中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

TEST REPORT

Applicant: **Tait International Limited**

Address: 245 Wooldridge Road, Harewood, P.O. Box 1645 Christchurch 8051 New Zealand

FCC ID: **CASTWXNFA**

HVIN: **TWXNFA**

Product Name: **KMC-SM Series LTE Wearable Data Device**

Model Number: **KMC-SM1**

Standard(s): **47 CFR Part 15 Subpart B**
ICES-003, ISSUE 7, OCTOBER 2020
ANSI C63.4-2014

The above equipment has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: **CR22050050-00DA1**

Date Of Issue: **2022-06-03**

Reviewed By: **Sun Zhong** Sun Zhong

Title: Manager

Test Laboratory: **China Certification ICT Co., Ltd (Dongguan)**
No. 113, Pingkang Road, Dalang Town, Dongguan,
Guangdong, China
Tel: +86-769-82016888

Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "▲". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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CONTENTS

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	KMC-SM series LTE Wearable Data Device
EUT Model:	KMC-SM1
Highest Operation Frequency:	5825 MHz
Rated Input Voltage:	DC 3.85V from battery or DC 5V from USB port
Serial Number:	CR22050050-RF-S1
EUT Received Date:	2022.5.31
EUT Received Status:	Good

Objective:

This is Class II Permission Change based on the certified model: TWXNFA, FCC ID: CASTWXNFA, IC: 737A-TWXNFA. The differences between the previous and tested samples are as the following:
1. Changed the trade name to KENWOOD.
2. Added the product name: KMC-SM series LTE Wearable Data Device
3. Changed the front cover design.
4. Added Product Marketing Name (PMN): KMC-SM1

The changes between the previous device and the current one are stated and guaranteed by the applicant. According to the change, the radiated emission was measured.

Accessory Information:

Accessory Description	Manufacturer	Model
USB Cable	Tait International Limited	TWX55000-USB

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in Typical Use Mode, which was provided by the manufacturer. Test Mode: Downloading
Equipment Modifications:	No
EUT Exercise Software:	Winthrax.exe

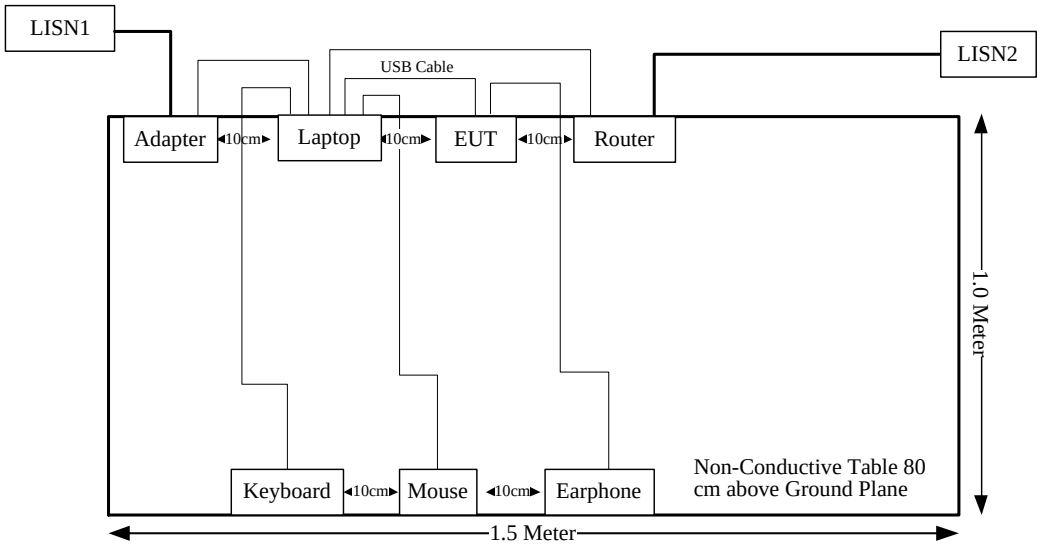
1.2.2 Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Lenovo	Laptop	E480	PF-1QQYYP 19/06
Unknown	Earphone	Unknown	Earphone 01
PHILIPS	Keyboard	SPK6234	K234210510742
PHILIPS	Mouse	SPK7214	M214BQ210411113
ZIONCOM	Router	MB-R210-00	MB-R210-00

1.2.3 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Keyboard Cable	No	No	1.8	Keyboard	Laptop
Mouse Cable	No	No	2	Mouse	Laptop
Earphone Cable	No	No	2	EUT	Earphone
RJ45 Cable	No	No	1.2	Router	Laptop
USB Cable	No	No	1.2	Laptop	EUT

1.2.4 Block Diagram of Test Setup



1.3 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.15 dB,200M~1GHz: 5.61 dB,1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Temperature	±1℃
Humidity	±5%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

2. SUMMARY OF TEST RESULTS

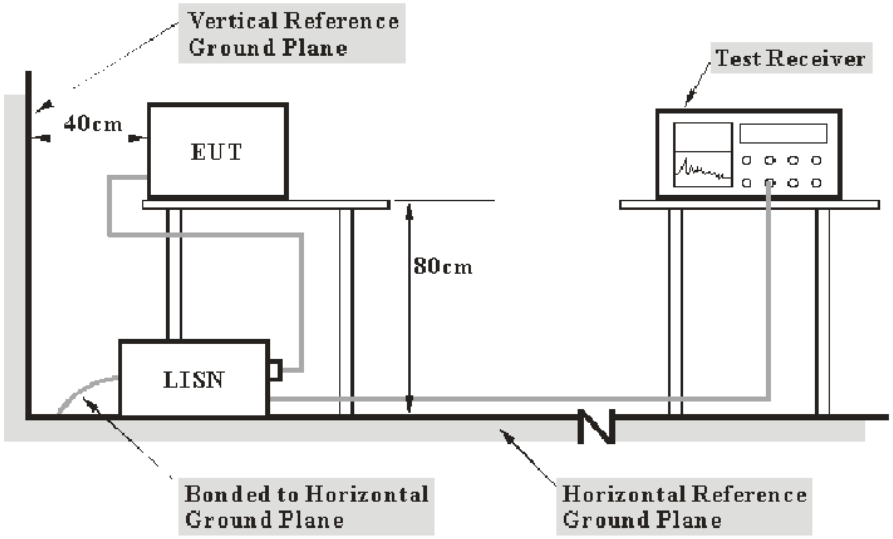
Standard Clause	Description of Test	Test Result
FCC §15.107 ICES-003 §3.2.1	Conducted emissions	Compliant*
FCC §15.109 ICES-003 §3.2.2	Radiated emissions	Compliant

Compliant*: please refers to the test results of the original report CR21110026-00D.

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 EUT Setup



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

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B and Innovation, Science and Economic Development Canada ICES-003 Class B 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 adapter was connected to the main LISN with a 120 V/60 Hz AC power source.

3.1.2 EMI Test Receiver Setup

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

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

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

3.1.3 Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT, the report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

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

The report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

3.1.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor
Factor = attenuation caused by cable loss + voltage division factor of AMN

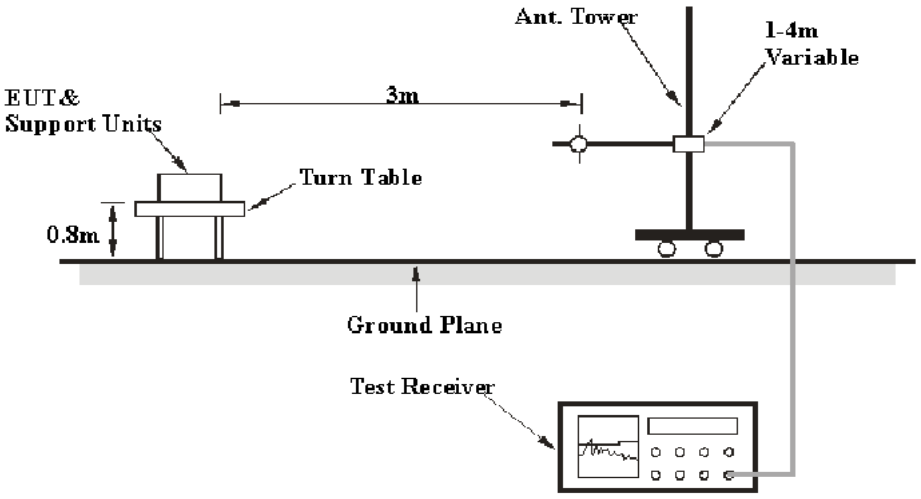
The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

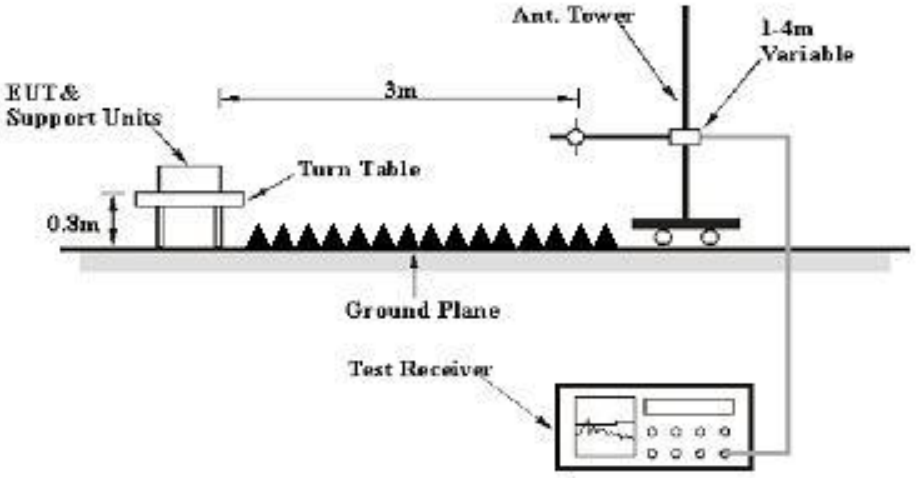
3.2 Radiation Spurious Emissions

3.2.1 EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 and ICES-003 Class B limits.

3.2.2 EMI Test Receiver Setup

The system was investigated from 30 MHz to 30 GHz.

During the radiated emission test, the EMI test receiver was 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	1 MHz	3 MHz	/	Peak
	1 MHz	Reduced video bandwidth	/	AVG

If the maximized peak measured value complies with under the limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

3.2.3 Test Procedure

During the radiated emissions, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

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

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

All emissions under the average limit and under the noise floor have not recorded in the report.

3.2.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor
Factor = Antenna Factor + Cable Loss- Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

4. TEST DATA AND RESULTS

4.1 Radiation Spurious Emissions

Serial Number:	CR22050050-RF-S1	Test Date:	2022-06-01
Test Site:	966-1, 966-2	Test Mode:	Downloading
Tester:	Gary Ling	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.2	Relative Humidity: (%)	53	ATM Pressure: (kPa)	100.1

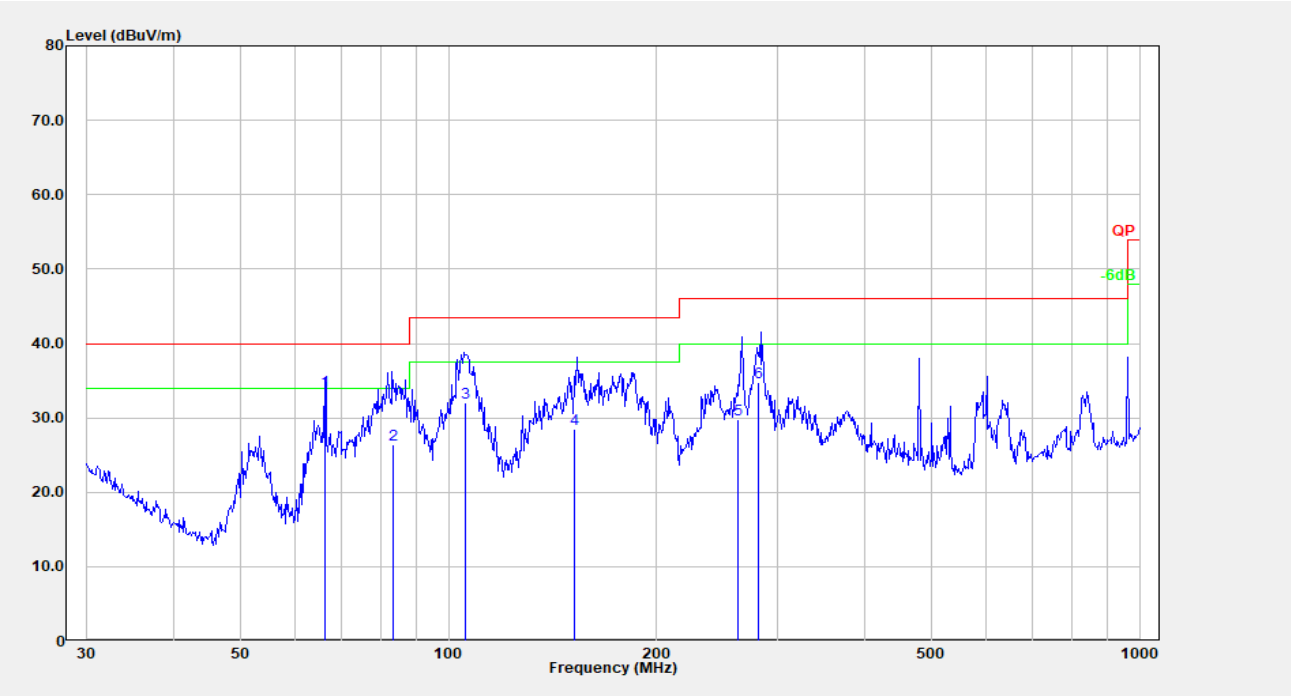
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020-10-19	2023-10-18
R&S	EMI Test Receiver	ESR3	102724	2021-07-22	2022-07-21
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2021-07-18	2022-07-17
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2021-07-18	2022-07-17
Sonoma	Amplifier	310N	186165	2021-07-18	2022-07-17
Audix	Test Software	E3	201021 (V9)	N/A	N/A
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020-10-13	2023-10-12
PASTERNACK	Horn Antenna	PE9852/2F-20	112002	2021-02-05	2024-02-04
PASTERNACK	Horn Antenna	PE9850/2F-20	072001	2021-02-05	2024-02-04
R&S	Spectrum Analyzer	FSV40	101591	2021-07-22	2022-07-21
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2021-08-08	2022-08-07
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2021-08-08	2022-08-07
MICRO-COAX	Coaxial Cable	UFB142A-1-2362-200200	235772-001	2021-08-08	2022-08-07
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2021-11-10	2022-11-09
AH	Preamplifier	PAM-1840VH	190	2021-11-19	2022-11-18

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

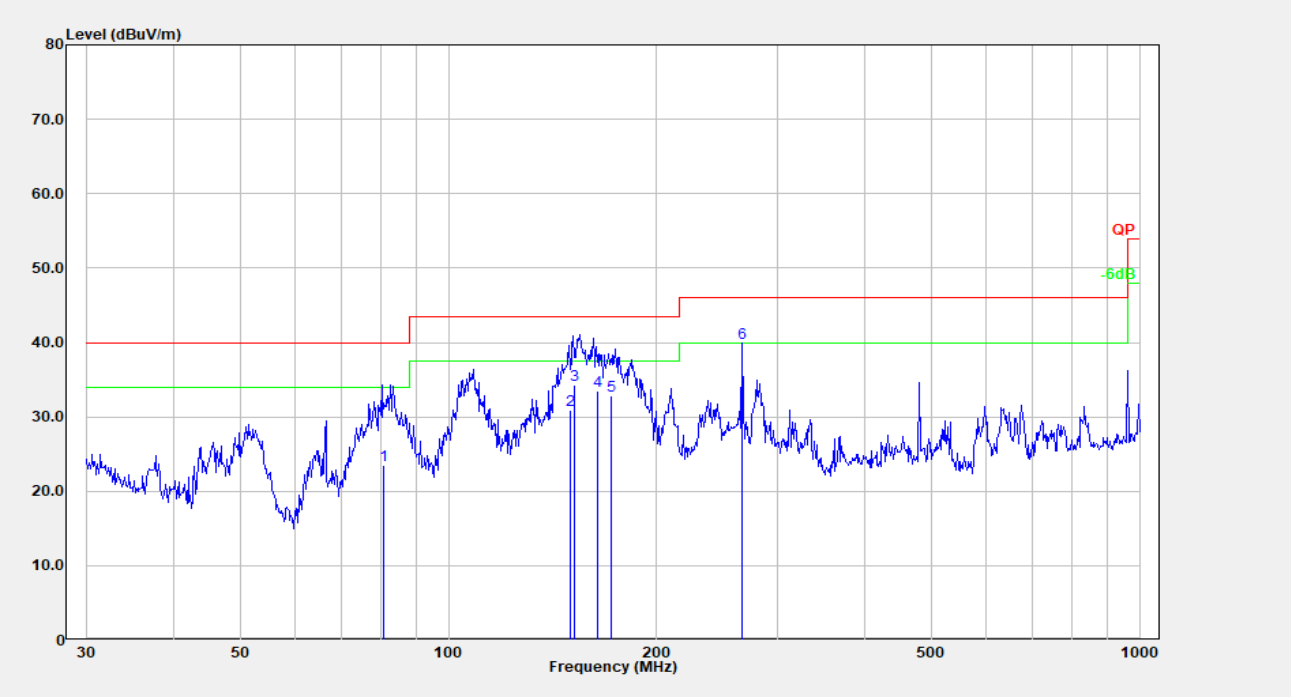
1) 30MHz-1GHz:

Horizontal:



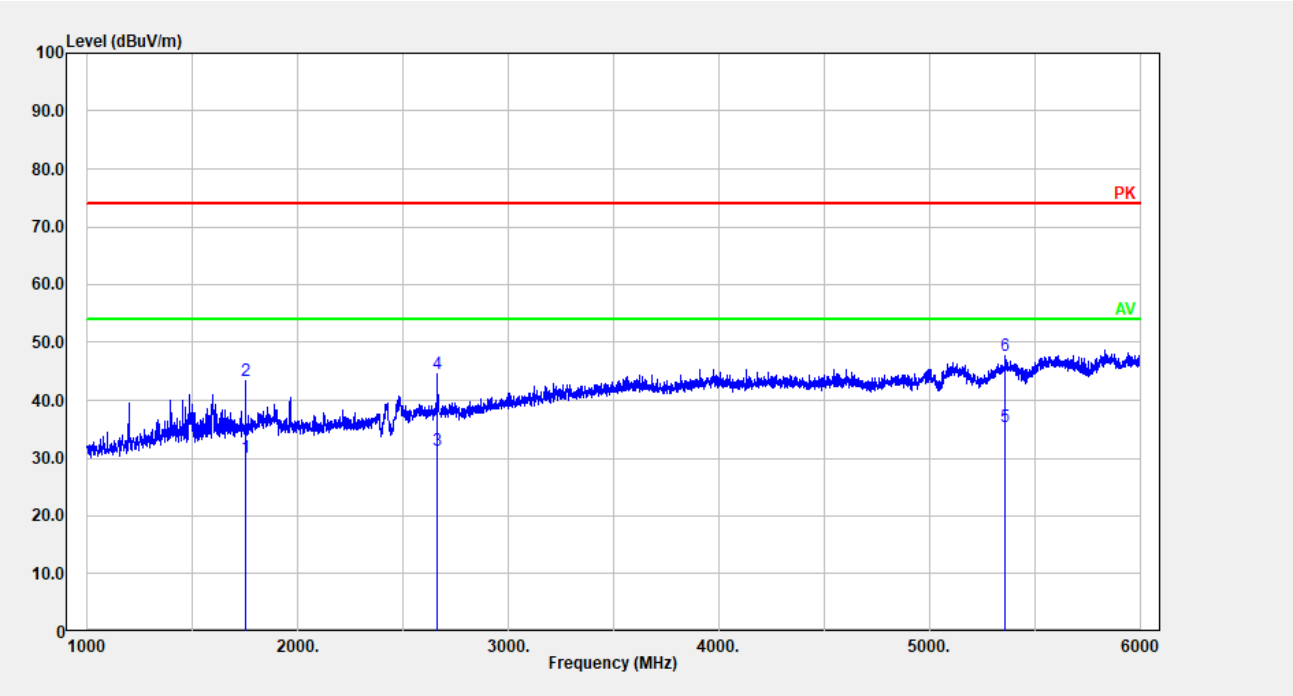
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	66.430	50.64	-17.05	33.59	40.00	6.41	QP
2	83.068	43.93	-17.49	26.44	40.00	13.56	QP
3	105.882	45.49	-13.44	32.05	43.50	11.45	QP
4	152.147	40.72	-12.28	28.43	43.50	15.07	QP
5	262.486	42.25	-12.55	29.71	46.00	16.29	QP
6	280.781	46.57	-11.80	34.77	46.00	11.23	QP

Vertical:



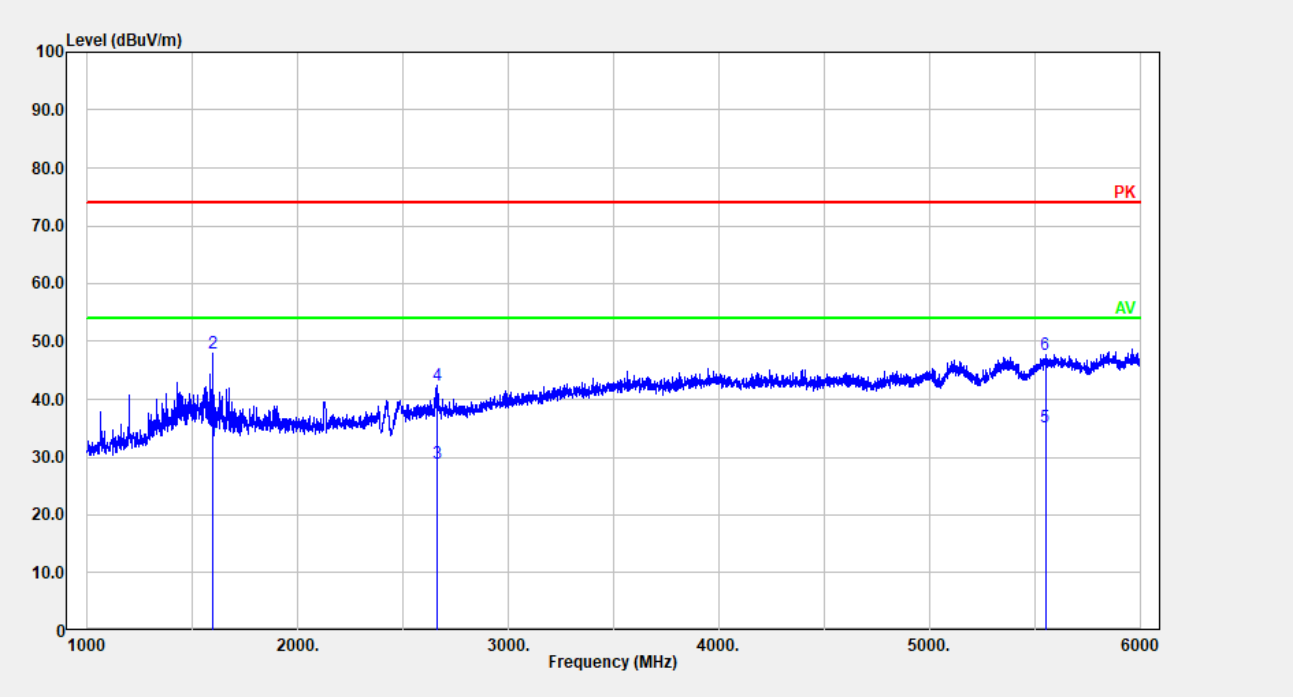
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	80.650	41.22	-17.66	23.57	40.00	16.43	QP
2	149.859	43.11	-12.26	30.85	43.50	12.65	QP
3	151.962	46.61	-12.28	34.33	43.50	9.17	QP
4	164.651	46.20	-12.74	33.46	43.50	10.04	QP
5	172.250	46.09	-13.31	32.78	43.50	10.72	QP
6	266.609	52.29	-12.41	39.88	46.00	6.12	Peak

Above 1GHz
Horizontal:



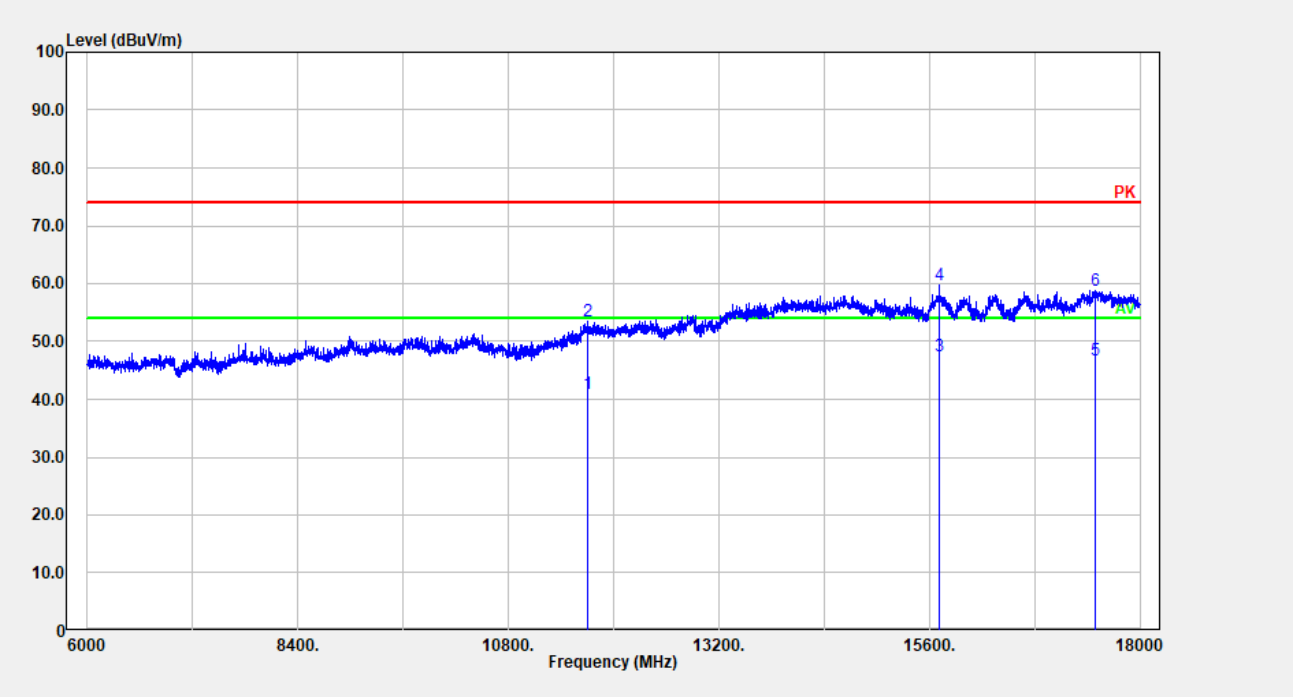
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	1750.150	29.12	1.10	30.22	54.00	23.78	Average
2	1750.150	42.22	1.10	43.32	74.00	30.68	Peak
3	2659.332	26.87	4.55	31.42	54.00	22.58	Average
4	2659.332	40.03	4.55	44.58	74.00	29.42	Peak
5	5359.872	23.34	12.14	35.48	54.00	18.52	Average
6	5359.872	35.69	12.14	47.83	74.00	26.17	Peak

Vertical:



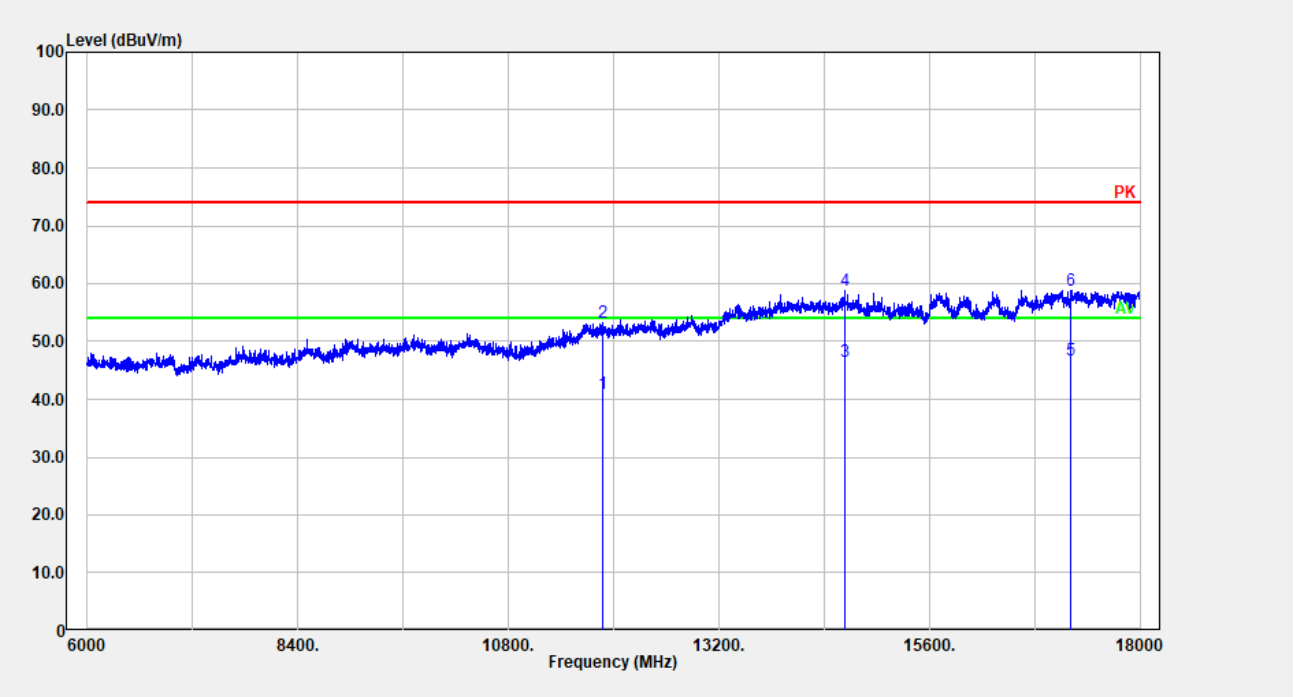
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	1594.119	33.34	0.27	33.61	54.00	20.39	Average
2	1594.119	47.69	0.27	47.96	74.00	26.04	Peak
3	2659.332	24.35	4.55	28.90	54.00	25.10	Average
4	2659.332	37.75	4.55	42.30	74.00	31.70	Peak
5	5550.910	22.41	12.88	35.29	54.00	18.71	Average
6	5550.910	34.83	12.88	47.71	74.00	26.29	Peak

Horizontal:



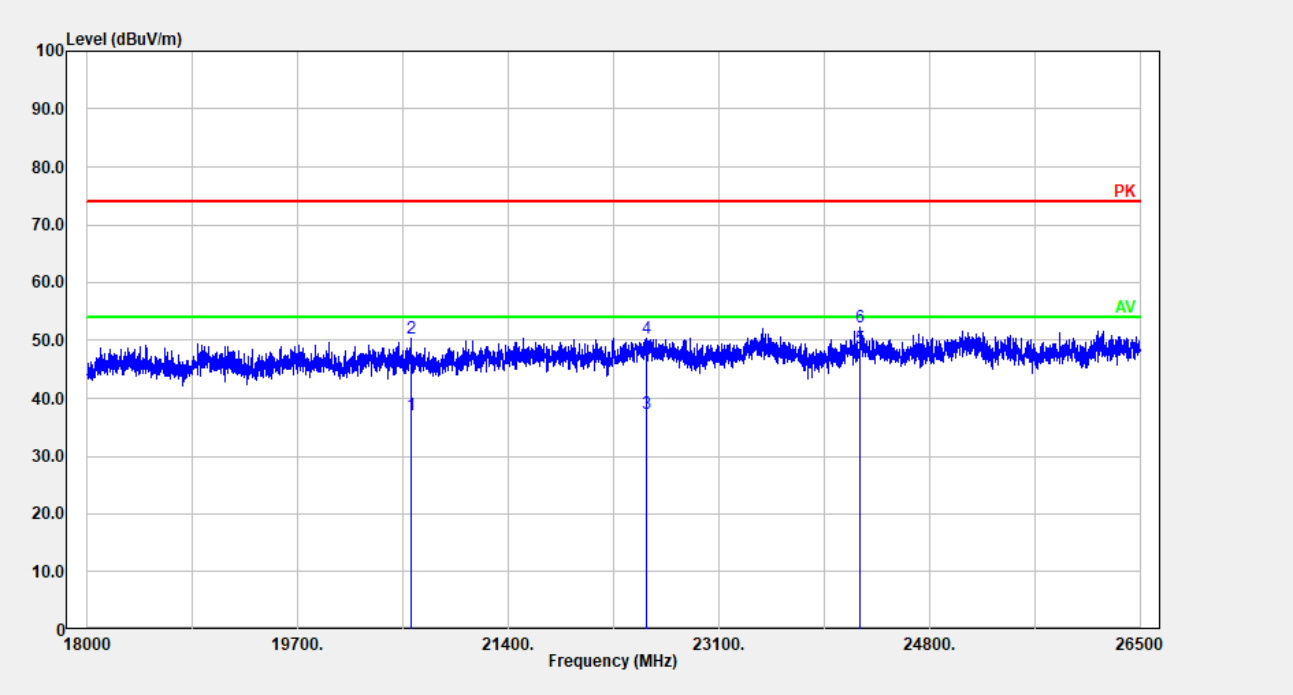
No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	
1	11710.740	20.43	20.50	40.93	54.00	13.07	Average
2	11710.740	32.88	20.50	53.38	74.00	20.62	Peak
3	15714.740	26.20	21.24	47.44	54.00	6.56	Average
4	15714.740	38.49	21.24	59.73	74.00	14.27	Peak
5	17498.300	18.30	28.38	46.68	54.00	7.32	Average
6	17498.300	30.51	28.38	58.89	74.00	15.11	Peak

Vertical:



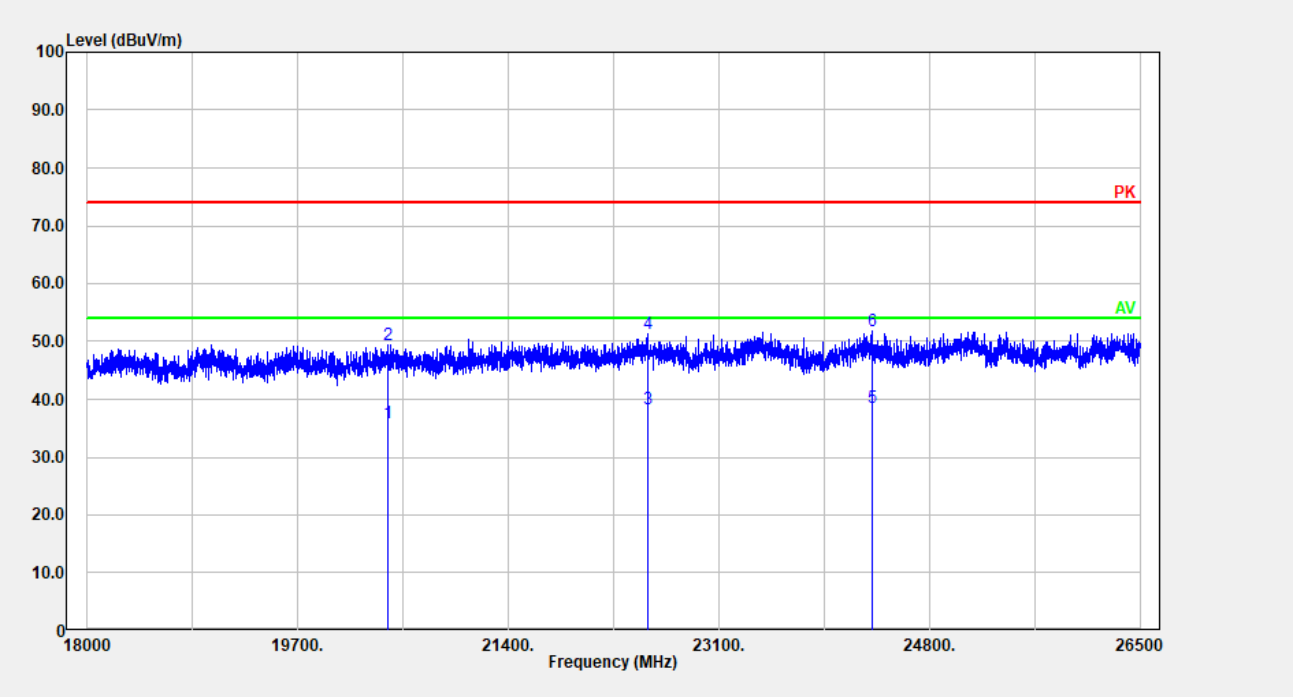
No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	
1	11873.970	20.42	20.47	40.89	54.00	13.11	Average
2	11873.970	32.85	20.47	53.32	74.00	20.68	Peak
3	14641.730	22.34	24.17	46.51	54.00	7.49	Average
4	14641.730	34.69	24.17	58.86	74.00	15.14	Peak
5	17212.640	21.20	25.46	46.66	54.00	7.34	Average
6	17212.640	33.42	25.46	58.88	74.00	15.12	Peak

Horizontal:



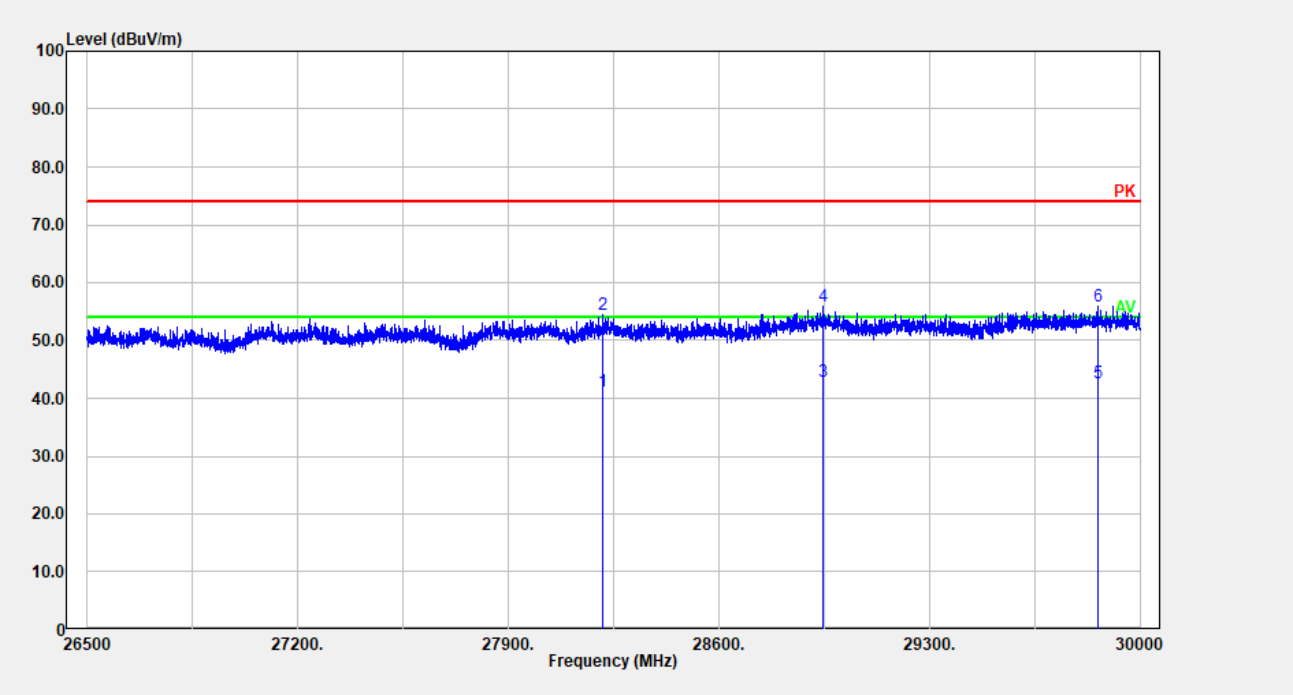
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	20610.020	30.15	6.94	37.09	54.00	16.91	Average
2	20610.020	43.31	6.94	50.25	74.00	23.75	Peak
3	22519.500	26.16	11.11	37.27	54.00	16.73	Average
4	22519.500	39.34	11.11	50.45	74.00	23.55	Peak
5	24241.950	37.45	11.32	48.77	54.00	5.23	Average
6	24241.950	40.90	11.32	52.22	74.00	21.78	Peak

Vertical:



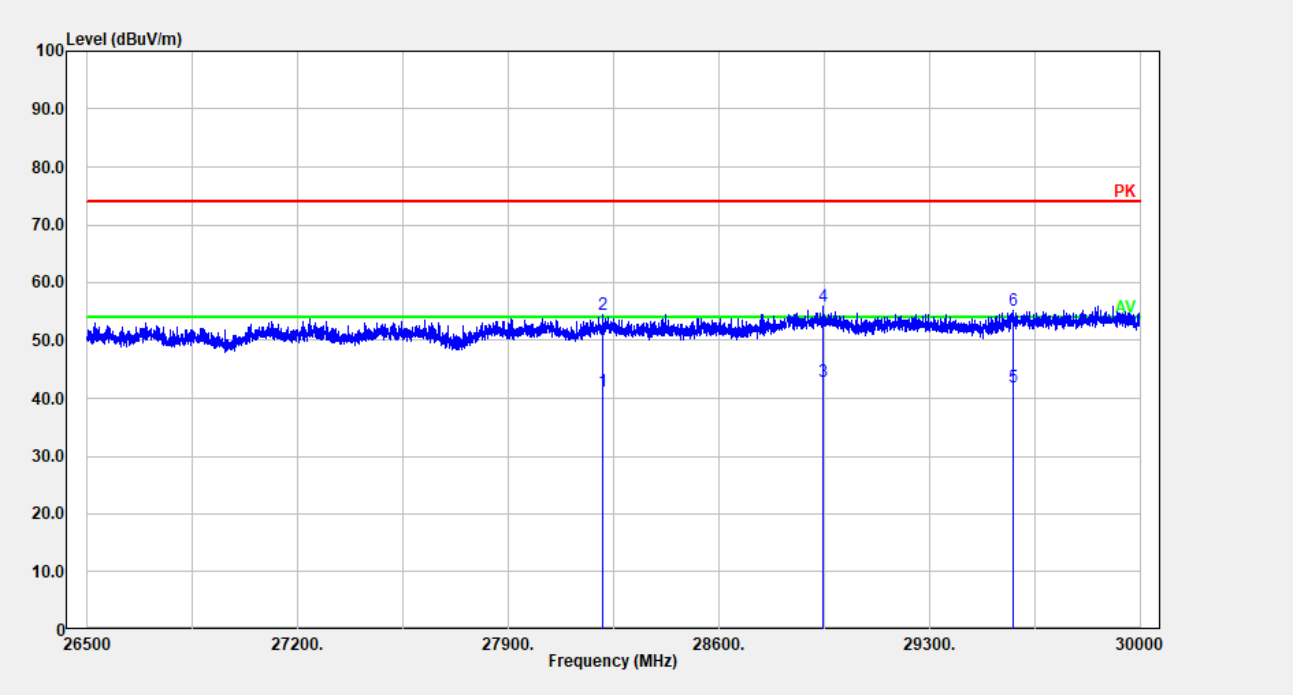
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	20426.380	29.45	6.56	36.01	54.00	17.99	Average
2	20426.380	42.89	6.56	49.45	74.00	24.55	Peak
3	22522.900	27.12	11.08	38.20	54.00	15.80	Average
4	22522.900	40.23	11.08	51.31	74.00	22.69	Peak
5	24340.570	27.15	11.52	38.67	54.00	15.33	Average
6	24340.570	40.35	11.52	51.87	74.00	22.13	Peak

Horizontal:



No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	
1	28212.540	27.23	13.86	41.09	54.00	12.91	Average
2	28212.540	40.51	13.86	54.37	74.00	19.63	Peak
3	28944.890	28.10	14.70	42.80	54.00	11.20	Average
4	28944.890	41.22	14.70	55.92	74.00	18.08	Peak
5	29859.970	28.15	14.60	42.75	54.00	11.25	Average
6	29859.970	41.31	14.60	55.91	74.00	18.09	Peak

Vertical:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	28212.540	27.25	13.86	41.11	54.00	12.89	Average
2	28212.540	40.51	13.86	54.37	74.00	19.63	Peak
3	28944.890	28.10	14.70	42.80	54.00	11.20	Average
4	28944.890	41.22	14.70	55.92	74.00	18.08	Peak
5	29579.920	27.23	14.63	41.86	54.00	12.14	Average
6	29579.920	40.50	14.63	55.13	74.00	18.87	Peak

===== END OF REPORT =====