



TESTING LABORATORY
CERTIFICATE #4820.01



FCC PART 15.247

TEST REPORT

For

KYOCERA Corporation

Yokohama Office 2-1-1 Kagahara, Tsuzuki-ku Yokohama-shi, Kanagawa, Japan

Model Number: JA32

Report Type: Original Report	Product Name: Smart Phone
Report Number: RDG181026006-00B	
Report Date: 2018-11-16	
Jerry Zhang	
Reviewed By:	EMC Manager <i>Jerry Zhang</i>
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	Smart Phone
EUT Model:	JA32
Grant:	JOY
FCC ID:	JOYJA32
Hardware Version:	JA32
SW version:	Sdm660_64-userdebug 9
Serial Number:	JA32125479850089K0867
EUT Received Date:	2018.10.26

Objective

This report is prepared on behalf of *KYOCERA Corporation* in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communications Commission's rules.

The tests were performed in order to determine the EUT compliance with FCC Rules Part 15, Subpart C, and section 15.205, 15.209 and 15.247 rules.

Test Methodology

All measurements detailed in this test report were performed in accordance with ANSI C63.10-2013 "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices".

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Unwanted Emissions, radiated	30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical 1G~6GHz: 4.45 dB, 6G~26.5GHz: 5.23 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062D.

FINAL

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in engineering mode.

EUT Exercise Software

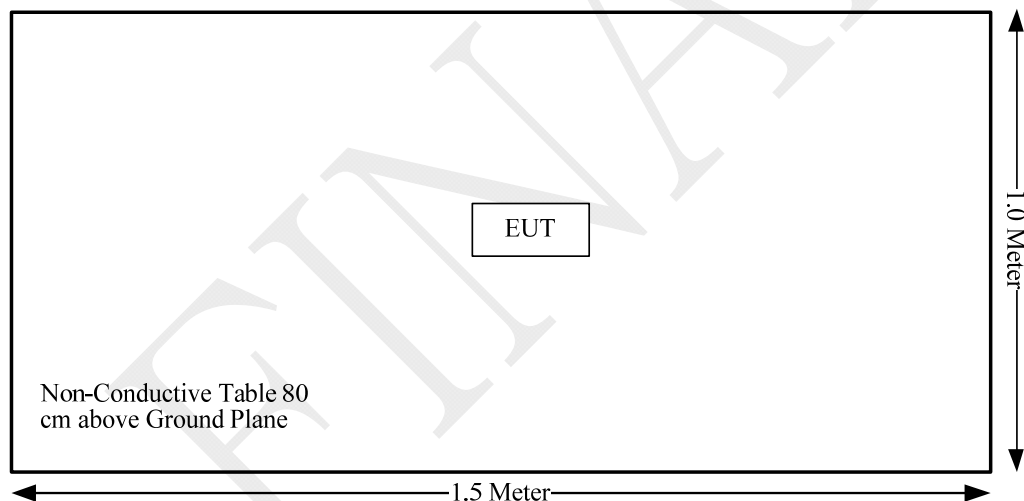
The Engineering Mode configured the maximum power level as default setting.

Equipment Modifications

No modification was made to the EUT.

Block Diagram of Test Setup

Below 1GHz:



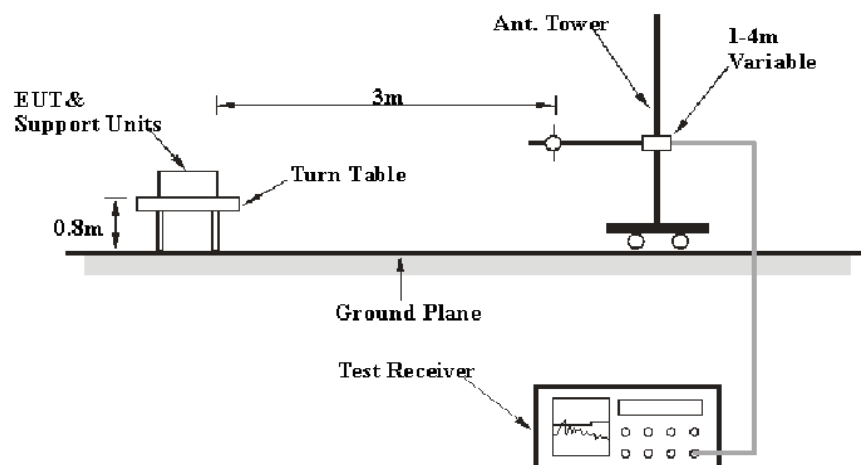
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

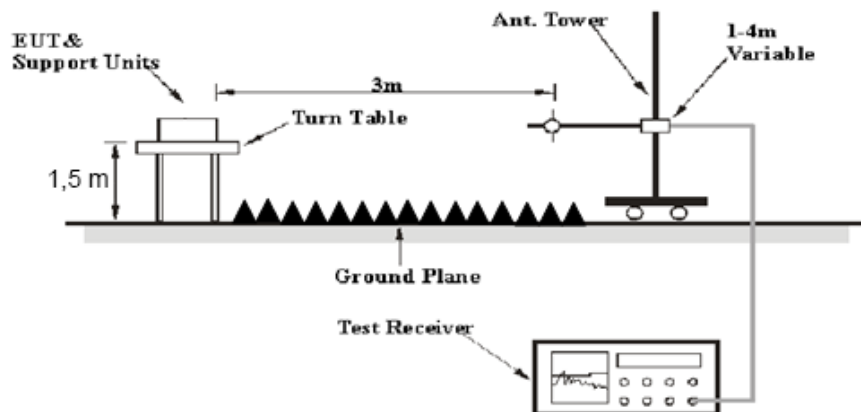
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission Below 1GHz tests were performed in the 3 meters chamber test site A, above 1GHz tests were performed in the 3 meters chamber test site B, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	AV

Test Procedure

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

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz - 1 GHz, peak and average detection modes for frequencies above 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2017-12-11	2018-12-11
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2018-09-05	2019-09-05
HP	Amplifier	8447D	2727A05902	2018-09-05	2019-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2018-01-04	2019-01-04
TDK RF	Horn Antenna	HRN-0118	130 084	2016-01-05	2019-01-04
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2016-11-18	2019-11-18
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2018-06-27	2019-06-27
MITEQ	Amplifier	AFS42-00101800- 25-S-42	2001271	2018-09-05	2019-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2018-06-27	2019-06-27
E-Microwave	Band-stop Filters	OBSF-2400-2483.5- S	OE01601525	2018-06-16	2019-06-16
Micro-tronics	High Pass Filter	HPM50111	S/N-G217	2018-06-16	2019-06-16

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

Corrected Amplitude & Margin Calculation

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

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Data

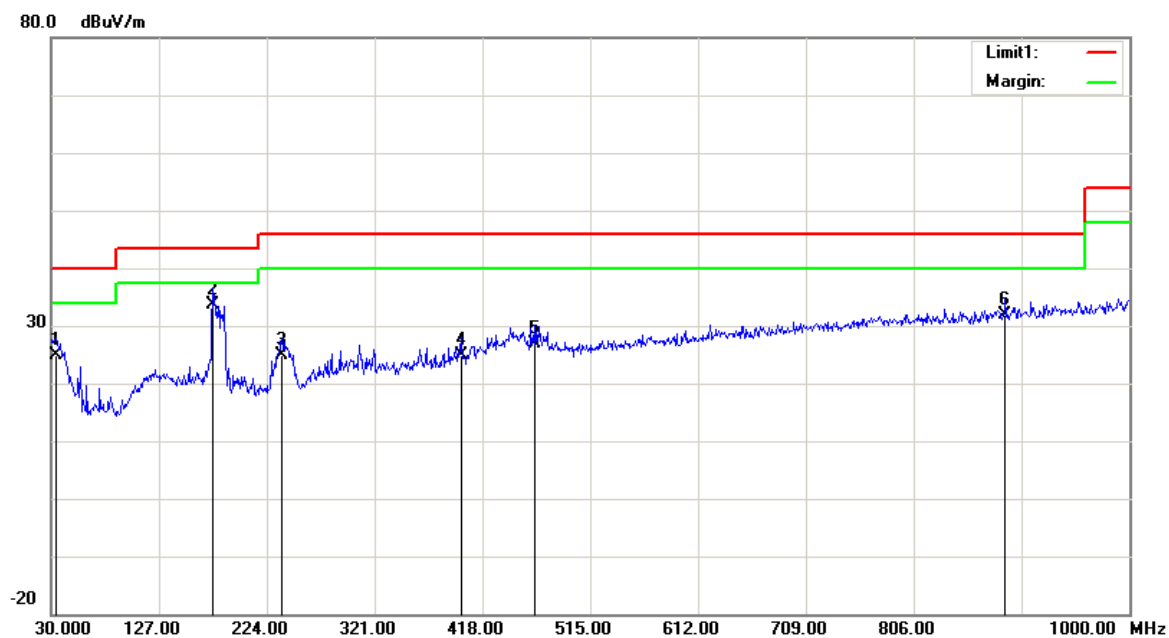
Environmental Conditions

Temperature:	27.1~27.2 °C
Relative Humidity:	45 ~49%
ATM Pressure:	100~101.2kPa

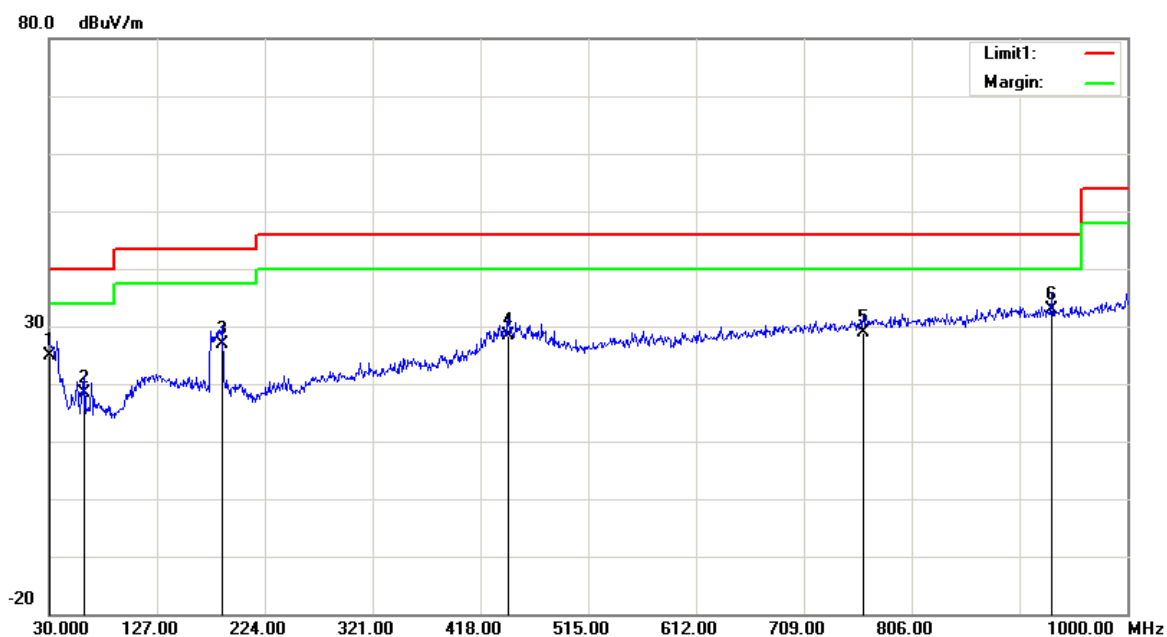
* The testing was performed by Kami Zhou & Vern Shen on 2018.11.08-2018.11.09

Test Result: Pass

Test Mode: Transmitting

1) 30MHz-1GHz(8DPSK Middle channel was the worst)**Horizontal:**

Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
34.8500	26.68	QP	-1.88	24.80	40.00	15.20
175.5000	40.48	QP	-6.88	33.60	43.50	9.90
237.5800	30.92	QP	-6.12	24.80	46.00	21.20
398.6000	27.04	QP	-2.04	25.00	46.00	21.00
465.5300	27.48	QP	-0.48	27.00	46.00	19.00
888.4500	35.87	QP	-4.07	31.80	46.00	14.20

Vertical:

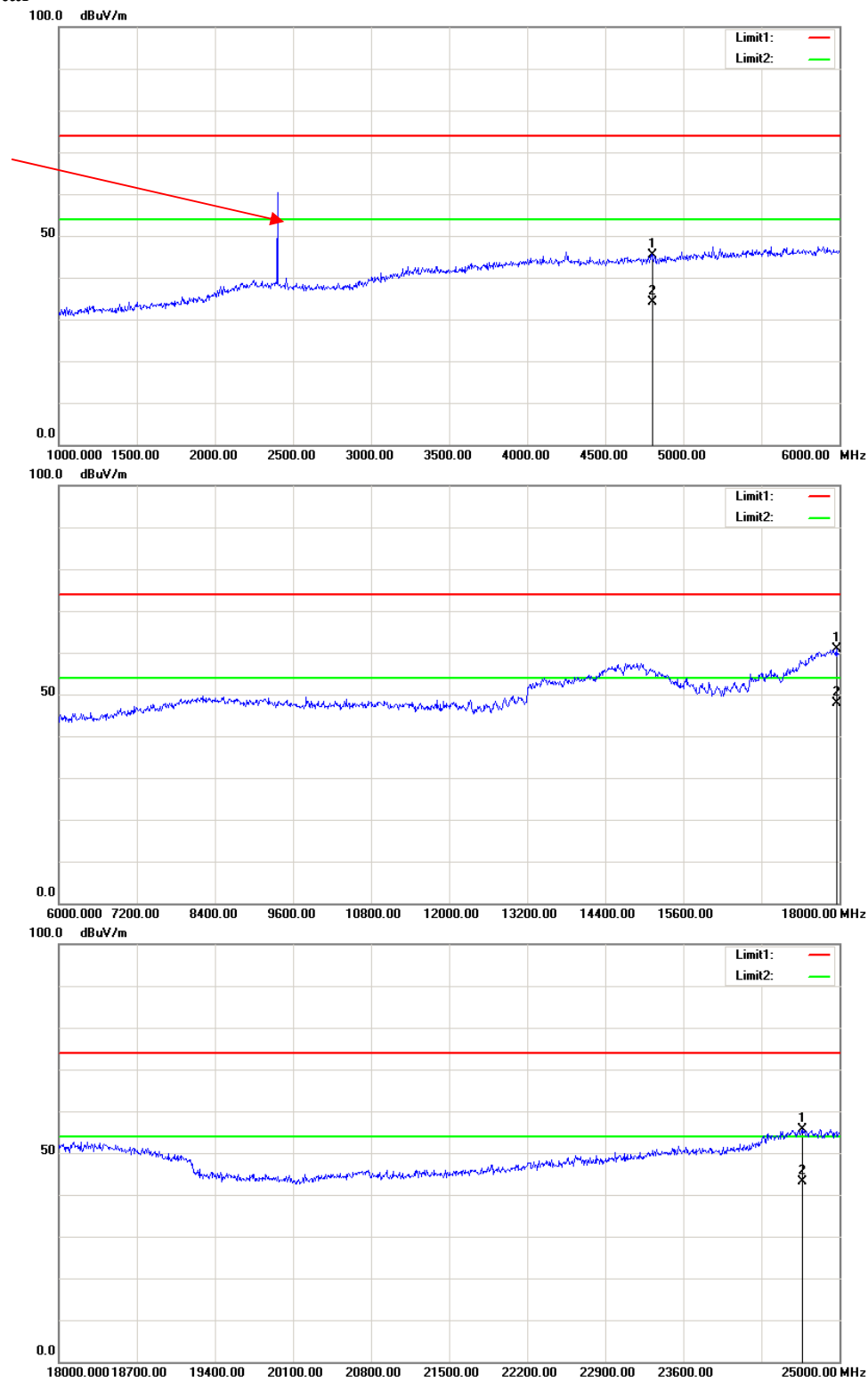
Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
30.0000	23.24	QP	1.76	25.00	40.00	15.00
62.0100	30.38	QP	-11.98	18.40	40.00	21.60
186.1700	34.37	QP	-7.37	27.00	43.50	16.50
443.2200	29.45	QP	-1.15	28.30	46.00	17.70
762.3500	24.90	QP	4.10	29.00	46.00	17.00
932.1000	36.27	QP	-3.47	32.80	46.00	13.20

2) 1GHz-25GHz (8DPSK was the worst):

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 2402 MHz									
2402.00	67.89	PK	H	28.10	1.80	0.00	97.79	N/A	N/A
2402.00	60.73	AV	H	28.10	1.80	0.00	90.63	N/A	N/A
2402.00	73.82	PK	V	28.10	1.80	0.00	103.72	N/A	N/A
2402.00	66.62	AV	V	28.10	1.80	0.00	96.52	N/A	N/A
2390.00	25.63	PK	V	28.08	1.80	0.00	55.51	74.00	18.49
2390.00	13.34	AV	V	28.08	1.80	0.00	43.22	54.00	10.78
4804.00	46.75	PK	V	32.91	3.17	37.20	45.63	74.00	28.37
4804.00	35.14	AV	V	32.91	3.17	37.20	34.02	54.00	19.98
7206.00	44.79	PK	V	35.74	4.82	37.23	48.12	74.00	25.88
7206.00	33.57	AV	V	35.74	4.82	37.23	36.90	54.00	17.10
Middle Channel: 2441 MHz									
2441.00	67.64	PK	H	28.18	1.82	0.00	97.64	N/A	N/A
2441.00	60.35	AV	H	28.18	1.82	0.00	90.35	N/A	N/A
2441.00	73.48	PK	V	28.18	1.82	0.00	103.48	N/A	N/A
2441.00	66.52	AV	V	28.18	1.82	0.00	96.52	N/A	N/A
4882.00	45.95	PK	V	33.06	3.27	37.21	45.07	74.00	28.93
4882.00	34.87	AV	V	33.06	3.27	37.21	33.99	54.00	20.01
7323.00	44.43	PK	V	36.04	4.62	37.38	47.71	74.00	26.29
7323.00	33.24	AV	V	36.04	4.62	37.38	36.52	54.00	17.48
High Channel: 2480 MHz									
2480.00	67.97	PK	H	28.26	1.84	0.00	98.07	N/A	N/A
2480.00	60.75	AV	H	28.26	1.84	0.00	90.85	N/A	N/A
2480.00	73.70	PK	V	28.26	1.84	0.00	103.80	N/A	N/A
2480.00	66.89	AV	V	28.26	1.84	0.00	96.99	N/A	N/A
2483.50	25.47	PK	V	28.27	1.84	0.00	55.58	74.00	18.42
2483.50	14.13	AV	V	28.27	1.84	0.00	44.24	54.00	9.76
4960.00	45.92	PK	V	33.22	3.23	37.25	45.12	74.00	28.88
4960.00	34.88	AV	V	33.22	3.23	37.25	34.08	54.00	19.92
7440.00	43.83	PK	V	36.34	4.41	37.52	47.06	74.00	26.94
7440.00	32.67	AV	V	36.34	4.41	37.52	35.90	54.00	18.10

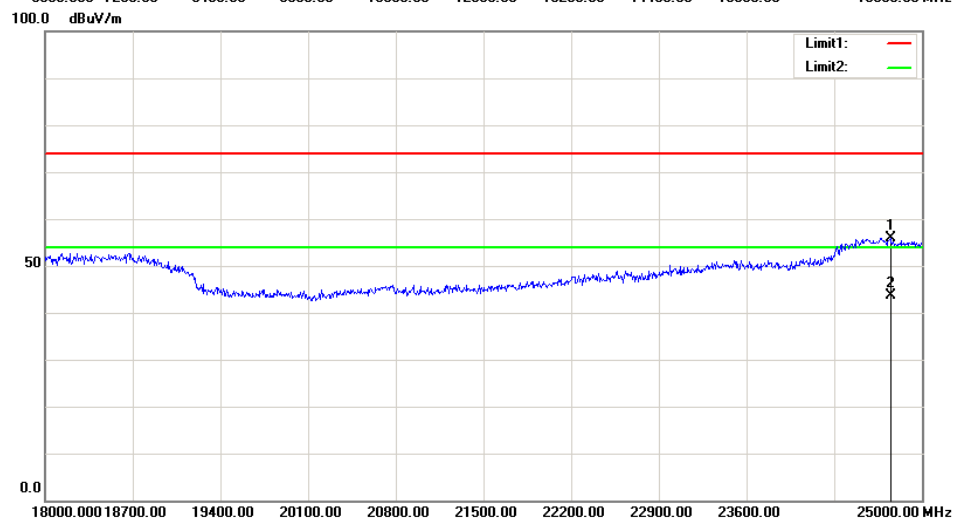
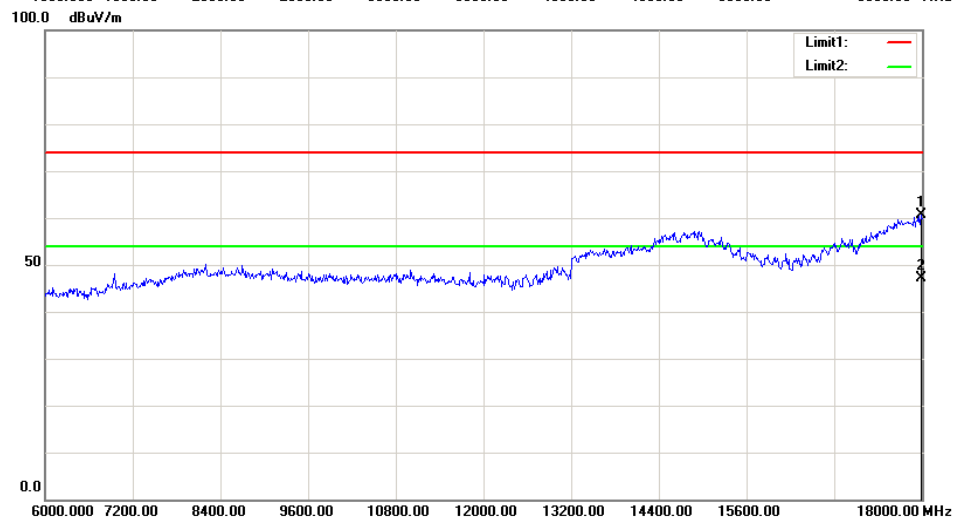
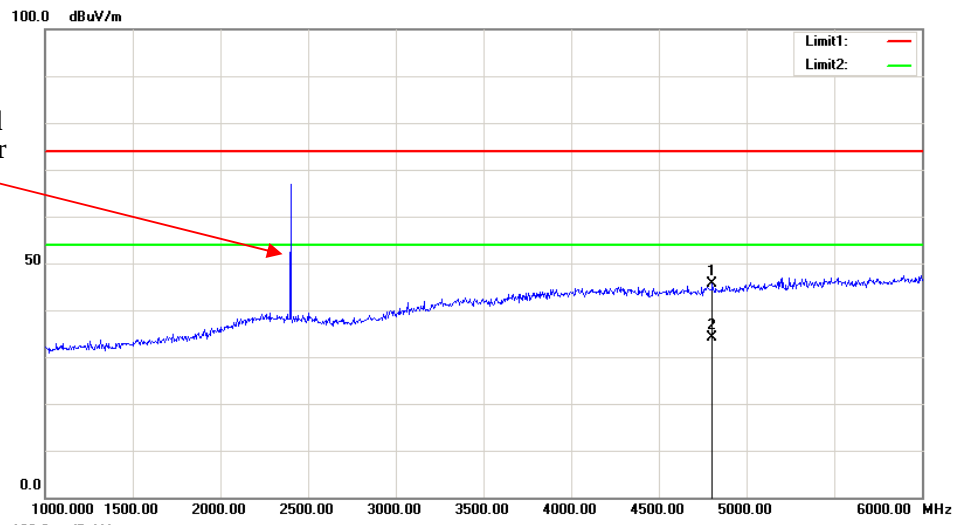
Worst plots(8DPSK High channel)
Horizontal

Fundamental
Test with Band
Rejection Filter



Vertical

Fundamental
Test with Band
Rejection Filter



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