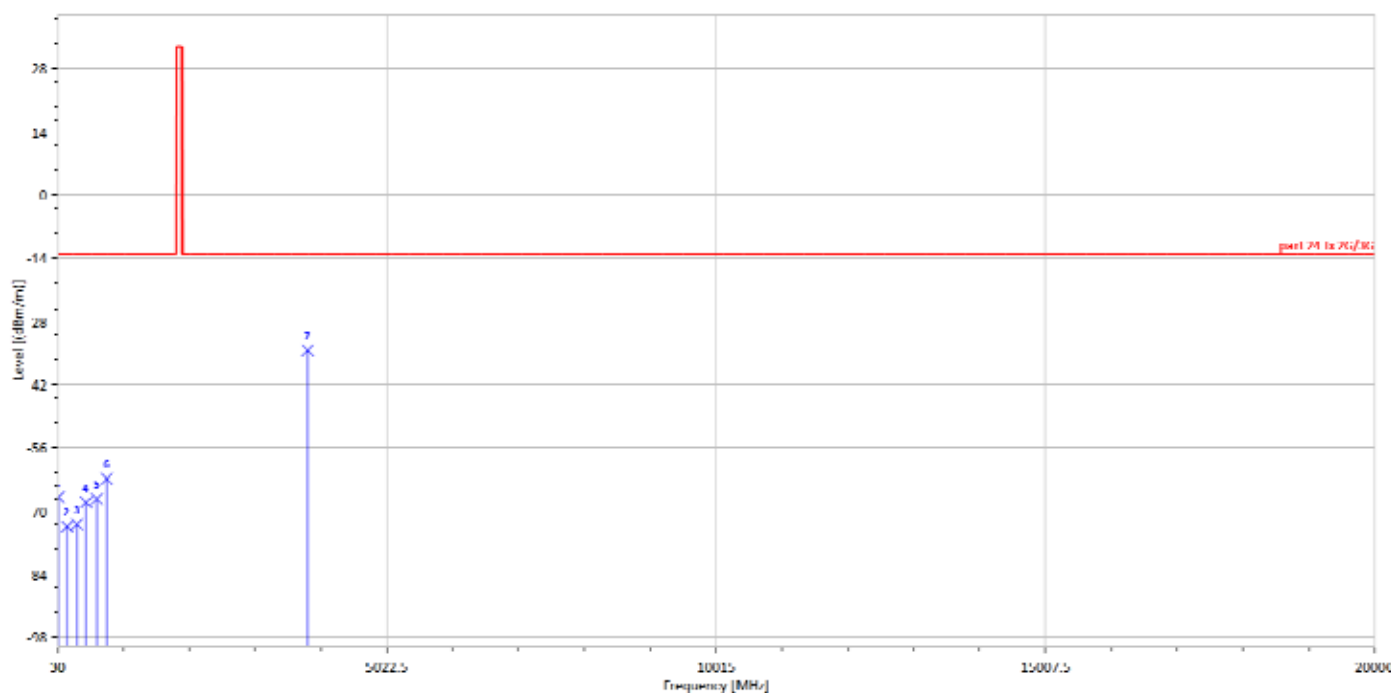
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Operation Mode :	GPRS_1900	Test Date :	2016/7/7
Fundamental Frequency :	1909.8 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
			Level	Gain	Loss	@3m	
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm/m	dB
44.71	S	-66.84	-50.28	-16.16	-0.39	-13	-53.84
177.11	S	-73.43	-69.87	-2.82	-0.75	-13	-60.43
328.82	S	-72.91	-72.52	0.72	-1.12	-13	-59.91
465.81	S	-68.05	-67.47	0.70	-1.28	-13	-55.05
619.36	S	-67.26	-66.06	0.19	-1.38	-13	-54.26
771.06	S	-62.84	-61.20	-0.02	-1.62	-13	-49.84
3819.60	H	-34.40	-43.01	12.43	-3.82	-13	-21.40

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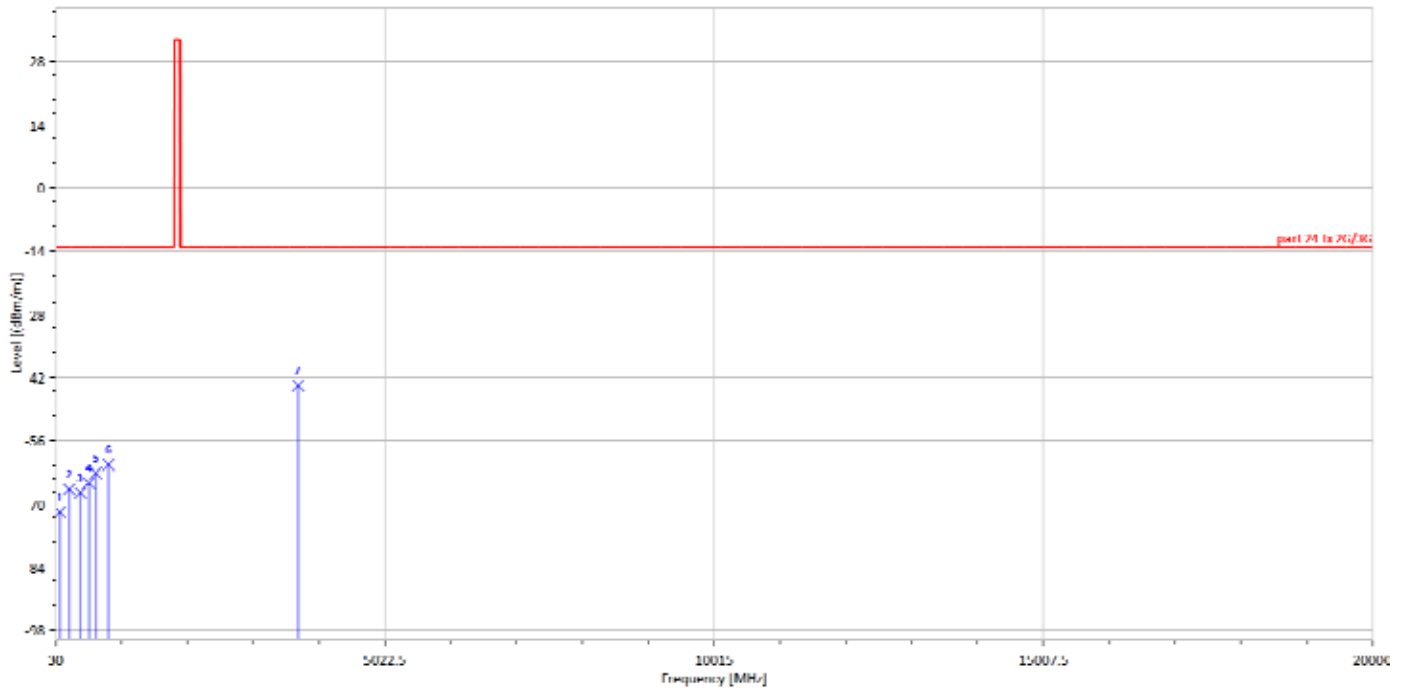
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Radiated Spurious Emission Measurement Result: WCDMA II Mode

Operation Mode :	WCDMA_B2	Test Date :	2016/7/7
Fundamental Frequency :	1852.4 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBi	Loss dB	@3m dBm/m	dB
97.90	S	-71.73	-66.86	-4.32	-0.55	-13	-58.73
240.49	S	-66.63	-66.40	0.68	-0.92	-13	-53.63
411.21	S	-67.41	-66.83	0.72	-1.30	-13	-54.41
531.49	S	-65.21	-64.69	0.79	-1.30	-13	-52.21
634.31	S	-63.08	-61.92	0.22	-1.38	-13	-50.08
826.37	S	-61.28	-59.92	0.21	-1.57	-13	-48.28
3704.80	H	-43.62	-52.25	12.38	-3.75	-13	-30.62

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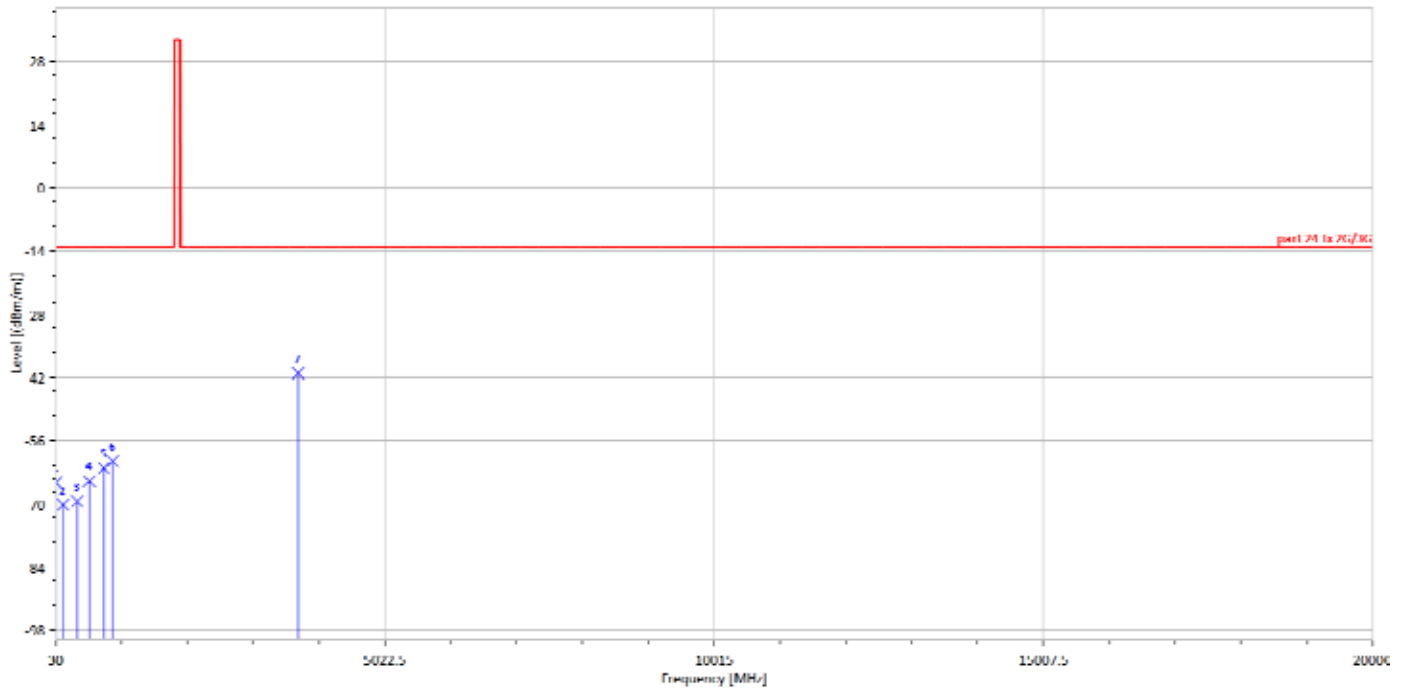
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Operation Mode :	WCDMA_B2	Test Date :	2016/7/7
Fundamental Frequency :	1852.4 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBi	Loss dB	@3m dBm/m	dB
38.73	S	-65.13	-47.75	-17.04	-0.35	-13	-52.13
146.40	S	-70.13	-63.90	-5.45	-0.78	-13	-57.13
362.71	S	-69.37	-69.11	0.81	-1.08	-13	-56.37
539.25	S	-64.82	-64.32	0.77	-1.27	-13	-51.82
756.53	S	-62.05	-60.35	-0.15	-1.54	-13	-49.05
893.30	S	-60.59	-59.12	0.23	-1.70	-13	-47.59
3704.80	H	-41.01	-49.65	12.38	-3.75	-13	-28.01

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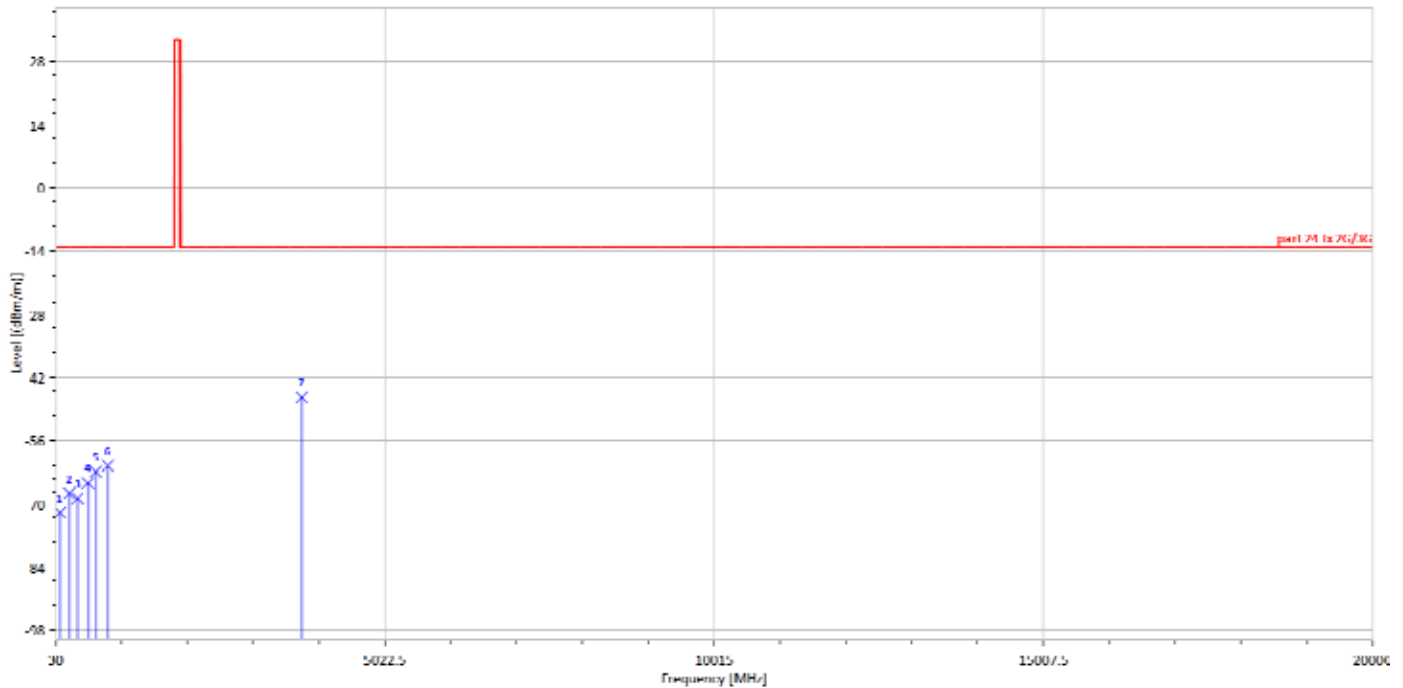
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Operation Mode :	WCDMA_B2	Test Date :	2016/7/7
Fundamental Frequency :	1880 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBi	Loss dB	@3m dBm/m	dB
99.84	S	-71.88	-66.97	-4.36	-0.56	-13	-58.88
242.43	S	-67.58	-67.36	0.70	-0.92	-13	-54.58
368.53	S	-68.67	-68.38	0.80	-1.09	-13	-55.67
519.85	S	-65.24	-64.70	0.80	-1.34	-13	-52.24
635.28	S	-62.82	-61.66	0.22	-1.38	-13	-49.82
816.67	S	-61.52	-60.15	0.22	-1.60	-13	-48.52
3760.00	H	-46.29	-54.92	12.40	-3.77	-13	-33.29

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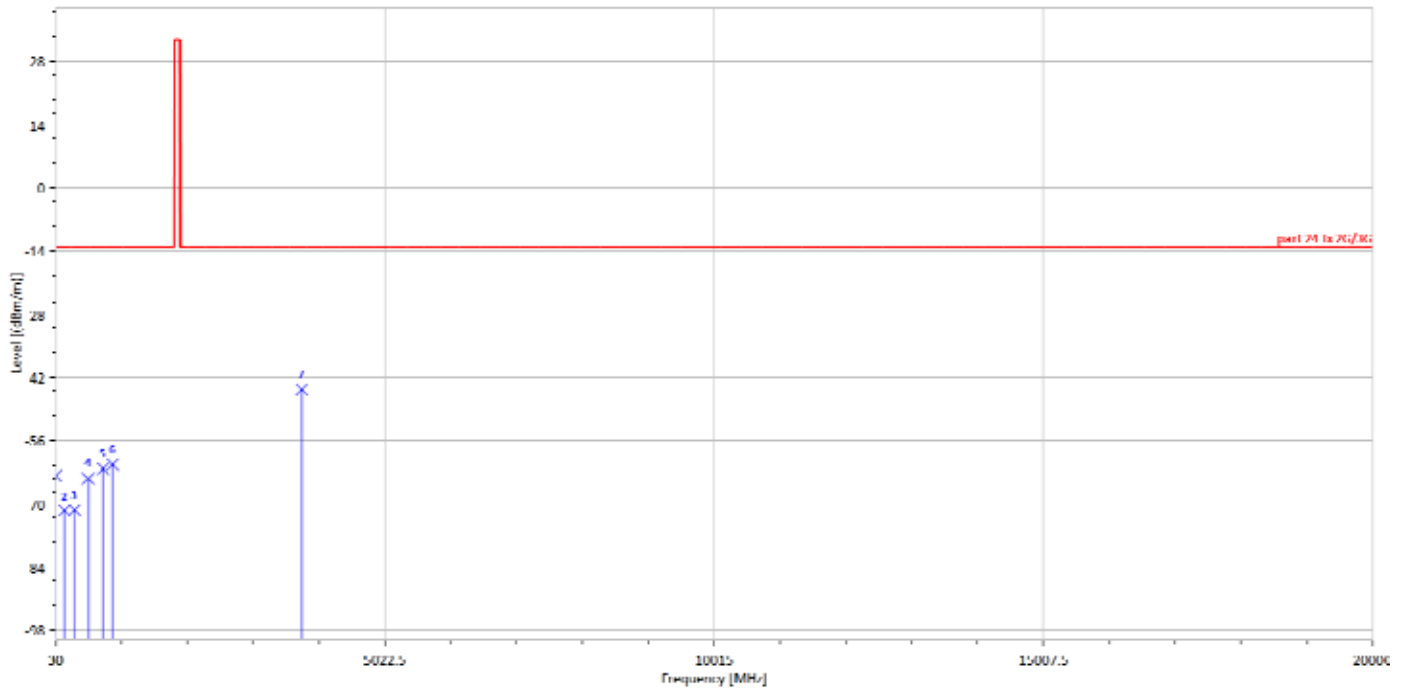
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Operation Mode :	WCDMA_B2	Test Date :	2016/7/7
Fundamental Frequency :	1880 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBi	Loss dB	@3m dBm/m	dB
35.82	S	-63.68	-45.83	-17.52	-0.33	-13	-50.68
166.77	S	-71.39	-66.28	-4.35	-0.75	-13	-58.39
321.97	S	-71.28	-70.85	0.69	-1.12	-13	-58.28
522.76	S	-64.28	-63.75	0.80	-1.33	-13	-51.28
743.92	S	-62.15	-60.54	-0.13	-1.48	-13	-49.15
890.39	S	-61.26	-59.78	0.23	-1.71	-13	-48.26
3760.00	H	-44.52	-53.15	12.40	-3.77	-13	-31.52

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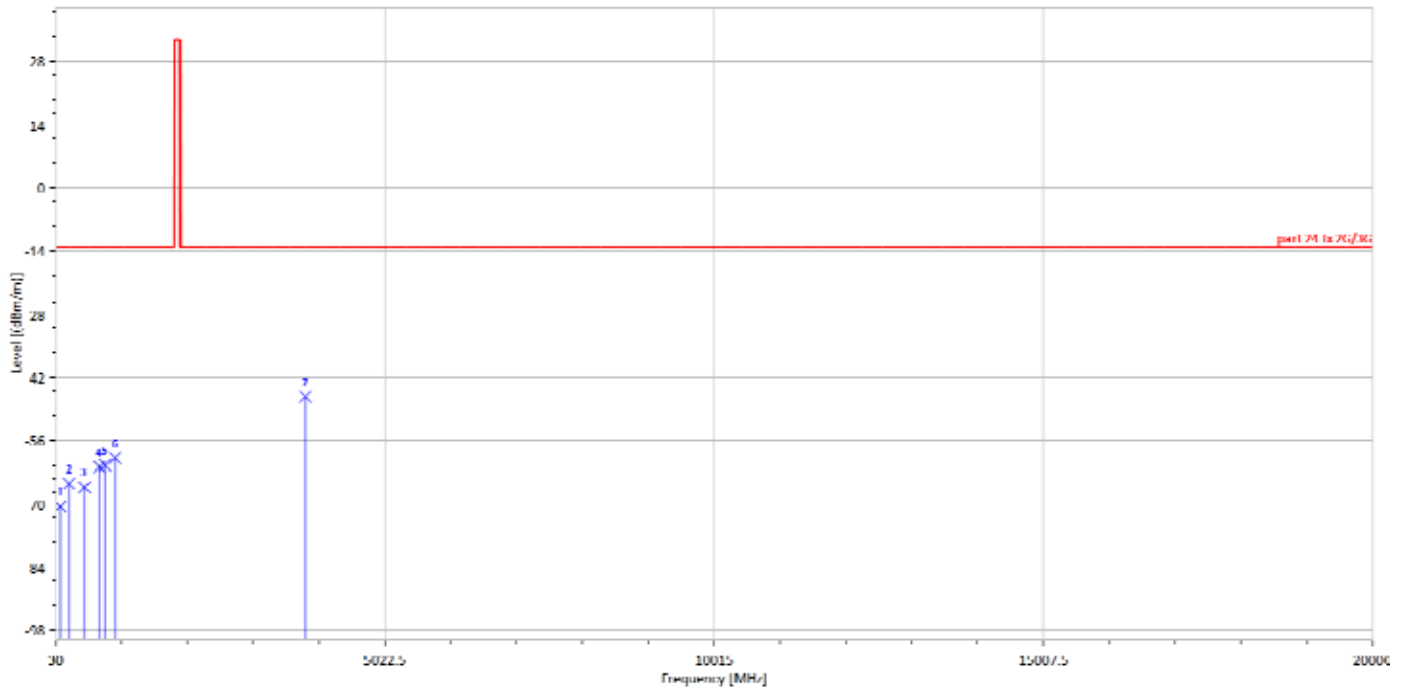
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Operation Mode :	WCDMA_B2	Test Date :	2016/7/7
Fundamental Frequency :	1907.6 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBi	Loss dB	@3m dBm/m	dB
103.72	S	-70.51	-65.25	-4.69	-0.57	-13	-57.51
237.58	S	-65.45	-65.42	0.88	-0.92	-13	-52.45
470.38	S	-66.20	-65.63	0.72	-1.30	-13	-53.20
689.60	S	-61.75	-60.67	0.43	-1.52	-13	-48.75
774.96	S	-61.38	-59.76	0.01	-1.64	-13	-48.38
928.22	S	-59.82	-58.21	0.18	-1.79	-13	-46.82
3815.20	H	-46.09	-54.71	12.43	-3.81	-13	-33.09

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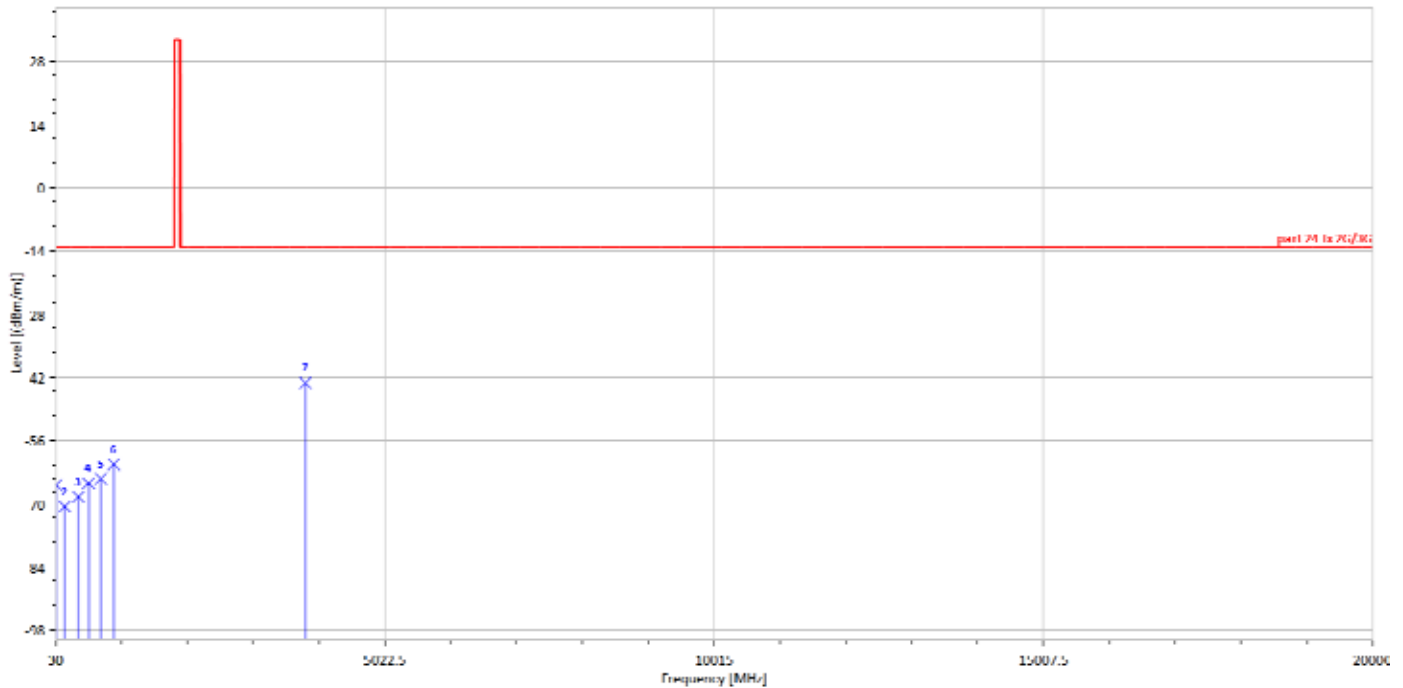
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Operation Mode :	WCDMA_B2	Test Date :	2016/7/7
Fundamental Frequency :	1907.6 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	EIRP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBi	Loss dB	@3m dBm/m	dB
42.61	S	-65.67	-48.84	-16.46	-0.38	-13	-52.67
170.65	S	-70.51	-65.85	-3.91	-0.75	-13	-57.51
381.14	S	-68.34	-67.98	0.79	-1.15	-13	-55.34
528.58	S	-65.30	-64.78	0.79	-1.31	-13	-52.30
710.94	S	-64.31	-63.13	0.33	-1.50	-13	-51.31
908.82	S	-61.23	-59.73	0.22	-1.73	-13	-48.23
3815.20	H	-43.07	-51.68	12.43	-3.81	-13	-30.07

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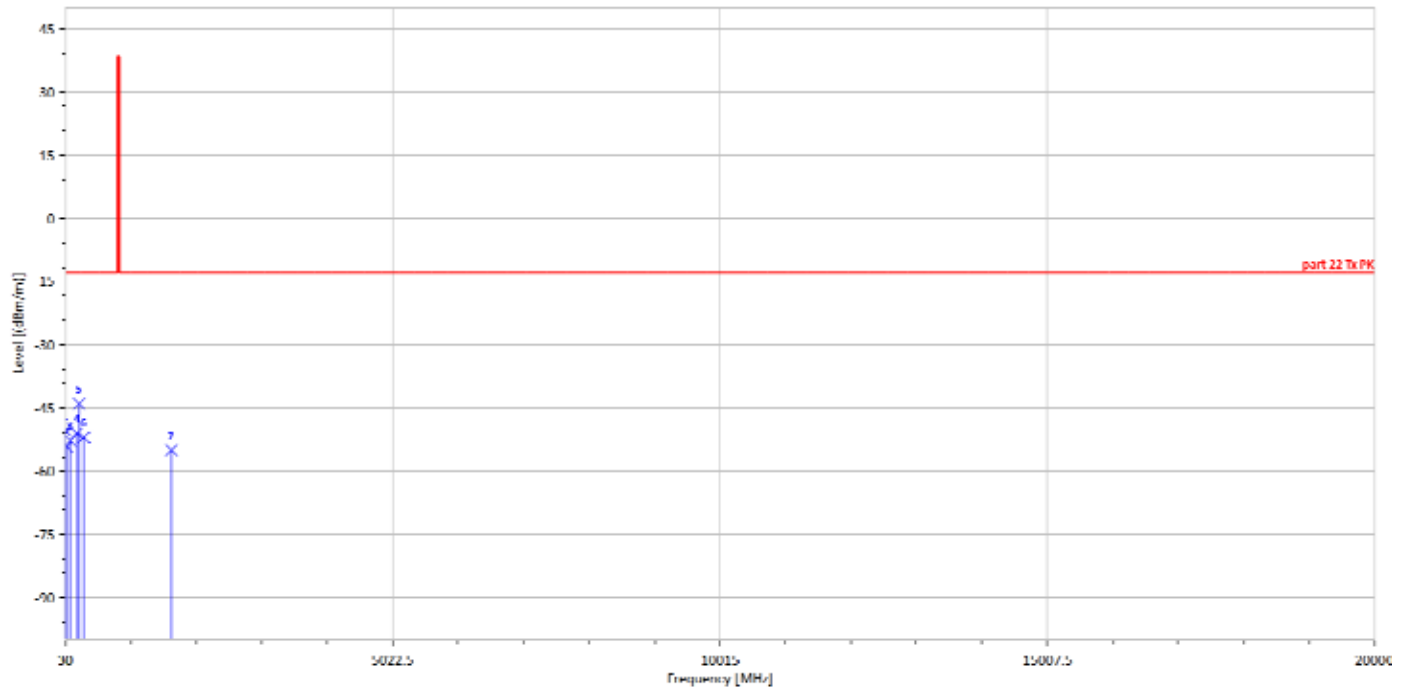
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Radiated Spurious Emission Measurement Result: WCDMA V Mode

Operation Mode :	WCDMA_B5	Test Date :	2016/7/7
Fundamental Frequency :	826.4 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
31.94	S	-50.41	-29.80	-20.31	-0.31	-13	-37.41
57.16	S	-54.29	-37.92	-15.90	-0.47	-13	-41.29
109.54	S	-52.79	-44.84	-7.36	-0.59	-13	-39.79
209.45	S	-51.08	-49.07	-1.18	-0.83	-13	-38.08
244.37	S	-43.98	-41.62	-1.42	-0.93	-13	-30.98
316.15	S	-52.03	-49.45	-1.50	-1.09	-13	-39.03
1652.80	H	-55.11	-59.51	6.84	-2.44	-13	-42.11

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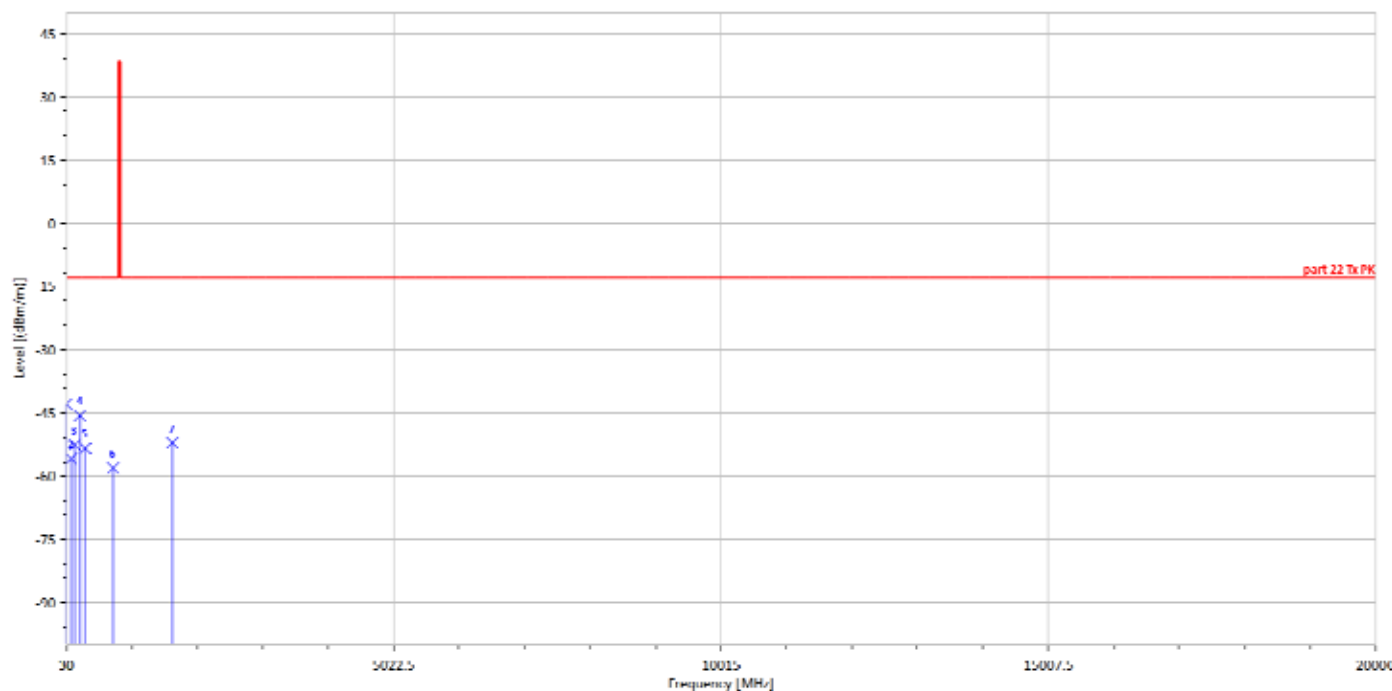
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Operation Mode :	WCDMA_B5	Test Date :	2016/7/7
Fundamental Frequency :	826.4 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
31.94	S	-42.83	-22.22	-20.31	-0.31	-13	-29.83
107.60	S	-55.94	-48.18	-7.19	-0.58	-13	-42.94
162.89	S	-52.64	-44.99	-6.90	-0.75	-13	-39.64
243.40	S	-45.61	-43.25	-1.43	-0.93	-13	-32.61
321.97	S	-53.47	-50.89	-1.46	-1.12	-13	-40.47
738.10	S	-58.18	-54.53	-2.20	-1.45	-13	-45.18
1652.80	H	-52.13	-56.53	6.84	-2.44	-13	-39.13

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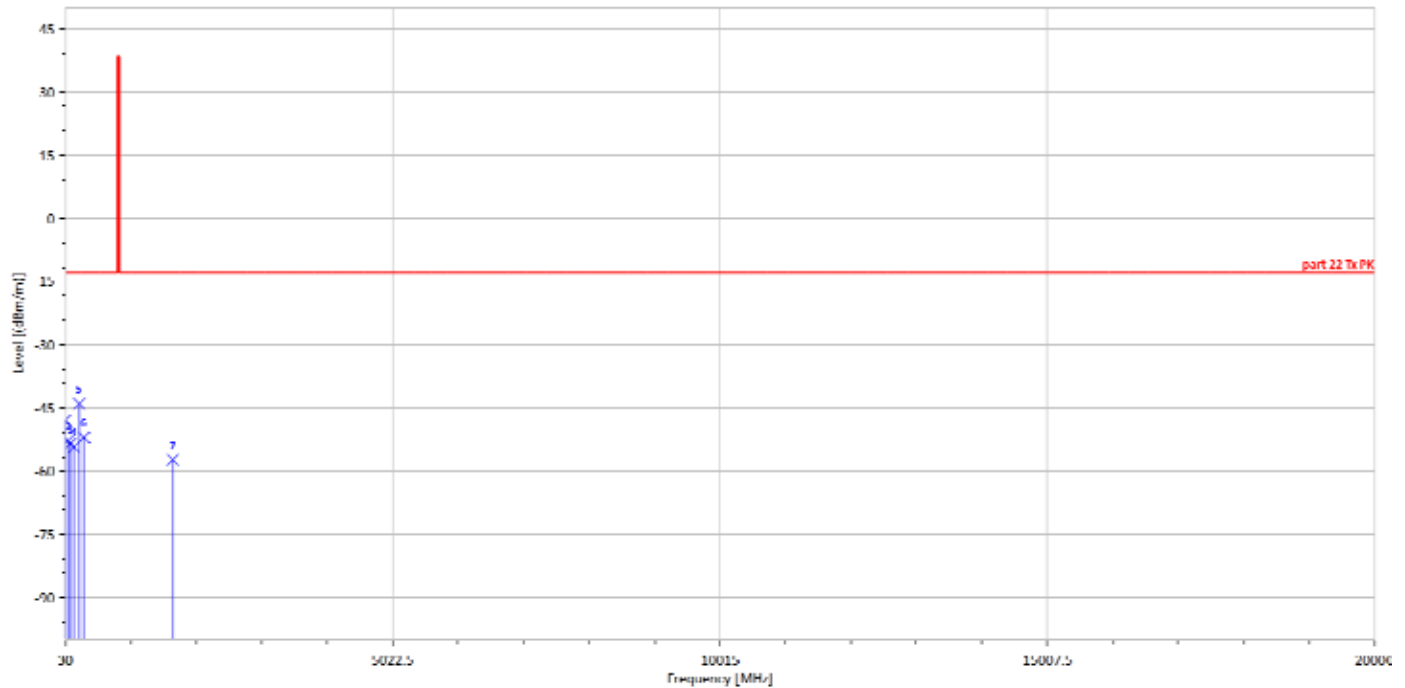
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Operation Mode :	WCDMA_B5	Test Date :	2016/7/7
Fundamental Frequency :	836.6 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
31.94	S	-47.90	-27.29	-20.31	-0.31	-13	-34.90
77.53	S	-52.81	-42.51	-9.79	-0.51	-13	-39.81
108.57	S	-53.55	-45.69	-7.27	-0.58	-13	-40.55
164.83	S	-54.36	-46.91	-6.70	-0.75	-13	-41.36
246.31	S	-43.98	-41.64	-1.41	-0.93	-13	-30.98
317.12	S	-52.06	-49.47	-1.49	-1.10	-13	-39.06
1673.20	H	-57.41	-61.87	6.90	-2.45	-13	-44.41

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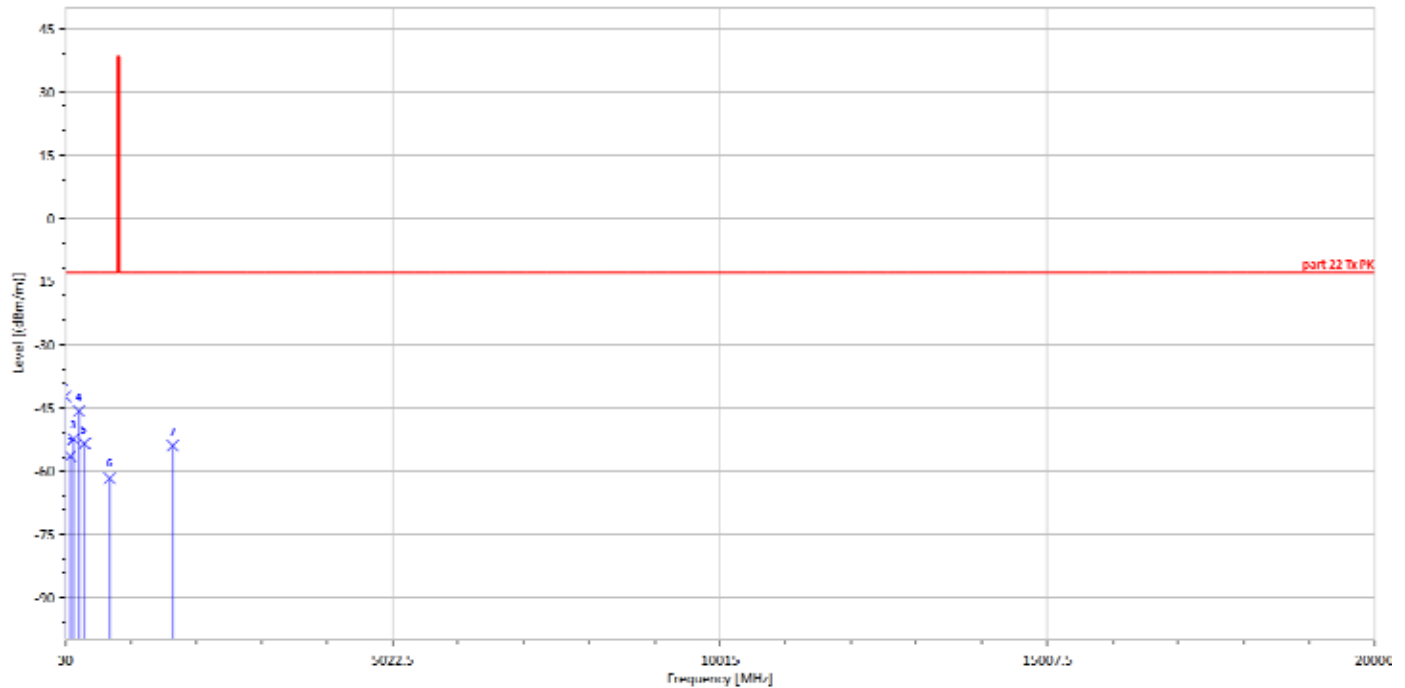
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Operation Mode :	WCDMA_B5	Test Date :	2016/7/7
Fundamental Frequency :	836.6 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
32.91	S	-42.22	-21.76	-20.15	-0.31	-13	-29.22
107.60	S	-56.55	-48.78	-7.19	-0.58	-13	-43.55
159.98	S	-52.42	-44.46	-7.20	-0.75	-13	-39.42
243.40	S	-45.76	-43.40	-1.43	-0.93	-13	-32.76
323.91	S	-53.54	-50.96	-1.45	-1.13	-13	-40.54
701.24	S	-61.66	-58.42	-1.69	-1.55	-13	-48.66
1673.20	H	-54.05	-58.51	6.90	-2.45	-13	-41.05

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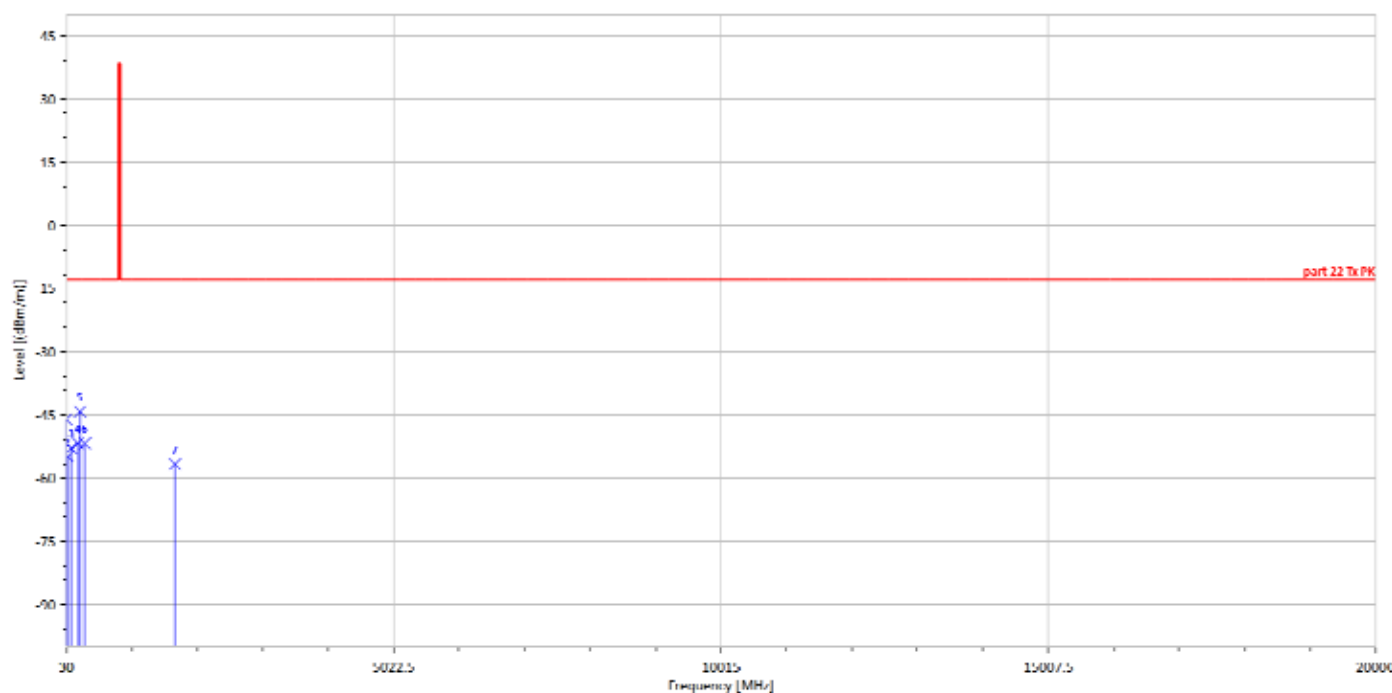
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Operation Mode :	WCDMA_B5	Test Date :	2016/7/7
Fundamental Frequency :	846.6 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
31.94	S	-46.02	-25.40	-20.31	-0.31	-13	-33.02
57.16	S	-54.97	-38.60	-15.90	-0.47	-13	-41.97
108.57	S	-53.01	-45.15	-7.27	-0.58	-13	-40.01
210.42	S	-51.78	-49.82	-1.14	-0.83	-13	-38.78
244.37	S	-44.17	-41.82	-1.42	-0.93	-13	-31.17
315.18	S	-51.81	-49.22	-1.50	-1.09	-13	-38.81
1693.20	H	-56.80	-61.28	6.97	-2.49	-13	-43.80

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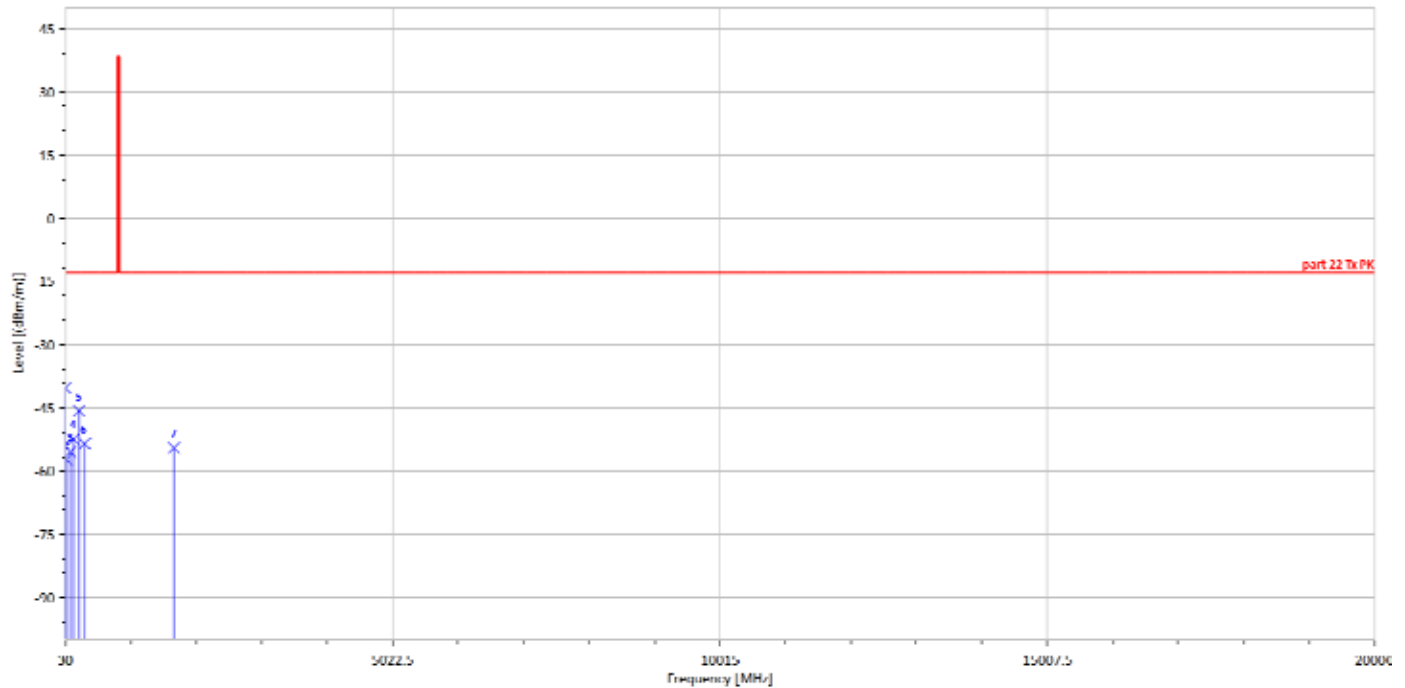
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Operation Mode :	WCDMA_B5	Test Date :	2016/7/7
Fundamental Frequency :	846.6 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Tank
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	ERP	SG Output	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Level dBm	Gain dBd	Loss dB	@3m dBm/m	dB
31.94	S	-40.20	-19.59	-20.31	-0.31	-13	-27.20
47.46	S	-57.33	-38.99	-17.92	-0.41	-13	-44.33
107.60	S	-55.52	-47.75	-7.19	-0.58	-13	-42.52
159.98	S	-52.48	-44.53	-7.20	-0.75	-13	-39.48
244.37	S	-45.69	-43.34	-1.42	-0.93	-13	-32.69
325.85	S	-53.55	-50.99	-1.44	-1.13	-13	-40.55
1693.20	H	-54.55	-59.03	6.97	-2.49	-13	-41.55

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