



FCC RADIO TEST REPORT

FCC ID : 2AJN7-TP00164AL
Equipment : Notebook Computer
Brand Name : Lenovo
Model Name : TP00164A
Applicant : LC Future Center Limited Taiwan Branch
7F., No.780, Beian Rd., Zhongshan Dist., Taipei 104, Taiwan
Manufacturer : Lenovo PC HK Limited
23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry
Bay, Hong Kong, P.R. China
Standard : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)

Equipment: Quectel EM061K-GL tested inside of Lenovo Notebook Computer.

The product was received on Jan. 21, 2025 and testing was performed from Feb. 13, 2025 to Mar. 12, 2025. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory



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History of this test report

Report No.	Version	Description	Issue Date
FG4D1634-02A	01	Initial issue of report	Mar. 18, 2025

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Pass	-
	§22.913 (a)(5)	Effective Radiated Power (WCDMA Band V)		
	§24.232 (c)	Equivalent Isotropic Radiated Power (WCDMA Band II)		
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power (WCDMA Band IV)		
-	§24.232 (d)	Peak-to-Average Ratio	Pass	See Note
-	§2.1049 §22.917 (b) §24.238 (b) §27.53 (g)	Occupied Bandwidth (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Pass	See Note
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Band Edge Measurement (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Pass	See Note
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Conducted Emission (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Pass	See Note
-	§2.1055 §22.355 §24.235 §27.54	Frequency Stability Temperature & Voltage	Pass	See Note
4.4	§2.1053 §22.917 (a) §24.238 (a) §27.53 (h)	Field Strength of Spurious Radiation (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Pass	-
Note: 1. For host device, Radiated Spurious Emission, Effective Radiated Power and Equivalent Isotropic Radiated Power are verified and comply with the limit in this test report. 2. For host device, the Conducted Output Power is no difference after compared to module (Model: EM061K-GL)				

**Conformity Assessment Condition:**

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sheng Kuo

Report Producer: Ming Chen

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Notebook Computer
Brand Name	Lenovo
Model Name	TP00164A
FCC ID	2AJN7-TP00164AL
Sample 1	EUT with AWAN Antenna
Sample 2	EUT with Luxshare-ICT Antenna
Integrated WLAN Module	Brand Name: Intel Model Name: AX211D2W FCC ID: PD9AX211D2
Integrated WLAN Module	Brand Name: Intel Model Name: BE201D2W FCC ID: PD9BE201D2
Integrated NFC Module	Brand Name: Foxconn Model Name: T77H747 FCC ID: MCLT77H747
EUT supports Radios application	WCDMA/HSPA/LTE/GNSS/NFC WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160 WLAN 11be EHT20/ EHT40/EHT80/EHT160/EHT320 Bluetooth BR/EDR/LE
EUT Stage	Production Unit

Remark:

1. The above EUT's information was declared by manufacturer.
2. Equipment: Quectel EM061K-GL tested inside of Lenovo Notebook Computer.

WWAN Antenna Information				
Main Antenna	Manufacturer	AWAN	Peak gain (dBi)	WCDMA Band II: -0.23 WCDMA Band IV: 0.22 WCDMA Band V: -0.34
	Part number	DC330028J00	Type	PIFA
	Manufacturer	Luxshare-ICT	Peak gain (dBi)	WCDMA Band II: -0.23 WCDMA Band IV: 0.22 WCDMA Band V: -0.34
	Part number	DC330028F00	Type	PIFA

Remark: The above EUT's information was declared by manufacturer. Please refer to Disclaimer in report summary.

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx Frequency	WCDMA: Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz Band IV: 1712.4 MHz ~ 1752.6 MHz
Rx Frequency	WCDMA: Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz Band IV: 2112.4 MHz ~ 2152.6 MHz
Maximum Output Power to Antenna	WCDMA: Band V: 24.08 dBm Band II: 23.51 dBm Band IV: 23.66 dBm
Type of Modulation	WCDMA: BPSK (Uplink) HSDPA: 64QAM (Downlink) HSUPA: QPSK (Uplink)

1.3 Modification of EUT

No modifications made to the EUT during the testing.

1.4 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333
Test Site No.	Sporton Site No.
	TH03-HY
Test Engineer	Eric Wu
Temperature (°C)	19.6~21.6
Relative Humidity (%)	45.7~47.7

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010
Test Site No.	Sporton Site No.
	03CH12-HY (TAF Code: 3786)
Test Engineer	Jack Cheng, Tim Lee, and Wilson Wu
Temperature (°C)	20~25
Relative Humidity (%)	50~60
Remark	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW3786

1.5 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ ANSI C63.26-2015
- ♦ FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in Tablet Mode (three orthogonal axis (X: flat, Y: portrait, Z: landscape)) and Notebook Mode, and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and only the worst case emissions were reported in this report..

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for WCDMA Band V
2. 30 MHz to 18000 MHz for WCDMA Band IV
3. 30 MHz to 19100 MHz for WCDMA Band II

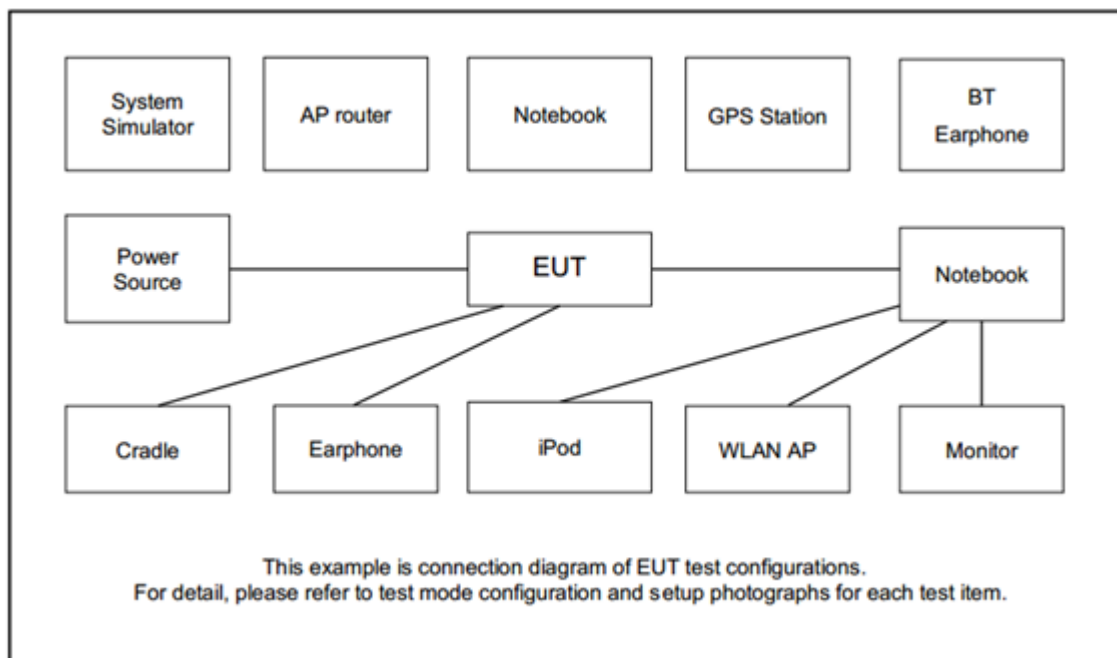
All modes, data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	Radiated TCs	Conducted TCs
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

Remark: All the test cases were performed with Sample 2.

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
2.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A

2.4 Frequency List of Low/Middle/High Channels

Frequency List				
Band	Channel/Frequency(MHz)	Lowest	Middle	Highest
WCDMA Band V	Channel	4132	4182	4233
	Frequency	826.4	836.4	846.6
WCDMA Band II	Channel	9262	9400	9538
	Frequency	1852.4	1880.0	1907.6
WCDMA Band IV	Channel	1312	1413	1513
	Frequency	1712.4	1732.6	1752.6

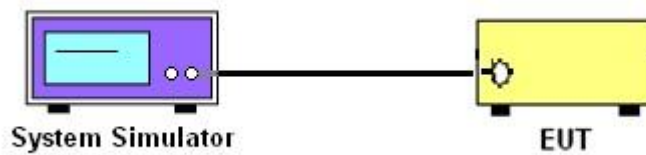
3 Conducted Test Result

3.1 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.1.1 Test Setup

3.1.2 Conducted Output Power



3.1.3 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power and ERP/EIRP

3.2.1 Description of the Conducted Output Power and ERP/EIRP

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for WCDMA Band V

The EIRP of mobile transmitters must not exceed 2 Watts for WCDMA Band II

The EIRP of mobile transmitters must not exceed 1 Watts for WCDMA Band IV

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.2.2 Test Procedures

1. The transmitter output port is connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select the lowest, middle, and the highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

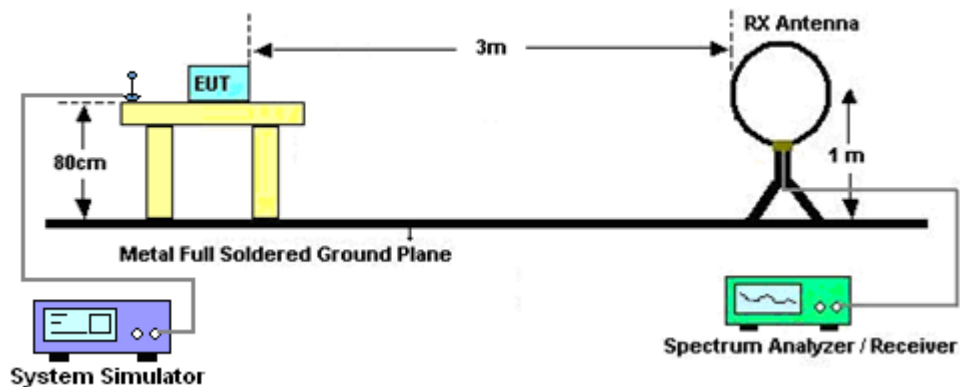
4 Radiated Test Items

4.1 Measuring Instruments

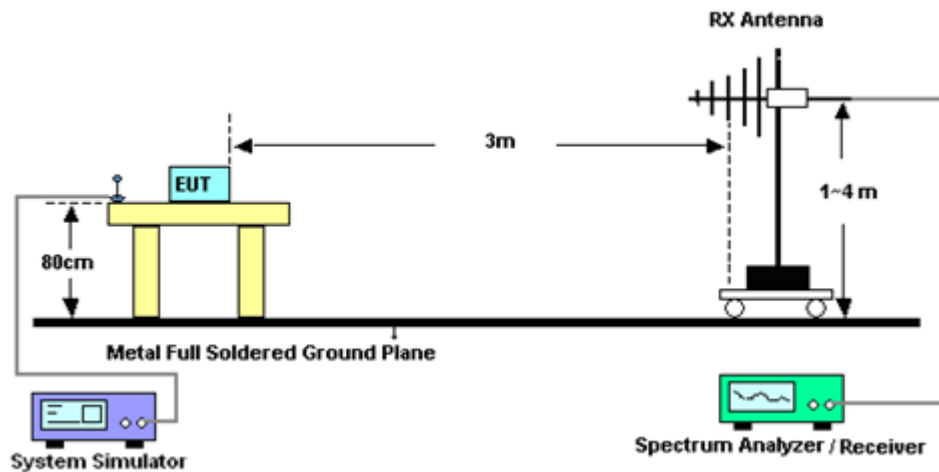
Please refer to the measuring equipment list in this test report.

4.2 Test Setup

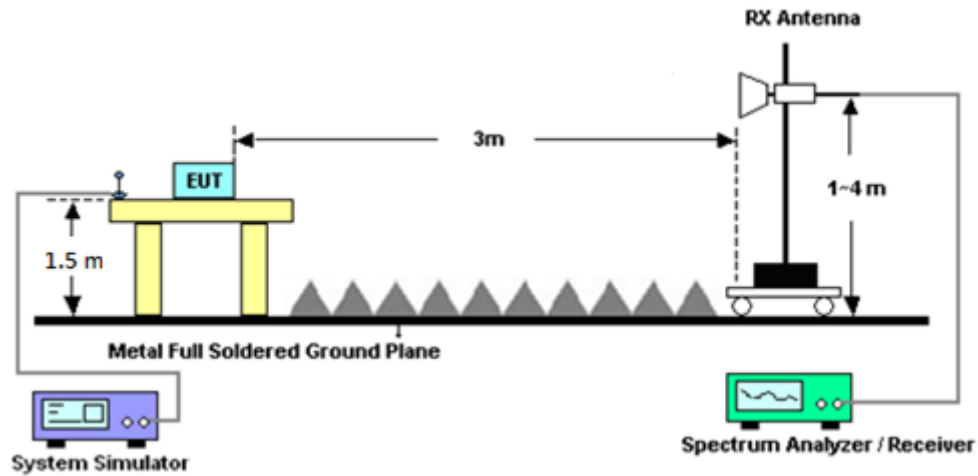
For radiated test below 30MHz



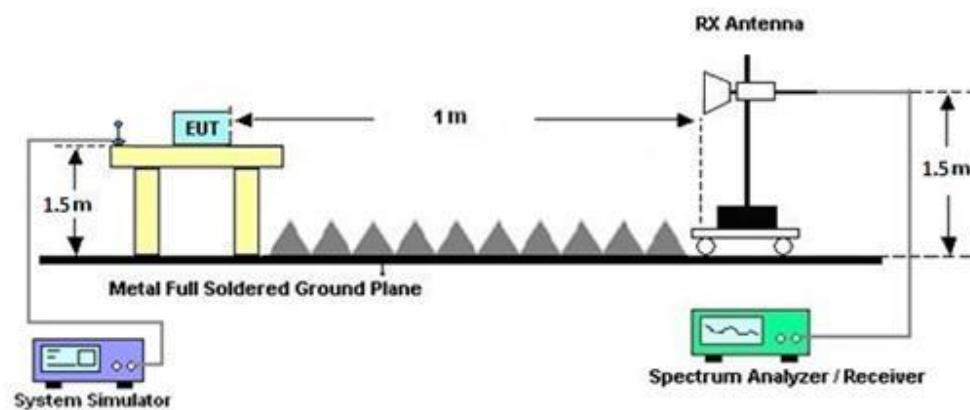
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

Note:

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

4.4 Field Strength of Spurious Radiation Measurement

4.4.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI C63.26-2015 section 5.5.4 Radiated measurement using the field strength method.

1. The EUT is placed on a rotatable wooden table 0.8 meters for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz above the ground.
2. The EUT is set 3 meters away from the receiving antenna, which is mounted on the antenna tower.
3. The table is rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1 MHz, VBW = 3 MHz, taking record of maximum spurious emission.
6. To convert spectrum reading E(dBuV/m) to EIRP(dBm)
$$\text{EIRP(dBm)} = \text{Level (dBuV/m)} + 20\log(d) - 104.77,$$
where d is the distance at which field strength limit is specified in the rules
7. Field Strength Level (dBm) = Spectrum Reading (dBm) + Antenna Factor + Cable Loss + Read Level - Preamp Factor.
8. ERP (dBm) = EIRP (dBm) - 2.15
9. The RF fundamental frequency shall be excluded against the limit line in the operating frequency band.
10. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)



5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~40GHz	Sep. 25, 2024	Mar. 12, 2025	Sep. 24, 2025	Conducted (TH03-HY)
DC Power Supply	GW Instek	GPE-2323	GEU871221	0V~64V ; 0A~6A	Apr. 09, 2024	Mar. 12, 2025	Apr. 08, 2025	Conducted (TH03-HY)
Base Station (Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Aug. 08, 2024	Mar. 12, 2025	Aug. 07, 2025	Conducted (TH03-HY)
Temperature & Humidity Cabinet Chamber	ESPEC	SH-641	92013720	-40℃~90℃	Sep. 06, 2024	Mar. 12, 2025	Sep. 05, 2025	Conducted (TH03-HY)
Hygrometer	TECEPEL	DTM-303B	TP200886	N/A	Mar. 14, 2024	Mar. 12, 2025	Mar. 13, 2025	Conducted (TH03-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Feb. 23, 2024	Feb. 13, 2025~ Feb. 18, 2025	Feb. 22, 2025	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	37059 & 01	30MHz~1GHz	Nov. 27, 2024	Feb. 13, 2025~ Feb. 18, 2025	Nov. 26, 2025	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02114	1GHz~18GHz	Jul. 11, 2024	Feb. 13, 2025~ Feb. 18, 2025	Jul. 10, 2025	Radiation (03CH12-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18 G-56-01-A70	EC1900269	1GHz-18GHz	Dec. 19, 2024	Feb. 13, 2025~ Feb. 18, 2025	Dec. 18, 2025	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Aug. 09, 2024	Feb. 13, 2025~ Feb. 18, 2025	Aug. 08, 2025	Radiation (03CH12-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz~26.5GHz	Sep. 09, 2024	Feb. 13, 2025~ Feb. 18, 2025	Sep. 08, 2025	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	1224	18GHz-40GHz	Jun. 24, 2024	Feb. 13, 2025~ Feb. 18, 2025	Jun. 23, 2025	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 02, 2024	Feb. 13, 2025~ Feb. 18, 2025	Dec. 01, 2025	Radiation (03CH12-HY)
Notch Filter	Wainwright	WHKX12-900-1000-15000-6 OSS	SN11	1GHz High Pass Filter	Mar. 13, 2024	Feb. 13, 2025~ Feb. 18, 2025	Mar. 12, 2025	Radiation (03CH12-HY)
Notch Filter	Wainwright	WLKS1200-12 SS	SN2	1.2GHz Low Pass Filter	Mar. 13, 2024	Feb. 13, 2025~ Feb. 18, 2025	Mar. 12, 2025	Radiation (03CH12-HY)
Notch Filter	Wainwright	WHKX12-2700-3000-18000-6 OST	SN2	3GHz High Pass Filter	Mar. 13, 2024	Feb. 13, 2025~ Feb. 18, 2025	Mar. 12, 2025	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9kHz~30MHz	Mar. 06, 2024	Feb. 13, 2025~ Feb. 18, 2025	Mar. 05, 2025	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Dec. 19, 2024	Feb. 13, 2025~ Feb. 18, 2025	Dec. 18, 2025	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803955/2	30MHz~40GHz	Nov. 01, 2024	Feb. 13, 2025~ Feb. 18, 2025	Oct. 31, 2025	Radiation (03CH12-HY)
RF Cable	EMCI	EMC101Y-KM-KM-100	240907	30MHz~40GHz	Nov. 14, 2024	Feb. 13, 2025~ Feb. 18, 2025	Nov. 13, 2025	Radiation (03CH12-HY)
Hygrometer	TECEPEL	DTM-303B	TP210090	N/A	Aug. 29, 2024	Feb. 13, 2025~ Feb. 18, 2025	Aug. 28, 2025	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Feb. 13, 2025~ Feb. 18, 2025	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Feb. 13, 2025~ Feb. 18, 2025	N/A	Radiation (03CH12-HY)
Radio Communication Analyzer	Anritsu	MT8821C	6262116730	LTE	Jun. 28, 2024	Feb. 13, 2025~ Feb. 18, 2025	Jun. 27, 2025	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Feb. 13, 2025~ Feb. 18, 2025	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Feb. 13, 2025~ Feb. 18, 2025	N/A	Radiation (03CH12-HY)

6 Measurement Uncertainty

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.3 dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 6 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.7 dB
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Uncertainty of Radiated Emission Measurement (6 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0 dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.1 dB
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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power) & ERP / EIRP

WCDMA Band V Maximum Average Power [dBm] (GT - LC = -0.34 dB)					
Channel	4132	4182	4233	ERP (dBm)	ERP (W)
Frequency	826.4	836.4	846.6		
RMC 12.2K	23.85	24.08	23.90	21.59	0.1442
HSDPA Subtest-1	22.85	22.98	22.92		
HSDPA Subtest-2	22.86	22.95	22.92		
HSDPA Subtest-3	22.39	22.44	22.43		
HSDPA Subtest-4	22.37	22.41	22.36		
HSUPA Subtest-1	22.61	22.68	22.55		
HSUPA Subtest-2	20.43	20.49	20.51		
HSUPA Subtest-3	21.49	21.63	21.56		
HSUPA Subtest-4	20.52	20.63	20.47		
HSUPA Subtest-5	22.40	22.50	22.30		
Limit	ERP < 7W			Result	Pass

WCDMA Band II Maximum Average Power [dBm] (GT - LC = -0.23 dB)					
Channel	9262	9400	9538	EIRP (dBm)	EIRP (W)
Frequency	1852.4	1880	1907.6		
RMC 12.2K	23.29	23.51	23.50	23.28	0.2128
HSDPA Subtest-1	22.27	22.51	22.34		
HSDPA Subtest-2	22.23	22.27	22.36		
HSDPA Subtest-3	21.83	21.97	21.90		
HSDPA Subtest-4	21.79	21.65	21.80		
HSUPA Subtest-1	22.23	22.39	22.42		
HSUPA Subtest-2	20.16	20.47	20.42		
HSUPA Subtest-3	21.24	21.49	21.36		
HSUPA Subtest-4	20.25	20.36	20.29		
HSUPA Subtest-5	22.20	22.40	22.20		
Limit	EIRP < 2W			Result	Pass

WCDMA Band IV Maximum Average Power [dBm] (GT - LC = 0.22 dB)					
Channel	1312	1413	1513	EIRP (dBm)	EIRP (W)
Frequency	1712.4	1732.6	1752.6		
RMC 12.2K	23.53	23.66	23.65	23.88	0.2443
HSDPA Subtest-1	22.60	22.60	22.72		
HSDPA Subtest-2	22.58	22.60	22.73		
HSDPA Subtest-3	22.08	22.05	22.17		
HSDPA Subtest-4	22.19	22.06	22.21		
HSUPA Subtest-1	22.52	22.61	22.68		
HSUPA Subtest-2	20.53	20.49	20.61		
HSUPA Subtest-3	21.45	21.47	21.62		
HSUPA Subtest-4	20.59	20.63	20.74		
HSUPA Subtest-5	22.30	22.20	22.70		
Limit	EIRP < 1W			Result	Pass



Appendix B. Test Results of Radiated Test

B1. Summary of each worse mode

Mode	Part	Band	Ch	Freq (MHz)	Level (dBm)	Det	Ant Factor (dB)	AmplCbl (dB)	Filter (dB)	EIRPCF (dB)	Reading (dBuV)	Limit (dBm)	Margin (dB)	Pol	Ant
3	Part 22H	WCDMA B5	M	2509	-36.72	RMS	28.19	-59.72	0.50	-95.23	89.54	-13.00	-23.72	H	Main Antenna
6	Part 24E	WCDMA B2	M	7520	-59.00	RMS	36.48	-53.41	0.35	-95.23	52.81	-13.00	-46.00	H	Main Antenna
9	Part 27L	WCDMA B4	H	7010	-58.93	RMS	36.14	-53.64	0.34	-95.23	53.46	-13.00	-45.93	H	Main Antenna

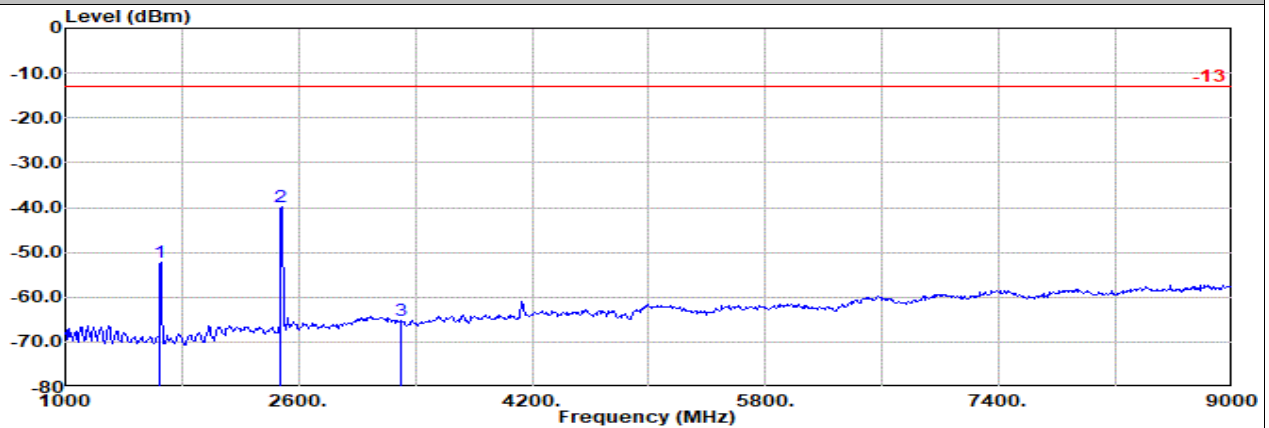


Main Antenna

Part 22H Mode 3

WCDMA B5 Ch4132

L

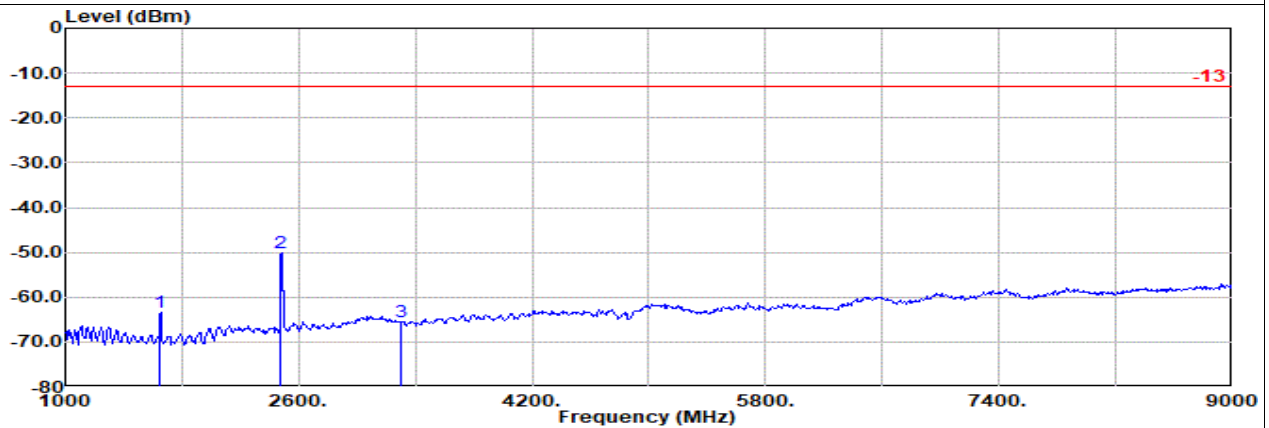


Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Horizontal

: WCDMA Band 5 Ch4132

	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit	Margin	Pol
				Factor	l					
1	1652.00	-52.36	RMS	25.30	-61.00	0.75	-95.23	77.82	-13.00	-39.36 Horizontal
2	2479.00	-39.90	RMS	27.89	-59.77	0.51	-95.23	86.70	-13.00	-26.90 Horizontal
3	3305.00	-65.23	RMS	29.80	-58.12	0.40	-95.23	57.92	-13.00	-52.23 Horizontal

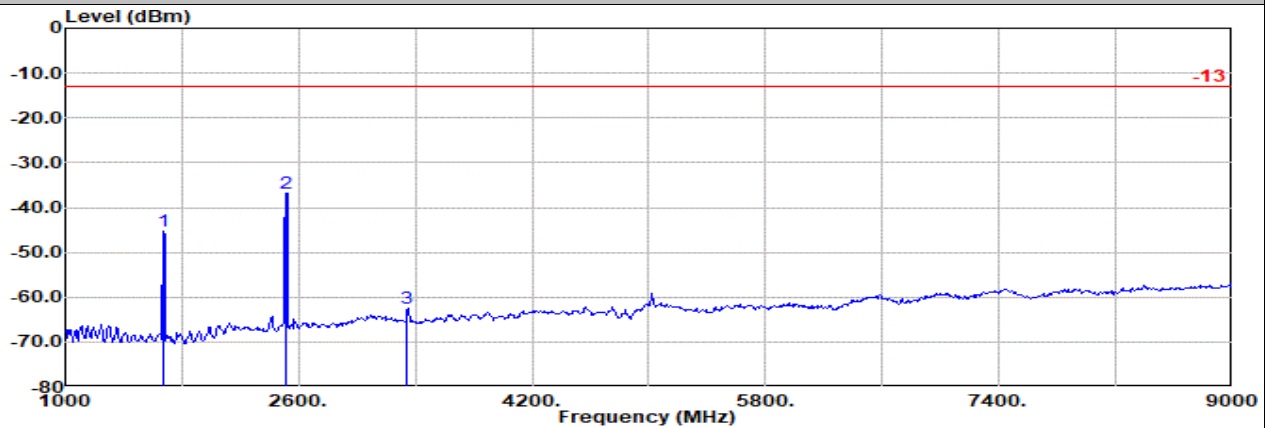


Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Vertical

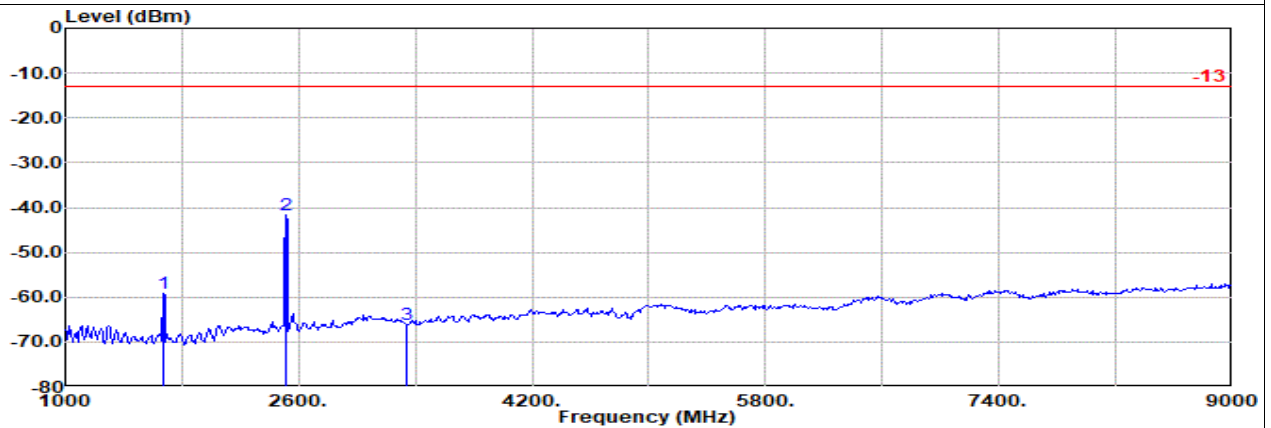
: WCDMA Band 5 Ch4132

	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit	Margin	Pol
				Factor	l					
1	1652.00	-63.51	RMS	25.30	-61.00	0.75	-95.23	66.67	-13.00	-50.51 Vertical
2	2479.00	-50.24	RMS	27.89	-59.77	0.51	-95.23	76.36	-13.00	-37.24 Vertical
3	3305.00	-65.45	RMS	29.80	-58.12	0.40	-95.23	57.70	-13.00	-52.45 Vertical

Main Antenna
Part 22H Mode 3
WCDMA B5 Ch4182
M


Site : 03CH12-HY
 Condition: -13 3m 9120D-02114-240711 Horizontal
 : WCDMA Band 5 Ch4182

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm						g			
1	1672.00	-45.31	RMS	25.40	-60.97	0.74	-95.23	84.75	-13.00	-32.31	Horizontal
2	2509.00	-36.72	RMS	28.19	-59.72	0.50	-95.23	89.54	-13.00	-23.72	Horizontal
3	3345.00	-62.54	RMS	29.80	-58.07	0.40	-95.23	60.56	-13.00	-49.54	Horizontal



Site : 03CH12-HY
 Condition: -13 3m 9120D-02114-240711 Vertical
 : WCDMA Band 5 Ch4182

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm						g			
1	1672.00	-59.24	RMS	25.40	-60.97	0.74	-95.23	70.82	-13.00	-46.24	Vertical
2	2509.00	-41.56	RMS	28.19	-59.72	0.50	-95.23	84.70	-13.00	-28.56	Vertical
3	3345.00	-66.00	RMS	29.80	-58.07	0.40	-95.23	57.10	-13.00	-53.00	Vertical

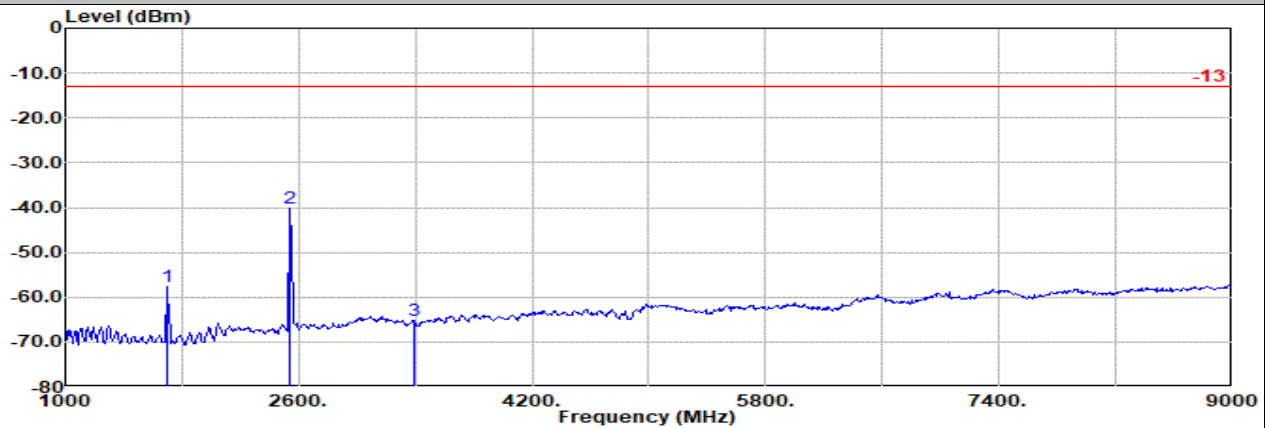


Main Antenna

Part 22H Mode 3

WCDMA B5 Ch4233

H

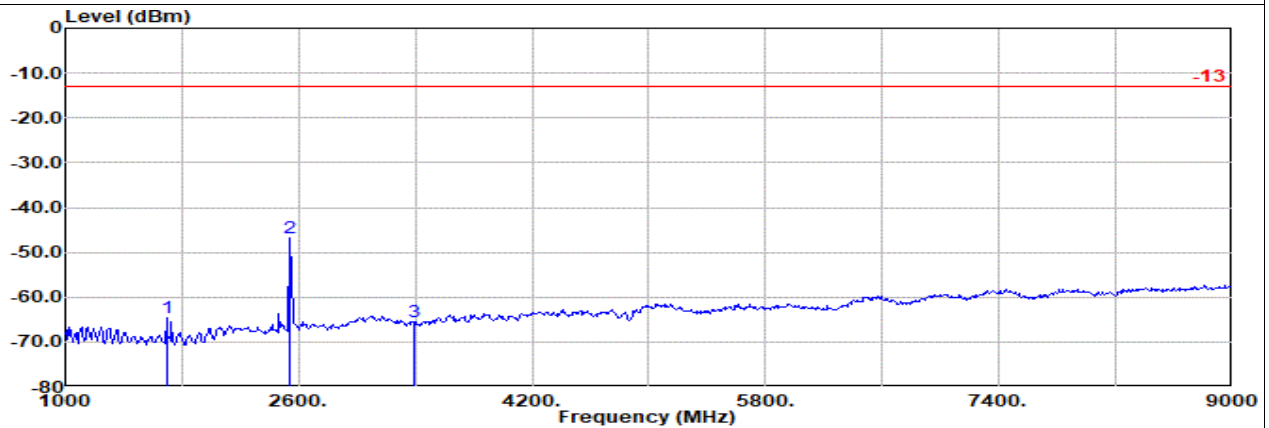


Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Horizontal

: WCDMA Band 5 Ch4233

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin	Pol
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	1693.00	-57.73	RMS	25.27	-60.94	0.72	-95.23	72.45	-13.00	-44.73
2	2539.00	-40.29	RMS	28.49	-59.64	0.48	-95.23	85.61	-13.00	-27.29
3	3386.00	-65.14	RMS	29.73	-58.01	0.41	-95.23	57.96	-13.00	-52.14



Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Vertical

: WCDMA Band 5 Ch4233

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin	Pol
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	1693.00	-64.61	RMS	25.27	-60.94	0.72	-95.23	65.57	-13.00	-51.61
2	2539.00	-46.82	RMS	28.49	-59.64	0.48	-95.23	79.08	-13.00	-33.82
3	3386.00	-65.56	RMS	29.73	-58.01	0.41	-95.23	57.54	-13.00	-52.56

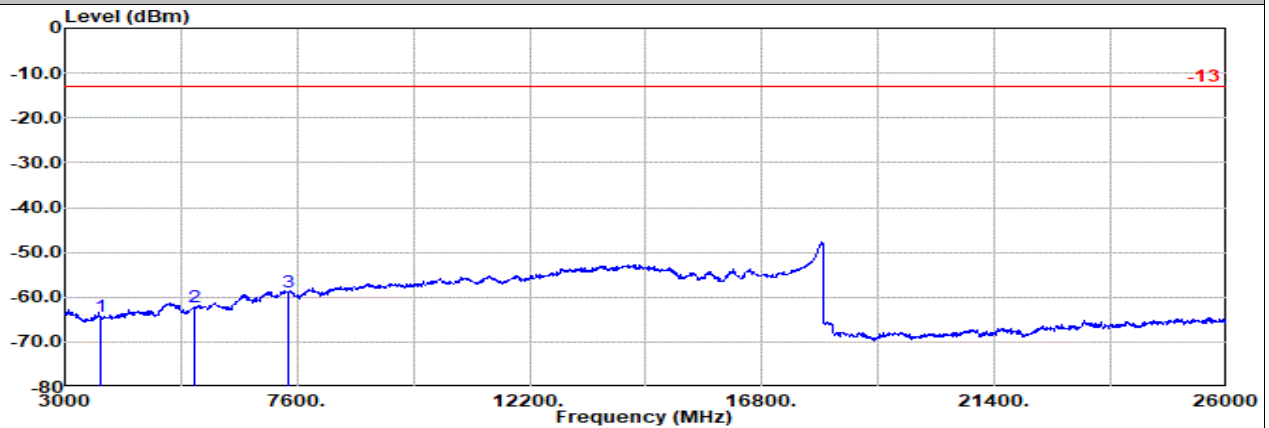


Main Antenna

Part 24E Mode 6

WCDMA B2 Ch9262

L

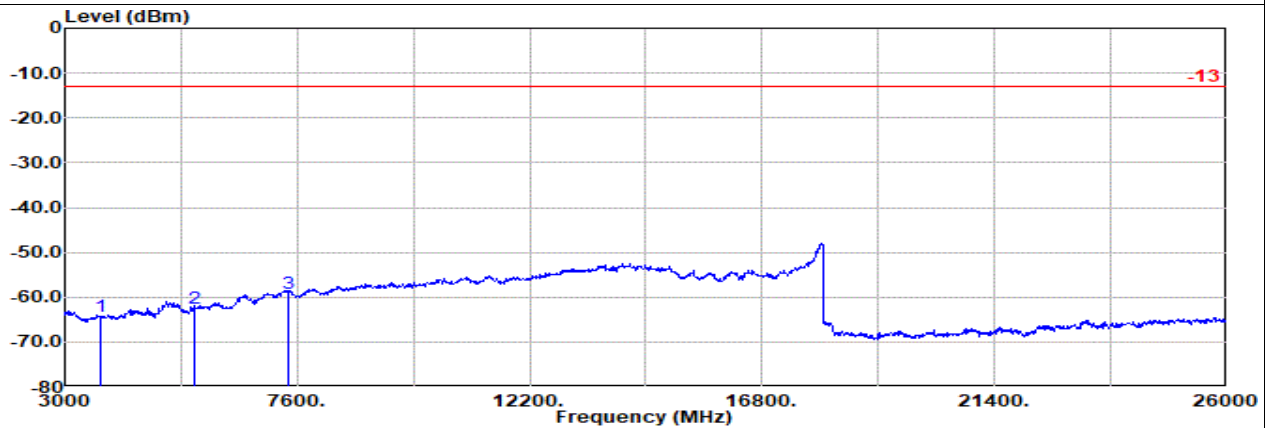


Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Horizontal

: WCDMA Band2 Ch9262

	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit dBm	Margin	Pol
				Factor	1					
1	3704.00	-64.25	RMS	29.92	-57.83	0.76 -95.23	58.13	-13.00	-51.25	Horizontal
2	5557.00	-62.29	RMS	33.10	-55.23	0.40 -95.23	54.67	-13.00	-49.29	Horizontal
3	7409.00	-59.02	RMS	36.62	-53.42	0.33 -95.23	52.68	-13.00	-46.02	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Vertical

: WCDMA Band2 Ch9262

	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit dBm	Margin	Pol
				Factor	1					
1	3704.00	-64.37	RMS	29.92	-57.83	0.76 -95.23	58.01	-13.00	-51.37	Vertical
2	5557.00	-62.56	RMS	33.10	-55.23	0.40 -95.23	54.40	-13.00	-49.56	Vertical
3	7409.00	-59.08	RMS	36.62	-53.42	0.33 -95.23	52.62	-13.00	-46.08	Vertical

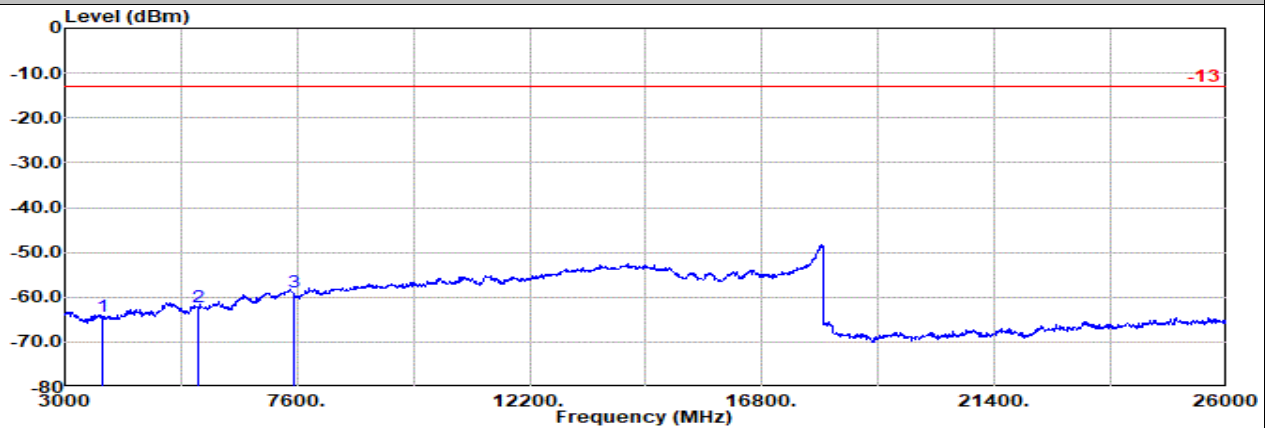


Main Antenna

Part 24E Mode 6

WCDMA B2 Ch9400

M

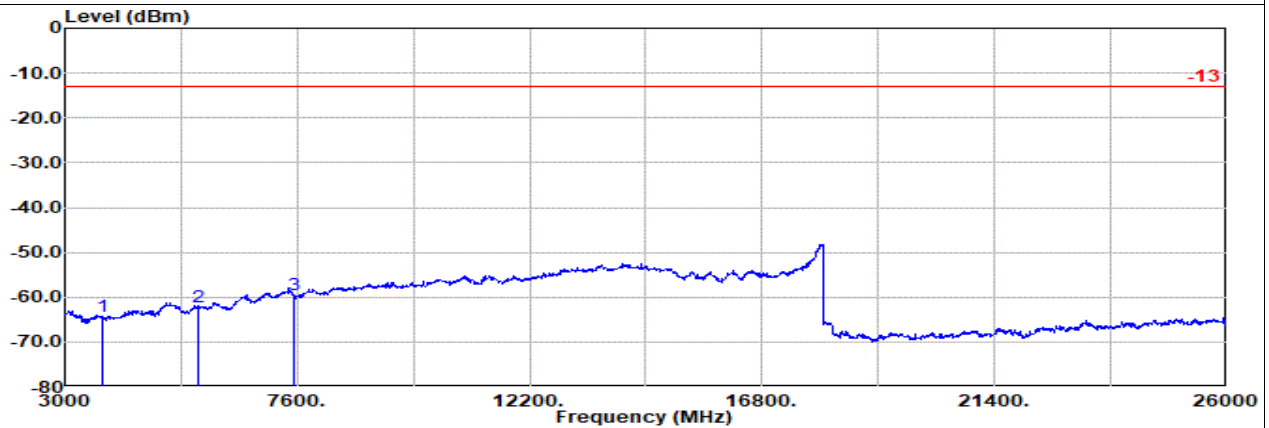


Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Horizontal

: WCDMA Band2 Ch9400

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3760.00	-64.39	RMS	30.18	-57.80	0.70	-95.23	57.76	-13.00	-51.39 Horizontal
2	5640.00	-62.11	RMS	33.18	-55.05	0.39	-95.23	54.60	-13.00	-49.11 Horizontal
3	7520.00	-59.00	RMS	36.48	-53.41	0.35	-95.23	52.81	-13.00	-46.00 Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Vertical

: WCDMA Band2 Ch9400

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3760.00	-64.44	RMS	30.18	-57.80	0.70	-95.23	57.71	-13.00	-51.44 Vertical
2	5640.00	-62.20	RMS	33.18	-55.05	0.39	-95.23	54.51	-13.00	-49.20 Vertical
3	7520.00	-59.55	RMS	36.48	-53.41	0.35	-95.23	52.26	-13.00	-46.55 Vertical

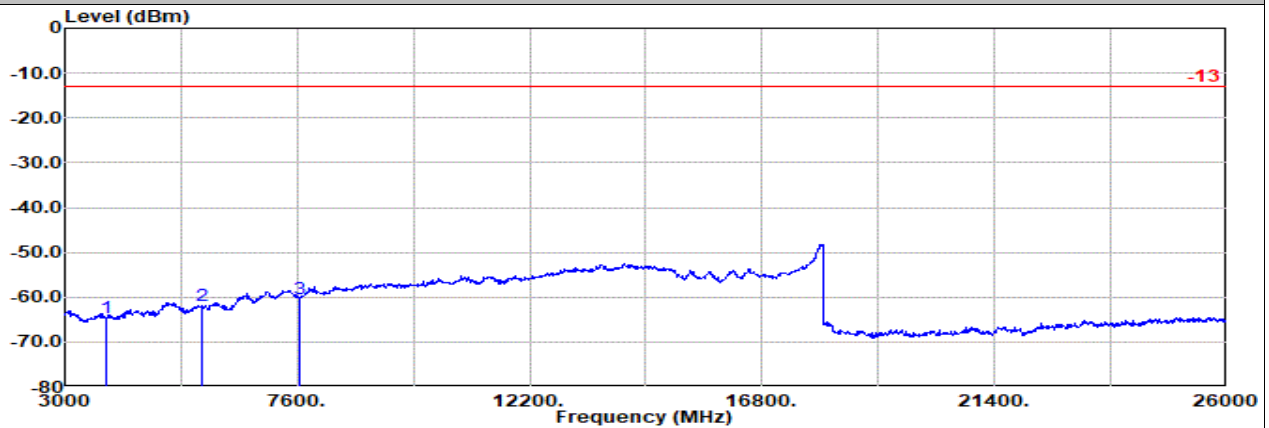


Main Antenna

Part 24E Mode 6

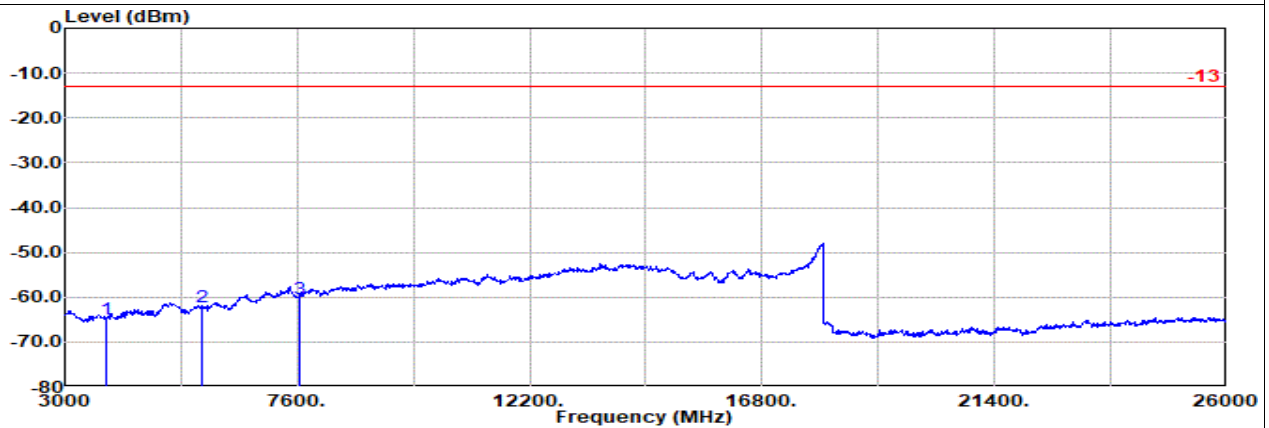
WCDMA B2 Ch9538

H



Site : 03CH12-HY
Condition: -13 3m 9120D-02114-240711 Horizontal
: WCDMA Band2 Ch9538

	Freq	Level	Detector	Ant		Filter	EIRPCF	Readin	Limit	Margin	Pol
				Factor	Amp\Cb						
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3815.00	-64.74	RMS	30.62	-57.77	0.66	-95.23	56.98	-13.00	-51.74	Horizontal
2	5722.00	-61.77	RMS	33.69	-54.88	0.38	-95.23	54.27	-13.00	-48.77	Horizontal
3	7630.00	-60.31	RMS	36.46	-53.42	0.37	-95.23	51.51	-13.00	-47.31	Horizontal



Site : 03CH12-HY
Condition: -13 3m 9120D-02114-240711 Vertical
: WCDMA Band2 Ch9538

	Freq	Level	Detector	Ant		Filter	EIRPCF	Readin	Limit	Margin	Pol
				Factor	Amp\Cb						
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3815.00	-64.82	RMS	30.62	-57.77	0.66	-95.23	56.90	-13.00	-51.82	Vertical
2	5722.00	-62.08	RMS	33.69	-54.88	0.38	-95.23	53.96	-13.00	-49.08	Vertical
3	7630.00	-60.35	RMS	36.46	-53.42	0.37	-95.23	51.47	-13.00	-47.35	Vertical

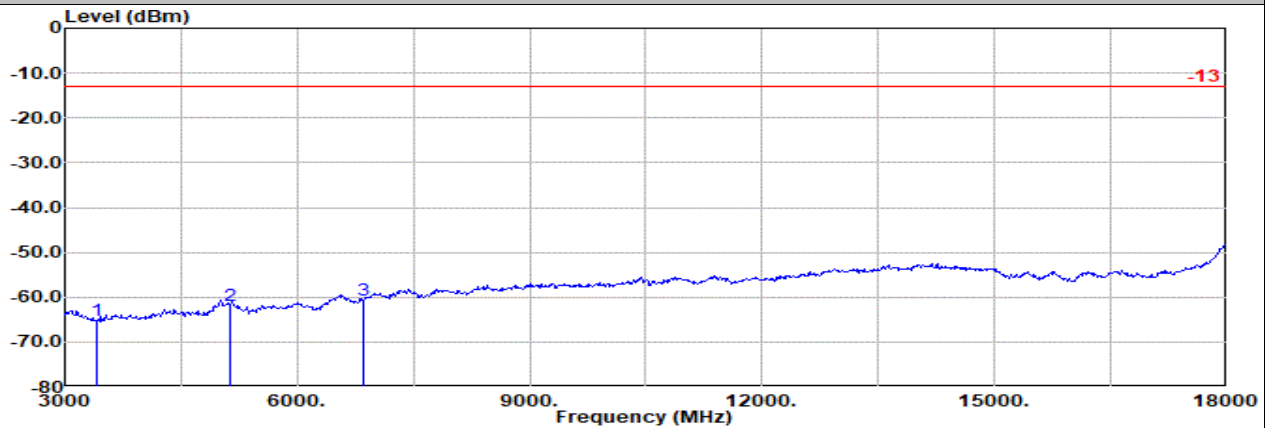


Main Antenna

Part 27L Mode 9

WCDMA B4 Ch1312

L

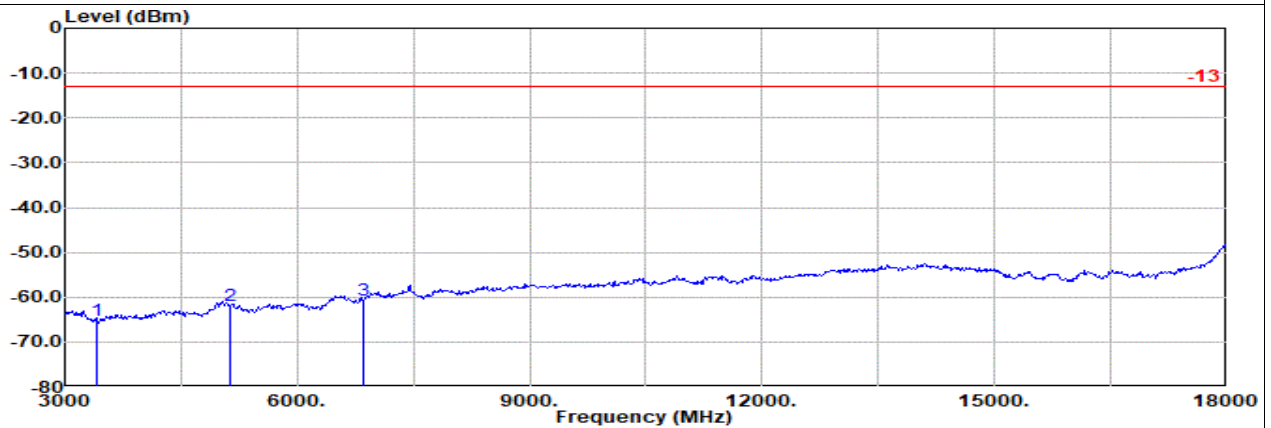


Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Horizontal

: WCDMA Band4 CH1312

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm						g			
1	3424.00	-65.31	RMS	29.65	-57.98	1.04	-95.23	57.21	-13.00	-52.31	Horizontal
2	5137.00	-62.01	RMS	33.35	-56.28	0.47	-95.23	55.68	-13.00	-49.01	Horizontal
3	6849.00	-60.69	RMS	36.10	-53.78	0.34	-95.23	51.88	-13.00	-47.69	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Vertical

: WCDMA Band4 CH1312

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm						g			
1	3424.00	-65.09	RMS	29.65	-57.98	1.04	-95.23	57.43	-13.00	-52.09	Vertical
2	5137.00	-61.95	RMS	33.35	-56.28	0.47	-95.23	55.74	-13.00	-48.95	Vertical
3	6849.00	-60.69	RMS	36.10	-53.78	0.34	-95.23	51.88	-13.00	-47.69	Vertical

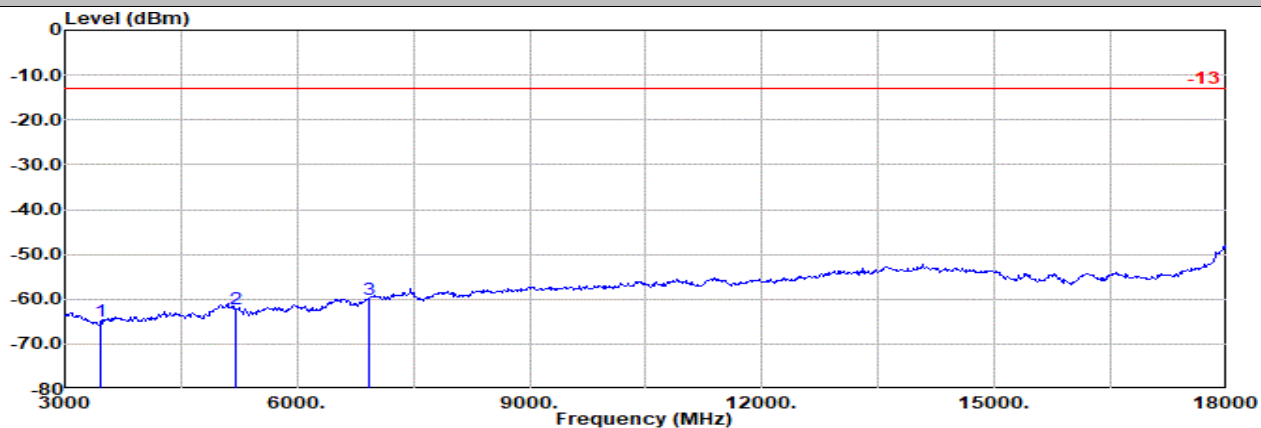


Main Antenna

Part 27L Mode 9

WCDMA B4 Ch1413

M

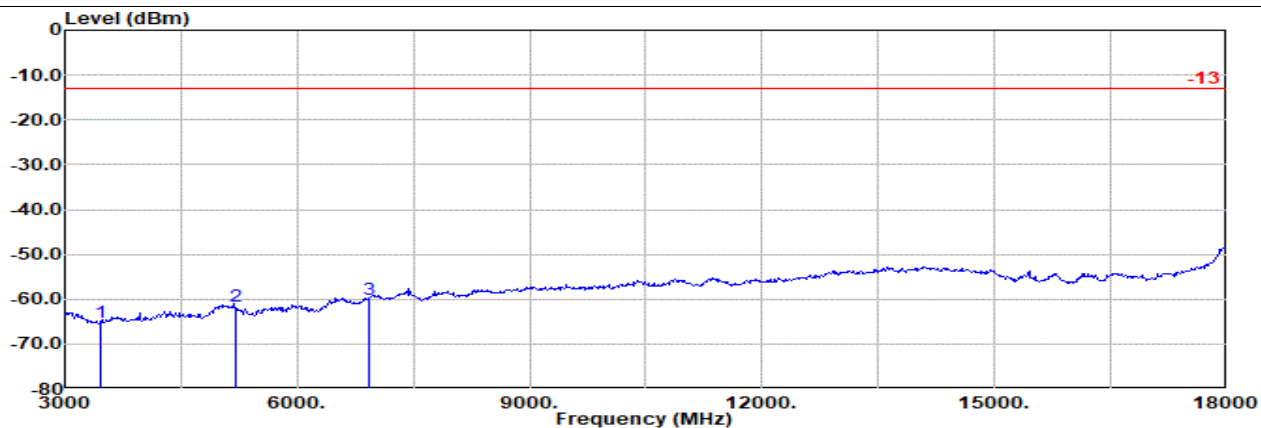


Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Horizontal

: WCDMA Band4 CH1413

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3465.00	-64.88	RMS	29.60	-57.94	1.00	-95.23	57.69	-13.00	-51.88 Horizontal
2	5197.00	-62.13	RMS	33.31	-56.12	0.47	-95.23	55.44	-13.00	-49.13 Horizontal
3	6930.00	-59.96	RMS	36.04	-53.71	0.34	-95.23	52.60	-13.00	-46.96 Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Vertical

: WCDMA Band4 CH1413

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3465.00	-65.06	RMS	29.60	-57.94	1.00	-95.23	57.51	-13.00	-52.06 Vertical
2	5197.00	-61.69	RMS	33.31	-56.12	0.47	-95.23	55.88	-13.00	-48.69 Vertical
3	6930.00	-60.21	RMS	36.04	-53.71	0.34	-95.23	52.35	-13.00	-47.21 Vertical

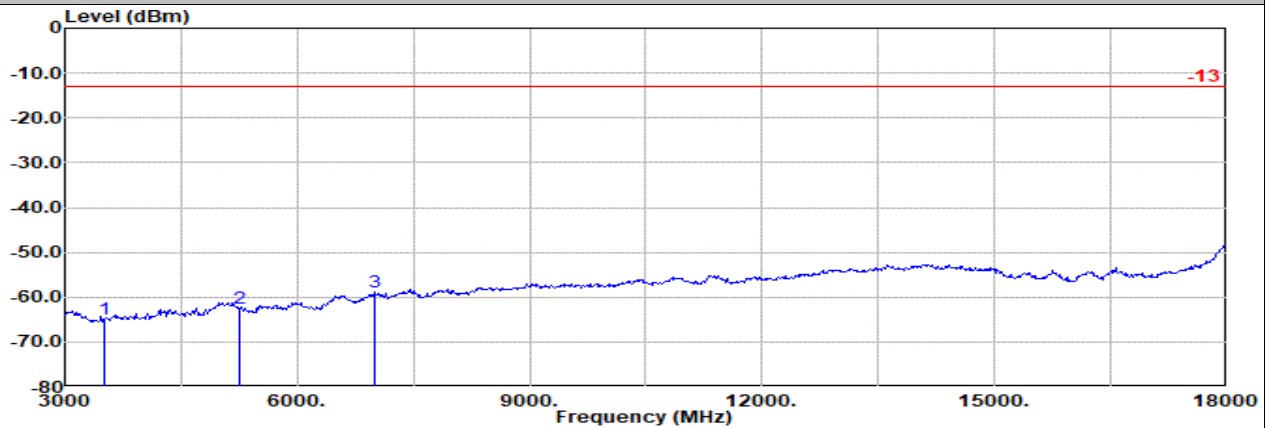


Main Antenna

Part 27L Mode 9

WCDMA B4 Ch1513

H

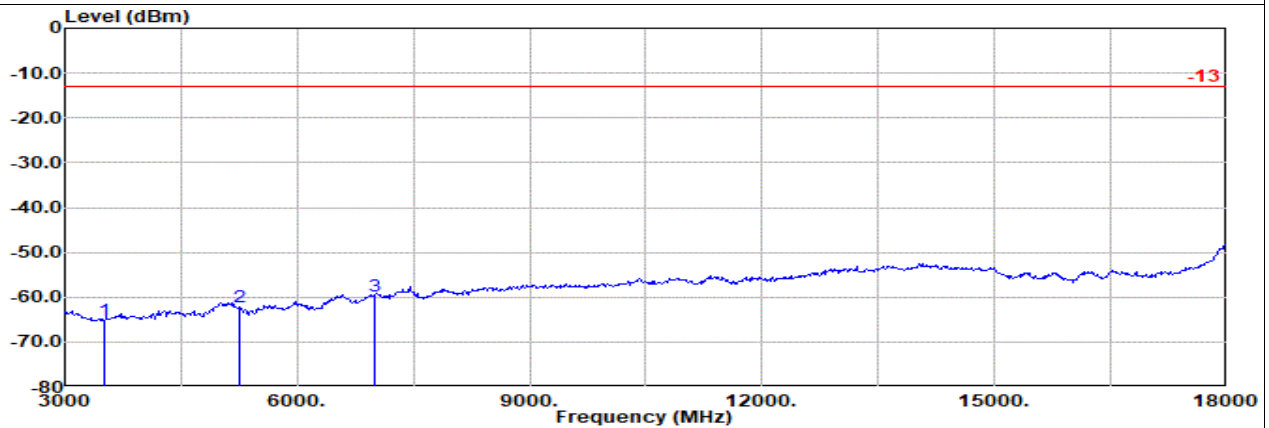


Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Horizontal

: WCDMA Band4 CH1513

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm				dB/m	dB	dB	dB	dB	dB
1	3505.00	-64.85	RMS	29.60	-57.91	0.96	-95.23	57.73	-13.00	-51.85	Horizontal
2	5257.00	-62.39	RMS	33.17	-55.98	0.46	-95.23	55.19	-13.00	-49.39	Horizontal
3	7010.00	-58.93	RMS	36.14	-53.64	0.34	-95.23	53.46	-13.00	-45.93	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-02114-240711 Vertical

: WCDMA Band4 CH1513

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm				dB/m	dB	dB	dB	dB	dB
1	3505.00	-65.08	RMS	29.60	-57.91	0.96	-95.23	57.50	-13.00	-52.08	Vertical
2	5257.00	-62.08	RMS	33.17	-55.98	0.46	-95.23	55.50	-13.00	-49.08	Vertical
3	7010.00	-59.63	RMS	36.14	-53.64	0.34	-95.23	52.76	-13.00	-46.63	Vertical

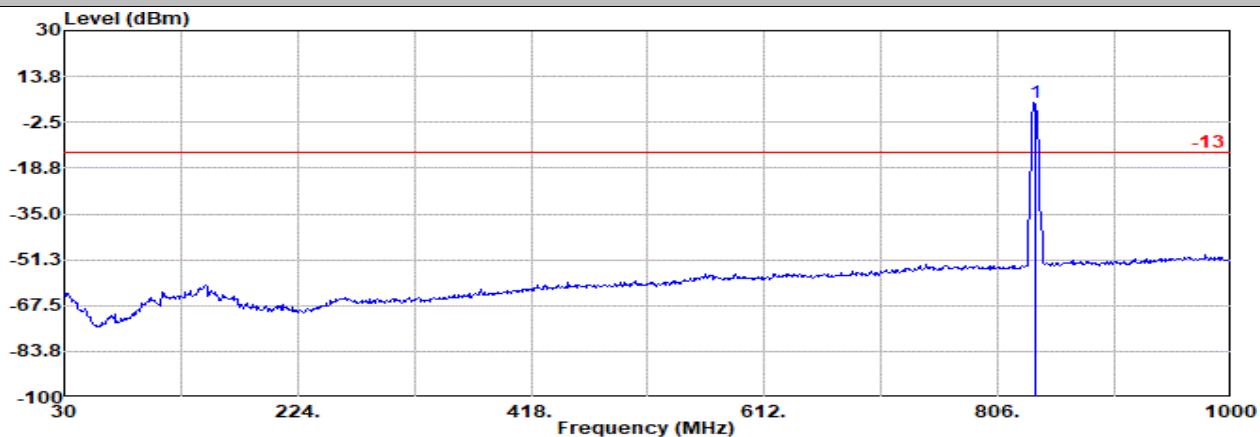


Main Antenna

Part 22H Mode 3

WCDMA B5 Ch4182

M



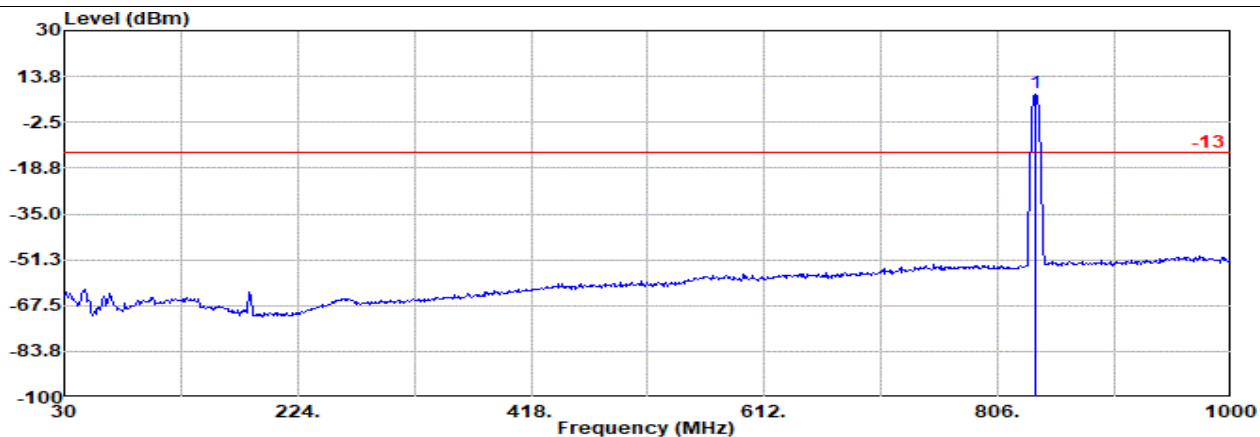
Site : 03CH12-HY

Condition: -13 3m Bilog_37059_20241127 Horizontal

: WCDMA Band 5 Ch4182

: #1 is fundamental signal which can be ignored.

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1		g			
	MHz	dBm		dB/m	dB	dB	dBuV	dBm	dB	
1	836.40	4.46	RMS	28.87	3.99	0.00	-95.23	66.83	-13.00	17.46 Horizontal



Site : 03CH12-HY

Condition: -13 3m Bilog_37059_20241127 Vertical

: WCDMA Band 5 Ch4182

: #1 is fundamental signal which can be ignored.

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1		g			
	MHz	dBm		dB/m	dB	dB	dBuV	dBm	dB	
1	836.40	7.86	RMS	28.87	3.99	0.00	-95.23	70.23	-13.00	20.86 Vertical

Remark: #1 is fundamental signal which can be ignored.