

TENDER DATA

Project title:	<i>Appointment of VHF FM Transmitter Manufacturer/s (OEM/s) or Supplier/s and/or a FM Re-Broadcast Receiver Manufacturer (OEM) or a Supplier, on a Standing Supply contract to supply FM Transmitters and/or FM Re-Broadcast Receivers for a period of 3 years.</i>
Bid no:	SENT/022/2021-22

Indicate in the table below the OEM/s (product/s) your company will be representing.

Product	Manufacturer
VHF FM Transmitters	
FM Re-Broadcast Receivers	

1. Background

Sentech is a state-owned company and is the largest broadcasting signal distributor in South Africa. Sentech is a licensed Electronic Communications Network Service provider in South Africa. It currently operates many telecommunication networks for Satellite, Television, Radio, Internet and more. As such, Sentech is a global enabler of broadcasting and digital content delivery.

SENTECH's intention with this tender is to appoint **Supplier/s (OEM's)** to supply and support Broadcasting VHF FM Radio transmitters and/or Re-Broadcast Receivers. SENTECH will appoint supplier/s through this open tender process to supply the equipment for a period of three (3) years from date of appointment. The successful supplier/s will receive orders to supply the Equipment as and when required. The required equipment is described in the Scope of Work of the Supply Contract document.

2. Submission of bids and closing

This Bid closes at the stipulated date and time as stated in SBD 1 Notice and Invitation to Bid. Bids must be submitted by hand to the Bid Administrator at SENTECH, Octave Road, Radiokop Ext 3, Honeydew, Johannesburg.

Bidders that choose to submit their bid documents before the closing date and time may do so during working hours only (08:30-15:30).

It is the Bidder's responsibility to ensure that their bid submissions reach the Bid Administrator before the bid closing time as no late submissions will be accepted.

Telegraphic, telephonic, telex, facsimile, e-mail and late Bids will not be accepted. Proposals may be opened in public. Bidders will be advised of the outcome by letter, facsimile or e-mail.

This is a two-envelope system for Bid Evaluation. Bidders must submit their proposal and all supporting documentation in a sealed envelope, clearly marked as follows:

Envelope One "Original Technical Proposal" and one "Copy of Technical Proposal" together with a soft copy in PDF format of an electronic medium e.g., USB etc. The soft copy will consist of a single PDF document containing the complete response. The envelope must contain all information and documents relating to the Bid. (Refer to list of returnable documents).

No Financial Information must be included in Envelope 1.

Envelope Two "Original Financial Proposal" (Contract Date and Pricing schedule/schedule of rates as applicable) together with 1 copy of "Financial Proposal" together with a soft copy in PDF format of an electronic medium e.g., Compact Disk (CD), USB etc. The soft copy will consist of a single PDF document containing the complete Financial Proposal.

Bidders are required to place the sealed **Envelope 1** together **with** the sealed **Envelope 2** into one sealed envelope or container. The sealed envelope or container must be marked with the following information:

- **For Attention**
- **HEAD OF SUPPLY CHAIN MANAGEMENT**
- **BID REFERENCE NO: SENT/022/2021-22**
- **TECHNICAL AND FINANCIAL PROPOSALS**
- **INSERT CLOSING DATE AND TIME**
- **BIDDER'S NAME AND ADDRESS**

Bidders that combine their Technical Proposal with the Financial Proposal (or any financial information) will be automatically disqualified and not be evaluated further.

The financial proposal will only be opened and evaluated should the technical proposal be found to be responsive, being that the technical proposal has met the minimum technical evaluation criteria that are set out in the Bid Documents.

The Bidders shall insert a table of contents and bind (ring bind or similar method) the proposal documents and verify the page numbers, as Sentech will not accept any liability with regard to any disputes arising from pages that are missing or duplicated in the aforementioned documents.

Bidders are required to complete and sign all the returnable documentation (refer to list of returnable documents) and initial all pages, drawings and brochures which are included in the reply as Sentech will not accept any liability with regard to any disputes arising from pages that are missing or duplicated in the aforementioned documents.

Late submissions will not be considered.

3. Sign and initial

Bidders are required to complete and sign the Bid Forms where required and initial the bottom of all pages, drawings and brochures which are included in the submission as Sentech will not accept any liability with regard to any disputes arising from pages that are missing or duplicated in the aforementioned documents.

Only original signatures will be accepted.

4. Completion of bid documents

Bidders must ensure that they complete all sections of the Bid Documents as per the requirements in the Bid.

Bidders must use only the Bid documents provided by Sentech. Photocopying of the Bid document is permitted however Bidders must not retype or redraft the Bid documents.

5. Costs of preparing the bid documents

Bidders shall bare all costs associated with the preparation and submission of the proposals. Sentech shall under no circumstances be held responsible or liable for any costs incurred during the bidding process.

6. Administrative Responsiveness Criteria

Bidders are required to ensure that they meet all the Administrative Responsiveness Criteria.

7. BBBEE Codes at Sentech

Sentech complies with the codes of good practice as prescribed by the DTI, to advance Broad Based Black Economic Empowerment.

8. Pre-qualification criteria

With the objective of advancing designated groups, the Bidding condition applicable to this Bid is level 4 or below B-BBEE as contemplated in PPPFA regulations, 2017 sub regulation 4(1). A Bidder must provide documentary evidence to support their compliance with this prequalification criteria. A Bidder that fails to meet any pre-qualifying criteria stipulated in this Bid document is an unacceptable Bid.

9. Subcontracting as a condition of Bid

Since this is a Tender for the supply of goods (FM Transmitters & Re-Broadcast Receivers), there will be no subcontracting required, as goods will be supplied by International Bidders as complete units.

10. Transformation Plan

A transformation plan is a record of activities an entity intends to undertake to improve its BBBEE Level through Ownership, Management and Control; Skills Development; Enterprise and Supplier Development and Socio-Economic Development.

Sentech reserves the right to request a BBBEE transformation plan with clearly defined timelines and milestones if the recommended Bidder does not meet Sentech's transformation goals. These milestones must be achieved over the term of the contract. This transformation plan must be submitted within 10 working days from the written request, failing which Sentech reserves the right to withdraw its appointment of the preferred recommended Bidder.

11. Local production and content

In the case of designated sectors, where in the award of Bids, local production and content is of critical importance, such Bids will contain a specific bidding condition that only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

Does this requirement fall under any designated sector as prescribed by the DTI?	Yes	No NO
If yes, specify the sector		N/A
Specify minimum threshold applicable		N/A

*Bidders must fill in the SBD6.2 for Local Content and Production

12. Evaluation criteria

The evaluation criteria are stipulated in 18 (FM Transmitters) & 19 (FM Receivers) below. It is the Bidder's responsibility to ensure that it has responded to the evaluation criteria. Failure to meet the evaluation criteria will result in the Bidder not being evaluated further. Bidders must ensure that they have included all supporting documentation required to support their response to the Bid.

13. Briefing session

Should there be a compulsory briefing session for this Bid, Bidders must ensure that they attend the briefing session and sign the attendance register, as non-attendance or failure to sign the attendance register will automatically disqualify a Bidder from submitting a proposal for this Bid.

All questions raised by Bidders post the briefing session will be consolidated and shared with all Bidders at least seven (7) calendar days prior to closing.

14. Clarification

Enquiries related to Bid documents may be addressed to the Bid Administrator and Supply Chain Official as stated in SBD 1 Notice and Invitation to Bid.

15. Bid evaluation method

This Bid will be evaluated as described in the table below.

<p>Two envelope system will be followed for Technical and Price offer</p>	<p>Envelope 1 (Stage1, 2 & 3)</p> <ol style="list-style-type: none"> 1. Stage 1 – Administrative Responsiveness Evaluation All the Technical Proposals will be evaluated against the Administrative responsiveness requirements as set out in the list of returnable documents. 2. Stage 2 –Technical Evaluation Only the Bidders that complied in full of ALL the Mandatory Criteria will be scored against the functional evaluation criteria set out in Section 18.2 below. Tenderers that score 90 points (FM Transmitters) or more out of the possible 110 points, and 110 points (FM Receivers) or more out of the possible 125 points will be evaluated further. Tenderers who fail to score the minimum required points or fail to present proof and reference to the criteria will not be evaluated further. 3. Stage 3 - Risk Assessment All the proposals that are fully compliant to the Mandatory Technical Criteria and score the minimum required score in the Functional evaluation must undergo a Risk Assessment (Described in 18.3 and 19.3 respectively). Qualifying Bidders will be evaluated on Price and Preference (Envelope 2) <p>Envelope 2 (Stage4)</p> <ol style="list-style-type: none"> 4. Stage 4 – Price and Preference Financial Proposals for Qualifying Bidders will be opened and evaluated. Bidder's financial offers and BEE certificates will be ranked according to price and preference points from the highest number of points to the lowest.
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16. Administrative Responsiveness Requirements

To be administratively responsive, Bidders must ensure that they meet all the below mentioned criteria. Bidders that do not meet all the below mentioned criteria may not qualify to be awarded the Bid. Sentech reserves its rights in respect of the below criteria.

- Complete and return all documentation stipulated in the LIST OF RETURNABLE DOCUMENTS.
- All correspondence must be in English.
- Bidders must fill in all sections of this document (where applicable).
- **BLACK INK** must be used when completing the Bid documents.
- Bidders must use only the Bid documents provided by Sentech. Photocopying of the Bid document is permitted however Bidders must not retype or redraft the Bid documents.
- All corrections must be initialled. The use of corrective fluid is strictly prohibited.
- Bidders are required to fill in and sign the Bid Forms and initial all pages, drawings and brochures which are included in the reply as Sentech will not accept any liability with regard to any disputes arising from pages that are missing or duplicated in the aforementioned documents.
- Bidders must complete an attendance register at each compulsory site meeting attended.
- Appointment of a Bidder will be subject to signing, declaration, and submission of SBD 1, 3.1, 3.2, 3.3, 4, 5, 6,1, 6.2 8, and 9 depending on applicability.
- Complete and sign the Contract Data.
- Should this be a 2 envelope or 2 stage system, Bidders **MUST** separate the technical proposal from their financial proposal. The technical and financial proposals must be placed in two separate sealed envelopes.

16.1. Automatic disqualification

Sentech reserves the right to automatically disqualify Bidders from being awarded this Bid. The following will lead to automatic disqualification:

- Failure to submit a financial proposal, if required.
- The Bidder is or has been involved in any act of corruption or fraud or bribery or collusion or attempt to influence any employee of Sentech to award this Bid or any other Bid to it.

17. Technical Responsiveness Requirements

The Technical Evaluation will encompass evaluation of:

- Mandatory Criteria
- Functional Criteria
- Risk Assessment

FM Transmitters: To be compliant Bidders must comply with the mandatory technical criteria in **18.1**, table 1 and score **90 points** or higher out of a possible **110 points** of the points available below in table 2 functional criteria.

FM Receivers: To be compliant Bidders must comply with the mandatory technical criteria in **19.1**, table 3 and score **110 points** or higher out of a possible **125 points** of the points available below in table 4 functional criteria.

18. Technical Evaluation Criteria: FM Transmitters

18.1. Mandatory Technical Criteria

The following criteria is mandatory to ALL BIDDERS:

The Mandatory Technical Criteria will be evaluated according to the Technical Specification. A full description of the Technical Specification can be found in Document B of the Contract data, Part C3.

Table 1 – FM Transmitters - Mandatory Technical Criteria	Attach evidence and provide reference page number in your proposal
VHF FM Radio Transmitters	Compliant (Indicate Yes or No)
3.1 Stereo transmission system	
3.2 Transmitter configuration	
3.3 Protection methods	
3.4 System impedances	
3.5 Band pass filter	
3.6 Microprocessor control systems	
4.1 Standard requirements	
4.2 Stereo encoder	
4.3 Baseband inputs	
4.4 Baseband auxiliary inputs/outputs	
4.5 Adjustable input levels	
4.6 Local oscillators	
4.7 Harmonics	
4.8 Digital exciter technologies	
5.1 Type of modulation	
5.2 Radio frequency output power, voltages and impedance	
6.1 General requirements	
6.2 Baseband performance	
6.3 Spurious emissions	
7.1 Safety of personnel	
7.2 DC and AC over-current and over-voltage protection	
7.3 Reflected power protection	
7.4 Protection of solid-state devices	
7.5 Electrical transient protection	
7.6 Protection against loss of mains power phase(s)	
7.7 Precautions against fire	
7.8 Electrical connections to an external interlock system	
8.1 Size	
8.2 Appearance	
8.3 Layout	
9.1 Voltage-Current	
9.2 RF Power	
9.3 Transistor current	
9.4 Exciter modulation/deviation metering	
10.1 Semiconductors	
10.2 Resistors and capacitors	
10.3 Continuity in supply of components	
10.4 Connector systems	

Table 1 – FM Transmitters - Mandatory Technical Criteria	Attach evidence and provide reference page number in your proposal
11.1 Monitoring points	
11.2 Visible Indication	
11.3 Remote control and remote monitoring facilities	
12.1 Type and stability	
12.2 Mains-borne surges and transients	
12.3 Load kVA and power factor rating	
13.1 Climatic conditions	
13.2 Cooling systems	
13.3 Ducting	
13.4 Blower capacity	
13.5 Heat balance	
13.6 Acoustic noise	
14.1 Language	
14.2 Content	
14.3 Test Reports	
15.1 Delivery Schedule	
15.2 Packaging	

NOTE: Bidders that do not comply with all the above criteria will not be evaluated further.

18.2. Functional Criteria: FM Transmitters

Since functionality is predominantly a measure of how to operate and maintain the equipment throughout the lifespan of the equipment, Sentech needs to choose the most suitable for our environment and operational requirement.

Awarding of points:

- Sentech will award **90%** of the allocated points to bidders that prove to supply the minimum requirement.
- Bidders who only deliver partially to the criteria, will only receive **50%** of allocated points.
- Bidders who fail to deliver the minimum requirement will be awarded **0%** of allocated points.
- Innovative methods will be awarded **100%** of allocated points.

Table 2 - FM Transmitters - Functionality Criteria	Weighting factor
<p>Monitoring and Control. All parameters necessary for local and remote operation of the transmitter shall be displayed and accessible in an effective and user-friendly manner. This shall include operation via Web Browser and SNMP (v2 or higher). This shall include all MIB files with OID's necessary to monitor and control the transmitter.</p>	20 points
<p>Inputs and Switching. Each system offered shall have at least one analogue (L and R), two multiplex and one digital AES EBU input with manual and selectable automatic priority switching. At least one input shall be available for auxiliary inputs such as RDS.</p>	10 points
<p>Energy Efficiency. The equipment shall make use of solid-state amplification technology and have an energy consumption efficiency of at least 60%.</p>	20 points
<p>Cooling. Effective and energy-efficient air or liquid cooling technology shall be offered. Bidders shall provide heat balance details for each system offered.</p>	15 points
<p>Handbooks and Documentation. All parts of the offered systems shall be fully described in English in the documentation supplied with every system. This shall allow for easy operation as well as troubleshooting. Detailed circuit diagrams and component layouts of all repairable modules shall be supplied.</p>	10 points
<p>Service and Support. Bidders shall provide a detailed plan of how they will establish local support (in South Africa), their planned spares-holding and repair capability within and outside warranty. Within warranty a turn-around time (repair or replace) of at most 72 hours after fault notification shall be adhered to.</p>	20 points
<p>Warranty. A warranty of at least 36 months shall be offered.</p>	15 points
Total	110 Points

Table 2: Functional Criteria

Total minimum qualifying functional score is **90** points. A Bidder must score more than 0 points in each criterion to be evaluated further.

Functionality Criteria - Scoring Matrix	100%	90%	50%	0%
Monitoring and Control	20	18	10	0
Inputs and Switching	10	9	5	0
Energy Efficiency	20	18	10	0
Cooling	15	13,5	7,5	0
Handbooks and Documentation	10	9	5	0
Service and Support	20	18	10	0
Warranty	15	13,5	7,5	0

18.3. Risk Assessment

For Sentech to complete the Technical evaluation, Sentech will undergo factory visits to the shortlisted Bidders (OEM's) that qualify during the Mandatory Technical Criteria and score 90 points in the Functional Criteria. The risk assessment will be in the form of a factory visit based on the following criteria:

- Any aspects that emanate from the bidders individual responses during evaluation
- Any information received from past references
- Testing of offered equipment against specifications as set out in Contract Data.
- Verification of manufacturing plant, including design, manufacturing of transmitter components, modules, and other ancillary items as needed in the transmitters.
- Quality control of manufactured units as described above
- Proof/discussion of third-party involvement in manufacturing of specialised equipment, modules, etc. deemed necessary in the working of the transmitter, including their contingency plans.
- Discussions with OEM to indicate their Spares holding capabilities and their support
- Inspection of factory facilities to prove their capability to handle high quantity orders

For shortlisted bidders, there are two options:

18.3.1. Factory visit: - For the Bidders account (non-refundable)

18.3.2. Bidder to send the following equipment to Sentech for evaluation:

- 1x low power transmitter,
- 1x medium power transmitter
- 1x high power transmitter.

Equipment must include a full set of documentation and installation requirements and instructions. Important detail describing configurations should be included for Sentech to objectively assess and test the equipment.

The costs of Shipping from the Factory, transport to and from Sentech stores will be for the account of the OEM. Such equipment must be made available to Sentech for a period of three months.

If specified equipment does not cover all the configurations requested by Sentech, the OEM will have to include all configurations requested by Sentech, for example, 1+1 configuration or n+1 configuration.

Note: - After the factory visit or evaluation of equipment, a comprehensive report will be produced, considering all the risks found during the testing of the equipment and inspection of the facilities. Sentech may disqualify Bidders based on the outcome of the report on the risk assessment.

Current situation with Covid-19

Covid-19 imposed many challenges upon us, procedures changed, as South Africans are limited visiting most countries. OEM's will have to assist the Sentech delegation in obtaining Visas.

19. Technical Evaluation Criteria: FM Receivers

19.1. Mandatory Technical Criteria

The following criteria is mandatory to ALL BIDDERS:

The Mandatory Technical Criteria will be evaluated according to the Technical Specification. A full description of the Technical Specification can be found in Document C of the Contract data, Part C3.

Table 3 - FM Receivers - Mandatory Technical Criteria	Attach evidence and provide reference page number in your proposal
FM RBR Receivers	Compliant (Indicate Yes or No)
1. Tuning Range: User selectable, 87.5 MHz to 107.9MHz in $\leq 100\text{kHz}$ steps	
2. Failover Audio Backup from memory card	
3. MPX Outputs: Two low impedance, independently adjustable outputs (BNC)	
4. Digital Line Output: AES3 (XLR) with adjustable level	
5. Analogue Line Outputs: Two active balanced (XLR) with adjustable levels	
6. Network Port: RJ45 (TCP/IP)	
7. Headphone Socket: 6.35mm (stereo) on the front	
8. AC supply input voltage: $230\text{ V} \pm 10\%$, single phase (IEC connector)	
9. AC supply frequency: 50 Hz , $\pm 5\%$	
10. Dimensions: 19" (483mm) wide by 1U high to fit in standard equipment rack	
11. Operating Temperature: $0\text{ }^\circ\text{C}$ to $\geq 45\text{ }^\circ\text{C}$	
12. Operating Altitude: Up to 3000m above sea level	
13. Relative Humidity: 0% to 90% non-condensing	
14. Selectable IF Bandwidth functionality	
15. De-Emphasis (with enable/disable option) on line outputs: $50\mu\text{s}$	
16. MPX diversity switching	
17. Remote control WEB Interface for monitoring- and configuration purposes	
18. Front panel Monitoring and Control	
19. General Purpose Input/Outputs (GPIO) for telemetry monitoring and control	
20. Audio Muting with Squelch threshold adjustable down to $\leq 80\mu\text{V}$	

NOTE: Bidders that do not comply with all the above criteria will not be evaluated further.

19.2. Functional Criteria: FM Receivers

Since functionality is predominantly a measure of how to operate and maintain the equipment throughout the lifespan of the equipment, Sentech needs to choose the most suitable for its environment and operational requirement.

Awarding of points:

- Sentech will award **90%** of the allocated points to bidders that prove to supply the minimum requirement.
- Bidders who only deliver partially to the criteria, will only receive **50%** of allocated points.
- Bidders who fail to deliver the minimum requirement will be awarded **0%** of allocated points.
- Innovative methods will be awarded **100%** of allocated points.

Table 4 - FM Receivers - Functionality Criteria	Weighting factor
Dual FM Tuners: Preset frequencies that can be set different and independently to which the receiver will automatically revert back to after a power failure.	10
Failover Audio Backup from memory card	5
Frequency Response for composite MPX output: $\leq \pm 0.5\text{dB}$, 100Hz to 57kHz	10
Frequency Response for Audio Line Outputs (Analogue and Digital): $\leq \pm 0.5\text{dB}$, 40Hz to 15kHz measured at an audio level of 0dBu	10
Selectable IF Bandwidths: From 56kHz to 311kHz	10
Stereo Crosstalk from 40Hz to 15kHz referenced at +6dBu: $\geq 45\text{dB}$ on analogue, digital and MPX outputs (RMS detected, De-emphasis switched OFF)	10
Unweighted RMS detected Stereo Signal to Noise Ratio (1mV RF Input, an audio level of +6dBu as reference and de-emphasis switched ON):	
<ul style="list-style-type: none"> • $\geq 60\text{dB}$ at 1mV RF Input signal for stereo analogue audio line outputs • $\geq 75\text{dB}$ at 1mV RF Input signal for AES digital audio line outputs 	10 10
ITU-R 468 Weighted Stereo Signal to Noise Ratio (1mV RF Input, an audio level of +10.6dBu as reference and de-emphasis switched ON):	
<ul style="list-style-type: none"> • $\geq 60\text{dB}$ at 1mV RF Input signal for stereo analogue audio line outputs • $\geq 75\text{dB}$ at 1mV RF Input signal for AES digital audio line outputs 	10 10
Total Harmonic Distortion (Stereo) at ± 75 kHz deviation with De-emphasis switched OFF: $\leq 0.5\%$ (-46dB) THD on analogue, digital and MPX outputs (measured with 25kHz audio filter)	10
Phase difference between stereo audio outputs: $\leq 2^\circ$ from 40Hz to 15kHz	5
Stereo Regeneration	5
RDS encoder for RDS re-insertion	5
IP based web streaming	5
Total	125 Points

Table 4: Functional Criteria

Total minimum qualifying functional score is 110 points. A Bidder must score more than 0 points in each criterion to be evaluated further.

Functionality Criteria - Scoring Matrix	100%	90%	50%	0%
Dual FM Tuners	10	9	5	0
Failover Audio Backup	5	4,5	2,5	0
Frequency Response for composite MPX output	10	9	5	0
Frequency Response for Audio Line Outputs	10	9	5	0
Selectable IF Bandwidths	10	9	5	0
Stereo Crosstalk from 40Hz to 15kHz	10	9	5	0
Unweighted RMS:...- stereo analogue audio line outputs	10	9	5	0
Unweighted RMS:...- AES digital audio line outputs	10	9	5	0
ITU-R 468 Weighted Stereo:....- stereo analogue audio line outputs	10	9	5	0
ITU-R 468 Weighted Stereo:....- AES digital audio line outputs	10	9	5	0
Total Harmonic Distortion	10	9	5	0
Phase difference between stereo audio outputs	5	4,5	2,5	0
Stereo Regeneration	5	4,5	2,5	0
RDS encoder for RDS re-insertion	5	4,5	2,5	0
IP based web streaming	5	4,5	2,5	0

19.3. Risk Assessment

For Sentech to complete the Technical evaluation, Bidders (OEM's) that qualify during the Mandatory Technical Criteria and score 110 points in the Functional Criteria, will have to make their product free of charge available to Sentech for evaluation. The costs involved to ship the equipment to and from Sentech offices, will be for the OEM's account. The evaluation will be based on the following criteria:

- Any aspects that emanate from the bidders individual responses during evaluation
- Testing of offered equipment against specifications as set out in Tender Data and Contract Data.

After the evaluation of the product, depending on the outcome of the testing of the unit, Sentech may disqualify Bidders based on the risk assessment.

20. Evaluation of Price and Preference

This Bid will be evaluated on a points system based on weighted average score for Price and Preference as per Preferential Procurement Framework Act of 2000 (Act 5 of 2000).

21. Preference Point allocation – 90/10

Price / Preference	Weighting percentage
Preference:	10%
Price:	90 %
Total must equal:	100%

90/10-point scoring system			
Preference: 10 Points		Price: 90 points	
Other: B-BBEE Status Level Contributor			
B-BBEE Level	Number of Points	Price:	100 % (of 90)
1	10	Quality / Functionality:	0 % (of 90)
2	9		
3	7		
4	6		
5	4		
6	3		

